

VOLUME II

DOCUMENTARY ANNEXES
TO THE COUNTER-MEMORIAL OF THE
LIBYAN ARAB JAMAHIRIYA

Annex 1

TUNISIAN PRIME MINISTER'S DECLARATION OF 29 DECEMBER 1980

*[Arabic text not reproduced]**(Translation)**

Tunis 29 12 80

Tunisia News Agency

Mzali and the Tunisian Libyan Relations

During the speech made this evening at the end of the Tunisian Assembly's discussions, Mr. Mzali declared,

"We are still very keen on maintaining our friendly, confidential and co-operative relationship with our brotherly Libyan Jamahiriya, and in putting aside any misunderstandings which have occurred in the past. A faithful and conscientious politician is one who looks to his future rather than dwelling on his past. As advocates of friendship, brotherhood and co-operation between us and Libya, we hope that at the end of 1980 we shall terminate all our misunderstandings and that sufficient effort will be made for dialogue and reproachment based on mutual respect of each other and each other's sovereignty. Any dialogue based on such respect will certainly contribute to a better understanding between one another."

The Prime Minister, recalling the proposals made by him last summer in which he sought to improve Libyan/Tunisian relations, said,

"With the will of God, we shall work together in order to end the continental shelf problem for the sake of the two brotherly peoples who have a common ethnic origin and a common civilization, and that this will be a first step towards unifying our capabilities.

While we have no objection to allowing the legal issues to take their course, we should think of establishing a joint company which would be

* As the spellings of Arabic place names are phonetic, there are certain variations between the place names used in the text of the *Counter-Memorial*, the *Technical Annexes* contained in Vol. III and those used in the translations appearing in this Vol. II. In this respect, Annex I-28 to the *Libyan Memorial* enumerates some of the principal variations.

charged with exploiting the disputed area equally. If we achieve this goal, we would have succeeded in gaining the confidence of our youth in Tunisia, in the Jamahiriya and in the future. We should not forget that any possibilities we might pursue with our Arab countries will be of great benefit to all Arab people, and if we really do believe in the Arab welfare, it would be a pity to waste years merely discussing the different aspects of co-operation in all fields contained in the agreements signed between the two countries in 1972 and 1973. There are 14 such agreements which must be injected with new life.

If we could channel the water back on its course and establish positive and bilateral co-operation, and if we could resolve the continental shelf problem, we would then be in the middle of the course which leads us to unity. However, if this is just a dream, it would remain the dream of the Tunisian and Libyan youths, until God helps us to resolve it and until the wisdom and the perceptive political view realizes this dream."

Mr. Mzali also said,

"We are encouraging invitations for informal visits between us. So I have addressed to the Libyan Foreign Minister an official invitation to visit Tunisia, and I shall have the honour to make an official visit to Libya in response to the Libyan Government's own invitation."

Annex 2

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MEDITERRANEAN PILOT : 6TH EDITION. HYDROGRAPHER OF THE NAVY, TAUNTON, ENGLAND, 1976, VOL. V

PAGES 174, 175 AND 360 OF

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CHAPTER 2

COAST OF LIBYA—RÂS AJDIR TO RÂS EL MRÛSA

Chart 176

2.1 From Râs Ajdir ($33^{\circ} 10' N, 11^{\circ} 34' E$) to Bengâsi, 435 miles ESE, the coast is generally low and sandy, with rocky reefs extending some distance seaward. Between Bengâsi and Derna ($32^{\circ} 46' N, 22^{\circ} 38' E$) the coast is high; farther E it becomes generally lower, with sandhills.

The principal harbours are Tarâbulus (2.18), formerly Tripoli. Bengâsi (2.112) and Mersa Tôbrach (2.163); there are oil terminals at Zawia (2.15), Es-Sider (2.73), Râs Lanuf (2.77), Marsa el-Brâga (2.87) and Ez Zueitina (2.95).

2.2 Tunny fishery. Tunny nets are usually laid out at certain seasons every year from numerous points on the coast of Libya, and may extend up to 5 miles offshore, see (1.2).

2.3 Caution. A vessel anchoring in the roadsteads of Libya during the winter season is recommended to leave the anchorage used by day for working cargo, and to anchor farther out for the night as at that time of year there are strong winds, and occasionally gales, from NW.

The coast W of Râs Ajdir is described in *Mediterranean Pilot, Vol. I.*

RÂS AJDIR TO RÂS ZARRÛGH

Charts 3327, 3353

2.4 Between Râs Ajdir (Ashdir) and Râs Zarrûgh (Zorug), 190 miles ESE, Tarâbulus (2.18) is the only harbour capable of accommodating sea-going vessels of any size. Small vessels may obtain anchorage with some degree of shelter at Zuara ($32^{\circ} 56' N, 12^{\circ} 07' E$), Marsa Sabratha, 17 miles SE, and Horns (Khoms) ($32^{\circ} 39' N, 14^{\circ} 16' E$).

RÂS AJDIR TO RÂS EL-AHMAR

2.5 A submarine exercise area exists seaward of the coast between Zuara ($32^{\circ} 56' N, 12^{\circ} 06' E$) and Tarâbulus, 55 miles E, in the area indicated on the charts.

Râs Ajdir to Zuara

2.6 Between Râs Ajdir ($33^{\circ} 10' N, 11^{\circ} 34' E$) and Zuara 30 miles ESE, the coast is generally very low and sandy; for the first 16 miles it is bordered by lagoons, see views 1 and 2.

Râs Ajdir (Ashdir), low and inconspicuous, is marked by a beacon (masonry pyramid; white globe topmark) 10 m high, situated near a clump of bushes and difficult at times to distinguish; three houses nearby show up well from seaward. El Kousha, 1½ miles W of Râs Ajdir, is a hummock 13 m (42 ft) high.

The boundary between Tunis and Libya runs S from Râs Ajdir.

A sheltered anchorage, suitable for vessels with local knowledge drawing less than 3 m, is situated in a small deep 8 cables N of Râs Ajdir; the approach, with the beacon on Râs Ajdir bearing 191° , lies between two beacons (red iron framework; black topmarks) standing 6 cables apart, 3 miles N of Râs Ajdir. The tidal streams in this vicinity set NW and NE on the rising and falling tides, respectively.

2.7 Râs el-Taiga ($33^{\circ} 07' N, 11^{\circ} 41' E$) is the NW extremity of Penisola el-Mâchbez (Jazira el Makhabez), a narrow peninsula 8½ miles long. Farwah Light-structure, a red tower on a black and white building, stands 2 miles ESE of Râs el-Taiga. A light-buoy (conical; light flashing white every 3 seconds) is moored 7 cables N of Râs el-Taiga.

25 Marsat el-Briga is entered between Râs el-Taiga and a steep yellowish bluff, about 7 m (21 ft) high, on the mainland 4½ miles WSW, see view 1, and extends E between Penisola el-Mâchbez and the mainland.

30 The narrow entrance channel close W of Râs el-Taiga carries depths of about 1.5 m (5 ft), with shoals on either side over which there is 0.3 to 0.6 m (1 to 2 ft) of water. The channel is difficult to distinguish at a distance, but in clear weather it is easy to follow between the lighter coloured shoals bordering it. Bu Chemmâac (Kemmasak), on the mainland 5 miles within Maiset el-Briga, is a village with a fort, a grey barrack building with a flagstaff, now used as a frontier police post. There is a small mole suitable for fishing craft abrest the village; on the opposite side of the bay a pier extends S from Penisola el-Mâchbez. The anchorage near the head of Marsat el-Briga has depths of 0.3 to 2.1 m (1 to 7 ft) and is suitable only for small craft with local knowledge.

35 With W winds a strong current sets into the entrance channel and raises the water level in Marsat el-Briga; with E winds the reverse is the case.

40 2.8 Secca Ehdouz (Ehduz Shoal), 4½ miles NNE of Râs el-Taiga, is rocky, with a least depth of 2.7 m (9 ft) over it; a shoal with a depth of 15.8 m (53 ft) over it lies 17 miles farther NNE.

45 In this area the water is very clear in the vicinity of shoals, and the bottom can be seen, in places, at a depth of over 18 m (60 ft). Caution is, however, necessary when approaching the coast and frequent soundings should be taken.

50 2.9 Sidi Said ($33^{\circ} 04' N, 11^{\circ} 50' E$), situated near the SE end of Penisola el-Mâchbez, is a hill 21 m (70 ft) high, on the summit of which are two marabouts, small buildings standing close together and forming a very prominent mark when the sun shines on their white domes. A circular column in ruins stands on the summit of a nearby hill.

55 Sidi Ali, 3½ miles ESE of Sidi Said, is a hill 14 m (47 ft) high, with a square tower close to the ruins of a marabout on its summit, see view 2.

60 Sidi Abd er Rahman, 7 miles SSE of Sidi Said has a marabout on its summit; Zelten, a village, lies close SE.

65 70

Houmt Souk ($33^{\circ} 53' N, 10^{\circ} 52' E$) lies $5\frac{1}{2}$ miles E of Bordj Djellidj, and Bordj el K'bir stands on the coast close N of Houmt Souk.

A light-buoy (black and white stripes conical light occulting white every 6 seconds; radar reflector; St. Andrew's cross topmark) is moored $4\frac{1}{2}$ miles NNW of Bordj el K'bir.

Anchorage. The roadstead lies 4 miles N of Houmt Souk off the edge of the bank on the N side of the island. Vessels anchor according to draught near the light-buoy, and the holding ground is excellent.

Depths of less than 11 m (36 ft) extend about 3 miles seaward of this light-buoy.

Ras Rmel Buoy (black and white bands conical; two cones, points up, topmark) is moored on the edge of a bank $4\frac{1}{2}$ miles NE of Bordj el K'bir.

A channel, which is only suitable for vessels by day, is entered S of the light-buoy. Local knowledge is required. The channel, 25 m wide, has been dredged to a depth of 1.8 m (6 ft), and leads S then SE across the flats to a small basin in Houmt Souk.

A channel marked by seven pairs of light beacons leads S from a position 3 miles N of Bordj el K'bir, into Houmt Souk.

A light is exhibited from a white metal framework tower 8 m in height, painted with red bands and standing on a yellow base, situated close SW of the basin at Houmt Souk.

There are depths of 2 m (7 ft) in the basin, and coasting vessels call regularly.

For de-ratting at Houmt Souk, see 1.120.

7.92 Tidal streams round Île de Djerba flow parallel with the coasts.

Off Houmt Souk, the flood tidal stream flows W, and the ebb E. A maximum rate of 2 knots is attained, which is sufficient to cause vessels to ride broadside on to the wind, and at times, even stern to it. The tidal streams turn at the times of high and low water.

The water tower at Sidi Smar stands $2\frac{1}{2}$ miles ESE of Bordj el K'bir, and Sidi el Hachchan, with two palm trees close to it, stands on Ras Rmel, $4\frac{1}{2}$ miles ENE of Bordj el K'bir.

Sidi Zekri, $3\frac{1}{2}$ miles SE of Ras Rmel, consists of two marabouts close together, and a conspicuous hotel stands about 1 mile NE of it.

Sidi Bakkour lies 5 miles SE of Ras Rmel, and Sidi Sliman, where there is a cylindrical tower, lies $1\frac{1}{2}$ miles farther SE.

In the interior of the island, there are numerous minarets.

Ras Tourg-en-Ness (Ras Taguermess) ($33^{\circ} 49' N, 11^{\circ} 04' E$) lies 8 miles SE of Ras Rmel, and should be given a berth of at least 2 miles as it is fringed with shoals.

A light is exhibited from a white tower, 49 m in height, painted with red bands, standing on a hill about 6 cables W of Ras Tourg-en-Ness.

7.93 The E coast of Île de Djerba continues S from Ras Tourg-en-Ness for $2\frac{1}{2}$ miles to Sidi Garouz, see below. The point on which Sidi Garouz stands, is fringed with shoals.

An obstruction lies $\frac{1}{2}$ mile NE of Sidi Garouz, and two buoys are moored within $\frac{1}{2}$ mile of Sidi Garouz.

Arhir ($33^{\circ} 45' N, 11^{\circ} 01' E$) lies $2\frac{1}{2}$ miles SW of Sidi Garouz, and there is a small fort at Arhir which is prominent.

A light is exhibited from a masonry structure 6 m in height, standing on the fort at Arhir.

Farther inland are several mosques of which those at Magrezaï, Saïouri and Guemir are visible from seaward.

Anchorage can be obtained off Arhir. It is sheltered

from W and N winds, and the sea raised by E winds is denuded by the seaweed growing there.

An obstruction lies 5 cables ESE of Arhir.

Bordj Kasitî is a prominent square fort standing at the S extremity of a low peninsula 5 miles SSW of Arhir.

The bay enclosed by this peninsula, and a series of low islets S of it, is very shallow.

From Bordj el Kantara, 3 miles W of Bordj Kasitî, a causeway extends SSE to the mainland, and bars what was once the E entry to Bahiret el Bou Grara (7.89).

ÎLE DE DJERBA TO RAS AJDIR

15 Ras Marmour to Ras Ajdir

7.94 Ras Marmour ($33^{\circ} 37' N, 11^{\circ} 03' E$) lies at the N extremity of a chain of hills, faced with cliffs, which backs the coast between it and Zarzis, 8 miles SSE.

This stretch of coast is fringed by rocks and a shoal bank extending about 1 mile offshore.

Detached shoals, with depths of less than 9 m (30 ft) over them, lie within 6 $\frac{1}{2}$ miles of the S part of this stretch of coast.

The village of Zarzis ($33^{\circ} 30' N, 11^{\circ} 07' E$) can be identified by a large rifle butt to the SE, and a marabout NE of it. The Custom house, on the coast 5 cables S of the village, has a lookout, as has also one of the houses in the village.

There is a small fort at Zarzis, and two marabouts, one $\frac{1}{2}$ mile N at Ksar Zaouia and the other 2 miles S of Zarzis at a place called Sidi Bou Tefaha, are visible from seaward.

Zarzis Light is exhibited from a white octagonal tower 14 m in height, with a black top, situated near the Custom house.

A buoy is moored SE of the lighthouse, and two mooring buoys are situated about $3\frac{1}{2}$ miles S of Zarzis.

Anchorage, sheltered from S and W winds, can be obtained off Zarzis; local knowledge is required.

Vessels should anchor ESE of the Custom house, as close inshore as their draught will permit.

Boats can land at a wooden pontoon situated about 3 cables SW of the lighthouse.

The fishing harbour 1 mile S of Zarzis, which is suitable for pleasure craft as well as fishing boats, is quadrangular and faces SE.

The approach channel, leading NW, is marked by light-buoys, and the entrance is about 70 m wide.

A light is exhibited from a black conical tower standing at the E side of the entrance.

A light is exhibited from a red conical tower standing at the W side of the entrance.

The SE part of the harbour is occupied by fishing boats and there is a slip in the NW part.

7.95 The coast from Zarzis as far as Ras Ajdir (7.96), 30 miles SE, is low and backed by extensive lagoons.

The coast is fringed by a bank of sand and weed with depths of less than 20 m (66 ft) over it, extending about 12 miles offshore, and on which lie numerous shoals.

Directions. A vessel navigating along this part of the coast should be guided by the soundings, and should not get into depths of less than 18 m (60 ft).

Ras el Lemsa lies 7 miles S of Zarzis, and on it is a hillock.

Banc de Biban (Banc el Biban), almost awash, extends from the coast between Ras el Lemsa and the entrance to Bahiret el Biban, see below, $1\frac{1}{2}$ miles ESE.

Ras Zira, the NE extremity of Banc de Biban, lies 1 $\frac{1}{2}$ miles ENE of Ras el Lemsa, and about 1 mile within its

70

ately is a white masonry tower (red top; elevation of 5.5 m (18 ft); two red cones, bases together, topmark).

A light-buoy (black and white bands conical; light occulting white every 6 seconds; radar reflector; two cones, points up, topmark) is moored 2½ miles NE of the tower on Ras Zira.

El Biban fort stands on an islet at the entrance to Bahiret el Biban, see below.

Anchorage can be obtained on the E side of Bank de Biban, with the fort at the entrance to Bahiret el Biban bearing 185° distant about 8½ miles, in a depth of 7.5 m (24 ft); or with the fort bearing 235°, distant about 3 miles, in a depth of 5.5 m (18 ft). The holding ground is excellent.

7.96 Bahiret el Biban is entered by a narrow channel between the islet with the fort on it, and the islet next E of

it. There is a bar in the entrance with a depth of 1 m (3 ft) over it.

A cistern stands 2½ miles WNW of the fort, and a hut stands 2 miles ESE of the fort.

Tidal streams in the channel abreast the fort attain a rate of 4 knots at springs.

Between the entrance of this lagoon and Ras Ajdir, 13½ miles ESE, is a chain of coastal hummocks, many of which are surmounted by ruins. The only one that can be identified with certainty is that on Ras el Ketef, which stands on a white cliff, 10½ miles ESE of El Biban fort.

Shoals, with a least depth of 8.5 m (28 ft) over them, lie about 11 miles NNE of Ras el Ketef.

For a description of Ras Ajdir (33° 10' N, 11° 33' E), and the coast farther E, see *Mediterranean Pilot, Vol. V.*

Chart 1162, with plan of Sfax.

The channel is marked on its north-eastern side at its outer end by a conical light-buoy, painted in black and white chequers and exhibiting a green light occulting every five seconds, and thence by No. 1 light-buoy, 5 exhibiting a green fixed light, and Nos. 3, 5, 7 and 9 light-beacons, painted black and white, also exhibiting green fixed lights. On its south-western side it is marked at its outer end by a conical light-buoy, painted red, and exhibiting a red light occulting every six seconds, and thence by No. 2 light-buoy exhibiting a red fixed light and Nos. 4, 6, 8 and 10 light-beacons, 10 painted red, also exhibiting red fixed lights.

Anchorage.—Caution.—Pilotage.—The roadstead off Sfax affords anchorage completely sheltered; when a fresh breeze is blowing, however, it is prudent to veer ample cable.

Vessels usually anchor with the tall minaret in line with the light-15 structure on the quay, bearing 310°.

Vessels should not anchor in the vicinity of the submarine cable, the route of which is indicated on the chart. Several mooring buoys are situated on the route of the cable.

Less water was reported in 1962 about 3½ miles southward of Sfax light-20 structure.

Pilotage (see page 15), is compulsory for all vessels over 100 tons entering the basin. The pilot should be embarked in the roadstead, before entering the dredged channel.

A pilot can be ordered through Sfax Port radio half an hour before the 25 vessel's arrival at the buoys marking the entrance to the dredged channel.

Twelve hours in advance vessels should communicate to the Captain of the Port their expected time of arrival at the entrance together with their draught, their last port of call, their medical state and their cargo (especially if carrying dangerous materials).

30 **Tidal streams.**—In the roadstead off Sfax, the flood tidal stream sets north-eastward, and the ebb south-westward; at springs they may attain a rate of one knot.

The direction of the tidal stream changes shortly before the time of half-tide, and the greatest rate is attained shortly before high and low water.

35 The tidal streams set across the dredged channel, and are appreciable to within about half a mile of the entrance of the basin.

Life-saving.—Life-saving appliances are maintained at Sfax (*Lat.* 34° 44' N., *Long.* 10° 46' E.); see page 13, and "*S.D. 100, The Mariners' Handbook*".

40 **Port facilities.—Signals.**—Signals regulating entry and exit, (see page 10), are shown.

Storm signals are displayed (see page 10), but only when the velocity of the wind is expected to exceed 20 knots.

A British Consular officer resides in Sfax.

45 There is a hospital.

Water is laid on to the quays. A stock of coal is maintained. Four tugs are available. There are numerous cranes up to 60 tons lifting capacity. For De-ratting, see page 17.

Trade.—The principal exports are phosphates, esparto grass, sponges 50 and dates.

Chart 3327.

Coast.—Light.—Within 15 miles south-westward of Sfax and visible from seaward, are Sidi Abid, the lighthouse and hillocks on Ras Tina, Sidi Mohamed Bou Akazine, and, south-westward of the ruined village of

Kerkennah (7.70). The seaward edges of these banks are fringed by shoal banks and marked by light-buoys.

The shallower parts of these banks are intersected by numerous steep-sided channels.

Directions and anchorage. If the weather is too thick to navigate from light-buoy to light-buoy, vessels should keep in depths of more than 18 m (59 ft).

At all times, when in the vicinity of the banks, sounding should be continuous.

Kerkennah banks, in common with all similar shoals off the coast of Tunisia, possess one remarkable characteristic: the swell from the offing diminishes rapidly in depths less than 15 m (49 ft), so that in nearly all weathers, a vessel may anchor without danger from swell in depths of 7 m (23 ft) and less. This is due to the bottom being covered with a thick growth of seaweed and its slope being very gentle.

The holding ground in general is good, but it is advisable to veer plenty of cable, for in some parts the bottom consists of soft sandy mud, and in others the weed is so thick that the anchor can obtain little hold, so that in either case, vessels are liable to drag.

Occasionally depressions which form S of the Atlas mountains move across the Gulf of Gabès (7.79), usually heading N.E. Though relatively small these are sometimes vicious and may cause gales in this region.

7.68. There are nine light-buoys moored around the seaward sides of Kerkennah banks.

No. 1 light-buoy (black and white diagonal stripes conical; light group flashing 3 white every 12 seconds; radar reflector; double cross topmark) is moored 20 miles ESE of Ras Kaboudia.

No. 2 light-buoy (red and white conical; light occulting red every 14 seconds; two cones, bases together, topmark) is moored 6½ miles SE of No. 1 light-buoy.

No. 3 light-buoy (red and white conical; light group flashing 3 red every 12 seconds; two cones, bases together, topmark) is moored 5 miles SE of No. 2 light-buoy.

No. 4 light-buoy (red and white conical; light occulting white every 44 seconds; whistle; radar reflector; two cones, bases together, topmark) is moored 6½ miles SE of No. 3 light-buoy, and 37 miles SE of Ras Kaboudia.

A light-buoy (green conical; light group flashing green; two cones, bases together, topmark) marks a wreck 3 miles SSE of No. 4 light-buoy.

No. 5 light-buoy (red and white conical; light occulting red every 14 seconds; radar reflector; two cones, bases together, topmark) is moored 13 miles SSW of No. 4 light-buoy.

No. 6 light-buoy (red and white bands conical; light group flashing 2 red every 9 seconds; two cones, points down, topmark) is moored 13½ miles WSW of No. 5 light-buoy.

No. 7 light-buoy (red and white bands conical; light group occulting 2 red every 9 seconds; two cones, points down, topmark) is moored 6½ miles SE of Ras es Semoun beacon (7.70) (34° 37' N, 11° 03' E).

No. 8 light-buoy (red and white diagonal stripes conical; light group flashing 3 white every 12 seconds; radar reflector; double cross topmark) is moored 11 miles SW of Ras es Semoun beacon.

A light-buoy (red, white and black bands; light flashing white; radar reflector) is moored about 6 miles SSE of No. 8 light-buoy, and marks a well-head.

7.69. The seaward sides of the Kerkennah banks are also marked by unlit beacons standing offshore.

Maruka Beacon, 8 m high (black and white in horizontal bands) stands near the N end of the banks, 20 miles SE of Ras Kaboudia.

El Barani Beacon, 11 m high (red top half and white

below) stands on the NE side of the banks, 7 miles SSE of Maruka Beacon.

El Mzebla Beacon, 8 m high (red at the top and white below) stands near the E extremity of the banks, 5½ miles SE of El Barani Beacon.

Sakit Hamida Beacon, 8 m high (red at the top and white below) stands near the SE extremity of the banks, 7½ miles SSW of El Mzebla Beacon.

Oued Bou Zrara Beacon, 8 m high (red and white in horizontal bands) stands on the SE side of the banks, 5 miles WSW of Sakit Hamida Beacon.

Ras el Beeh Beacon, 8 m high (red at the top and white below) stands on the SW extremity of the banks, 6 miles SW of Ras es Semoun Beacon.

7.70. Îles Kerkennah are low and not easy to distinguish from seaward.

Île Chergui, the larger and NE island, is divided at spring tides, into three parts by shallow lagoons. The NE part is barren and uninhabited, but on the SW and most elevated part there are numerous villages. Among the larger villages being Oulad el Kassem and Oulad Yaneg.

Except in the vicinity of Oulad Yaneg, near the SW extremity of the island, where there are some low cliffs of clay, the coasts are everywhere low.

A light is exhibited from a black pedestal, 9 m in height, with a white top, standing at the N extremity of Île Chergui (34° 30' N, 11° 15' E).

A radiobeacon transmits from El Attaia, 6 miles SSE of Île Chergui light structure.

Oued Mimoun, a channel, is entered about 5 miles SSE of El Attaia, and affords access to the salt pans at El Absasia. The channel across the bar has been dredged to a depth of 6 m (20 ft) for a width of 30 m and is marked by buoys.

This channel should not be attempted without local knowledge.

Oued Sadum lies about 3½ miles W of Oued Mimoun and close W of its entrance is a tripod beacon, 12 m high, surmounted by two cones, points together.

Île Rharbi is the SW island, and at the middle of it is the village of Melita.

Port Sidi Youssef lies at the W extremity of Île Rharbi, and two jetties enclose the harbour.

The channel into the port is entered about 1½ miles WNW of Ras Sidi Youssef. It was dredged, in 1966, to a depth of 3 m (10 ft).

Lights are exhibited from three pairs of beacons marking the channel; those on the N side being painted red, and those on the S black.

Ras es Semoun is the S extremity of Île Rharbi, and lies 4½ miles SE of Sidi Youssef. On it stands a beacon 15 m high (red and white).

Oued Semoun, a channel, lies about 1 mile S of Ras es Semoun.

An offshore oil drilling platform (34° 18' N, 11° 24' E), marked by two fixed red lights, is situated 26 miles SE of Ras es Semoun.

A light is exhibited, and a fog signal is sounded, from the platform.

In 1977, several other oil drilling platforms were under construction in the vicinity of the above-mentioned platform.

7.71. Canal des Kerkennah, between the low coast fringed with shoals on the one hand, and Kerkennah banks on the other, is suitable only for vessels drawing less than 3 m (10 ft).

No. 0 light-buoy (black conical; light occulting white every 6 seconds; radar reflector) is moored on the NW side of the N entrance to Canal des Kerkennah, 11 miles SSE of Ras Kaboudia (35° 14' N, 11° 10' E).

Annex 3

PARAGRAPH 7 OF
THE EXPLANATORY MEMORANDUM OF THE PRESIDENT OF THE UNITED NATIONS
THIRD CONFERENCE ON THE LAW OF THE SEA

ARTICLES 14, 15,
16, 71, 72, 73, 74, 75, 76, 77, 78, 83, 84 AND 85 OF
THE DRAFT CONVENTION ON THE LAW OF THE SEA (INFORMAL TEXT)

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7. The Collegium also decided that having regard to the inappropriateness of referring to the revised text as a final negotiating text, since there were some outstanding issues that needed further negotiations, it seemed more appropriate and advisable to give the revised text the title "Draft Convention (Informal Text)". This text like its predecessor will be informal in character. It is a negotiating text and not a negotiated text, and does not prejudice the position of any delegation.

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*Article 14**Combination of Methods for Determining Baselines*

The coastal State may determine baselines in turn by any of the methods provided for in the foregoing articles to suit different conditions.

*Article 15**Delimitation of the Territorial Sea between States
with Opposite or Adjacent Coasts*

Where the coasts of two States are opposite or adjacent to each other, neither of the two States is entitled, failing agreement between them to the contrary, to extend its territorial sea beyond the median line every point of which is equidistant from the nearest points on the baselines from which the breadth of the territorial seas of each of the two States is measured. The above provision does not apply, however, where it is necessary by reason of historic title or other special circumstances to delimit the territorial seas of the two States in a way which is at variance therewith.

*Article 16**Charts and Lists of Geographical Co-ordinates*

1. The baselines for measuring the breadth of the territorial sea determined in accordance with Articles 7, 9 and 10, or the limits derived therefrom, and the lines of delimitation drawn in accordance with Articles 12 and 15, shall be shown on charts of a scale or scales adequate for determining them. Alternatively, a list of geographical co-ordinates of points, specifying the geodetic datum, may be substituted.

2. The coastal State shall give due publicity to such charts or lists of geogra-

phical co-ordinates and shall deposit a copy of each such chart or list with the Secretary-General of the United Nations.

Article 71

Non-Applicability of Articles 69 and 70

The provisions of Articles 69 and 70 shall not apply in the case of a coastal State whose economy is overwhelmingly dependent on the exploitation of the living resources of its exclusive economic zone.

Article 72

Restrictions on Transfer of Rights

1. Rights provided under Articles 69 and 70 to exploit living resources shall not be directly or indirectly transferred to third States or their nationals by lease or licence, by establishing joint ventures or in any other manner which has the effect of such transfer unless otherwise agreed upon by the States concerned.

2. The foregoing provision does not preclude the States concerned from obtaining technical or financial assistance from third States or international organizations in order to facilitate the exercise of the rights pursuant to Articles 69 and 70, provided that it does not have the effect referred to in paragraph 1.

Article 73

Enforcement of Laws and Regulations of the Coastal State

1. The coastal State may, in the exercise of its sovereign rights to explore, exploit, conserve and manage the living resources in the exclusive economic zone, take such measures, including boarding, inspection, arrest and judicial proceedings, as may be necessary to ensure compliance with the laws and regulations adopted by it in conformity with this Convention.

2. Arrested vessels and their crews shall be promptly released upon the posting of reasonable bond or other security.

3. Coastal State penalties for violations of fisheries regulations in the exclusive economic zone may not include imprisonment, in the absence of agreements to the contrary by the States concerned, or any other form of corporal punishment.

4. In cases of arrest or detention of foreign vessels the coastal State shall promptly notify, through appropriate channels, the flag State of the action taken and of any penalties subsequently imposed.

Article 74¹

Delimitation of the Exclusive Economic Zone between States with Opposite or Adjacent Coasts

1. The delimitation of the exclusive economic zone between States with opposite or adjacent coasts shall be effected by agreement in conformity with

¹ The question of the location in this Convention of the definition of the median or equidistance line as included in Article 74, paragraph 4, of the ICNT/Rev.1, could be left for consideration in the Drafting Committee. Article 74, paragraph 4, of the ICNT/Rev.1 reads as follows:

"For the purposes of this Convention, 'median or equidistance line' means the line every point of which is equidistant from the nearest points of the baselines from which the breadth of the territorial sea of each State is measured."

international law. Such an agreement shall be in accordance with equitable principles, employing the median or equidistance line, where appropriate, and taking account of all circumstances prevailing in the area concerned.

2. If no agreement can be reached within a reasonable period of time, the States concerned shall resort to the procedures provided for in Part XV.

3. Pending agreement as provided for in paragraph 1, the States concerned, in a spirit of understanding and co-operation, shall make every effort to enter into provisional arrangements of a practical nature and, during this transitional period, not to jeopardize or hamper the reaching of the final agreement. Such arrangements shall be without prejudice to the final delimitation.

4. Where there is an agreement in force between the States concerned, questions relating to the delimitation of the exclusive economic zone shall be determined in accordance with the provisions of that agreement.

Article 75

Charts and Lists of Geographical Co-ordinates

1. Subject to this Part, the outer limit lines of the exclusive economic zone and the lines of delimitation drawn in accordance with Article 74 shall be shown on charts of a scale or scales adequate for determining them. Where appropriate, lists of geographical co-ordinates of points, specifying the geodetic datum, may be substituted for such outer-limit lines or lines of delimitation.

2. The coastal State shall give due publicity to such charts or lists of geographical co-ordinates and shall deposit a copy of each such chart or list with the Secretary-General of the United Nations.

Article 76

Definition of the Continental Shelf

1. The continental shelf of a coastal State comprises the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.

2. The continental shelf of a coastal State shall not extend beyond the limits provided for in paragraphs 4 to 6.

3. The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the sea-bed and subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor with its oceanic ridges or the subsoil thereof.

4. (a) For the purposes of this Convention, the coastal State shall establish the outer edge of the continental margin wherever the margin extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by either :

- (i) A line delineated in accordance with paragraph 7 by reference to the outermost fixed points at each of which the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope ; or
- (ii) A line delineated in accordance with paragraph 7 by reference to fixed points not more than 60 nautical miles from the foot of the continental slope.

(b) In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base.

5. The fixed points comprising the line of the outer limits of the continental shelf on the sea-bed, drawn in accordance with paragraph 4 (a) (i) and (ii), either shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured or shall not exceed 100 nautical miles from the 2,500-metre isobath, which is a line connecting the depth of 2,500 metres.

6. Notwithstanding the provisions of paragraph 5, on submarine ridges, the outer limit of the continental shelf shall not exceed 350 nautical miles from the baselines from which the breadth of the territorial sea is measured. This paragraph does not apply to submarine elevations that are natural components of the continental margin, such as its plateaux, rises, caps, banks and spurs.

7. The coastal State shall delineate the seaward boundary of its continental shelf where that shelf extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured by straight lines not exceeding 60 nautical miles in length, connecting fixed points, such points to be defined by co-ordinates of latitude and longitude.

8. Information on the limits of the continental shelf beyond the 200 nautical mile exclusive economic zone shall be submitted by the coastal State to the Commission on the Limits of the Continental Shelf set up under Annex II on the basis of equitable geographical representation. The Commission shall make recommendations to coastal States on matters related to the establishment of the outer limits of their continental shelf. The limits of the shelf established by a coastal State on the basis of these recommendations shall be final and binding.

9. The coastal State shall deposit with the Secretary-General of the United Nations charts and relevant information, including geodetic data, permanently describing the outer limits of its continental shelf. The Secretary-General shall give due publicity thereto.

10. The provisions of this article are without prejudice to the question of delimitation of the continental shelf between adjacent or opposite States.

Article 77

Rights of the Coastal State over the Continental Shelf

1. The coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources.

2. The rights referred to in paragraph 1 are exclusive in the sense that if the coastal State does not explore the continental shelf or exploit its natural resources, no one may undertake these activities without the express consent of the coastal State.

3. The rights of the coastal State over the continental shelf do not depend on occupation, effective or notional, or on any express proclamation.

4. The natural resources referred to in this Part consist of the mineral and other non-living resources of the sea-bed and subsoil together with living organisms belonging to sedentary species, that is to say, organisms which, at the harvestable stage, either are immobile on or under the sea-bed or are unable to move except in constant physical contact with the sea-bed or the subsoil.

*Article 78**Legal Status of the Superjacent Waters and Air Space and the Rights and Freedoms of Other States*

1. The rights of the coastal State over the continental shelf do not affect the legal status of the superjacent waters or of the air space above those waters.
2. The exercise of the rights of the coastal State over the continental shelf must not infringe, or result in any unjustifiable interference with navigation and other rights and freedoms of other States as provided for in this Convention.

*Article 83**Delimitation of the Continental Shelf between States with Opposite or Adjacent Coasts*

1. The delimitation of the continental shelf between States with opposite or adjacent coasts shall be effected by agreement in conformity with international law. Such an agreement shall be in accordance with equitable principles, employing the median or equidistance line, where appropriate, and taking account of all circumstances prevailing in the area concerned.
2. If no agreement can be reached within a reasonable period of time, the States concerned shall resort to the procedures provided for in Part XV.
3. Pending agreement as provided for in paragraph 1, the States concerned, in a spirit of understanding and co-operation, shall make every effort to enter into provisional arrangements of a practical nature and, during this transitional period, not to jeopardize or hamper the reaching of the final agreement. Such arrangements shall be without prejudice to the final delimitation.
4. Where there is an agreement in force between the States concerned, questions relating to the delimitation of the continental shelf shall be determined in accordance with the provisions of that agreement.

*Article 84**Charts and Lists of Geographical Co-ordinates*

1. Subject to this Part, the outer limit lines of the continental shelf and the lines of delimitation drawn in accordance with Article 83 shall be shown on charts of a scale or scales adequate for determining them. Where appropriate, lists of geographical co-ordinates of points, specifying the geodetic datum, may be substituted for such outer limit lines or lines of delimitation.
2. The coastal State shall give due publicity to such charts or lists of geographical co-ordinates and shall deposit a copy of each such chart or list with the Secretary-General of the United Nations.

*Article 85**Tunnelling*

This Part does not prejudice the right of the coastal State to exploit the subsoil by means of tunnelling, irrespective of the depth of water above the subsoil.

Annex 4

ACCORD ENTRE LE GOUVERNEMENT DE LA RÉPUBLIQUE TUNISIENNE ET LE GOUVERNEMENT DE LA RÉPUBLIQUE ITALIENNE RELATIF À LA DÉLIMITATION DU PLATEAU CONTINENTAL ENTRE LES DEUX PAYS

Le Gouvernement de la République tunisienne et le Gouvernement de la République italienne désireux de renforcer davantage les relations de bon voisinage et de resserrer les liens d'amitié entre les deux pays sont convenus de définir et d'arrêter dans le présent accord les principes et critères du tracé de la ligne de délimitation du plateau continental entre la Tunisie et l'Italie.

Article I

La délimitation du plateau continental entre les deux pays est constituée par la ligne médiane dont tous les points sont équidistants des points les plus proches des lignes de base à partir desquelles sont mesurées les largeurs des mers territoriales de la Tunisie et de l'Italie en tenant compte des îles, îlots et hauts-fonds découvrants à l'exception de Lampedusa, Linosa et Pantelleria.

Article II

En ce qui concerne les îles nommées à l'article I, la délimitation du plateau continental est définie par les dispositions suivantes :

- a) Autour de Pantelleria, la délimitation vers la Tunisie sera constituée par la ligne enveloppe des cercles de 13 milles marins de rayon et dont les centres se trouvent sur le littoral de cette île et ce, jusqu'à l'intersection de cette enveloppe avec la ligne médiane définie dans l'article I.
- b) Autour de Lampedusa, la délimitation vers la Tunisie sera constituée par la ligne enveloppe des cercles de 12 milles marins de rayon et dont les centres se trouvent sur le littoral de cette île, et ce, jusqu'à l'intersection de cette enveloppe avec celle relative à Lampedusa et qui est définie à l'alinéa c) ci-après.
- c) Autour de Linosa, la délimitation vers la Tunisie sera constituée par les tronçons de la ligne enveloppe des cercles de 13 milles marins de rayon et dont les centres se trouvent sur le littoral de cette île, tronçons compris entre les intersections de cette enveloppe d'une part avec celle de Lampedusa précisée à l'alinéa b) ci-dessus et d'autre part avec l'enveloppe relative à Linosa et qui est définie à l'alinéa d) ci-après.
- d) Autour de Pantelleria, la délimitation vers la Tunisie sera constituée par les tronçons de la ligne enveloppe des cercles de 13 milles marins de rayon et dont les centres se trouvent sur le littoral de cette île, tronçons compris entre les intersections de cette enveloppe d'une part avec celle de Lampedusa précisée à l'alinéa c) ci-dessus et d'autre part avec la ligne médiane définie à l'article I.

Article III

Il sera créé dans les meilleurs délais une commission technique tuniso-italienne chargée de tracer sur cartes la ligne médiane et les tronçons d'enveloppe

définis ci-dessus et de déterminer les coordonnées des points constituant ces lignes.

Cette commission devra, dans toute la mesure du possible, avoir achevé ses travaux dans un délai de trois mois à compter de la date du présent accord.

Les cartes ainsi que la définition des coordonnées des points constituant les lignes, qui auront été établies par ladite commission technique, seront authentifiées par la signature des plénipotentiaires des deux parties ; elles seront annexées au présent accord.

Article IV

Si des gisements de ressources naturelles s'étendent des deux côtés de la ligne de délimitation du plateau continental, avec la conséquence que les ressources dans la partie du plateau appartenant à une des parties contractantes pourraient être exploitées du côté du plateau appartenant à l'autre partie, les autorités compétentes des parties contractantes se concerteront en vue de parvenir à un accord pour la détermination des modalités d'exploitation desdites ressources, après consultation des concessionnaires éventuels.

En attendant l'intervention de l'accord précité, chaque partie veillera à ce que l'exploitation s'effectue dans les conditions optima conformes aux règles de l'art.

Article V

En cas de différend sur la position d'une installation par rapport à la ligne de délimitation, telle que définie par le présent accord, les autorités compétentes des parties contractantes détermineront d'un commun accord dans le plateau continental de quelle partie sont situées lesdites installations.

Article VI

Le présent accord sera ratifié conformément aux règles constitutionnelles des parties contractantes et entrera en vigueur à la date de l'échange des instruments de ratification, qui aura lieu à Rome dans les meilleurs délais.

Toutefois, à compter de la date de signature du présent accord les deux gouvernements pourront octroyer des permis d'exploration et d'exploitation des ressources minérales dans les zones leur revenant et telles que définies par les principes stipulés ci-dessus.

Fait à Tunis, le 20 août 1971, en deux exemplaires en langue française, tous deux faisant également loi.

Pour le Gouvernement
de la République tunisienne,

(Signé) Abdelaziz LAARAM,
directeur
de la coopération internationale.

Copie certifiée conforme à l'original.

Pour le ministre des affaires étrangères,
(Signé) Abdelmajid Ben MESSAOUDA.

Pour le Gouvernement
de la République italienne,

(Signé) Luciano FAVRETTI,
ambassadeur d'Italie
à Tunis.

PROCÈS-VERBAL

Le 23 janvier 1975 les plénipotentiaires de la République tunisienne, Monsieur Ahmed Ghezal, directeur des affaires politiques, et de la République italienne, S. E. M. l'ambassadeur Salvatore Saraceno, se sont rencontrés à Tunis au ministère des affaires étrangères et, ayant échangé leurs pleins pouvoirs respectifs reconnus en bonne et due forme, ont procédé à l'authentification des documents suivants :

- 1) liste des points constituant la ligne médiane et les tronçons d'enveloppe définis aux articles I et II de l'accord ;
- 2) carte représentant la ligne de délimitation du plateau continental entre la République tunisienne et la République italienne déterminée sur la base des dispositions des articles I et II de l'accord signé à Tunis le 20 août 1971 ;

en opposant leurs signatures sur lesdits documents qui constituent annexes à l'accord entre le Gouvernement de la République tunisienne et le Gouvernement de la République italienne relatif à la délimitation du plateau continental entre les deux pays signé à Tunis le 20 août 1971.

Pour le Gouvernement
de la République tunisienne,

(Signé) Ahmed GHEZAL.

Pour le Gouvernement
de la République italienne,

(Signé) Salvatore SARACENO.

Copie certifiée conforme à l'original.

Pour le ministre des affaires étrangères,

(Signé) Abdelmajid Ben MESSAOUDA.

ANNEXE À L'ACCORD TUNISO-ITALIEN DU 20 AOÛT 1971
RELATIF À LA DÉLIMITATION DU PLATEAU CONTINENTAL ENTRE LES DEUX PAYS

(Cartes et coordonnées géographiques)

Liste des points constituant la ligne médiane et des tronçons d'enveloppe définis aux articles I et II de l'accord

Points	Latitude nord	Longitude est Greenwich
0	38° 00'.6	7° 49'.0
1	38° 04'.9	8° 09'.6
2	38° 07'.8	8° 22'.3
3	38° 10'.5	8° 32'.5
4	38° 13'.1	8° 48'.8
5	38° 15'.0	9° 33'.8
6	38° 13'.5	9° 40'.4
7	38° 14'.5	9° 54'.2
8	38° 24'.6	10° 41'.7
9	38° 03'.5	10° 52'.7
10	37° 47'.4	11° 10'.3

<i>Points</i>	<i>Latitude nord</i>	<i>Longitude est Greenwich</i>
11	37° 41'.2	11° 19'.0
12	37° 24'.5	11° 42'.0
13	37° 22'.4	11° 45'.5
14	37° 20'.6	11° 48'.2
15	37° 14'.2	11° 52'.7
16	37° 08'.4	11° 56'.8
17	37° 03'.8	12° 00'.9
18	<i>Intersection nord de la ligne enveloppe des cercles ayant la laisse de basse mer de Pantelleria comme centres et 13 milles de rayon d'une part et d'autre part de la ligne médiane joignant le point 17 et le point auxiliaire 18 A défini ci-après.</i>	
18 A (point auxiliaire)	36° 55'.5	12° 06'.5
19	<i>Intersection sud de la ligne enveloppe des cercles ayant la laisse de basse mer de Pantelleria comme centres et 13 milles de rayon d'une part et d'autre part de la ligne médiane joignant le point auxiliaire 18 A défini ci-dessus et le point 20 défini ci-dessous.</i>	

La ligne de délimitation entre les points 18 et 19 est constituée par l'arc ouest d'enveloppe des cercles ayant la laisse de basse mer de Pantelleria comme centres et 13 milles de rayon.

20	36° 35'.0	12° 21'.2
21	36° 23'.0	12° 29'.4
22	36° 21'.7	12° 30'.2
23	36° 15'.2	12° 32'.4
24	36° 08'.7	12° 38'.1
25	<i>Intersection nord de la ligne enveloppe des cercles ayant la laisse de basse mer de Linosa comme centres et 13 milles de rayon d'une part et d'autre part de la ligne médiane joignant le point 24 au point auxiliaire 25 A défini ci-après.</i>	
25 A (point auxiliaire)	35° 52'.3	12° 51'.0
26	<i>Intersection nord de la ligne enveloppe des cercles ayant la laisse de basse mer de Linosa comme centres et 13 milles de rayon d'une part et d'autre part de la ligne enveloppe des cercles ayant la laisse de basse mer de Lampedusa comme centres et 13 milles de rayon.</i>	

La ligne de délimitation entre les points 25 et 26 est constituée par l'arc nord d'enveloppe des cercles ayant la laisse de basse mer de Linosa comme centres et 13 milles de rayon.

27	<i>Intersection nord de la ligne enveloppe des cercles ayant la laisse de basse mer de Lampedusa comme centres et 13 milles de rayon d'une part et d'autre part de la ligne enveloppe des cercles ayant la laisse de basse mer de Lampionne comme centres et 12 milles de rayon.</i>	
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La ligne de délimitation entre les points 26 et 27 est constituée par l'arc nord d'enveloppe des cercles ayant la laisse de basse mer de Lampedusa comme centres et 13 milles de rayon.

<i>Points</i>	<i>Latitude nord</i>	<i>Longitude est Greenwich</i>
28	Intersection sud de la ligne enveloppe des cercles ayant la laisse de basse mer de Lampione comme centres et 12 milles de rayon d'une part et d'autre part de la ligne enveloppe des cercles ayant la laisse de basse mer de Lampedusa comme centres et 13 milles de rayon.	

La ligne de délimitation entre les points 27 et 28 est constituée par l'arc ouest d'enveloppe des cercles ayant la laisse de basse mer de Lampione comme centres et 12 milles de rayon.

29	Intersection sud de la ligne enveloppe des cercles ayant la laisse de basse mer de Lampedusa comme centres et 13 milles de rayon d'une part et d'autre part de la ligne enveloppe des cercles ayant la laisse de basse mer de Linosa comme centres et 13 milles de rayon.	
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La ligne de délimitation entre les points 28 et 29 est constituée par l'arc sud d'enveloppe des cercles ayant la laisse de basse mer de Lampedusa comme centres et 13 milles de rayon.

30 A (point auxiliaire)	35° 46'.5	13° 01'.7
30	Intersection sud de la ligne enveloppe des cercles ayant la laisse de basse mer de Linosa comme centres et 13 milles de rayon d'un part et d'autre part de la ligne médiane joignant le point auxiliaire 30 A et le point 31 défini ci-après.	
31	35° 39'.6	13° 11'.5
32	35° 15'.0	13° 36'.6

Les points de la ligne de délimitation tels que définis ci-dessus ont été représentés graphiquement sur la carte nautique italienne n° 260, échelle 1/750 000, projection Mercator, à la latitude 40° 04', édition 1963, réimprimée en mars 1972, publiée par l'Institut hydrographique de la marine, à Gênes.

La ligne de délimitation est constituée par les arcs de grands cercles qui joignent les points définis ci-dessus et par les tronçons d'enveloppe autour des îles mentionnées à l'article 2 de l'accord. Les points auxiliaires qui ont servi au tracé ne font pas partie de la ligne de délimitation.

Cette carte ainsi que le présent document ont été établis en application de l'accord du 20 août 1971 pour en faire partie intégrante, nonobstant toute autre disposition législative ou réglementaire relative à la définition de lignes de base intervenant postérieurement à la date précitée.

Annex 5

DJERBA DECLARATION OF UNITY OF 12 JANUARY 1974

[Arabic text not reproduced]

(Translation)

Text of the Declaration of Unity and Proclamation of the Islamic Arab Republic between Libyan Arab Republic and the Tunisian Republic. 19 Zul Hija 1393, 12 January 1974.

“In the name of Allah the Compassionate the Merciful.”

In a crucial moment, in a time full of challenges, on a glorified day and under heavy burden of historic responsibility, the Great Mujahid responded to the call of Arab unity the same way he responded to the call for the Jihad to liberate the Islamic Arab land.

Consequently, the leader Habib Bourguiba and Colonel Muammar Ghadaffi both signed the Merger Declaration of both Libyan and Tunisian Arab countries according to the constitutional principles in force in both countries.

Both countries will merge in one republic called the Islamic Arab Republic under one constitution, flag, president and army, ruled by one legislative executive and legal laws as from, by the will of God, 25 Zul Hija 1393 corresponding to 18 January 1974 A.D.

(Signature) President Habib BOURGUIBA.
(Signature) Colonel Muammar GHADAFI.

Annex 6

PAGES 74 AND 75 OF
OIL AND GAS JOURNAL, 20 DECEMBER 1954

PAGES 136 AND 137 OF
OIL AND GAS JOURNAL, 16 MAY 1955

PAGE 143 OF
OIL AND GAS JOURNAL, 25 JULY 1955

[Not reproduced]

Annex 7

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REPRODUCTION OF THE OFFICIAL MAP OF CONCESSION NO. 137

REPRODUCTION OF THE MAP OF CONCESSION NO. 9. MOBIL OIL LIMITED OF
CANADA

[Not reproduced]

Annex 8

PAGES 7 THROUGH 16 OF 1961 LIBYAN PETROLEUM COMMISSION BOOKLET

LIBYA'S OIL POLICY

The booklet presented at the First Arab Petroleum Congress contained an abstract and some elucidations to the Petroleum Law No. 25 of 1955.

At the time said Law came into force it was still unknown whether the territory of Libya contained oil. No exploration activities for the search of oil had been carried out prior to the independence of Libya. Neither in Tunisia nor in the Western desert of Egypt had any oil been discovered at that time. Although some oil had been found in the Algerian Western Sahara, the big oil strikes close to the Libyan frontier took place at a later date.

For this reason the Petroleum Law of 1955 was enacted in such a manner as to encourage oil companies to search and explore for petroleum in a big way to determine the country's possible oil potential in the shortest time. The Law largely fulfilled these aims as it led to a fast increasing activity in the search for petroleum, as outlined in the second chapter of this booklet.

Then came the first promising oil strikes in concessions 6 and 32 in the Sirtica area mid 1959 and early 1960 respectively.

Because it now became evident that oil was present in commercial quantities it was realized, as indicated in the booklet presented at the Second Arab Petroleum Congress, that for new concessions better terms and working obligations could be negotiated by means of special agreements in addition to the normal conditions specified in the standard concession deed.

Some of the additional terms so obtained were: special drilling obligations, higher minimum amount to be spent within a certain period of time, increased percentages for royalty payments, higher surface rents, the waiving of the right of applying percentage depletion allowance as provided by the Law and the possibility of participation by the Libyan Government in exploitation.

In connection with the experience obtained by the Petroleum Commission during the past five years of exploration, it became clear that the Law had to be adjusted to the second phase of petroleum development in which Libya has landed.

Also to keep pace with the changes which occurred in other Arab countries during this period, it was felt that the Petroleum Law 1955 should be amended in order to insure to the Country an appropriate share in the profits more in line with to-day's views.

The Libyan Government, in drafting these amendments, has benefited from the experience of other countries in the petroleum industry and from the experiments and events which those countries have gone through. The Government in this amendment has taken into regard the country's interest and the economic and commercial considerations and conditions prevailing in other countries which own petroleum and which are going through the same phase as the United Kingdom of Libya, such as Iraq, the Kingdom of Saudi Arabia, Kuwait, Qatar and Iran (Persia). These amendments are derived from the most modern and recent provisions applicable in these countries.

The amendments will serve to stimulate keener competition among international oil companies to search, explore for and develop petroleum in Libya in the areas which have already been relinquished or will be relinquished in the future by the petroleum companies. In addition, these amendments will open the door for the petroleum companies that have acquired concessions in the past to amend their concessions in accordance with the terms and conditions of these amendments and to conform with the stage through which the petroleum industry in the country is passing. We give hereunder a brief outline of the most important amendments introduced into the Law by Royal Decree of July 1961.

Articles 7 & 8.

In the past the companies submitted their applications with respect to the areas for concessions, and the Petroleum Commission considered these applications giving priority to the person who submitted his application before the other. This method does not ensure sound and fair competition. For these reasons, Articles Seven and Eight are amended in a manner to permit the Commission to announce

by notice in the press the areas in respect of which concessions may be applied for and to invite those interested in acquiring concessions to submit their applications in sealed envelopes within a specified time. The amendment also made it permissible for the applicants to include any additional economic, financial and other benefits and advantage which they are willing and able to offer to the Commission. This method is the most prevalent method used in the grant of concessions. It will be observed that the provisions outlined in the Law and the Second Schedule thereto have become, under this amendment, to represent the minimum terms and conditions for the grant of a concession. However, the additional terms and conditions and the economic and financial advantages which are offered or submitted by the applicant have become the decisive factor in determining the successful bidder, after taking into consideration his technical and financial ability and capacity. There is no doubt that this method will provide the opportunity for the Government to obtain the best terms, conditions and benefits through the media of rivalry and competition among international companies and corporations.

Article 9.

Paragraph (1) of Article 9 authorised the Commission to grant concessions conforming with the form set out in the Second Schedule to the Law but it did not confer upon the Commission the power to grant concessions to include the additional economic and financial benefits and advantages which are offered by the companies in addition to the provisions set out in the Law. This Article was therefore amended in a manner to permit the Commission to grant concessions to include the additional economic, financial and other benefits and advantages which are offered by the applicant, provided that these additions do not contain conditions or terms that reduce any of the rights, benefits and privileges to which the Commission is entitled under this Law.

Paragraph (9) of Article 9 of the Law is deleted since its provisions have become inconsistent with the principle contained in Articles 7 and 8 as amended i.e., the principle of granting concessions on the basis of sealed bidding.

Article 10.

(1) The last clause of paragraph (1) of Article 10 is deleted. This relates to the minimum area of the concession which the concession holder is permitted to retain as it is felt that there is no need to specify a minimum with respect to the area which is retained by the concession holder and because there is a pressing and great demand for the areas relinquished by the companies irrespective of how small they may be.

(2) Paragraph (3) of this Article gave the concession holder the freedom to choose the areas which he is to relinquish in one or more blocks from the various parts of the concession area, provided that the block or blocks retained by him are reasonably compact. However, this provision is not sufficient to protect the rights and interests of the State and does not prevent concession holders from relinquishing the areas which they are required to relinquish in very small blocks which are not suitable for development by other companies, thus denying the Commission the primary object in obliging concession holders to surrender a portion of their concession areas. Therefore, Article 10 was amended to as to organize the manner and method of surrender and to enable the Commission to acquire the areas which are relinquished in a suitable and fitting form and shape which will help in benefiting from them and in their development by other companies or groups.

Article 12.

Article 12 of the Law provides that every concession holder who has a surplus in pipeline transportation capacity is required to place such surplus at the disposal of others on the terms and conditions to be agreed upon. It is well known that the Commission bears half of the cost and expenses incurred relating to the production of petroleum and its transportation to the port from where it will be exported. Therefore, the Commission is entitled to have a say with respect to the conditions and charges which the concession holder obtains from others for the transpor-

tation of petroleum in the pipelines belonging to him. For these reasons this Article 12 was amended as to make it a requisite to obtain the Commission's approval of the terms and conditions to be agreed upon. If the Commission does not approve the terms and conditions or if the concession holder does not agree to the terms and conditions used, the Commission is entitled to propose the terms and conditions for the use of the surplus pipeline capacity. In the event the parties concerned do not agree to these proposed conditions, the Commission shall submit the matter to a committee of experts whose decision or the decision of the majority thereof shall be final and binding upon the concession holders and the Commission.

Article 13.

(1) The fees and rents payable by the concession holder under Article 13 of the Law are low and incompatible with the phase through which the petroleum industry in the country is passing. This Article is therefore amended to provide for the following payments by the concession holders:

- (a) One hundred pounds for every 100 square kilometers of the area covered by the concession upon granting him the concession, instead of the fixed lump sum of L.£ 500 only.
- (b) A nominal annual rental during the first fifteen years from the date of the concession, but it was clearly provided that in the event petroleum is found in commercial quantities during the said fifteen year period the rental shall immediately be increased to £L. 2,500 for every 100 square kilometers.
- (c) £L. 3,500 for every 100 square kilometers for each of the following five years and £L. 5,000 for each year of the remaining period of the concession.

(2) The Law did not contain any provision giving the Commission the right to receive the whole or part of the royalty in kind as the case is in the agreements concluded between the various petroleum companies and the governments in the Middle East and Venezuela. This Article was also amended to include a provision

giving the Commission the right to take in kind all or part of the royalty, provided that it is delivered by the concession holder f.o.b. seaboard terminal in Libya.

The value of royalty due to the Commission on crude petroleum under this Article is calculated on the basis of the average of the prevailing price in the free market for petroleum crude minus handling and transportation charges and costs from field storage. This method will lead to many accounting problems in calculating the costs of handling and transportation charges for each field and each quality of petroleum produced. Article 13 was therefore amended on the basis of provisions contained in petroleum agreements concluded in other countries, i.e. calculating the value of royalty with respect to crude petroleum on the basis of the posted price of crude petroleum at Libyan ports without deducting any expenses or costs for handling and transportation.

Article 14.

Article 14 of the Law relating to taxation and division of profits is extremely complicated and its implementation in its present form would lead to many and great difficulties. Some of its provisions are unfair with respect to Libya when compared with the corresponding provisions of the agreements concluded with other countries in the Arab world. This Article was therefore substantially amended on the basis of the rules and principles followed between petroleum companies and Middle Eastern countries. Through this amendment the Commission is able to obtain at least half of the actual profits which the petroleum companies derive from their operations in Libya. Hereunder is a summary of the most important amendments outlined in the said Article:

(1) — Under paragraph (1) of this Article the Government's share amounting to 50% of the profits is composed of fees, rents and royalties payable under this Law and also of the income tax and other taxes and dues for which the concession holder is liable in respect of his operations in Libya.

This paragraph is amended to provide that indirect taxes and fees, such as

stamp duty fees and municipal and registration fees etc., are considered to be part of the expenditures if they are related to the operations of the concession holder. The Government's share of 50% of the profits will consist of fees, rents and royalties payable by the concession holder under this Law together with the income tax, the surtax and the other direct taxes. This arrangement is closer to justice and it contains great simplification of accountancy procedure. Furthermore, this principle is adopted by other countries in their petroleum legislations.

(2) — Paragraph (1) (b) of this Article is not clear with regard to the method of deducting the sums paid in excess of the 50% of the profits which the concession holder realizes during the year. This paragraph was therefore amended on the basis that excess payments are deductible only from the income tax and the surtax duly payable in the subsequent years.

(3) — The « complete year » is clearly defined in the amendment of this Article so that the equal sharing of profits will be operative from the effective date.

(4) — Paragraph (2) of the said Article defines the « effective date » as the date on which the average exports from the concession reaches for the first time 15,000 barrels of petroleum per day over a period of 30 days or the date of expiry of four years from the date on which the concession holder exported petroleum regularly for the first time.

The equal division of profits must become effective irrespective of the date on which the production and export of petroleum reaches a certain level, since the concession holder is able to realize profits before exports reach a level of 15000 barrels per day. Moreover, the concession holder is able to realize profits, without exporting any petroleum, by refining and selling it inside Libya;

Therefore, the « effective date » was defined in the amendment to mean the date on which the concession holder commences to export petroleum regularly in commercial quantities or to sell petroleum regularly in commercial quantities.

(5) — The Petroleum Law gave the right to the concession holder to deduct the following items from the income which he derives for the purpose of calculating his profits:

FIRSTLY: All expenses and losses.

SECONDLY: Amortization of capital expenditures at a rate not exceeding 20% with respect to the expenditure incurred before effective date and at a rate not exceeding 10% with respect to the expenditures incurred on or after the effective date.

THIRDLY: A depletion allowance of 25% of his gross annual income.

These sums which the concession holder may deduct in any year have been reviewed and were restricted in the amendments to the following items only:

FIRSTLY: Operating expenses and overheads, the details of which are defined in Regulations.

SECONDLY: Depreciation of all physical assets in Libya at the rate of 10% per annum and amortization of all other capital expenditures in Libya at the rate of 5% per annum.

The amendment to the Law has also clearly provided that the concession holder shall not be permitted to deduct the following items from the income which he derives in determining his profits.

FIRSTLY: Penalties paid under Article 22 of this Law or any sums forfeited under Article 11 of this Law.

SECONDLY: Foreign income taxes.

THIRDLY: Interest paid in respect of the financing of the operations of the concession holder.

FORTHLY: Expenditure incurred in relation to the organizing and initiating of petroleum operations in Libya.

(6) — The Law had no clear definition for « The income resulting from the operations of the concession holder ». Therefore, the amendment to the Law defines the income of the concession holder from crude petroleum to be equal to the posted price of Libyan crude petroleum less marketing expenses multiplied by number of tons exported.

The amendment also contains a precise definition for « posted prices for crude petroleum » and the method for arriving at these prices in the absence of free market prices for Libyan petroleum.

(7) — The Law does not provide for a method of paying the income taxes and the surtaxes due for payment by the concession holder. Paragraph (1) of Clause 9 of the Second Schedule provided that the collection of the said sums shall be subject to the procedures defined by Financial Laws and Regulations in Libya, while paragraph (2) of the said Clause stated that the rents and royalties due shall be paid every three months.

Therefore, it has been fit to add a new paragraph to the said Article of the Law to provide that the concession holder shall be required to submit his accounts within a period not exceeding 4 months after the end of each complete year. Simultaneously with the submission of the accounts the concession holder is required to pay the sums due in respect of income taxes and surtaxes, provided that the final settlement of accounts shall take place after the final determination of the tax.

The provision will enable the Commission to receive its share of the profits promptly instead of waiting until the profits and the taxes are finally determined.

Article 16.

In order to encourage the exploration and search for petroleum in the country and in conformity with practice followed in other countries, paragraph (1) of Article 16 of the Law was amended on the basis of permitting the permit and concession holders to import free of duty: plant, machinery, tools, equipment,

materials and supplies and also other goods which are specified in Regulations issued under the Customs Law, provided that all these items are used in Libya for petroleum exploration, prospecting and mining operations and provided that similar goods are not available in Libya.

Article 17.

Article 17 was amended so as not to permit the concession holder to assign the concession except with the Commission's approval in accordance with conditions which it may impose and which it deems appropriate in the public interest.

Additional Article.

A new Article was added, under which concession holders who were granted concessions before the amendment of the Law may apply to the Commission, within 6 months from the date on which this amendment takes effect, to have their concession deeds amended in accordance with the conditions and provisions contained in these amendments. The period of any concession thus amended is extended by a period equal to that from the date on which the original concession was granted to the date on which the amendment takes effect.

In addition, this Article has provided that no new concessions shall be granted to any person who holds concessions before the coming into force of these amendments, unless that person agrees to amend his previous concessions in accordance with the conditions and provisions contained in these amendments. This stipulation gives the Commission the opportunity to negotiate with the existing companies to comply with the new set-up and to accept the provisions and conditions proposed in these amendments. This is what has actually taken place in other countries such as Venezuela and the Arab countries where the agreements were amended to the advantage of these countries, as a result of negotiations.

Annex 9

CORRESPONDENCE FROM LIBYAN UNDER SECRETARY OF THE MINISTRY OF
OIL REGARDING THE USE OF Sfax FOR PETROLEUM OPERATIONS

[Arabic text not reproduced]

CORRESPONDENCE OF AQUITAINE LIBYE REGARDING THE USE OF Sfax FOR
PETROLEUM OPERATIONS

(Translation)

"Allah, we seek the right path between us and our people"
"Allah is true in His Teachings"

Rabia Awal 21, 95

4/2/75

3/44/1425

Brother Under Secretary of the Ministry of Interior, Greetings :

The French Aquitaine Company, which is a partner with the National Oil Corporation, faces difficulties in developing oil field No. 137, part of which is located in water and part on land.

These difficulties could be resolved by means of these methods :

1. Granting the Aquitaine Company permission to use radio equipment for communications between its main station in Tripoli, the drilling areas, and the port of Sfax in Tunisia.
2. Granting entry and exit visas to authorized workers for long periods.

This is at a time when the Tunisian authorities show a willingness to grant the mentioned company the necessary facilities in the port of Sfax.

For the above reasons, we request approval to grant the Aquitaine Company the necessary permission to use radio equipment to communicate between its station in Tripoli, the drilling areas, and the port of Sfax and to grant authorized workers entry and exit visas for a long period.

May the Peace and Grace of Allah be with you.

Mustafa Mohamad ZURAYK,
Acting Under-Secretary of
the Ministry of Oil.

Copy : to the Brother Minister.

Copy : to the Legal Office.

Copy : to the National Oil Corporation.

AQUITAINE LIBYE

SOCIÉTÉ ANONYME FRANÇAISE AU CAPITAL DE 1 000 000 FRANCS FRANÇAIS

Operations Department

RC/ky

*Work-boats chartered by Aquitaine-Libye in
Libyan waters as from 1975.*

22 October 1979

Attention Mr. A. Senoussi

1. *From 1975 to 1977**(Scarabeo III campaign)**A. P. Moller**- Maersk "Tracker"**- Maersk "Hauler"**- Maersk "Fighter"**OSA**- "Munientor"**Loading ports**Sfax (Tunisia) : Casing and heavy equipment**Tripoli (Libya)**Fuel and Water*2. *From 1977 to 1978**(P. 81 campaign)**- Same work-boats**Loading ports**Malta : Casing and heavy equipment**Tripoli : For water and fuel*3. *1979**(Dyvi Gamma campaign)**"Normand Shipping"**"Normand Vibran"**OSA**"Ostertor"**SURF**"Atlantide"**Loading ports**- Same as P. 81 campaign.*

Operations Manager,
 (Signed) R. CLERC.

Annex 10

PAGE 201 OF INSTRUCTIONS NAUTIQUES. AFRIQUE (CÔTE NORD) LEVANT, 1968

ENTRE DJERBA ET L'EST DU RAS AJDIR¹. — Zone. —
Champ de tir de Zarzis. — Un champ de tir est installé le long de la côte au Sud de la ville. La zone dangereuse est comprise entre la côte et la ligne joignant l'enracinement de l'appontement et le ras el-Lems.

5 **Côte et amers.** — Le ras Marmor (*Marmor*) [33° 37' N — 11° 03' E] termine vers le NE les collines escarpées qui s'étendent derrière la côte au Nord de Zarzis. Le rivage est bas, bordé de petits rochers. Sur le ras Fetil, à 1,5 M plus au Sud, on aperçoit une villa blanche.

10 A l'exception de la hauteur de Sidi-Chemmakh (*Shemmark*), on ne distingue aucun objet remarquable sur les falaises rougeâtres de la côte.

Aux alentours immédiats de Zarzis (voir Mouillages, p. 202), on voit (vue de la carte n° 4246) le phare, tour octogonale blanche à sommet noir et haute de 14 m au-dessus d'une construction massive; la butte de tir en forme de trapèze; une importante cité militaire; le marabout de Sidi-Abd-el-Kader; la douane flanquée de hangars remarquables et surmontée d'un belvédère à l'enracinement de l'appontement; au Nord de Zarzis les marabouts de Ksar Zaouia, visibles de 12 à 13 M et, au Sud, en retrait sur une petite butte la koubba de Sidi-Bou-Teffaha (*Bou-Tfa*).

20 Entre Zarzis et le ras Ajdir² la côte est basse, découpée par des sebkhas et largement débordée par des bancs (voir Dangers). On distingue : l'enshir el-Lemsa (*Lems*), monticule abrupt, visible de 5 à 6 M et, à 11,5 M dans l'ESE sur un des îlots d'el-Biban, un bordj, très visible.

25 A 2,3 M de ce bordj, des citernes visibles de loin constituent le seul amer remarquable de toute cette zone.

Au-delà des îlots el-Biban, la côte est uniforme et bordée de pêcheries. On y voit une série de monticules dont beaucoup portent des ruines. La seule reconnaissable avec certitude est sur le ras el-Ketef signalé par une falaise blanche.

30 Le ras Ajdir (*Ashdir*) [voir Mouillages] constitue la frontière de Tunisie avec la Libye. Cette frontière est marquée par deux balises à voyant noir et une pyramide qui n'est pas apparente, mais située au Nord d'un groupe de maisons, dont une entourée d'arcades est très visible. Les bâtiments de la douane se remarquent bien du large.

Dangers et balisage. — Dans toute cette région la côte est débordée de bancs de sable et d'herbes qui s'étendent jusqu'à une grande distance du rivage. Ces hauts-fonds sont particulièrement dangereux dans la région du Sud de Zarzis. Pour l'épave située à 1,5 M au Nord du ras Marmor, voir p. 196.

Banc el-Biban. — Ce banc qui, à l'ESE de Zarzis, s'étend jusqu'à une dizaine de milles de la côte, est presque à fleur d'eau. Son extrémité

¹ Cartes n° 4245 et 4247.

² Carte n° 4247.

Annex II

LIST OF BILATERAL AGREEMENTS ENTERED INTO
BETWEEN LIBYA AND TUNISIA*Agreements*

1. Economic and cultural co-operation agreement signed in Tripoli 15 August 1970. Came into force 5 September 1971.
2. Agreement on air transportation. Signed in Tripoli 19 May 1971. Came into force 29 January 1973.
3. Agreement on the exemption of transport vehicles between the two countries from tax and fiscal fees. Signed and brought into force 17 June 1971.
4. Agreement on co-operation in the agricultural field. Signed in Tripoli 5 September 1971. Came into force 14 December 1972.
5. Agreement on fishing activities. Signed and brought into force 5 September 1971.
6. Agreement on co-operation in the field of fishing. Agreed and came into force in Tunis on 6 September 1971.
7. Agreement on qualified labour. Signed in Tunis 5 February 1972 and came into force 14 December 1972.
8. Agreement on seconding Tunisian professors. Signed in Tunis 17 April 1973. Came into force the same day.
9. Agreement on training and professional formation. Signed in Tunis 6 June 1973 and came into force 1 February 1975.
10. Commercial and customs agreement. Signed in Tunis 6 June 1973 and came into force 1 February 1975.
11. Agreement to facilitate transfer of capital for investment and its protection. Signed in Tunis 6 June 1973 and came into force 1 February 1975.
12. Social security agreement signed in Tunis 6 June 1973. Came into force 1 February 1975.
13. Agreement on organization of the work of Tunisian contracting companies in Libya. Signed 6 June 1973. Came into force 1 February 1975.
14. Agreement on property rights, work, professional activities and residence. Signed 6 June 1973 and came into force 1 February 1975.
15. Agreement on the mail transfer of money signed on 6 June 1973. Came into force 1 February.
16. Agreement establishing a publishing and printing company. Signed in Tunis 21 July 1973. Came into force 16 September 1973.
17. Agreement providing for the Grant of Loans by Libya to Tunisia. Signed in Tripoli, 2 November 1973. Came into force 18 July 1977.
18. Grant agreement signed and put into force 2 November 1973.
19. Participation agreement signed in Tripoli 2 November 1973 and came into force 18 July 1977.
20. Maritime agreement. Signed in Tripoli 18 June 1974 and came into force 10 September 1975.
21. Agreement on double taxation. Signed in Tripoli and came into force 15 May 1978.
22. Development of the agreement between Libyan news agency and Tunisian news agency. Signed and came into force 23 May 1978.

23. Cultural Agreement. Signed in Tunis 9 January 1979. Came into force 14 February 1979.

Joint Ventures

1. Libyan/Tunisian fishing company established in 1972.
Capital : 1,750,000 Libyan dinars.
Libyan shares : 51%.
2. Libyan/Tunisian maritime transportation company.
Established in 1976.
Capital : 50,000 Libyan dinars, raised to 50 million Libyan dinars.
Libyan shares : 50%.
3. Libyan/Tunisian bank.
Established on 28 December 1972.
Capital : 10 million Libanese lire.
Libyan shares : 60%.
Totally paid.
4. Turgenus (Djerba)
Established 1973.
Capital : 3 million Tunisian dinars.
Libyan share : 48%.
Totally paid.

(This was to finance the building of the largest hotel in Djerba.)

5. Joint agricultural company (in process of establishment).

Aid, Contributions and Loans

1. Tunisian Bank for Development – Tunis.
Established 1973.
Capital : 17 million Tunisian dinars.
Libyan participation : 17%.
2. Tunisian real estate company – Libya gave a loan of 3 million dollars.
3. Libya gave Tunisia loans up to 10½ million Libyan dollars till 24 August 1977, 5,250,000 Libyan dinars have been paid.
Grants given to Tunisia amount to 500,000 Tunisian dinars paid in two instalments :
(a) 300,000 Tunisian dinars in 1974.
(b) 200,000 Tunisian dinars in 1977.

This grant was given to studies for supplying water to Southern Tunisia.

4. It was agreed that Libya would pay 5 million Tunisian dinars for an industrial project in Tunisia.
5. It was agreed on 15 May 1978 that Libya would give a loan of 10 million Tunisian dinars with an interest of 2½% for the following projects :

Agricultural project	5½ million dinars.
Cable project	4½ million dinars

provided that half of the loan will be repaid in cash in 20 years with five and a half years' grace period and the other half in products within ten years with three years grace period.

Annex 12

LETTRE DU MINISTÈRE DE L'ÉCONOMIE NATIONALE TUNISIEN AU DIRECTEUR GÉNÉRAL DU GROUPE ELF-AQUITAINE, EN DATE DU 27 AVRIL 1976

Tunis, le 27 avril 1976.

Objet : Délimitation du plateau continental tunisien.

Monsieur le Président,

J'ai l'honneur de vous communiquer la délimitation de la partie sud-orientale du plateau continental tunisien. Cette délimitation est constituée par les arcs de grands cercles joignant les points définis ci-après :

- A. Point frontière de Ras Ajdir.
- B. Intersection du grand cercle passant par A et direction nord-est avec l'isobathe 50 mètres.
- C. Intersection de l'isobathe 50 mètres et de l'arc de grand cercle défini par le point C' (point intermédiaire) de coordonnées 33° 26' 00" et 11° 46' 30" E et le point D défini ci-après.
- D. 33° 34' 15" N 11° 58' 45" E
- E. 33° 44' 48" N 12° 13' 34" E
- F. 33° 56' 45" N 12° 27' 30" E
- G. 33° 58' 00" N 12° 42' 06" E
- H. 34° 06' 40" N 12° 55' 10" E
- I. 34° 29' 34" N 13° 39' 48" E

Entre les points B et C, la ligne de délimitation est constituée par la portion d'isobathe 50 mètres.

Cette délimitation restera en vigueur tant qu'un accord international de délimitation du plateau continental dans cette région n'aura pas été conclu par les parties intéressées.

En comptant sur votre souci, que nous partageons de préserver et de renforcer la coopération fructueuse existant entre l'État tunisien et votre groupe, je vous prie de croire, Monsieur le Président, à l'assurance de ma haute considération.

Le ministre de l'économie nationale

(Signé) Abdelaziz LASRAM.

Annex 13

LIST OF TUNISIAN AND ITALIAN WARSHIPS VISITING THE SITE OF
SCARABEO IV

Name of the Vessel	Date	Remarks	Departure
Tunisian boat (<i>Ibn Sina</i>) No. 1630 FF	17.2.77 17h00		
	17.2.77	Delivery to the rig of the following documents : A. Notice with the injunction to immediately cease the drilling operations. B. Proceedings instituted against the company representative on board of the rig. C. A summons to Court in Tunis.	
Tunisian launch	22.2.77 08h45		
Italian minesweeper No. 5432 near the rig	23.2.77 17h10		
Tunisian warship near the rig	23.2.77 19h00		23.2.77 21h20
The same Tunisian warship	24.2.77 07h50		24.2.77 12h45
One warship and launch	27.2.77 15h30	A. Italian warship No. 5433. B. Tunisian launch. C. The permanence of ship near the rig.	The launch left on 27.2.77 at 16h10. The Italian ship left on 27.2.77 at 20h55.

Name of the Vessel	Date	Remarks	Departure
Italian minesweeper 5433	28.2.77 12h25		
Military launch	28.2.77 12h40		
Italian minesweeper	3.3.77 19h00		
Italian ship	5.3.77 18h35		
Tunisian warship <i>Bourguibo E7</i>	7.3.77 19h15		
Italian minesweeper 5431			
Same warship	8.3.77 07h00		
Same warship	9.3.77 14h17		
Italian warship near the rig	10.3.77 15h20		
Italian warship	11.3.77 10h06 12.3.77 14h40		
Tunisian launch No. 301	16.3.77 15h55		The launch left same day at 17h05
Italian minesweeper No. 5432 near <i>Scarabeo IV</i>	16.3.77 15h20		
Tunisian launch (<i>Ben- zirt</i>) 301	16.3.77 18h15		
Italian minesweeper No. 5432 Tunisian launch (<i>Ben- zirt</i>) 301	17.3.77 16h55		
Italian minesweeper 5433	18.3.77 14h55		

Name of the Vessel	Date	Remarks	Departure
Tunisian launch Italian warship 5433 Tunisian launch (<i>Monastir</i>) 302	21.3.77 20h40 15h25 16h05		
Italian minesweeper 5431	28.3.77 15h30		
Italian ship	4.4.77 17h05		
Italian minesweeper Tunisian launch	7.4.77 15h15		
Italian ship No. 540F	15.4.77 15h45		
Italian ship	21.4.77 17h55		
Tunisian launch Italian minesweeper	27.4.77 15h10		
The departure of <i>Scarabeo IV</i> with an Italian navy unit	10.5.77 16h40		

Annex 14

PAGES 563 AND 564 OF
HOWARD R. WILLIAMS AND CHARLES J. MEYERS, *OIL AND GAS TERMS*,
4th ED., NEW YORK, MATTHEW BENDER, 1976

[Not reproduced]

Annex 15

WARNING FROM THE TUNISIAN MINISTRY OF DEFENCE TO THE *J. W. BATES*
 TELEX REGARDING THREAT TO THE OWNERS OF THE *J. W. BATES* FROM THE
 TUNISIAN AMBASSADOR TO THE UNITED STATES OF AMERICA

Reçu le 27.05.77.

(Flash)

MINISTÈRE DÉFENSE NATIONALE
 (M.D.N.) 27 17 55 .B.
 BÂTIMENT (BATES)

Votre mouillage se situe dans une zone que la Tunisie considère relevant de la souveraineté Tunisie. Vous sommons de lever l'ancre et de vous abstenir de mener des travaux de forage.

Ce message est à délivrer par embarcation et par radio. Enregistrer l'accusé de réception.

(Telex)

1 June 1977

National Oil Corporation,
 Tripoli, Libya.

Attention: Mr. Kritly

On Friday afternoon 27 May 1977 we received an urgent request from a well-known and respected United States Senator from the state of Oklahoma, the Honorable Dewey Bartlett, to meet with him, the Ambassador of Tunisia to the United States and a representative of the U.S. State Department in Tulsa, Oklahoma, as soon as possible. Because of our national holiday on Monday, 30 May, the meeting was held on Tuesday, 31 May 1977.

At that meeting the U.S. State Department confirmed, as it had previously stated, that it would not take sides with either Libya or Tunisia with respect to the merits of the border dispute, but that on policy grounds the State Department would strongly prefer that Reading & Bates withdraw from involvement in the border dispute.

The Tunisian Ambassador advised that his Government considered the continued drilling operations by our rig in an area claimed by Tunisia to be a provocative act against its sovereignty and one that his Government could not accept under any circumstances. The Ambassador indicated that his Government would use any means under its control to cause discontinuance of the operations by our rig.

We advised those persons present at the meeting that Reading & Bates had earned its reputation as an international drilling contractor over many years by

duly performing its contracts with its clients in a prudent and responsible manner and that prior to any action being taken by Reading & Bates in this matter it would be necessary to consult with you. Although the representative of the State Department and the Tunisian Ambassador urged a response from Reading & Bates at the meeting, we indicated that in light of the gravity of the matter, an immediate response could not be made until we had the opportunity to consult you. We did agree, however, to give this matter our immediate attention and to advise the State Department of Reading & Bates' position as soon as possible under the circumstances. The Tunisian Ambassador indicated that any delay was unacceptable if drilling operations continued.

Our primary concern is that neither our personnel nor the "J. W. Bates" be placed in any danger of injury, death, loss or damage, and thus we must give serious consideration to the possibility of harm to our personnel and our drillship in light of the present circumstances.

Notwithstanding the foregoing, we feel that there are potential alternatives which, if pursued soonest, would permit the drilling operations to continue under the drilling contract to conclusion. Therefore, we urgently request a meeting, request a meeting with your chairman and managing director in our offices in London at the earliest possible time to review this matter in detail. Mr. Thornton, President of our parent corporation located in Tulsa, Oklahoma, and the undersigned are prepared to depart immediately for London.

As we feel such a meeting is warranted by the present circumstances and is in our mutual interests, we would greatly appreciate your immediate consideration and favourable response to our request by return telex communication.

Reading & Bates Drilling Co.,
Houston, Texas,
(Signed) W. D. KENT,
President.

Annex 16

- ⑨3 MAP SHOWN ON LIBYAN TELEVISION IN CONNECTION WITH A STATEMENT BY
MR. ATTEIGA
-

Annex 17

STATEMENT BY COLONEL GHADAFFI ON 2 JUNE 1977

*[Arabic text not reproduced]**(Translation)**The Continental Shelf*

From the military point of view, we fear none. As to the purely administrative side of prospecting for oil and such other questions, this is an issue governed by other rules. So far, we are sure that current drilling falls within an area that cannot be subject for dispute between the Jamahiriya and any other State. This is proved by facts. The line which the Libyan experts say delimits our continental shelf with Tunisia is 45 kilometres to the west of the point where drilling is going on. The contract concluded by Tunisia in 1967 for prospecting for oil actually lies to the west of this point where drilling is now carried out, 45 kilometres off the Libyan line to the north and the west up to the border of the field. In 1968, it became clear that there was oil to the west of that area, that is, to the west of the demarcation line between the Libyan and the Tunisian continental shelf zones. Then Tunisia pushed its line and submitted to Libya in 1968 a new line to the east of the first line. Even then, the new line was 10 kilometres to the west of the area of current drilling. In 1976-1977, it became clear that there was an oil field to the east of this point. Tunisian experts pushed the line again so that it could cover part of the field and the Tunisian line could fall within the area where there was petroleum. If each time petroleum is ascertained you push the line towards the field, then the question is no longer one of your continental shelf but rather that you wanted that petroleum, and it means that you want to try your luck with the hope that this attempt brings you something. The drilling platform now stands 45 kilometres to the east of the line separating the continental shelf zones of Libya and Tunisia. Here we are sure that drilling is carried out in an area which is not at all subject to dispute. The dispute stands as to the area which lies 45 kilometres to the west, and relates to whether the line should be removed towards the east or the west.

That Tunisia needs oil, there is no doubt. Tunisian statements have always affirmed this fact, without any basis or ground. It is clear that Libya has oil and Tunisia has no oil, but this is no justification for Tunisia to search for oil even in the Libyan continental shelf.

Let Tunisia come to unity with Libya tomorrow, a unity that ensures equality of Tunisia and Libya in sharing the oil, from the continental shelf to the field of Al-Serir. That is the correct historical solution.

If the question is that of the interests of the Tunisian people, let us establish unity. For it is in the interest of the Tunisian people to have unity between the Jamahiriya and Tunisia. It is in the interest of the Tunisian people to be partners with the Libyan people in oil. If any one seeks the interests of the Tunisian people, this interest lies in unity between both countries. But those who refuse unity and claim that they defend the interest of the Tunisian people, speak in a

suspicious manner ; and this must raise comments even among Tunisians themselves.

I say that this is not the real problem of the Arab nation ; it is not the continental shelf. And we have no reason to display military force against Tunisia.

I am sorry to say that during the last two days there has been a widescale campaign to mislead the Tunisian people, in the first place, and to mislead the world public opinion, by claiming that Libya has installed a drilling platform in Gabes bay.

However, when the Libyan experts published the map to the world, it became clear that the platform was 120 kilometres to the north of El Zawyeh town, and was away from Gabes bay. It was said that if drilling was in Gabes, this constituted an aggression on Tunisia, but now that it is shown that drilling is to the north of El Zawyeh, then to claim this site means claiming the town of El Zawyeh itself.

Let Us Remove Borders

Instead of claiming El Zawyeh, let us achieve unity between the two countries and remove these borders. This we welcome. I do not believe that a site that lies 120 kilometres to the north of El Zawyeh and 220 kilometres off Gabes could be a subject for dispute between Tunisia and Libya if the matter was simply a dispute over the continental shelf, not over other things that could claim victims. I do not believe it is possible to recognize the territorial concept that makes the continental shelf of Tunisia, if this line were extended, to the north of Al Khoms. The world would laugh at this idea and would refuse to discuss the issue, for this concept would mean that the Maltese-Libyan continental shelf shall become the Maltese-Tunisian continental shelf.

In any case, I reiterate that the battle is far more reaching, the battle of the Arab nation is far more reaching, and the true solution of our problems lies in unity. All Arabs should share their oil so that all potentialities are mobilized to achieve Arab progress and to destroy artificial borders. I say there is a contradiction which arises because of revolution. This contradiction cannot be solved from outside, as some claim. I say for our part that we exclude any manifestation of force or threats, or not even any publicity or propaganda in the case of an issue as simple as that of the continental shelf.

I say that a solution of this issue could be something like a message that comes not later than yesterday from President Habib Bourguiba saying that he gives me the power to search for a solution, that is to say, he authorizes Muammar to find a method for arbitration and he accepts whatever solution comes out.

I say that the logic prevailing between us does not justify fears of using force. Our force is to be used against the enemies of the Arab nation and not against another Arab, for that would not be justifiable. As I said in the above analysis, the outcome of these contradictions would be a revolution, and not a clash from behind the borders.

For our part, we do not fear arbitration or negotiations, but rather seek them for this is the way to bring out the truth. I say now, to the Tunisian people as well as world public opinion, to provide for any future developments, I say that even if, for argument's sake, it turned out that the site where the platform is now operating appertained to Tunisia, I say there will be no problem.

In such a case drilling would be in the interest of Tunisia ; but if it turns out that the site belongs to the Jamahiriya, then drilling should go on as it is, for the Jamahiriya.

Ready for Arbitration

There is not a solution as reasonable and practical as the one I have mentioned. Let us go for arbitration and negotiations. And now I say that if, although it is a remote possibility, the site turned out to belong to Tunisia, then the benefits of drilling would accrue to Tunisia ; but if the site ultimately turned out to belong to the Jamahiriya, then it should fall to the Jamahiriya. Thus, there is nothing to be lost in continuing drilling ; on the contrary, it would be beneficial to man, who faces shortages of natural resources all over the world, if drilling continued to exploit natural resources.

Our brothers in Tunisia invited the Secretary of Foreign Affairs to visit Tunisia. We have no objection to this visit any time, provided the atmosphere is right, and cordial. He was about to go, but when I saw the information releases of Tunisia we detected a tone of threats and attacks, so we cancelled the visit. I still maintain that if the atmosphere is cordial and normal so that understanding would be promoted, then there would be no reservation on the visits between Tunisia and Libya on any level. However, if the atmosphere smells of threats or attacks or insolence, then we reject these methods and we also close all doors and keep the keys in our pockets and act in a manner that would be understood by those who only understand such a manner of conduct.

For our part, history shall not say that we displayed military force against Tunisia. But I also say that this is an issue that should be referred to Libyans, for I alone cannot take a decision on it. My duty is to participate with the masses to enable the people to make their decision. I am not a president or king or prince to impose my decision on the masses. The decision will have to be made by the people's congresses. My task is to struggle with the masses so that the people's authority is asserted and the masses can always take the decision.

If someone opened all doors or closed all doors, or opened some doors and closed others telling us which way to go, wanting to impose on us a logic other than that of negotiation, then we say no and we can also take a decision suitable to the situation.

Thus decision is left to the Tunisian Government ; if it creates the atmosphere for understanding, we say welcome. But if it disturbed it, then it would bear the responsibility. The Foreign Secretary could go anytime to Tunisia and may agree to any formula. The Tunisian Foreign Minister came here twice and then they extended the invitation to the Secretary. He must go, even if it were only out of courtesy. But I refuse the visit if the atmosphere is full of insults and attacks or threats, or if there was anything to indicate that negotiations may be conducted under any condition that we do not accept. We are free to refuse and free to act according to the situation.

Understanding Possible

I believe it is possible to reach a solution or an understanding in respect of this issue, if the right circumstances were provided. It is possible to do so with people who observe their national obligations and refuse to get stuck in issues of territorial borders. We do not give much attention to those simple questions that may cause the Arab nation to suffer undue losses. The Libyan and Tunisian peoples need each other. There are tens of thousands of Tunisians working together with Libyan, Egyptian, Palestinian, Syrian, Lebanese, Iraqi, Sudanese, even Mauritanian, brothers. This proves that unity is a must, and there is no alternative to it. Borders have become very much weakened, due to the movement of the Arab people towards unity.

Annex 18

REPRODUCTION OF A FRENCH MAP ENTITLED
*CARTE DES CÔTES DE BARBARIE OU LES ROYAUMES DE MAROC, DE FEZ, D'ALGER,
DE TUNIS, ET DE TRIPOLI AVEC LES PAYS CIRCONVOISINS*, M. BONNE, PARIS

[Not reproduced]

Annex 19

PAGES 372, 373, 375 AND 377 OF
ANDRÉ MARTEL, *LES CONFINS SAHARO-TRIPOLITAINS DE LA TUNISIE*,
TOME PREMIER, PARIS, PRESSES UNIVERSITAIRES DE FRANCE, 1965

[Not reproduced]

Annex 20

EXTRACTS FROM PAGES 190 AND 191, 242 AND 243, 275, 282, 316, 325, 333, 351, 372 AND 378 THROUGH 380 OF THE *DOCUMENTI DIPLOMATICI ITALIANI*, 2ND SERIES, VOL. XXI

(English translations of the documents in Italian)

228 (pages 190 and 191)

PRESIDENT OF THE COUNCIL AND ACTING MINISTER OF FOREIGN AFFAIRS,
CRISPI, TO AMBASSADOR BLANC AT CONSTANTINOPLE

D. 334/115 (1).

Rome, 15 October 1887.

The War Ministry has just communicated to me a memorandum from the General Staff Corps Headquarters concerning the machinations and aims of the French along the border of Tunisia and Tripolitania. I pass on to V.E. a summary of this memorandum in order that he may ascertain the new information therein contained and make where they should prove true, the appropriate complaints, reporting back to me on what he has been able to gather and do in the matter. According to the news received from a good source at the General Staff Corps Headquarters, it now seems certain that Turkey, at first opposed, has now partly given in to the claims of France and that a portion of the territory of Tripoli shall soon be united politically with Tunisia. Though considerable, this portion of territory will not be so extensive. Giamila or Smila located not quite on the coast but inland to the south of lake El Biban will be incorporated into Tunisia through border adjustments. The French will establish, as soon as possible, a garrison at Zarzis (Tunisia) from which detachments will be supplied. These will have a total strength of 500 men more or less at Giamila and Duirat. These two points will be fortified.

It is believed at Tripoli that if no power should take the French to pass for the above-mentioned adjustment, she will take advantage of this to push onward, and shall make a thrust above all toward Ghadames, a region which the French are yearning to reunite to Tunisia.

The frequent raids, among which some very serious ones like that perpetrated in the recent past on the tribe of the Uarghamna and Duirat, it seems, have been provoked by French agents, namely by General Allegro residing at Gabes. These raids tend to maintain a troubled atmosphere designed to serve the aims of French policy, as represented by Mr. Massicault. This is to say, aims of new territorial conquests. These raids that keep the fire of discord burning between the tribes must be watched inasmuch as they may facilitate, as other examples call to mind, new and more considerable annexations.

282 (pages 242 and 243)

PRESIDENT OF THE COUNCIL AND ACTING MINISTER OF FOREIGN AFFAIRS,
CRISPI TO AMBASSADOR BLANC AT CONSTANTINOPLE

D. 355/123

Rome, 6 November 1887.

With reference to the previous correspondence exchanged with that Embassy on the subject of French manoeuvres on the border between Tripolitania and

Tunisia, I believe I ought to call the attention of Your Excellency to another fact which my colleague, the Minister of War, has brought to my attention. This fact confirms the suspicions we have had on the intentions of the Government of the Republic (Note : France). The headquarters of General Staff Royal Corps, having had occasion to examine the maps of Africa on the scale of one-four million, of which the Perthes firm is publishing a second edition, has revealed that in the second edition, the border line between Tripoli and Tunisia was moved in such a way as to leave Tunisia with all of lake El Biban and Kasr Wassen in the direction of the Duirat mountains where they meet Gabel Nafusa. That is, the border of Oued of Mokta was marked. This is the border that Mr. Cambon, already the current resident in Tunis, considered to be the true one.

From the illustrative notes, indicating the various sources from which the corrections made on the original map have been obtained, it appears that the direction taken by the southeast border of Tunisia, established in agreement with the Pasha of Tripoli, was derived from the map "Des Itinéraires de la Tunisie" published by the French Photographic Institute in January of this year.

Special attention is due to the circumstance to which open reference is made of the agreement that has been reached with the Pasha-Governor of Tripoli. This could explain the repeated assertions of the Sublime Porte that no agreement had been reached between the French Government and that of the Sultan. The General Staff Corps Headquarters does not have sufficient intelligence to assert that the occupation of the territory has actually taken place, the territory which in the Perthes map already appears as part of Tunisia; but at any event, the above-mentioned matter has *per se* too much importance for Your Excellency to overlook. Your Excellency should try to find out what is known at the Sublime Porte concerning this significant border alteration and what the official line is.

316 (page 275)

PRESIDENT OF THE COUNCIL AND ACTING MINISTER OF FOREIGN AFFAIRS,
CRISPI, TO AMBASSADOR BLANC AT CONSTANTINOPLE

D. 377/133

Rome, 18 November 1887.

In my dispatch of this month, I requested Your Excellency to bring to the attention of the Sublime Porte the striking piece of information contained in a recent map of Perthes. According to this, with the consent of the Pasha of Tripoli, the eastern border of Tunisia has been pushed back all the way to Wadi Mokta with a considerable expansion also inland.

Concerning this very same topic, I now received from the Royal Consul General in Tripoli, a report a copy of which I am enclosing. According to the intelligence gathered in this report the matter has even greater gravity. It is no longer a question of a simple notation on a map, bereft of any official character, but it is now the confirmed design of the French to annex a considerable area of territory directly subject to the Sultan's sovereignty to their Tunisian protectorate. Fortification operations at Gemila are now being prepared (Gemila is located in this zone) and every attempt on the part of the Turkish authorities to exercise administrative powers in this same area are being violently rejected. In the face of similar encroachments, the Pasha of Tripoli appears sufficiently aware of the duty that rests with him to safeguard with effective vigilance the prerogatives of his Lord. As far as we are concerned, and from the point of view of balance which we wish to maintain in the Mediterranean at all costs, we can do no less than to declare as of now that any attack on the part of other powers to

alter the present territorial situation in Tripolitania is without legal force. However, we do believe that for our part we owe it to friendship, not to leave the Sublime Porte in ignorance of what is going on to its detriment and which it ought to energetically oppose, as is its undubitable right and duty before the French designs become French *faits accomplis*.

Your Excellency will probably, in so doing, have the consent of the colleagues representing the powers which have with us a common programme of peace and maintaining the *status quo* with regard to Mediterranean affairs.

327 (page 282)

THE PRESIDENT OF THE COUNCIL AND ACTING MINISTER OF FOREIGN AFFAIRS, CRISPI, TO THE CHARGÉ D'AFFAIRES AT LONDON, CATALANI

D. 483/475bis.

Rome, 20 November 1887.

I pass on to you herewith enclosed a dispatch which I am forwarding on this day to the Ambassador of His Majesty at Constantinople. A copy of a report by the Royal Council of Tripoli is appended to said dispatch. He will notice that we are faced with events which merit serious considerations. It is obvious that the French Government is pursuing an expansionistic programme also on the part of Tripolitania. This plan cannot be allowed by powers determined to maintain the *status quo* in the Mediterranean basin, powers bound together by reciprocal pledges to this effect. Please try to find out if Lord Salisbury is aware of what is going on and tell him that in our eyes, the conduct of the Sublime Porte is equally reproachable whether the Porte is allowing things to go on by connivance and in the hope of other advantages to be obtained elsewhere or is giving in to pressure which is being placed on it and which it is making no attempt to avoid. I shall say further comment in return to this important subject as soon as I have new intelligence in the matter.

369 (page 316)

THE AMBASSADOR BLANC AT CONSTANTINOPLE TO THE PRESIDENT OF THE COUNCIL AND ACTING MINISTER OF FOREIGN AFFAIRS, CRISPI

R 147

Constantinople, 2 December 1887.

I refer to my report No. 141 of the 29th of November last.

The explanations requested by the Porte from the governor of Tripoli on the Tunisian border adjustments not having yet arrived, I believed it opportune to enable the Porte to request once more by telegraph clarifications from that official on basis of new information contained in the Ministerial dispatches Nos. 123 and 133 of this series. My three colleagues consented with me in so doing and in particular the Ambassador of Germany remarked to Gran Visir that the policy of *status quo* affirmed by the Powers is based upon the supposition that the Porte, for its part, is able to preserve its own territorial integrity which, however, if it were diminished in Tripolitania by the doing of the French, could, as a natural consequence, also be gnawed away at by others. The Gran Visir has indicated his appreciation of the seriousness of events which have been brought to his attention and has renewed by telegraph his request to the governor of Tripoli for more precise clarifications. He has, moreover, ordered him to entertain no communications on border matters with the local French commanders, but rather with the high command in Tunisia. It seems to me doubtful that this

order will have practical effects. I shall further insist at the Porte on the necessity of avoiding further delays in providing clarifications requested.

384 (page 325)

AMBASSADOR BLANC AT CONSTANTINOPLE TO THE PRESIDENT OF THE
COUNCIL AND ACTING MINISTER OF FOREIGN AFFAIRS, CRISPI

R 154

Constantinople, 6 December 1887.

After the categorical and official denial repeatedly put forward by the Porte not only to me but to my English, German and Austro-Hungarian colleagues – these denials rule out any participation whatsoever by the Imperial Government in border alterations which supposedly are going on between Tunisia and Tripolitania – the new material published by the Geographic Society of Paris gives us every right to demand further immediate explanations in the matter, i.e., outright explanations of principle. This is justified by the fact that not only does it appear that territories concerning which the Porte does not demonstrate having any exact geographic notion, have been taken away from Tripolitania, but also the distance of any agreement, even one reached only by the governor of Tripoli with the French authorities would be detrimental to the resolve constantly manifested by the Porte to me and to my aforesaid three colleagues to refuse to recognize the French protectorate at Tunis. I am going now to the office of Gran Visir and am sending directly to the Sultan the information telegraphed to me by Your Excellency. I shall report on the outcome after this mail goes out.

396 (page 333)

AMBASSADOR BLANC AT CONSTANTINOPLE TO THE PRESIDENT OF THE
COUNCIL AND ACTING FOREIGN MINISTER, CRISPI

R Confidential 155

Constantinople, 9 December 1887.

This is a sequel to my report No. 154 concerning the shifting of the border between Tripoli and Tunis. Having gone to see the Gran Visir on the sixth of this month, I pointed out to him, on the basis of two telegrams from Your Excellency of the 5th, the affirmation published in the bulletin of the Geographic Society of Paris, which pursuant to a convention existing between France and Turkey, the border between Tunisia and the Turkish province of Tripoli has been fixed to the east Cape El Biban, 32 kilometres from the former border, the entire bay of El Biban now being under French protectorate. I provided myself with the map of Justice Perthes, and showed to His Highness on that map the territory of Tripoli that the Geographic Society of Paris claims has been reunited with Tunisia in accordance with the aforesaid Franco-Turkish convention . . .

415 (page 351)

THE CHARGÉ D'AFFAIRES AT BERLIN, RIVA, TO THE PRESIDENT OF THE
COUNCIL AND ACTING MINISTER OF FOREIGN AFFAIRS, CRISPI

R. 4565

Berlin, 13 December 1887.

In today's interview, the Secretary of State was pleased to report to me the results of the investigation which he had promised to make concerning the

French penetration from Tunisian territory into Tripolitania, and relative to the aforementioned agreement which supposedly was reached between that power and Turkey in the matter of a boundary definition between the same territories, advantageous to the former (R. 4552 of the Policy Series, dated 27 November of this year). Count Bismarck told me that according to intelligence that has reached him the French Government denied emphatically both circumstances herein referred to. He believed then that negotiations were underway between Your Excellency and the English Government to appoint a commission for the purposes of verifying on the spot the truth of these matters lying behind so many bits of circumstantial evidence and at the same time so openly contradicted both at Paris and Tunis, and at Constantinople.

444 (page 372)

L'AMBASCIATORE A COSTANTINOPOLI, BLANC,
AL PRESIDENTE DEL CONSIGLIO
E MINISTRO DEGLI ESTERI AD INTERIM, CRISPI

T. 1857.

Costantinopoli, 20 dicembre 1887, ore 22,50
(per. ore 8,40 del 21).

Je signale à la Porte toutes les nouvelles trop significatives touchant la frontière tripolitaine. Ni gouverneur de Tripoli ni l'ambassadeur de Turquie à Paris n'ont rien télégraphié sur les faits que nous signalons. Tout l'entourage franco-russe du Sultan les dément et s'écrie à chacune de mes communications appuyées par mes trois collègues : « Voilà les Italiens qui soulèvent la question de Tripoli. »

La frontière étant incertaine à cela près inconnue à la Porte, et se compliquant par la protection des tribus, Porte croit ne pouvoir mieux, que confirmer à Tripoli et à Paris que toute invasion est inadmissible. Journaux français de la Colonie font comprendre que la France fera démarches convenables à la Porte pour un arrangement, en tenant compte que la Porte, pour ne pas préjuger la question de Tunis, ne peut pas procéder d'accord avec la France à une délimitation qui n'a jamais été faite.

452 (pages 378-380)

AMBASSADOR BLANC AT CONSTANTINOPLE TO THE PRESIDENT OF THE
COUNCIL AND ACTING MINISTER OF FOREIGN AFFAIRS, CRISPI

R. 172

Constantinople, 24 December 1887.

Clarifications having been made between Sir William White and Count Montebello concerning the Gran Visir's coming back to the idea of introducing in the Suez Canal convention a clause on canal clearance, it was made clear that the French Ambassador has not seized pressing the Porte from accepting the convention without modifications. Sir W. White notified his Government thereof, that I, Baron Calice and Mr. Radowitz who received the 22 instructions in the matter, are advising the Porte to support the convention draft without bringing in any questions of clearance.

Count Montebello's silence towards his English and Italian colleagues with respect to the Gran Visir's new insistence on a clearance clause is explained by

the difficult position in which he has been placed by an unexpected aspect issuing recently from the clearance question in relation to the Pauncefote reservation.

Your Excellency will remember that in submitting the present draft convention to the Porte, the French Ambassador had affirmed that he, along with his Government were maintaining their pledge, undertaken because of the abandonment of the Drummond Wolff Convention, to help Turkey to obtain clearance from Egypt ; and that from the assertions of Count Montebello that the present convention will facilitate clearance, Mr. Nelidow took the floor to suggest that *the clearance be explicitly stipulated in the same convention while* Count Montebello, apprised by Sir W. White and by me, that this latter complication scuttling the convention, spoke to us in the correct manner which I reported on the 13th current, the Sultan was taking into consideration the aforesaid assertion by Count Montebello and the suggestion of Mr. Nelidow ; and he has now authorized the Gran Visir to push for a resolution by the ministers on the appropriateness of proposing that the entire text of the Pauncefote reservation, reconfirmed by Lord Salisbury in the note accompanying the draft convention from an article in the same convention. With such an amendment, it appears that the Gran Visir would aim either to abandon the plan or to commit all the signatory Powers to bring about the actual clearance, without which the convention would end up being, by its very own terms bereft of any value. The Gran Visir, therefore, as well as Mr. Nelidow, but for opposite reasons, would not see any drawbacks to breaking the Franco-British agreement, of which the convention is the instrument ; Said Pasha does not disagree therein with His Highness, but considers that, all the maritime powers having rights in the Suez Canal, while Turkey alone has rights in Egypt, it is preferable for the Ottoman Government that the two matters be kept separate.

The situation, therefore, has returned to that of 1882 in the convention of Constantinople. France and England being on the way to agreement with the participation of Italy, and negotiating for the support of the Porte, Germany and Austro-Hungary are intervening either to prevent England from strengthening its commitments to France or to deprive the budding agreement of all practical political efficacy by transforming it into a European entente. The difference is that Russia, then united with the two Empires in an alliance which burdened Europe due to the partition of Poland, is now isolated from them and is no longer associated with the Council Chambers of Vienna and of Berlin in order to stifle the western agreement by embracing it, but now . . . ostensibly fights it. Except for this difference, a certain latent solidarity has come about by itself among the three Empires in opposition to the western agreement, with the advantage for Germany of an accidental antagonism between Russia and France in the current Egyptian negotiations. In a situation such as this, it was not easy to maintain here strength in unity in our group. Fortunately, the confidence now inspired by Italy in Berlin and also by England rules out any risk that Prince Bismarck will return to a show of force as he did in 1884 and 1885 in opposition to the solidarity established between France, England and Italy on Egypt. Meanwhile, my three colleagues and I are making an even greater commitment to hasten a decision by the Porte in accordance with our instructions, in so far as we are convinced that it is desirable, in view of the current European situation that the negotiations in question come to an end.

Annex 21

PAGES 532 THROUGH 534, 538, 539 AND 540 OF
JEAN DESPOIS, *LA TUNISIE ORIENTALE : SAHEL ET BASSE STEPPE*, PARIS,
SOCIÉTÉ "LES BELLES LETTRES", 1940

[Not reproduced]

Annex 22

PAGES 62, 63, 104 AND 105 OF
ALEXANDRE PAPANDREOU, "LA SITUATION JURIDIQUE DES PÊCHERIES
SÉDENTAIRES EN HAUTE MER", *REVUE HELLÉNIQUE DE DROIT INTERNATIONAL*,
ATHENS, 1958

[Not reproduced]

Annex 23

PAGE 97 OF
IL MARE — GRANDE ENCICLOPEDIA ILLUSTRATA, ISTITUTO GEOGRAFICO
DE AGOSTINI, NOVARA

[Not reproduced]

Annex 24

SECTION 287 OF
EMMERICH DE Vattel, *DROIT DES GENS*, VOL. I, LONDON, 1958, CHAP. 23

[Not reproduced]

Annex 25

PAGE 259 OF
SIR ARNOLD D. MCNAIR, *INTERNATIONAL LAW OPINIONS*, VOL. 1, 1956
[Not reproduced]

Annex 26

PAGE 334 OF
SIR FRANCIS A. VALLAT, "THE CONTINENTAL SHELF", *THE BRITISH YEAR
BOOK OF INTERNATIONAL LAW*, 1946
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Annex 27

PAGE 446 OF
PAUL GUGGENHEIM, *TRAITÉ DE DROIT INTERNATIONAL PUBLIC*,
VOL. I, FRANCE, MINISTÈRE DES AFFAIRES ÉTRANGÈRES, 1953
[Not reproduced]

Annex 28

PAGE 49 OF UN DOC. A/CN.4/60

pas possible de poser de règle générale que les États devraient suivre et il est probable que les difficultés surgiront. Par exemple, il se peut qu'aucune limite n'ait été fixée entre les mers territoriales respectives des États intéressés, et aucune règle générale n'existe pour ces limites.

Dans le commentaire du projet, soumis aux gouvernements, la Commission avait proposé d'obliger les États de soumettre les différends surgissant en cette matière à l'arbitrage ex aequo et bono. Eu égard aux objections soulevées par plusieurs gouvernements contre cette proposition, la Commission l'a modifiée. Si un accord ne peut être réalisé et si une prompt solution s'impose, les États intéressés chercheront la solution de ce conflit en conformité avec les règles convenues entre eux pour le règlement pacifique de leurs différends. Si le différend n'est pas soumis à un règlement judiciaire ou arbitral, il devra faire l'objet d'une procédure de conciliation.

2. S'il s'agit des territoires de deux États séparés par un bras de mer, la délimitation entre les plateaux continentaux coïncidera généralement avec une certaine ligne médiane entre les deux côtes. Dans ce cas, la configuration des côtes pourrait toutefois faire surgir des difficultés pour le tracé d'une ligne médiane, et ces difficultés devraient être soumises à un arbitrage.

SECONDE PARTIE : SUJETS VOISINS
RICHESSES DE LA MER

Article premier

Un Etat dont les ressortissants se livrent à la pêche dans une région quelconque de la haute mer où les ressortissants d'autres Etats n'exercent pas la pêche peut réglementer et contrôler la pêche dans cette région en vue d'en protéger les ressources contre l'extermination. Si les ressortissants de plusieurs Etats se livrent ainsi à la pêche dans une région, ces mesures seront prises de concert par ces Etats. Si une partie quelconque d'une région se trouve à moins de 100 milles de la mer territoriale d'un Etat riverain, cet Etat a le droit de participer sur un pied d'égalité à toute réglementation, même si ses ressortissants ne se livrent pas à la pêche dans cette région. Les mesures prises dans une certaine région soit par le seul Etat dont les ressortissants y exercent la pêche, soit par plusieurs Etats d'un commun accord ne lient pas les ressortissants d'autres Etats qui y voudraient exercer la pêche.

Article 2

Compétence devrait être donnée à un organisme international permanent pour effectuer des enquêtes continues sur les pêcheries du monde et les méthodes employées pour leur exploitation. Cet organisme devrait avoir le pouvoir de fixer des règles pour les mesures de protection à appliquer par les Etats dont les ressortissants se livrent à la pêche dans une région particulière quelconque, lorsque les Etats intéressés ne parviennent pas à s'entendre entre eux.

Commentaire

1. La question de la protection des richesses de la mer a été jointe aux revendications sur le plateau

continental que certains États ont présentées au cours de ces dernières années, mais les deux questions semblent entièrement différentes et pour cette raison elles ont été traitées séparément.

2. La protection de la faune marine contre l'extermination s'impose dans l'intérêt de la conservation des ressources alimentaires du monde. Les États dont les ressortissants se livrent à la pêche dans une région donnée ont, en conséquence, une responsabilité particulière et ils devraient convenir entre eux de la réglementation à appliquer dans cette région. Lorsque les ressortissants d'un seul État se livrent ainsi à la pêche dans une région, la responsabilité incombe à cet État. Toutefois, l'exercice du droit de prescrire des mesures de protection ne devrait pas exclure les nouveaux venus de la participation à la pêche dans une région quelconque. Lorsque la région de pêche se trouve si près de la côte qu'une réglementation ou l'absence de réglementation pourrait avoir des répercussions sur la pêche dans la mer territoriale d'un État riverain, cet État devrait avoir le droit de participer à l'élaboration d'une réglementation à appliquer même si ses ressortissants ne pêchent pas dans cette région.

3. Ce système pourrait se révéler inefficace si les États intéressés ne parviennent pas à s'entendre. Le meilleur moyen d'obvier à la difficulté serait d'instituer un organisme permanent qui serait compétent pour présenter, en cas de désaccord, des règles que les États seraient tenus d'appliquer à la pêche pratiquée par leurs ressortissants dans ces parages. *Le cas échéant, on pourrait, du moins provisoirement, faire usage d'organisations qui existent déjà en cette matière. En cas d'une pluralité de ces organismes, des mesures de coordination de leurs travaux s'imposent. Cette question semble rentrer dans la compétence générale de l'Organisation des Nations Unies pour l'alimentation et l'agriculture.*

4. La pollution des eaux de la haute mer soulève des problèmes particuliers en ce qui concerne non seulement la protection des richesses de la mer mais encore celle d'autres intérêts. La Commission a noté que le Conseil économique et social avait pris une initiative en la matière [résolution 298 C (XI) du 12 juillet 1950].

Article 3

La réglementation des pêcheries sédentaires dans les régions de la haute mer contiguë à sa mer territoriale peut être entreprise par un Etat lorsque les ressortissants de cet Etat entretiennent et exploitent ces pêcheries depuis longtemps; lorsque l'Etat riverain a autorisé jusqu'à présent les personnes qui ne sont pas ses ressortissants à se livrer à la pêche, il n'a pas le droit de le leur interdire à l'avenir. Toutefois, cette réglementation ne portera pas atteinte au régime général de ces régions en tant que haute mer. Les pêcheries sédentaires ne doivent pas avoir pour conséquence de gêner sensiblement la navigation.

Commentaire

1. La Commission est d'avis que les pêcheries sédentaires devraient être réglementées indépendamment du problème du plateau continental. Les préférences relatives au plateau continental concernant l'explo-

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E. DE FAGES AND C. PONZEVERA, *LES PÊCHES MARITIMES DE LA TUNISIE*,
TUNIS, BOUSLEMA, 1908*[Not reproduced]*

PAGES 134 THROUGH 136 OF

E. DE FAGES AND C. PONZEVERA, *LES PÊCHES MARITIMES DE LA TUNISIE*,
TUNIS, BOUSLEMA, 1908

Règlement sur la Pêche des Eponges et des Poulpes (Décrets des 16 juin 1892, 11 janvier 1895 et 28 août 1897)

Article Premier

La pêche des éponges et poulpes est libre sur toute l'étendue des bords tunisiens, aux conditions et charges ci-après énoncées.

TITRE PREMIER

Régime applicable à la pêche dite « blanche »

Art. 2

Quiconque veut exercer la pêche blanche, c'est-à-dire la pêche des éponges qui, lavées et séchées par les soins des pêcheurs, sont apportées sur les marchés après cette préparation, doit, au préalable se munir d'une patente qui sera délivrée moyennant le paiement des taxes ci-après :

Barquettes pêchant au trident dite komekis	100 »
Bateaux à voiles pêchant à la drogue dite gougave	300 »
Bateaux pêchant au scaphandre, par appareil	1.000 »
Le paiement intégral de la taxe devra être fait au moment de la délivrance de la patente.	

Art. 3

L'emploi de la gougave et celui du scaphandre sont formellement interdits du 1^{er} novembre au 31 décembre inclusivement.

La pêche des éponges au moyen des bateaux, engins ou procédés autres que ceux désignés par le présent règlement est prohibée en tout temps.

Art. 4

Tout bateau exerçant la pêche blanche devra porter en caractères très apparents, sur la voûture et sur chacun de ses bords arrière, l'indication du numéro de sa patente.

Les bateaux pêchant à la gougave devront en outre, porter en tête du mât le plus élevé, une flamme de reconnaissance rouge, à queue blanche ayant au minimum une largeur minima de 50 centimètres.

TITRE II

Régime applicable à la pêche dite « noire »

Art. 5

Quiconque veut exercer la pêche noire, c'est-à-dire la pêche des éponges que l'on débarque à l'état brut, ou à la fois la pêche noire et la pêche des poulpes, doit au préalable se munir d'une patente qui sera délivrée moyennant le paiement de la taxe ci-après payable par trimestre d'avance :

Par barque pêchant au trident...Fr. 40 »

Art. 6

Dans aucun cas les bateaux inscrits pour

la pêche exclusive des poulpes ne pourront compter comme annexes de bateaux inscrits pour la pêche noire et les bateaux de l'une ou l'autre de ces catégories ne pourront dans aucun cas compter comme annexes de bateaux inscrits pour la pêche blanche.

TITRE III

Régime applicable aux poulpes

Art. 7

Quiconque veut exercer la pêche des poulpes, avec ou sans embarcation, doit, au préalable, se munir d'une patente qui sera délivrée moyennant le paiement de la taxe ci-après :

Par barque	Fr. 30
Payables 20 francs au moment de la délivrance de la patente et le surplus dans les trois mois suivants.	
Par homme exerçant la pêche à pied	10
Payables en entier au moment de la délivrance de la patente.	

TITRE IV

Des patentes

Art. 8

Les patentes seront délivrées dans les ports ouverts au commerce. Leur durée sera d'un an à compter du 1^{er} janvier de chaque année, quelle que soit l'époque de la demande.

Le droit versé au Trésor n'est restituable dans aucun cas.

Art. 9

Les demandes de patentes devront être adressées au préposé à la police de la navigation et des pêches

Elles mentionneront les nom, prénoms et qualités du demandeur, sa nationalité, le nom du bateau qui doit exercer la pêche, ainsi que l'indication de son port d'attache et de sa jauge officielle; les nom, prénoms et qualités de l'armateur, de l'affrèteur ou du consignataire; le nombre d'hommes d'équipage, le mode de pêche que le bateau compte employer, avec, pour les scaphandres, le nombre de ces appareils.

Toute demande sera accompagnée des papiers du bord, qui resteront entre les mains du préposé à la police de la navigation et des pêches, jusqu'à l'expiration de la validité de la patente, sauf le cas où la restitution en serait demandée contre la remise préalable ou définitive du permis.

TITRE V

De la vente des éponges et des poulpes

Art. 10

Les éponges blanches, les éponges noires et les poulpes secs ou frais devront être intégralement apportés dans l'un des ports ouverts au commerce.

Cette disposition n'est pas applicable aux poulpes pris par les pêcheurs à pied.

A leur débarquement, les éponges et les poulpes seront présentés au bureau de la police de la navigation et des pêches, qui enregistrera leur poids et leur nombre.

Cette formalité accomplie, les pêcheurs disposeront à leur gré du produit de leur pêche, par vente ou autrement.

Art. 11

La vente des éponges blanches, des éponges noires et des poulpes aux enchères publiques ne pourra avoir lieu que par le ministère du commissaire-priseur.

En cas de refus de celui-ci et dans les localités où il n'existe pas de commissaire-priseur, les ventes auront lieu par les soins d'un crieur public désigné par l'Administration.

Art. 12

Le commissaire-priseur ou le crieur public prélèvera sur le prix de vente les droits de criée suivants, qui seront dans tous les cas payables par le vendeur :

Pour les éponges noires et les poulpes 2%
Pour les éponges blanches 1%

Art. 13

Toute association secrète ou manœuvre entre les marchands d'éponges ou autres tendant à nuire aux enchères, à les troubler ou à obtenir les éponges et poulpes à plus bas prix, donnera lieu à l'application des peines portées par l'article 412 du Code pénal français, indépendamment de tous dommages-intérêts.

TITRE VI

Dispositions générales et spéciales

Art. 14

Les navires et embarcations chargés de la surveillance de la pêche porteront en poupe le pavillon tunisien et en tête du mât le flamme nationale.

Art. 15

Tout pêcheur devra se soumettre aux réquisitions et vérifications ayant pour objet le contrôle de l'exercice de la pêche.

Il devra être porteur de sa patente dont la présentation sera toujours exigible.

Après une sommation appuyée d'un coup de canon tiré à blanc, les bateaux opposant de la résistance seront pris à la remorque et conduits au port tunisien le plus proche du siège du tribunal compétent pour statuer sur les contraventions commises.

Ils seront saisis, s'il y a lieu, et les contraventions poursuivies conformément aux dispositions des articles suivants.

Art. 16

Sera puni d'une amende de 200 à 2.000 francs et d'un emprisonnement de six jours à un mois ou de l'une de ces deux peines seulement, quiconque se livrera, en barque, à la pêche des éponges ou poulpes sans être muni d'une patente délivrée dans les conditions indiquées aux articles 2, 5, et 7 du présent règlement.

Si la pêche a eu lieu à la drague ou au scaphandre, le minimum de l'amende sera de 500 francs et il pourra être prononcé un emprisonnement de quinze jours à trois mois.

Quiconque se livrera à la pêche des poulpes à pied, sans être muni de la patente spéciale à cette pêche, sera puni d'une amende de 20 à 50 francs et d'un emprisonnement de cinq à dix jours ou de l'une de ces deux peines seulement.

Art. 17

Sera puni des peines prévues par l'article 16, paragraphe 1^{er}, quiconque se livrera à la pêche des éponges en temps prohibé ou à l'aide de procédés, engins ou bateaux non autorisés par le présent règlement.

Art. 18

En cas de contravention aux articles 16, et 17 et alors même que les délinquants seraient restés inconnus, les instruments, les engins, le produit de la pêche seront saisis et la confiscation pourra en être prononcée par les tribunaux correctionnels, qui ordonneront la destruction des engins prohibés.

Art. 19

Sera puni d'une amende de 100 à 1.000 francs :

1^o Quiconque aura détourné ou tenté de détourner en mer, pour l'expédier à l'étranger, tout ou partie de la pêche d'un bateau;
2^o Tout pêcheur convaincu d'avoir débarqué ou vendu des éponges ou des poulpes ailleurs que dans un port ouvert au commerce.

Art. 20

Sera puni d'une amende de 50 à 200 francs, sans préjudice des peines applicables en cas de crime ou délit de droit commun, quiconque aura refusé de présenter sa patente aux agents de l'État ayant qualité pour constater les contraventions, ou d'obtempérer aux vérifications prévues par l'article 15 précédent.

Art. 21

Sera puni d'une amende de 100 à 500 francs :

1^o Tout pêcheur d'éponges noires qui sera convaincu d'avoir livré tout ou partie de sa pêche à un pêcheur exerçant la pêche blanche;

2^o Tout pêcheur qui, n'étant pas muni d'une patente pour la pêche blanche, aura à son bord des éponges lavées;

3^o Tout pêcheur exerçant la pêche blanche qui sera convaincu de s'être procuré tout ou partie des éponges recueillies par un pêcheur d'éponges noires.

Art. 22

Sera puni d'une amende de 10 à 100 francs, toute autre contravention au présent règlement.

Art. 23

En cas de conviction de plusieurs contraventions au présent règlement, la peine la plus forte sera seule appliquée.

Art. 24

En cas de récidive, les peines édictées pourront être élevées jusqu'au double.

Il y aura récidive lorsque, dans les deux années précédentes, à compter de la date du fait incriminé, il aura été rendu, contre le délinquant, un jugement passé en force de chose jugée, pour contravention au présent règlement.

Art. 25

Pourront être déclarés responsables des amendes prononcées :

1^o Les armateurs, affrêteurs, consignataires des bateaux de pêche, à raison des faits des patrons et équipages;

2^o Les pères, tuteurs, maris et maîtres, à raison des faits des mineurs, femmes, préposés et domestiques, à moins qu'ils ne prouvent qu'ils n'ont pu empêcher le fait qui donnerait lieu à cette responsabilité.

TITRE VII

Procès-verbaux, saisies, poursuites, compétence

Art. 26

Les contraventions au présent règlement seront constatées par procès-verbaux des officiers de marine ou maîtres, commandants des bâtiments et embarcations, gardes pêche, inspecteurs des pêches, agents du Service de la Navigation et des Pêches, agents de la force publique, préposés attachés aux différentes administrations et régies financières, et tous agents spéciaux assermentés à cet effet.

Les procès-verbaux dressés feront foi jusqu'à preuve contraire. Ils seront dispensés de l'affirmation.

A défaut de procès-verbaux ou en cas d'insuffisance de ces actes, les contraventions pourront être prouvées par les moyens de droit commun.

Art. 27

Les objets saisis en vertu des articles 15 et 18 seront reçus en dépôt par l'Administration et conservés jusqu'au jugement.

Ceux sujets à dépérissement seront vendus à sa requête par les commissaires-priseurs ou crieurs publics, ainsi qu'il est dit à l'article 11, sur ordonnance du juge de paix ou du caïd, suivant la nationalité des délinquants, et le produit de la vente sera versé entre les mains du fonctionnaire qui aura pris charge du dépôt.

Art. 28

Les poursuites auront lieu à la diligence de l'Administration des Finances, comme en matière de douanes et de monopoles, en ce qui concerne les contraventions aux articles 16, 19 et 21, et à la diligence de l'autorité ayant l'action publique en ce qui concerne les infractions aux articles 17, 20 et 22, sans préjudice, dans ce cas, du droit de l'Administration des Finances de se porter partie civile.

Art. 29

Si le délit a été commis hors d'un port, les poursuites seront exercées devant le tribunal du port auquel appartient le bateau, ou, à défaut, devant celui du port le plus proche.

Art. 30

Pour les infractions réprimées par les articles 16, 19 et 21, l'Administration aura le droit de transiger avec les délinquants.

La transaction intervenue est ratifiée avant jugement, soit au Parquet, soit à la juridiction tunisienne, selon la nationalité des prévenus, aura, pour effet immédiat, d'éteindre l'action publique.

Les amendes prononcées par application des articles 16, 19 et 21 seront attribuées comme en matière de douanes et de monopoles.

Art. 31

Sont abrogés le décret du 23 mai 1897 et toutes autres dispositions contraires ou présumées telles, dont le Directeur général des Travaux Publics et le Directeur des Finances sont chargés d'assurer l'exécution chacun en

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ATALLAH, LA TUNISIE ET LE DROIT DE LA MER .

extérieure de la mer territoriale tunisienne est constituée :

- au nord de Ras Kapoudia et jusqu'à la frontière tuniso-algérienne par une ligne parallèle et à une distance de 6 milles de la ligne de base ;
- au sud de Ras Kapoudia et jusqu'à la frontière tuniso-libyenne (« ligne partant de Ras Aghdi en direction du nord-est ZV 45° ») par l'isobathe 50 ; donc c'est une ligne ne tenant plus compte de la longueur de la distance séparant la ligne de base et la limite extérieure de la mer territoriale, mais s'attachant plutôt à la profondeur des eaux ⁶⁴.

Si pour la partie au nord de Ras Kapoudia la limite de 6 milles peut être considérée comme conforme aux prises de position nationales antérieures et au droit international coutumier, il semble difficile de justifier la limite extérieure de la mer territoriale au sud de Ras Kapoudia.

En effet, depuis 1958, à la conférence de Genève, la délégation tunisienne a fait constater

« que chaque Etat est libre de fixer la limite de sa propre mer territoriale et qu'il se manifeste une tendance progressive à porter la largeur de la mer territoriale au-delà de la limite des 3 milles qui, de toute façon, n'a jamais constitué un maximum. »

Partant de cette constatation M. Abdessalam ajoute que

« le Gouvernement tunisien considère qu'il doit être permis à chaque Etat riverain de fixer la largeur de sa mer territoriale dans la limite d'un maximum de 12 milles » ⁶⁵.

A la conférence de Genève de 1960, en des termes semblables, la délégation tunisienne exposait cette position.

D'ailleurs, elle a été coauteur de deux propositions, allant dans ce sens ⁶⁶.

Aussi, le législateur de 1962, maître de l'appréciation de l'étendue de la mer territoriale jusqu'à 12 milles, en choisissant pour la partie au nord de Ras Kapoudia la règle des 6 milles reste en harmonie avec les prises de position nationales au sein des conférences de Genève de 1958 et 1960.

Par contre, concernant la partie au sud de Ras Kapoudia, le désaccord des prises de position et de la loi de 1962 est total.

⁶⁴ C'est ce qui justifie, à nos yeux, l'adjectif « bidimensionnel » par lequel nous avons qualifié cette conception.

⁶⁵ A/CONF.13/39, 16^e séance, p. 50.

⁶⁶ A/CONF.19/C.1/L.2/Rev.1 et A/CONF.19/C.1/L.6, selon l'article I de la deuxième proposition: « Un Etat a le droit de fixer la largeur de sa mer territoriale à un maximum de 12 milles, mesurés à partir de la ligne de base applicable. »

Annex 31

PAGES 639 AND 640 OF
RELAZIONI INTERNAZIONALI, VOL. I, NO. 21, 25 MAY 1963, "LE RELAZIONI
TRA ITALIA E TUNISIA"

(ITALIAN TEXT AND ENGLISH TRANSLATION)

[Not reproduced]

Annex 32

PAGES 540 THROUGH 546 OF
DE CLERCO, *RECUEIL DES TRAITÉS DE LA FRANCE*, VOL. 15
ARRANGEMENT DÉFINITIF DE LA DETTE GÉNÉRALE TUNISIENNE,
ARRÊTÉ LE 23 MARS 1870, PAR LA COMMISSION FINANCIÈRE
INSTITUÉE PAR LE DÉCRET DE 1869

[Not reproduced. See I, Tunisian Memorial, Annex 83.]

Annex 33

PARAGRAPH 131 OF
PLINY, *NATURAL HISTORY*, BOOK XXXI

PARAGRAPH 41 OF
PLINY, *NATURAL HISTORY*, BOOK V

[Not reproduced]

Annex 34

PAGE 24 OF
C. D. SERBETIS, *REPORT TO THE GOVERNMENT OF LIBYA
ON THE FISHERIES OF LIBYA*, F.A.O.,
REPORT NO. 18, ROME, 1952

[Not reproduced]

Annex 35

PAGE 165 OF
KINGDOM OF LIBYA, *STATISTICAL ABSTRACT 1963 TRIPOLI*,
MINISTRY OF NATIONAL ECONOMY, 1974

[Not reproduced]

Annex 36

PAGE 25 OF
SOGREAH, *STUDY FOR A GENERAL MASTER PLAN FOR THE DEVELOPMENT OF
THE FISHING PORTS IN THE LIBYAN ARAB REPUBLIC*, PART I,
GRENOBLE, 1973

[Not reproduced]

Annex 37

PAGES 557 AND 558 OF
RIVISTA DI DIRITTO INTERNAZIONALE, 1912

VIII

DICHIARAZIONI DI BLOCCO

Blocco della Tripolitania e della Cirenaica
(29 settembre 1911)

Le ministre des affaires étrangères d'Italie a l'honneur de signifier à ... la déclaration suivante :

Le Gouvernement de Sa Majesté le roi d'Italie, vu l'état de guerre existant entre l'Italie et la Turquie, agissant en conformité des principes du droit des gens et particulièrement des règles formulées par la déclaration de Paris du 16 avril 1856 et par la déclaration de Londres du 26 février 1909 ;

déclare qu'à partir du 29 septembre courant le littoral de la Tripolitaine et de la Cyrénaïque, s'étendant de la frontière tunisienne jusqu'à la frontière de l'Egypte, avec ses ports, havres, rades, criques, etc., compris entre les degrés 11.32 et 27.54 de longitude orientale de Greenwich, sera tenu en état de blocus effectif par les forces navales du Royaume. Les bâtiments amis ou neutres auront un délai qui sera fixé par l'amiral commandant en chef les forces navales de Sa Majesté le roi d'Italie, à partir de la date du commencement du blocus, pour sortir librement des endroits bloqués.

Il sera procédé contre tout bâtiment qui tenterait de violer ledit blocus, conformément aux règles du droit international et aux traités en vigueur avec les Puissances neutres.

Le ministre des affaires étrangères d'Italie saura gré à ... de vouloir bien porter aussitôt que possible la déclaration susdite à la connaissance de son gouvernement.

(19 octobre 1911)

Faisant suite à sa note verbale du 29 septembre dernier, au sujet du blocus du littoral de la Tripolitaine et de la Cyrénaïque, le ministère royal des affaires étrangères a l'honneur de signifier à ... que la limite orientale de la côte tenue en état de blocus effectif par les forces navales du Royaume a été modifiée et fixée à la longitude de 5° 11' est Greenwich.

Le ministère royal des affaires étrangères saura gré, ...

Annex 38

ITALIAN ROYAL DECREE OF 4 FEBRUARY 1913, No. 85

*[Copy of the document in Italian not reproduced]**(Translation)*ROYAL DECREE NO. 85 OF 4 FEBRUARY 1913 PROVIDING ORDERS FOR CUSTOMS
SURVEILLANCE ALONG THE COAST OF LIBYA*(Official Gazette, 19 February 1913, No. [illegible])**Victor Emanuel III**by the grace of God and the will of the Nation King of Italy*

In view of Royal Decree No. 1217 of 5 November 1911, which has become Law No. 83 of 25 February 1912 ;

In view of Law No. 719 of 6 July 1912 and Royal Decree No. 1205 of 20 November 1912 ;

In view of the unique text of the Customs Laws approved by Royal Decree No. 20 of 26 January 1896 ;

Upon the proposal of Our Minister and Secretary of State for the Colonies ;

Upon the advice of the Ministers ;

We have decreed and do decree :

Article 1

Customs activities in the importation and exportation of goods in Tripolitania and Cyrenaica may be conducted only within the ports or landing-places of Buchamez, Zuara, Tripoli, Homs, Sliten, Misurata (Buscheifa), Marsa Zafran (Syrte), Benghazi, Darna and Tobruk.

The Governors of Tripolitania and Cyrenaica may at their discretion permit customs operations in other places on the coast in addition to or instead of the above or may prohibit them temporarily in some of them, upon informing the Minister for the Colonies in every case.

Article 2

For the purposes of customs surveillance, the sea within 12 miles (22.224 metres) from the shore along the coast of Tripolitania and Cyrenaica shall form part of the maritime customs zone, within the confines of which every vessel, whether Italian or foreign, may be subject to inspection by the authorities in charge of said surveillance.

We do ordain that the present decree, furnished with the Seal of State, be inserted in the official body of laws and decrees of the Kingdom of Italy and do order all whom it behoves to observe it and cause it to be observed.

Rome, 4 February 1913,

Victor EMANUEL.

GIOLITTE-BERTOLINI.

Seen
C. Finochiaro Aurile,
Keeper of the Seal.

Annex 39

ITALIAN ROYAL DECREE OF 18 MARCH 1915, No. 402

*[Copy of the document in Italian not reproduced]**(Translation)*ROYAL DECREE NO. 402 OF 18 MARCH 1915 APPROVING THE
CUSTOMS REGULATIONS FOR TRIPOLI AND CYRENAICA

(Laws and Decrees, 1915, pp. 1014 and 1050-51)

Unique Article

The attached customs regulations for Tripolitania and Cyrenaica are approved, seen, by Our order, by the proposing minister.

Article 1

The shore of the sea and the borders with the territory of the adjacent countries shall comprise the customs limit.

.....

Article 26

For purposes of customs surveillance, the sea within 12 maritime miles from the shore along the coasts of Tripolitania and Cyrenaica shall constitute the maritime customs zone, within which all vessels, whether foreign or Italian, may be subject to inspection by the authorities in charge of said surveillance.

Within the confines of said zone, the customs agents shall have the authority to board vessels of tonnage no greater than 200 tons and require them to produce their board manifest and other shipping documents.

Vessels bound for ports in the colony and that lack a manifest or that are suspected of criminal activities within the zone of maritime surveillance shall be escorted by the agents to the nearest customs house for the drawing up of a record of preliminary investigation.

If a vessel of a tonnage not exceeding 200 tons and bound for a foreign port is found within the surveillance zone without a manifest or with a manifest that lacks the prescribed information, the agents may escort her out of the limits of the zone or, in cases suggesting criminal activities, escort her to the nearest customs house for the drawing up of a record of preliminary investigation.

The agents may, having drawn up such a record, sequester whatever goods of which the importation or exportation is prohibited and that are found on board ships whithersoever bound that, except in cases involving acts of God, have dropped anchor and are lying to within a radius of 12 maritime miles from shore.

In case of attempts to unload goods on to shore and also to unload on to or transship to a lighter vessel, the agents may require the ship to follow them to the nearest customs house for the drawing up of a record of preliminary investigation.

Cf. approval of Peace Treaty of Lausanne, 18 October 1912 with the [illegible] for Libya. (AP, CD, documents, [illegible] 1909-12 [illegible] 1200.)

Annex 40

ITALIAN ROYAL DECREE OF 6 JUNE 1940, NO. 595

*[Copy of the document in Italian not reproduced]**(Translation)*

1940.

BERTHING AND STAY, DURING WARTIME, OF NATIONAL MERCHANT SHIPS, WARSHIPS AND NEUTRAL MERCHANT SHIPS IN THE TERRITORIAL WATERS OF THE KINGDOM AND ALBANIA, THE EMPIRE, THE COLONIES AND POSSESSIONS

(Royal Decree No. 595 of 6 June 1940 – XVIII)

Victor Emanuel III
by the grace of God and the will of the Nation
King of Italy and Albania
Emperor of Ethiopia

In view of Articles 1, 2 and 15 of law No. 969 of 8 June 1925 ;

In view of Article 3, No. 1, of law No. 109 of 31 January 1926 ;

Having heard the opinion of the Council of Ministers ;

On the proposal of Il Duce of Fascism, the Head of the Government, the Navy Minister ;

We have decreed and do decree :

Article 1

During wartime, it is forbidden for national merchant ships and warships and neutral merchant ships to approach the territorial waters of the Kingdom of Italy and Albania, of the Empire, of the Colonies and possessions unless they have received authorization as specified in the following articles. The territorial waters are therefore to be considered as off limits to navigation.

Article 2

The following are considered to be zones dangerous to navigation :

(a) metropolitan waters :

the 12-mile-wide band that surrounds the continental coast and those of the following islands : Sicily, Sardinia, Elba, Gorgona, Marittimo, San Pietro, S. Antioco, Asinara, Pantelleria, Lussino, Cherso :

(b) waters of Albania :

the 12-mile-wide band along the coasts from the Yugoslav boarder to the Greek border and those coasts of the island of Saseno ;

(c) waters of North Africa :

the 12-mile-wide band along the coasts from the Tunisian border to the Egyptian border ;

(d) waters of the Aegean :

the 12-mile-wide band around the coasts of the islands of the Possession as far as the meeting point with the Turkish territorial waters.

Annex 41

ITALIAN ROYAL DECREE OF 27 MARCH 1913, No. 312

*[Copy of the document in Italian not reproduced]**(Translation)*

No. 312.

ROYAL DECREE OF MARCH 27, 1913, APPROVING THE REGULATION
OF MARITIME FISHING OPERATIONS IN LIBYA*(Published in Official Gazette No. 105 of 6 May 1913)**Victor Emmanuel III**by the grace of God and by the will of the Nation
King of Italy*

Having seen Royal Decree No. 1247 of 5 November 1911, which was changed into law No. 83 of 25 February 1912 ;

Having also seen law No. 749 of 6 July 1912, and Royal Decree No. 1205 of 20 November 1912 ;

Having heard the Council of Ministers ;

On the proposal by Our minister, the Secretary of State for the colonies ;

We have decreed and by these means decree that :

The single regulation relating to maritime fishing operations for Tripolitania and Cyrenaica, endorsed, on Our order, by the proposing minister, is hereby approved.

We order that this decree, with the State seal affixed thereto, become part of the official collection of laws and decrees of the Kingdom of Italy, with copies being sent to all those who must comply with it and insure compliance of same.

Issued in Rome on 27 March 1913.

VICTOR EMMANUEL.
GIOLITTI-BERTOLINI.

Recorded with the Court of accounts on 16 April 1913.
Regulation No. 90 of Government Records on page 104. A. Coppi.
Location of Seal. See The Keeper of the Seals C. Finocchiaro-April.

LAWS AND DECREES – NO. 312 – 1913

*Regulation relating to maritime fishing operations in Tripolitania
and in Cyrenaica*

TITLE I

*General Provisions**Article 1*

Maritime fishing operations in Tripolitania and Cyrenaica are governed by this regulation and by the rules that, to insure compliance with same,

might be issued by the minister for the colonies or by the governors by him delegated.

TITLE II

Organization of Fishing Operations

Article 2

The operation of maritime fishing is entrusted to the authorities charged with maritime fishing operations in Tripolitania and Cyrenaica.

Article 3

The Royal Navy, all Customs Officials and all other Police Officials will share, with the authorities indicated in Article 2, the responsibility for implementing the rules contained in this regulation and to ascertain any infractions thereto.

Temporary officers with the title of fishing-guards may be hired to supervise maritime fishing.

Rules relating to such hiring will be determined by the minister for the colonies.

Article 4

All authorities entrusted with the implementation of this regulation, all Royal Navy personnel and generally all officers charged with the supervision of maritime fishing have the authority to inspect the ships or fishing boats as well as the public warehouses and the places where the fish or other fishing products are sold to insure that the provisions of this decree have not been violated.

Article 5

The authorities charged with the administration of fishing operations in Tripolitania and Cyrenaica will, through its governors, annually send a report to the Ministry of Colonies on the fishing operations in the waters under its jurisdiction, showing the results attained and making proposals that they might deem appropriate in the interest of the (fishing) industry.

Article 6

The payment of duties, set forth for fishing operations by this regulation, will be made in accordance with the provisions contained in Articles 100 to 105, 107 and 108 of the regulation approved with Royal decree No. 584 of 27 December 1896, for the implementation of the law on measures in favour of the merchant marine navy.

Documents showing that the payment of duties has been made, must be shown to the authorities and to all officers assigned to fishing operations.

TITLE III

Regulations for Fishing Boats and Ships

Article 7

All fishing boats and ships owned by Italians residing in Tripolitania and Cyrenaica and owned by natives must be registered with the maritime port authorities.

Article 8

No one can operate a fishing boat or ship in the waters of Tripolitania and Cyrenaica without having obtained the title of seaman authorized to fish.

Seamen authorized to operate fishing boats and ships fall under two categories : those for coastal fishing, that is to say operating within one mile of the coast, and those for fishing on the high seas.

In order to obtain the title of seaman authorized to fish, one must :

- (a) be deemed qualified by the maritime authorities ;
- (b) have 12 months of training on coastal fishing operations or on high sea fishing operations, as the cases require ;
- (c) prove that he has been a resident of Tripolitania or Cyrenaica for five years.

Italian citizens are exempted from the requirement indicated in letter (c), and for them, the permits obtained in Italy for this purpose, are valid in Tripolitania and Cyrenaica.

All certificates proving that a seaman is authorized to fish are issued by the local maritime authorities.

Article 9

All fishing boats or ships of any carrying capacity must always display, and visible from a distance, in the centre of the master sail, its registration number and under it the badge of the maritime district. The number will be painted with indelible black ink and the figures be at least 50 centimetres high.

The badge will consist of the initial capital letter of the chief town of the district, at least 50 centimetres high, inscribed in a circle with a diameter of at least 1 metre with a sideband at least 7 centimetres wide. The above badge will be painted red. During the night all fishing boats and ships must have the lights prescribed by law.

Article 10

All persons operating ships or boats used for the fishing of sponges or of corals and all those fishing tuna or those that have obtained a concession to fish in salt lakes, must keep a "fishing log" which will indicate, for each fishing day, the hours of operation and the fishing locations, the quantities and qualities, depending on the various categories of fished products.

The sanitary condition of the crew must also be shown for all sponge fishing.

All persons assigned to operate fishing boats or ships, their owners or managing owner as well as all other fishing operators must furnish to the maritime authorities all information that might be requested on fishing.

Article 11

Fishing boats or ships are prohibited from having on board :

- (a) any firing weapons, except those for which a permit has been obtained ;
- (b) any items indicated in Article 14.

TITLE IV

*Distances and General Fishing Bans**Article 12*

All fishermen must keep at a suitable distance from each other in accordance with local practice, the type of fishing carried out, the mode of operation and the type of equipment used.

Maritime authorities may even prescribe said distances, limit the number of permits and set up shifts among the fishermen for fishing operations, should there be locations that are especially sought and occupied as a preference due to their greater abundance of fish or other aquatic animals or due to other special conditions.

Article 13

Fishing is prohibited :

(a) in areas of the sea or in salt lakes which are directly being used by the State or of concessions or of exclusive duly recognized fishing rights ;

(b) in areas set aside for the operation of fishing-nets for tunny or of other permanent fishing ;

(c) inside ports, except by special permission of the maritime authorities ;

(d) in water areas, which in order to protect aquatic products, come under special bans set forth by this decree or by rules issued by the minister for the colonies or by the governors ;

(e) in areas indicated by the maritime authorities for military reasons, and in those areas where there are underwater telegraphic cables.

Article 14

It is prohibited to fish with dynamite or with other explosives, and it is also prohibited to throw in the water any materials that might weaken, stun and kill the fish and the other aquatic animals.

The collection and sale of animals that have thus been stunned or killed is also prohibited.

TITLE V

*Fishing of Fish, of Mollusk and of Crustaceans**Article 15*

All Italian citizens, all natives and those who have been residing in Tripolitania and Cyrenaica for at least five years may fish during any part of the year for fish, mollusk or crustaceans in an area of three maritime miles from the shore, providing they abide by the rules set forth in this decree.

Article 16

Fishing operations in accordance with the preceding article are subordinated to the granting of a permit by the maritime authorities.

The following duties must be paid in order to secure a permit :

2 lire for each hull with a net tonnage of not over one ton ;

5 lire for each hull with a net tonnage of more than one ton ;

8 lire for each hull equipped for fishing with long-lines and rectangular nets :
5 lire for each fishing device, set up ashore such as (scales, variable-length measuring units, etc.).

The fishing permit is valid for the year in which it was issued.

Article 17

For fishing operations with trawls, even over the entire expanse of the sponge algas, the following provisions will be complied with :

First, that said nets be kept at a distance of not less than 1 kilometre from boats that are carrying out sponge fishing operations, and that they abide by the rules relating to fishing-nets for tunny and to coral banks ;

Second, that the sackcloth mesh of the nets be not less than 20 millimetres on its side ;

Third, that the ships or boats remain at a distance of 500 metres from the areas where land-drawn trawl fishing nets are operating, and from areas where possible area fishing limitations in general might exist, including that of sponge fishing.

Fourth, that beyond the limit set forth by Article 15, a special permit with particular regard for the persons specified in it, be issued by the maritime authorities of Tripoli, Bengasi and Derna.

Even the land-drawn trawl nets must have a sackcloth mesh of not less than 20 millimetres on its side ; they must further remain 300 metres away from each other, except for special provisions of the maritime authorities.

A period of two years from the date of publication of the decree that approves this regulation is granted within which to comply with the provisions relating to the meshes of the nets.

Article 18

For fishing with trawl nets, with respect to Articles 15 and 17 (?), the maritime authorities will issue a permit subject to the payment of the following duties :

- for each hull, even if relating to sailboats with mechanical motors, 15 lire ;
- for each steamer with an engine not exceeding 30 indicated horse powers, 20 lire ;
- for each motor hull or steamer with an engine exceeding 30 indicated horse powers, 30 lire.

The permit is valid for the year in which it is issued.

TITLE VI

Special Fishing Operations

CHAPTER I

Sponge Fishing

Article 19

Sponge fishing operations over the entire expanse of the sponge algas of Tripolitania and Cyrenaica by persons indicated in Article 15 are subject to a

“permit” issued by the maritime authorities of Tripoli, Bengasi and Derna especially appointed for this purpose by the minister for colonies.

The validity of said permit cannot be of more than one year, and is subordinated to the payments of duties set forth by the following articles.

The holder of such a permit may freely fish during any period of the year ; the total number of ships or of boats of each class, of the hulls and of the other sponge fishing instruments will be specified by the minister for the colonies. The minister for the colonies may, from time to time, decide the number of boats, of hulls and of the fishing instruments that may be used by each individual company.

Article 20

The minister for colonies, in agreement with the minister for foreign affairs, may authorize the granting of permits to ships or boats of foreign flags for sponge fishing operations in the waters of Tripolitania and Cyrenaica, under the same conditions referred to in the preceding article.

Such authorization is by preference granted to the captains of those ships or boats that have Italian and native seamen among their crews, that belong to persons residing in Tripolitania or Cyrenaica, and that are rigged and equipped there.

Article 21

The minister for the colonies may suspend the fishing of sponges in certain areas, to protect said product, by the issuance of a decree that will indicate the duration of the suspension.

Article 22

A sponge fishing permit is subject to the payment of the following duties :

First for each ship or boat equipped for fishing with a harpoon (trident, kamakis), 50 lire ;

Second for each ship or boat, equipped with divers, 100 lire ;

Third for each ship or boat, equipped for trawl fishing and with a tonnage exceeding 5 net tons, 150 lire ;

Fifth for each “apparatus” to which no more than five divers are assigned, 700 lire.

Sixth for each diver over five on each “apparatus”, 100 lire.

Article 23

The application to obtain a sponge fishing permit must be submitted to the maritime authority, that has been so delegated in Article 19, and must indicate :

First the name, last name and profession of the owner and of the managing owner of the ship or boat ;

Second the number, the name, the nationality and origin of the ship or boat ;

Third the fishing methods that one wishes to use ;

Fourth a list of the names and general information of the persons that will make up the crew and with special information regarding their respective jobs ;

Fifth the number and the quality of the fishing instruments and tools ;
Sixth the terms of the enlistment agreement.

All applications relating to fishing with diving apparatus may be submitted even if they do not show all the required information ; this information must however be submitted to within a suitable period of time to be determined from time to time and in any case prior to the issuance of the "permit" to the respective ships or boats.

No ships, boats or equipment different from those reported may be used during fishing, and all changes in the make-up of the crew must be reported to the nearest maritime authorities, which must report this information to the authority that granted the permit.

All applications submitted by foreigners must have the "approval" of their consul.

A sponge fishing permit is valid from 1 March to the subsequent February inclusive, regardless of the month in which it is issued.

Article 24

Sponge fishing operations may be carried out only with the following methods :

- with diving equipment (diver) ;
- by diving (performed by "skin divers") ;
- by trawl (gangave) ;
- with a harpoon (trident, "kamakis").

The minister for the colonies or the maritime authority especially delegated for this purpose may authorize other fishing methods, including the use of motors attached to the various fishing boats and to their capstans.

Article 25

Fishing with a diver's suit and with a trawl is prohibited along the coastline of Tripolitania and Cyrenaica, in the area included between the shore and the 20-metre depth line.

Article 26

Fishermen carrying out fishing operations with diver's suits, by diving and with harpoons cannot fish, transport and sell sponges which, when immersed in water, do not have a maximum diameter of :

- 8 centimetres for equine sponges ;
- 4 centimetres for fine (soft) sponges ;
- 4 centimetres for zymoche sponges.

Fishermen who use the trawl method will not incur the penalties set forth by Article 56 for the fishing of sponges that are smaller than the minimum dimension. These sponges must however be turned over to the maritime authorities and sold for the benefit of the public treasury.

Article 27

Concessions for exclusive use may be granted for particular sea areas to individuals, to companies or associations, who intend to devote themselves to the

culture of sponges, and who are deemed qualified by the maritime authorities and who submit guarantees to carry out the experiment. The concession is granted by decree of the minister for the colonies.

Article 28

Special provisions will regulate the work, the weekly compulsory rest for divers and for the other persons assigned to the fishing of sponges, and accident prevention rules will be set up for the use of fishing equipment.

The recognized competence of divers, acquired in accordance with national law, will be considered valid.

All divers must prove that they have had at least two years of training in said fishing before being accepted to carry out sponge fishing operations in the waters of Tripolitania and Cyrenaica.

Article 29

The yield from the fishing of sponges must be taken into the ports of Tripoli, Bengasi and Derna for the registration set forth by the following article and for any commercial transaction. Anyone who violates such rule, by selling or attempting to sell the fishing yield in other ports or at sea, is punished under the rules of Article 56, paragraph, and incurs the revocation of the permit.

Article 30

All sponges that have been fished must be submitted for registration to the maritime authorities of the ports indicated in the preceding article.

Qualities that must be registered are :

- first equine sponges ;
- second zymoche sponges ;
- third fine (soft) sponges ;
- fourth elephant ear sponges.

All fished sponges, except for those which are provided for in Article 53, cannot be transported from one ship or boat to another ; they may only be loaded aboard the fishing boat which is designated for the exclusive storage of the fishing yield of each ship or boat or group of ships or boats, that belong to the same company.

Fishermen can leave the waters of Tripolitania and Cyrenaica only after having reported their fish yield and having completed its registration.

Article 31

“Black” sponges that are collected on the beach will be registered with the nearest port authorities, and then sold at any public market in accordance with local practice. A tax of 25 lire per quintal will be collected on said sponges.

The respective registrations will be reported annually to the head of the respective maritime district.

Article 32

All sponges exported from Tripolitania and Cyrenaica are subject to an export customs duty of 10 lire/quintal, for raw sponges and of 20 lire for those that are washed or finished.

CHAPTER II

Fishing-Nets for Tunny

Article 33

To carry out fishing-nets for tunny operations in waters of Tripolitania and Cyrenaica, which are reserved for persons indicated in Article 15, authorization from the minister for the colonies is required. The authorization must ensue from a decree accompanied by the contract of the individual who intends to set up the fishing-nets for tunny operation; the decree itself will specify the period of validity of the concession, which cannot be of a duration of more than 30 years, the water area, the corresponding space ashore if available, reserved for the fishing-net for tunny operation and for the preparation of the fishing yield, including any other condition for the setting up of the fishing-net for tunny operation.

For concessions relating to fishing-net for tunny operations of a duration of more than six years and in cases relating to installations of special industrial importance, the concession, rather than being granted pursuant to a certificate of submission to authority, will be accorded on the basis of contracts that will be stipulated in the manner and forms established by the Code and by the regulation for the merchant marine navy.

As a guaranty for his contractual obligations, the licensee must put up a suitable bond, the amount of which shall be decided in each case by the maritime authorities.

Article 34

Should two or more persons or agencies request the granting of a concession to set up a fishing-net for tunny operation in the same space of water, the minister for the colonies has the authority to grant the concession to the applicant that he deems preferentially more worthy by the nature of his financial and technical guarantees, unless the minister deems it advisable to proceed to assign the concession on the basis of public auction among the competitors or of private bidding, proclaimed by them based on an increase of the minimum rate set forth by the subsequent article.

If all of them meet the same conditions, in the case foreseen by the first part of this article, a preference may be given to the fishermen's co-operative associations, to the consortiums or to the syndicates of these same co-operative groups, which have been legally set up, providing that the concession is used and operated for the benefit of the co-operative groups.

For all the cases envisaged by this article no appeal can be lodged against the decision of the minister for the colonies.

Article 35

Each concession requires the payment of an annual fee.

The annual fee is established at a rate of 1 lire per each quintal of tuna or of any other mackerel fished, up to 8,000 quintals and of five (5) lire per quintal for any quantity over (T.N. not legible).

After at least five years of operation the minister for the colonies may replace the proportional fee with a set fee, which, for the concessions granted as a result of a public auction or of a private bidding will be equal to the annual average of the previously paid fees and for the concessions granted subsequent to a private

negotiation, based on the first paragraph of this article it cannot exceed by 50 per cent said average.

The fee thus set may be subject to a revision every five years on request by the administration or by the grantee. If an agreement cannot be reached, a decision on the application will be made by a commission of arbitrators, consisting of three members one of which shall be appointed by the administration, the other by the grantee, and the third shall be appointed by the two arbitrators that have already been appointed. Should the two arbitrators not agree on the selection of the third, the latter shall be appointed by the president of the Court of Appeals of Tripoli.

Article 36

The certificate granting the concession shall also contain the agreed minimum salary and the minimum profit sharing amount that the employees, utilized in the operation of the fishing-nets for tunny, can expect to share with the company. Any controversies relating to salaries and work agreements made between the company and the employees will be decided without appeal, by a commission of arbitrators, consisting of a representative of the grantee, a workers' representative and of the captain or other port official having jurisdiction, who will act as president.

Article 37

The grantee has the right to shirk his contractual obligations, if he can prove that within two fishing campaigns subsequent to the one in which the installation took place, the company operated by him has not given satisfactory results due to the insufficiency of the product.

The concession may be revoked with a justified decree by the minister for the colonies without any right to compensation, should such a measure become necessary due to reasons of public interest. The concession shall be revoked in the event that the grantee has allowed two consecutive years to elapse without setting up the installation starting from the date on which he should have begun or by failing to operate the fishing-net for tunny installation, except for the provisions set forth in the following article.

Article 38

The grantee is given two years from the date of the concession decree within which to begin the installation.

During said period of time the grantee is obligated to conduct experiments to ascertain the passage of tuna.

Should the grantee fail to comply with said provision his concession will be revoked.

Article 39

Each fishing-net for tunny operation is given, during the fishing period, an exclusive area, which, in relation to other adjacent fishing-net for tunny operations, will consist of an area of ten kilometres from the side of the mouth of the fishing-net for tunny operation and of one kilometre on the opposite side, starting from the centre of fishing-net for tunny installation.

With respect to all the other fishing operations, the exclusive area, will be of five kilometres from the side of the mouth of the fishing-net for tunny operation and of one kilometre on the opposite side.

In the front of the fishing-net for tunny operation, the exclusive area, will be of six kilometres towards the high seas, over the entire length of the side exclusive area referred to in the preceding paragraph.

Any other type of fishing in the exclusive area referred to above or in any manner disturbing the passage of the tunny, is strictly prohibited.

The length of the tail cannot, in any event, exceed 1,000 metres.

CHAPTER III

Coral Fishing

Article 40

To search for coral banks a permit must be secured from the maritime authorities.

Anyone discovering a coral bank in the sea area of the sponge algaes expanse must report said find to the above-mentioned authorities and may obtain a permit to exploit said find for two consecutive years.

Said authorization is subordinated to the payment of a fee, the amount of which will be one-tenth the value of the fished product, and on the conditions that shall be specified in the authorization itself.

CHAPTER IV

Fishing Rights in Salty Ponds or in Lagoons

Article 41

Salty ponds or lagoons in Tripolitania and Cyrenaica may be given in concession through a decree of the minister for the colonies and for a period of time not to exceed 15 years.

The concession certificate may also specify :

(a) an obligation to re-populate the ponds with new fish ;

(b) rules relating to mytilus-culture and ostriculture in cases where such special cultivation is possible. (*Translator's note : Mytilus and ostriculture are latin terms referring to the culture of mussel and mollusk clams or shells.*)

Until such time as a salt water pond or lagoon concession is given, no fishing operations can be conducted without a special permit from the maritime authorities, subject to the payment of a 5 lire duty-tax and to the rules that shall be specified by the maritime authorities.

CHAPTER V

Breeding of Aquatic Products

Article 42

The breeding of aquatic products at sea, or in salt water ponds or lagoons cannot be carried out without having obtained the corresponding concessions from the minister for the colonies.

All applications must be submitted to the maritime authorities together with the designs of the installations that are to be set up.

TITLE VII

Aid to the Industry and to Fishermen

Article 43

All co-operative organizations that may be set up between Italian and native fishermen in Tripolitania and Cyrenaica will be exempt, for a ten-year period, from any taxation relating to their certificates of incorporation and from any governmental taxation on the proceeds of the sale of their fished products or of the finished products, except for the duties provided by this regulation.

The same exemptions are given in Tripolitania and Cyrenaica to co-operatives among fishermen set up in Italy, to syndicates and to consortiums, concerning the income obtained there from the sale or preparation of the fish and of the other aquatic products.

Article 44

Fishing colonies that might be set up in Tripolitania and Cyrenaica between Italian and native fishermen may be granted free pieces of land for the construction of housing and of buildings that might be required for the operation of the supplementary fishing industries and also for gardens for domestic use.

Article 45

The minister for the colonies may grant, even gratuitously, to the fishermen the use of buildings and shacks, which might be located along the coast, and subsidize or promote the construction of housing for the fishermen.

Article 46

A decree issued by the minister for the colonies will specify the rules relating to the granting of good service awards to the fishing industry and to that for the preparation of the related products either with respect to the economic nature of the industry's results or to the novelty and perfecting of the methods and of the various industrial applications.

Article 47

As a guaranty for the loans granted to the owners and to the managing owners of the ships and boats used in the fishing operations in Tripolitania and Cyrenaica a special privilege may be set up on the products of the fishing itself, in favour of institutions, syndicates and consortiums of fishing co-operatives, co-operative companies and other commercial companies that might have been legally set up and which are expressly authorized by the minister for the colonies to conduct credit transactions for the fishing industry.

Article 48

To validate and implement said privilege it is necessary :

- first that it ensues from a written document ;
- second that it have an effective date as a result of it having been recorded with the port authorities of Tripoli, Bengasi and Derna.

Said privileges are freely recorded in a special register which is kept at the port

authority offices of the colony, from which the ship or boat departs for its fishing and where it is obligated to store the product.

The registrations are published in the fishing journal.

Certificates attesting to the existence or lack of registration are freely issued by the port authorities.

Article 49

The privilege set up in connection with the preceding provision prevails over any other that might be claimed on the fishing product, except for possible State rights.

Article 50

Said privilege cannot be extended for a duration greater than 12 months and may be renewed, prior to its expiration, for the subsequent campaign.

The renewal is made free of charge.

Article 51

It is valid, starting from the date of registration, and for the entire amount recorded, regardless of the date of supply of the capital, said privilege being valid in accordance with the terms of Articles 47 and 48, as a guaranty for accounts opened in favour of owners and of managing owners by the companies and by the subsidizing institutions.

Article 52

The interest on said loans cannot exceed the limit that shall be specified by a *governor's decree on recommendation of the maritime authorities*.

Article 53

The commercial loan institutions or companies may require that the fishing yield be kept aboard for safe-keeping, through one of their delegated representatives, or remove the yield itself and store it in places set aside for such purpose by the port authorities, unless the debtor requests that the product, in cases where it is not subject to deterioration, be stored in the public warehouses referred to in the following article.

Should the creditor remove the product, a special notation to this effect will be made in the fishing journal, duly signed both by the debtor and by the creditor.

Article 54

All offices of the port of Tripoli, of Bengasi and of Derna have public warehouses for non-perishable fishing products. The warehouses are run by the local maritime authorities. The issuance of a certificate of storage and of a pledge note on the stored products is authorized.

A decree by the minister for the colonies will set forth the rules for storage, for the preparation of titles and duplicates should they be lost, for title transactions, for the withdrawal and actual sale of the products and for the duties that shall be owed to the warehouse.

Article 55

Subsequent provisions will provide for the expansion of assistance and aid to fishermen by institutions in Tripolitania and Cyrenaica.

TITLE VIII

Infractions, Penalties and Criminal Proceedings

Article 56

Any violation of Articles 6, last paragraph, 7 to 10, 12, 14, paragraph, 15, 24, are punished with a fine of from 50 to 1,000 lire.

Any violations of Articles 13, 14, first part, 17, 19, second and third paragraphs, 23, second paragraph, 24, 25, 26, 28 to 31, 39, as well as any infraction of the bans referred to in Articles 21 and 40, are punished with a fine of from 200 to 5,000 lire.

Article 57

Anyone conducting fishing operations of fish, of mullusk and of crustaceans without the required permit, in accordance with this regulation, is punished with a fine that will be not less than 5 times and not more than 20 times the duty specified for the permit itself.

Anyone carrying out sponge-fishing operations without the required permit is punished with a fine equal to 3 times the duty specified for said permit.

Anyone who without any concession or declaration or authorization, in accordance with the provisions of this decree, fishes for coral, sets up fishing-nets for tunny, or carries out any aqua-culture operations, or fishes in salt lakes for which a concession is required, is punished with a fine of not less than 500 lire and of not more than 2,000 lire and by the confiscation of his nets and of the other tools, including the fished yield.

Article 58

With respect to the infractions referred to in Article 11, concerning the possession of explosives or of firearms without permission, the person in charge of the ship or boat, is punished with a fine of up to 1,000 lire; the person in possession of said explosives or weapons is punished with imprisonment of up to six months.

The explosives and weapons will be confiscated.

Article 59

Violators may lose or have their fishing permit suspended.

The devices or tools that were used or destined to commit the infraction are sequestered and stored with the maritime authorities, or in some other manner removed, until completion of the proceedings or transaction.

In case of a conviction, said authority may order their confiscation.

Aquatic products, that are fished in violation of this regulation, are always sequestered, and, if of a perishable nature, are sold immediately.

In case of a conviction the products or their price are confiscated.

Article 60

Those who have already been convicted previously for one of the infractions referred to in this regulation, and who commit another, cannot be given the minimum penalty.

Article 61

Officials of the port of Tripolitania and Cyrenaica, each within the limits of their own jurisdiction, prepare cases, judge and settle all fishing violations

referred to in this regulation, in accordance with the rules of procedure set forth for maritime crimes by the merchant marine code. Convictions for crimes referred to in Article 58 or for any fine exceeding 2,000 lire may be appealed before the Court of Appeals, within three days subsequent to the conviction.

Article 62

On infractions indicated in the first paragraph of Article 56 settlements are permitted, the purpose of which is to prevent a trial or to stop its course.

In addition to the assessed amounts violators are also required to pay court costs.

Article 63

The port authorities, in judging or providing to settle the case in accordance with the preceding article, may grant to the officers that have ascertained the violation part of the sum, not exceeding the half belonging to the State for monetary penalties, for the settlements and for the proceeds from the sale of the confiscated goods.

TITLE IX

Transitory Provisions

Article 64

During the first three years of application of this regulation the minister for colonies may regulate the flow of fishermen in the fishing areas of Tripolitania and Cyrenaica by setting up shifts for fishing operations of fish, mollusk and crustaceans for groups of fishermen coming from other maritime districts and issuing appropriate rules.

Seen, by order of His Majesty
The Minister for the Colonies
P. BERTOLINI.

Annex 42

ITALIAN ROYAL DECREE OF 22 NOVEMBER 1925, No. 2273

[Copy of the document in Italian not reproduced]

(Translation)

LAWS AND DECREES – 1925 – 2552

2552

(Royal Decree No. 2273 of 22 November 1925)

Modifications to R. decree No. 312 of 27 March 1913, on the fishing of sponges in Tripolitania and Cyrenaica.
(Published in *Official Gazette*, No. 303, of 31 December 1925)

Victor Emmanuel III
by the grace of God and by the will of the Nation
King of Italy

Having seen R. decree No. 1247 of 5 November 1911, changed into law No. 83 of 25 February 1912 ;

Having seen R. decree No. 312 of 27 March 1913 ;

Having heard the superior colonial council ;

Having heard the council of ministers ;

On the proposal by Our Minister the Secretary of State for the Colonies ;

We have decreed and by these means decree :

Article 1

The following replaces Chapter I, title VI, of the regulation on maritime fishing in Tripolitania and Cyrenaica, approved with R. decree No. 312 of 27 March 1913 :

Chapter I. Article 19. Sponge fishing operations over the entire sponge alga expanse of Tripolitania and Cyrenaica may be conducted only after having obtained a permit issued by the maritime authorities of Tripoli, Bengasi and Derna and will be valid for a period of one year starting 15 November.

Article 20. Sponge fishing operations must, as a rule, be carried out only with one of the following methods :

- diving equipment (diver) ;
- diving (performed by skin divers) ;
- trawl (gangava) ;
- harpoon (trident – Kamakis).

The Governor may authorize other fishing methods. The total number of ships or boats of each category of diving equipment and of the other sponge fishing tools may be limited by the Governor for single campaigns.

Article 21. For sponge fishing operations with diving equipment, the latter, even if located on a separate barge, is considered as an accessory part of the

storage ship, on which all the employees of the company will be listed. The storage ship must be an Italian flag ship. The fishing permit will be made out to said ship. The diving equipment shall be recorded in an appropriate register.

Article 22. Enlistment for sponge fishing operations must be made by a contract that will be stipulated in accordance with Article 522 of the commercial code regardless of the carrying capacity of the storage ship.

Any advances on the salaries agreed for the entire campaign must be made after enlistment and cannot exceed two months of salaries. All subsequent payments must not exceed a one-month salary for each month that has elapsed from the date of enlistment. Any advance must be accompanied by a regular receipt. At the end of each campaign a note indicating the number of sponges fished daily by each diver must be submitted to the maritime authority.

Article 23. Persons enlisted to fish sponges with diving equipment shall be divided into two groups :

- (a) storage ship personnel ;
- (b) work teams.

The former is entrusted with the navigational conduct of the storage ship.

The latter is involved in the search and exploitation of the algas with the aid of the diving equipment.

The administration of the storage ship will be entrusted to seamen who possess the rank of seamen authorized to operate in traffic or of owners, depending on the ship's tonnage. A seaman authorized to fish on the high seas will be put in charge of each diving apparatus. The members of the work teams shall consist of first- and second-class seamen. All divers, before being accepted for sponge fishing operations on algas in Libya, must prove that they have had at least two years of training in the same type of fishing.

A managing owner or a person designated by him, may come aboard for the sole purpose of co-operating with the captain of the storage ship for the success of the campaign. These individuals may in no way interfere with the technical administration of the ship or with the service or disciplinary relationships between the captain and his crew.

Article 24. The maritime authorities of Tripoli, Bengasi and Derna, may, based on Article 72 of the merchant marine code of Libya, permit the enlistment of divers of foreign nationality in excess of the number provided in said article.

Article 25. The fishing of sponges with the other methods indicated in Article 20 may be carried out by isolated boats, providing that they, taking their tonnage into consideration, are run by persons duly authorized in accordance with the merchant marine code and this regulation and providing that the members of the crew are first- and second-class seamen, depending on the type of fishing to which the boat is devoted.

Article 26. Sponge fishing operations by foreign boats will be permitted subject to approval by the Minister for the colonies in agreement with the Minister for Foreign Affairs. Only foreign ships, in possession of ship's papers from their own country, who go from abroad to the sponge algas of Tripolitania and Cyrenaica and who depart upon completion of their campaign, are exempted from the obligation to join storage ships of Italian flag.

During fishing operations they must however abide by the overall requirements that govern same such as the issuance of the permit, the payment of the related duties, the registration of the yield with the appropriate maritime authorities, as well as to abide by the special rules referred to in Article 34 below.

Article 27. All storage ships with a net tonnage of less than 50 tons cannot take more than two divers aboard. The maritime authority will, from time to time, specify the maximum number of divers that can be taken aboard storage ships with a net tonnage that exceeds the one now indicated.

Article 28. To obtain a sponge fishing permit an application must be filed with the maritime authority having jurisdiction indicating :

first the name, last name and domicile of the owner and managing owner, if they are not one and the same, and a statement indicating whether the managing owner intends to take part in the campaign or designate someone to go aboard ;

second the name and the carrying capacity of the ship or boat ;

third the fishing methods that will be used ;

fourth the number and quantity of fishing equipment or tools, and if concerning fishing with diving equipment, the names and characteristics of the latter.

The appropriate maritime authority, pursuant to the request made, will proceed to make enlistments, in accordance with the preceding Article 23 and will issue a permit.

All applications by foreign ships or boats must be accompanied by the seal of approval of their respective consul.

Article 29. During sponge fishing operations no ships, boats or equipment different from those reported may be used.

Any changes in the make-up of the crew must be reported to the authority that issued the permit. The fished sponges must be stored on the storage ship to which the diving equipment belongs. It is forbidden to leave the seas of Libya without having registered the yield and paid the export duty referred to in the customs duty rate of Tripolitania and Cyrenaica approved by R. decree No. 1582 of 14 June 1913.

Article 30. Fishing with diving equipment and with the trawl (gangava) is prohibited along the coast of Tripolitania and Cyrenaica, in the area included between the coast and the 20-metre depth line.

Article 31. Fishermen that fish with diving equipment, by diving, and with harpoons cannot fish, transport and sell sponges that, immersed in water, do not reach the following maximum diameter :

equine sponges 8 cm. ;

fine (soft) sponges 4 cm. ;

zymoches sponges 4 cm.

Fishermen that use a trawl do not incur the penalties specified by Article 61 for the fishing of sponges of less than the minimum dimension but said sponges must be turned over to the maritime authorities and sold on behalf of the public treasury.

Article 32. Exclusive concessions for certain sea areas may be granted to individuals, to companies or associations, who intend to dedicate themselves to the culture of sponges, and who are deemed qualified by the maritime authorities and submit guarantees for the implementation of the experiment. The concession is made by means of a decree issued by the colonial Governments.

Article 33. The service, the weekly rest of the divers and of the other persons assigned to the sponge fishing operation as well as the rules relating to the prevention of accidents in the use of the fishing equipment, are governed by special rules that must be approved by decree of the minister for the colonies.

Article 34. The yield from the sponge fishing operation must be taken to the ports of Tripoli, Bengasi and Derna for the related registration with the customs office, which will report to the local maritime authorities the results of the registrations made as well as any infractions encountered.

Anyone who violates said provision, by selling or attempting to sell the fish yield at sea or in other ports, is punished in accordance with the provisions contained in title VIII of this regulation and incurs the revocation of the permit. As soon as the registration formalities have been completed, the fishermen may freely dispose of their product.

Article 35. The sponges that must be registered are :

equine sponges ;
 zymoche sponges ;
 fine (soft) sponges ;
 elephant ears.

Article 36. Black sponges collected on the beach will be registered with the nearest customs office and will be subject to a tax of 25 lire per quintal. After which those who have collected them may freely dispose of them. The relative registrations will be reported annually to the Harbour Master of the respective maritime district.

Article 37. A sponge fishing permit is subject to the payment of the following duties :

first, for every ship or boat assigned to fishing with a harpoon (trident or Kamakis), 100 lire ;
 second, for every ship or boat that has divers, 200 lire ;
 third, for every ship or boat that conducts trawl fishing operations (gangava) and whose net tonnage does not exceed 5 tons, 200 lire ;
 fourth, for every ship or boat assigned to carry out above fishing and whose net tonnage exceeds 5 tons, 300 lire ;
 fifth, for each apparatus to which no more than 5 divers are assigned, 1,400 lire ;
 sixth, for each diver over the number five on each apparatus, 200 lire ;
 seventh, for each ship or boat that carries out fishing operations with special equipment, 2,000 lire.

Article 38. The minister for the colonies may suspend the fishing of sponges in certain areas, for the protection of said product, by a decree indicating the duration of said suspension.

Article 2

Articles 54 and 55 of the regulation approved with R. Decree No. 312 of 27 March 1913 are revoked, and the numbering of the articles of the same regulation is changed, number 33 of Chapter II, title VI, becomes number 39 ; number 53 of title VII becomes No. 59. The new Article 59, formerly Article 53, is modified as follows :

“The commercial loan companies and institutions may subject the fish yield to be kept on board for safe-keeping, through one of their representatives, or remove the yield itself and store it in warehouses designated by the port authorities.

Should the creditor not remove the yield a special notation will be made on the fishing log, signed by both the creditor and the debtor.”

Article 3

In title VII of the aforementioned regulation the following new article is added which will become number 60 :

“Any credit transaction by pledging the ship, its accessories or the fish yield, must be made by the managing owners and in their name, except for the consent of the ship owners, if different from the managing owners. The powers of the captains, provided in Articles 507 and 509 of the commercial Code are safeguarded.”

Article 4

The numbering of the articles of title VIII “Infractions, penalties and criminal provisions” of the aforementioned regulations No. 312 of 27 March 1913 is changed, with number 56 becoming number 61 and number 63 becoming number 68.

The article that becomes number 61 is replaced by the following :

“Any violations of Articles 6, last paragraph, 7 to 10, 12, 14, paragraph, 15, 20, are punished with a fine of from 50 to 1,000 lire.

Any infractions of Articles 13, 14, first part, 17, 19, 20, first and second paragraphs, 30, 31, 33, 34, 36, 45 and of the prohibitions that will be issued with Articles 38 and 40 are punished with a fine of from 200 lire to 5,000 lire.”

Article 5

The transitory provision of title IX is revoked.

Article 6

The minister for the colonies is authorized to co-ordinate into a single text the regulation for maritime fishing operations in Tripolitania and Cyrenaica, keeping in mind the changes that have been brought about by this decree and by previous Royal decrees No. 2391 of 27 November 1919 ; No. 1712 of 21 November 1920, and No. 1778 of 15 July 1923.

We hereby order that this decree, with the seal of the State affixed thereto, be made a part of the official collection of laws and decrees of the Kingdom of Italy, with copies being sent to all those who must comply with it and who must insure compliance with same.

Issued in Rome on 22 November 1925.

VICTOR EMMANUEL.

MUSSOLINI – P. Lanza Di SCALEA.

Approved, The Keeper of the Seals : ROCCO.

Recorded in the Court of accounts on 28 December 1925.

Government Records, register 242, page 174 – Granata.

Annex 43

ITALIAN INSTRUCTION FOR THE SURVEILLANCE OF MARITIME FISHING IN THE
WATERS OF TRIPOLITANIA AND CYRENAICA DATED 16 APRIL 1919

[Copy of the document in Italian not reproduced]

(Translation)

N. 4735 General Secretariat

GOVERNMENT OF TRIPOLITANIA
AND CYRENAICA*Instructions for the Surveillance of Maritime Fishing in the Waters of Tripolitania
and Cyrenaica*

All Royal Ships, Torpedo-boats, Vedette boats and Motorboats cruising or in navigation in the waters of the Libyan colonies have the obligation, under all circumstances, of performing the direct surveillance of the coast, particularly as concerns everything having to do with the practices of fishing and coastal trading.

The practice of both, in addition to being regulated by special concessions or laws, and therefore not being public domain, lends itself easily to any kind of smuggling activity, for which reason it will be necessary to exercise maximum interference in these respects and at any time there will arise the occasion of sighting small craft or sail boats along the coast or off shore. And since under any circumstances an inspection aboard shall be allowable to verify compliance with the laws regulating fishing, it shall therefore suffice to give her the instructions regarding fishing itself as a safeguard also against other infractions concerning illegal coastal trade and contraband. The instructions to be followed by the Commanding Officers of the Royal Ships are as follows :

1. The practice of fishing fish, molluscs, crustaceans, sponges and coral along the coasts of Tripolitania and Cyrenaica, and within the limits of the territorial waters, is subject to the concession of particular permits for each type of fishing by the Port Authorities of the two Colonies.

2. The limits of the territorial waters are to be intended as established at three marine miles from the coast. It is however an accepted principle that all sponge colonies fronting the coast and extending without interruption even beyond the 3 miles limit constitute territorial waters and therefore sponge and coral fishing on such sponge colonies, regardless of how far they extend from the coast, must be subjected to the concession of the proper permit.

3. As far as the sea border between Tripolitania and Tunisia is concerned, it was agreed to adopt as a line of delimitation the line perpendicular to the coast at the border point, which is, in this case, the approximate bearing north-north-east from Ras Adgir.

At the border between Cyrenaica and Egypt, for the purposes of fishing, the line starting from Cape Beacon, in the gulf of Solum, in direction east-north-east will be considered as the border.

Regardless as to whether they are flying the national flag or a foreign one,

fishing boats found engaged in one of the kinds of fishing mentioned above within the sea limits previously described without the necessary permit or with an expired permit will be considered as engaged in illegal fishing. The fishing boats themselves will therefore be seized, brought and delivered to the nearest Harbour Office for further legal action.

4. In order to avoid possible disputes which would arise, especially in regard to the actual position of the craft at the moment of the infraction, I establish that the lines of delimitation mentioned above be moved in a direction parallel to their own selves, until the first shall have as its point of origin Ras Makabez and the second Marsa Limreig (2 miles south-south-east of Port Bardia). In such way, there will be two areas of about 8 miles each, i.e., the one toward Tunisia, included within the two lines with a NNE direction, passing one through Ras Adgir and the other through Ras Makabez ; and that toward Egypt, included within the two lines with an ENE direction, passing one through Cape Beacon and the other through Marsa Limreig. In these two areas, although the conditions for prohibition of fishing and the right to perform an on-board inspection are still standing, the boats flying a foreign flag and not in possession of the Italian Maritime Authorities permit shall not be seized, but rather ordered away, unless the position of the site within the borders where such boats were fishing illegally can be demonstrated in an irrefutable manner even afterward.

5. In a case such as the one in the preceding paragraph, the Commanding Officer who surprised the boat in the open act shall immediately write a detailed report, which shall contain in detail all the particulars relating to the craft and its owners, as obtained from the boat's documents, and the reasons why the craft was declared in transgression of the law for fishing illegally. Such report shall then be sent to the Naval Station Command in Libya for further proceedings.

6. Fishing boats of any tonnage, be they national or foreign, shall always have in the centre of the main sail, visible from a distance, the number under which they are registered at the Port Offices, and below it the emblem of the Maritime District. Such number shall be painted in black and its digits shall be no less than 50 centimetres in height. The emblem shall be constituted by the initial capital letter of the district capital (T for Tripolitania, B for Cyrenaica), no less than 50 centimetres in height, inscribed in a circle of no less than 1 metre in diameter, with a 7 centimetre wide band. Said emblem shall be painted in red.

7. During the night the boats must have the prescribed lights.

8. Should a violation of the rules prescribed in paragraphs 6 and 7 be found, the boat shall be allowed to continue fishing (provided it is in possession of the permit prescribed) but it will be fined and the necessary data for the report to the Port Authorities will be taken.

9. The persons in charge of boats engaged in sponge or coral fishing must keep a fishing log, in which will be recorded for each day of fishing the hours and the sites where the fishing took place, the quantities and the qualities according to the various categories of the product fished. For sponge fishing, the health conditions of the crew must also be recorded.

10. In the aforesaid fishing log there shall be also recorded the date of the last unloading of the product fished and the place where it was effected and deposited.

11. It is forbidden to keep aboard the fishing boats any firearms, except those for which an authorization was obtained.

12. Fishing with dynamite or with other explosive materials is prohibited, it is forbidden to throw in the water substances capable of clouding it, and of

stunning or killing fish and other aquatic animals, and it is also forbidden to keep aboard the fishing boats the explosive materials mentioned above.

13. In the violations of the rules of paragraphs 11 and 12, the arms and the explosives shall be seized and the boat shall be brought to the nearest Port Office for further measures.

14. Sponge fishing may be performed only in the following manner :

- with diving suit (diver) ;
- diving (performed by skin divers) ;
- with dredge (gangava) ;
- with fishing spear (kamakis).

Fishing with a diving suit and with a dredge (gangava) is forbidden along the littoral of Tripolitania and Cyrenaica in the area included between the beach and the 20-metre depth line.

15. The product of sponge fishing must be brought up to the ports of Tripoli, Bengazi or Derna for the registration and to be deposited with the Italian Association for the Fishing and Commerce of Sponges.

16. The sponges fished cannot be transported by another boat ; they may be transferred only to the one assigned as exclusive deposit of the fishing of each boat or group of boats.

17. Fishermen cannot leave Libyan waters until after they declared the product of their fishing and registered and deposited it.

18. In the present Summer fishing campaign, the permit applies for Tripolitania from Cape Tajura to the Tunisian border, and for Cyrenaica to the entire coast, without delimitation.

19. Boats flying the national or a foreign flag, with or without regular fishing permits issued by the Harbour Master's Office of Tripoli or Bengazi, caught in the act of fishing east of the meridian of Cape Tajura will be declared in violation of the fishing laws and therefore seized, brought and delivered to the nearest Port Office for further prosecution.

20. Any trade taking place along the coast and out of port, be it by sail or steam boats, shall be definitely subject to inspection. Once an infraction is ascertained, the craft, the material unloaded and the persons involved shall be seized, and all shall be brought to the nearest port.

22. For ships suspected of being involved in smuggling operations, special instructions shall be given case by case.

Tripoli, 16 April 1919.

(Signed) GARIONI,

The Governor.

Annex 44

ZUARA JUDGMENT

[Copy of the document in Italian not reproduced]

(Translation)

IN THE NAME OF HIS MAJESTY
VICTOR EMMANUEL III
BY THE GRACE OF GOD AND BY THE WILL OF THE NATION
KING OF ITALY

On 2 September 1913 in Zuara the Officer of the Port, Cav. Attilio Maxera (Harbour Master), with the assistance of Mr. Pietro Codebo (Court Clerk)

in a penal case

has pronounced the following judgement in the trial against those herein named :

First, Andre Matzia son of Ciriaco, 45 years old, born and domiciled in Hydra, captain in command of the Greek boat *Panaia* in possession of a permit to fish for sponges with equipment in Tunisian waters, No. 8, issued in Sfax on 1 July 1913.

Second, Alessio Sarris son of the late Emmanuel, 47 years old, born and domiciled in Hydra, captain in command of the Greek boat *Agnics Costantinos* fishing as above, in possession of permit No. 10 dated 1 June 1913 for fishing in Tunisia.

Third, Gregorio Moraibz son of the late Attanasio, 33 years old, born and domiciled in Hydra, commanding the Greek boat *Taxiarchi* fishing for sponges as above, in possession of permit No. 13 for fishing in Tunisia issued in Sfax on 1 June 1913.

Accused

of violating Article 19 of the "Regulation on fishing operations in Tripolitania and Cyrenaica" approved by Royal Decree No. 312 of 27 March 1913, for having been caught in the act while fishing for sponges on the sponge alga expanse of Tripolitania without the permit required by Article 19 of the aforementioned regulation.

Considering in fact : that with statement No. 613 dated 26 August the Captain of the Royal Torpedo-boat *Orfeo* reported to this Harbour Master's Office that he had overtaken, while coming out of the approach channel leading to the inner roadstead of Macabez, 9 miles away from said channel, the three boats referred to above in the process of fishing for sponges at latitude 33° 19' N and longitude 9° 22' East Paris, without being in possession of the permit required to fish in the waters of Tripolitania and Cyrenaica. That the point where said boats were overtaken by the Torpedo-boat is 11.7 miles from the coast ; that this very point, while on this side of the line (not legible) that passes by Ras-Ashyir, which marks the border between Tripolitania and Tunisia, is included in the range of the alga sponge expanses of Tripolitania (referred to in Article 19 of the aforementioned

fishing regulation) which expanse, in that area, extends over 25 miles from the beach. That it has been established that the boat commanded by Andre Matzis had a diver in the water, busy fishing when he was surprised by the Torpedo-boat *Orfeo*. That with respect to the other two boats none of which had any diver in the water it can be presumed that they had been fishing in said alga expanse and the captain of the Torpedo-boat *Orfeo* comes to said conclusion based on the fact that he located the boats over a bank on which they were not permitted to fish and based on the fact that they had a certain quantity of sponges aboard, while the witnesses who were heard under oath, unanimously stated that no diver was in the water except the one from the *Panaia* boat and that the boats were located on said alga sponge expanse, under calm seas with unfolded sails ready to proceed on their way from the Tunisian banks to the roadstead of Macabrez where they intended to go to spend the next Feast of the Assumption (which according to the Greek religion occurs on August (?)) (not legible).

In View of the Above

The undersigned Officer of the Port declares the named Andre Matzis, son of Ciricco, guilty of the violation ascribed to him and having read and applied Articles 19, 20, 22, 57, 59, 61 relating to the Regulation on Fishing Operations in Tripolitania and Cyrenaica, and 562 of the Penal Proc. Code sentences the aforementioned Andre Matzis to a fine of 2,100 lire, to the payment of court costs and to the confiscation of the sponges contained in the *Panaia* boat – and absolves for lack of proof the named Alessio Sarris, son of the late Emmanuel, and Gregorio Moraibz, son of the late Attanasio.

So was it decided in Zuara at a public hearing on 2 September 1913.

The Captain of the Port,
(Signed) MAXERA.

The Court Clerk,
(Signed) Pietro CODEBO.

The Court Clerk,
(Signed) P. CODEBO.

Seen by the Harbour Master,
(Signed) MAXERA.

This is a true copy of the original which is issued for administrative uses.

Annex 45

ITALIAN INSTRUCTION OF 25 JUNE 1931

*[Copy of the document in Italian not reproduced]**(Translation)*OFFICIAL BULLETIN OF TRIPOLITANIA
ORDINANCES
16.

No. 5247

*Maritime Administration of Tripolitania
Instructions for the supervision of maritime fishing in
the waters of Tripolitania**(a) General Information*

The following provisions govern maritime fishing in Tripolitania :

(1) Regulation for maritime fishing operations in Tripolitania and Cyrenaica approved by Royal Decree No. 312 modified by :

- (a)* Royal decree No. 1712 of 21 November 1920 ;
- (b)* Royal decree No. 2273 of 22 November 1925.

(2) Ministerial Decree of 12 April 1919 that establishes special rules for the fishing of sponges in Tripolitania and Cyrenaica.

(3) Gubernatorial Decree No. 541A, of 8 September 1928 that authorizes the fishing of sponges in Tripolitania with the system of "De Fernez" equipment.

(4) Royal Decree No. 1910 of 10 October 1929 that sets up an intermixed area for the fishing of sponges by fishermen of Tripolitania and Cyrenaica.

(5) Regulation of the port of Tripoli approved on 22 December 1930.

(6) Gubernatorial ordinance No. 3781 (?) dated 15 May 1931 for the supply and use of the medicine box.

With respect to the supervision of fishing, regulation No. 312 of 27 March 1913 specifies that :

(Art. 2). The administration of maritime fishing is entrusted to the Authorities in charge of Merchant Marine activities in Tripolitania (Harbour Master's Office, Port Offices and Beach Delegations).

(Art. 3). To implement the rules and ascertain the related infractions the Authorities indicated in Article 2 work in unison with the Royal Navy, with the Revenue Office and with all other officers of the police force.

Based on these provisions and on the gubernatorial instructions of 16 April 1919, which are replaced by these provisions, the Royal Navy ships that go on a

cruise or that are sailing in the waters of the Colony must carry on direct surveillance of fishing operations, keeping in mind that :

(1) The validity of the fishing legislation extends to the very limit of the territorial waters, that is to say up to 6 miles from the coast, but it is understood that all the sponge algae that face the coast and that extend without solution of continuity even past the limits of the territorial waters, at whatever distance they might be from the coast, are considered as being included in the territorial waters.

(2) The sea border-line between Tripolitania and Tunisia is established by an approximate north-north east bearing from Ras Adgir, but in order to avoid any possible disputes, it has been agreed that the demarcation line originates with the same bearing from Ras Makabez in order to establish an area of approximately 8 miles in front of the Ras Adgir-Ras Makabez coast line, in which foreign flag boats that do not have a permit from the Italian maritime authorities must not be sequestered but asked to move on, unless the location in which they were spotted fishing illegally, can be established without any doubt to fall within the boundary.

(3) In the case referred to in the preceding paragraph, the captain that has taken by surprise and caught the boat in the act, will immediately prepare a detailed report showing all the information relating to the craft, to its captain or owner as shown on the ship's papers, as well as the grounds for the infraction.

(4) The border between Tripolitania and Cyrenaica is outlined by the meridian of Gasr el-Muktar, but with respect to the fishing of sponges, an inter-mixed area has been set up defined towards the sea north of the parallel of Buerat el-Hsun (31.25.00 N) to the east by the meridian of Agheila (19.13.00 E). Boats from Cyrenaica are permitted to cross the border line into waters of Tripolitania and vice versa in said area in the event of an act of God or to take on a supply of water and in any event for a period not to exceed 10 days.

This information having been stated in advance we are summarizing below the controls that must practically be exercised when encountering any fishing boats or ships.

*(b) Controls that Apply Indiscriminately to all Ships
or Boats*

(1) Ascertain, whether at night the lights prescribed by Article 2 of R.D. No. 164 of 26 April 1906 are kept on, which decree modifies regulation No. 577 of 13 December 1896 to avoid collisions at sea.

(2) Ascertain (if the fishing-net for tunny campaign is in progress) that the ship or boat is not fishing within the exclusive area of a fishing-net for tunny concession, i.e., within 5 kilometres on the western side of the net, 1 kilometre from the eastern side and 6 kilometres in front of the fishing-net for tunny installation (Art. 45, regulation).

(3) Check that the fishing permit issued by the maritime authorities is on board (Art. 19 regulation).

(4) Check that the seaman in command to whom the permit was issued is aboard (Art. 23 regulation).

(5) Check that no firearms are on board which have not been authorized in writing by the maritime authorities and that there are no explosives (Art. 11 regulation).

(c) Special Controls for the Fishing of Sponges with the
"Diver's Suit" Method

(6) Check that the ship does not carry on board a number of divers greater than that corresponding to the fishing duty paid (Art. 37 regulation), checking for this purpose the personnel roster issued by the Maritime Authorities which must be kept on board.

(7) Check, by the use of the diving equipment, the depth and make sure that fishing is not being conducted at a depth of less than 20 metres or more than 60 metres (Art. 3 of the special rules).

(8) Check to make sure that the fishing log is on board and that it is being kept in the prescribed manner (Art. 10 regulation).

(9) Check to make sure that the fished sponges, immersed in water, are not smaller in diameter than was reported. Equine sponges 8 cm., fine sponges 4 cm., zymoche 4 cm. (Art. 31 of the regulation).

(10) Check for presence and contents of the medicine box in accordance with gubernatorial ordinance No. 3784 of 15 May 1931 (Art. 3 of the special rules).

(11) Check to make sure that the work shifts and the rest periods are being complied with (Arts. 5 and 6 special rules).

(12) Check to make sure that there are no sick or injured persons aboard, which might have been unduly kept aboard without having been immediately transported ashore and reported to the Maritime Authorities (Art. 8 of the special rules).

(d) Special Controls relating to Sponge Fishing Operations
with the "De Fernez" Mask

(13) Check by means of diving equipment that fishing is not taking place in depths of less than 15 metres or of more than 50 metres (Art. 2 gubernatorial decree No. 541A).

(14) Verify that the fished sponges, immersed in water, do not have a diameter less than the following :

equine sponges 8 cm., fine and zymoche sponges 6 cm. (Art. 3 of the aforementioned decree).

(15) Check to make sure that at least six divers are on board and that each diver does not make more than six (6) dives per day (Art. 7 of the aforementioned decree).

(16) Check the fishing log as referred to in No. 8.

(17) Check the medicine box as referred to in No. 10.

(18) Check the sick and injured as referred to in No. 12.

(e) Special Controls for the Fishing of Sponges with the
"Gangava" Method

(19) Check to make sure that the craft is not fishing during the periods of time and in the locations that are annually forbidden by appropriate decree of the Maritime Administration.

(20) Check with diving equipment that fishing is not taking place at depths of less than 20 metres (Art. 30 of the regulation).

(21) Check the dimension of the sponges as referred to in No. 9. If any are found with a smaller dimension than what is prescribed remove them and turn

them over to the maritime authorities at the first landing-place (Art. 31, last paragraph of the regulation).

(22) Check the ship's log as referred to in No. 8.

(f) Special Controls for Boats Assigned to Fishing

(23) Check to make sure that fishing is not being carried out by the use of material thrown in the water which will weaken, stun or kill the fish and other aquatic animals (Art. 14 of the regulation).

(24) Check if fishing with luminous sources, that said fishing is not going on during periods of time and in the locations that are annually prohibited by appropriate ordinance of the Maritime Administration of Tripolitania.

(25) Verify if trawl net fishing is taking place, that the mesh of the sackcloth is not less than 20 mm. on the side (Art. 17 of the regulation).

(26) Verify that inside the Port of Tripoli, no fishing is taking place in a water space reserved for the Royal Navy or without a permit from the Harbour Master, in the space located south-west of the junction of the landing-stage of the Harbour Master and the head of the November IV landing-stage and that no nets or other floating equipment is being kept during the arrival or departure of the seaplanes (Arts. 116 and 118 of the regulation of the Port of Tripoli).

(g) Infractions

Any infraction that is spotted must be reported by a written report to the nearest port Authority.

Part of the proceeds obtained from the pecuniary fines inflicted on the violators as a result of a conviction or a settlement and from those derived from the eventual sale of the equipment or products sequestered, will be given by the Judging Authorities after deduction of the costs (as per Art. 68 of the fishing regulation) to the officers that have ascertained the infraction.

Should the infraction have been ascertained by seamen of the Royal Navy or by officers not assigned to port operations, the assigned sums of money will be turned over to their respective Corps Headquarters for distribution in accordance with particular regulations that might be in effect at the Corps level.

Should the infraction have been ascertained by officers assigned to the Harbour Master's Office or to Port or Beach Authority Offices, the proceeds will be split with half being given to the officers that signed the report of infraction and the other half being split equally among all the other non-commissioned officers and seamen on service on the day that said infraction was ascertained, except those that might be on report.

Should the infraction have been ascertained through a Royal Navy ship by persons not connected with the ship itself, one-third of the assigned sum will go to the ship with the balance being split up in accordance with the above rules.

Tripoli, 25 June 1931, Year IX.

Seen and Approved.

for : The Governor,
SINISCALCHI.

Annex 46

ITALIAN DECREE OF 24 SEPTEMBER 1979

ITALIAN DECREE OF 25 SEPTEMBER 1979

*[Copies of the documents in Italian not reproduced]**(Translation)*

MINISTERIAL DECREE 24 SEPTEMBER 1979

INSTITUTION OF ZONES OF PROTECTION OF THE BIOLOGICAL RESOURCES IN THE
FREE SEA*The Ministry of Merchant Marine*

Considering the increasing impoverishment of the marine fishing resources and the consequent potential negative repercussions of such impoverishment on the fishing activity ;

Considering the necessity to apply the most recent scientific gains for the purpose of guaranteeing in large areas of sea rationally allotted the repopulation of fish fauna ;

Considering likewise the necessity, for said purposes, to maintain good neighbour relations and of co-operation in the area of fishing with the other countries and to conform to the directives of the European Economic Communities ;

Given Article 32 of the law of 14 July 1965, No. 963, relative to the rules and regulations of maritime fishing which attributes to the Minister of the Merchant Marine the power to enact by way of suitable decree norms for the rules and regulations of maritime fishing even notwithstanding the prescribed rules and regulations ;

Having heard the central advisory commission for maritime fishing ;

Decrees :

Vessels bearing Italian flag and in any case Italian citizens are forbidden to carry out without specific authorization fishing activities in the areas of free sea destined for biological protection, individuated by separate decree.

Rome, on the 24th day of September 1979.

The Minister : EVANGELISTI.

(Translation)

MINISTERIAL DECREE, 25 SEPTEMBER 1979

INSTITUTION OF A ZONE OF PROTECTION OF BIOLOGICAL RESOURCES
SOUTHWEST OF LAMPEDUSA

"The Minister of the Merchant Navy

Considering the necessity to ensure the defence of the biological resources existing in certain zones of the high sea in order to guarantee the fishingsness of waters in which operate the Italian fishing boats ;

Considering his own decree dated 24 September 1979, which deferred to further legislation the definition of the sea-zones where it is prohibited to Italian ships and nationals to carry on fishing activities ;

Considering that the part of the sea delimited by a line which, starting from the point arrival of the line of the 12 miles of the Tunisian territorial waters connects, on the parallel of Ras Kapoudia, with the 50-m. isobath and follows that isobath to its meeting-point with the line departing from Ras Agadir (*sic*) to the North-East-ZV = 45°, is traditionally recognized as a zone of fishing restocking ;

Decrees :

It is prohibited to Italian nationals and to fishing-boats flying the Italian flag to carry on fishing activities in the zone of the sea as defined in the premises."

Rome, 25 September 1979.

Minister : EVANGELISTI.

Annex 47

LIBYAN LAW NO. 12 OF 1959

DECISION NO. 1 OF 1960

DECISION NO. 1 OF 1961

*[Copies of the documents in Arabic not reproduced]**(Translation)*

STATUTE 12 FOR THE YEAR 1959 CONCERNING FISHING FOR SPONGE

I, Idris the First, King of the United Libyan Kingdom, have approved and published the following statute previously concluded by both Houses of Representatives and the Senate :

Section 1. General Orders

Article 1

Fishing for sponge is permitted only in those areas specified by the chief of transportation in the district.

Article 2

No one is permitted to engage in fishing for sponge unless he has obtained a licence for that purpose. The licensing will be issued either in the form of a Special Licence or a commitment to fish in all or some marine areas.

The licence will be granted according to the conditions set in this statute. The commitment will be regulated by a Special Statute.

Article 3

The fees for issuance of fishing licences will be determined by the Minister of National Economy.

Article 4

Ship owners, seamen and divers may, according to law, form co-operative organizations for the purpose of fishing for sponge. These organizations will be exempted from registration fees.

Article 5

1. Fishing in the areas specified is allowed only by ships registered in Libya according to the Libyan maritime law.

Foreign vessels are not allowed to fish in these areas unless in accord with a treaty in which Libya has entered, and then not before a fishing licence has been obtained.

2. Vessel means all boats, yachts and residence ships used in sponge fishing projects.

Libyan Official Gazette,
Issue No. 15,
14 September 1959.

Section 2. On the Procedure and Conditions of Licensing

Article 6

Applications for a licence must be submitted to the proper office in the district concerned. The chief of transportation will issue at the beginning of every year, a statement in the official gazette of the district showing the following :

- A. Date to submit applications.
- B. Specification for the number of licences to be issued during the season for the different types of fishing stated in Article 22. This specification must be agreed to by the Minister of National Economy.
- C. The date for granting licences to their new owners.

Article 7

Requirements of licence applicant :

- A. He must be of Libyan nationality.
- B. He must not be convicted of a felony or crime of dishonour or dishonesty unless he was later completely exonerated.
- C. His name must be registered in the commercial register if he employs five or more divers in the fishing project.

During the ten years following the enactment of this Statute, the nationality requirement may be overlooked.

Article 8

The licence application form must contain the following information :

- A. The name, title, nationality and place of residence of the applicant.
- B. The name and nationality of the ship and the name of the port at which it is registered and its registration number and load data.
- C. The name of the captain of the ship the applicant intends to employ, his nationality, the name of the port at which he is registered and his registration number.
- D. The name of the storage ship, its nationality and load, the port at which it is registered and its registration number.
- E. The name of the captain of the storage ship, the port at which he is registered and his registration number.
- F. A statement on the methods requested for fishing on the condition that it is one of those specified in Article 22.
- G. The name of the foreman employed to supervise fishing, his title and nationality. If he himself is the applicant, he should mention this in the application.
- H. A statement of knowledge of this statute must be made, copies of which must be given to the captain of this fishing ship and the captain of the residence ship.

1. If the ship designated for fishing is owned by another party, the applicant must submit a written statement from the owner allowing its use for this purpose. The owner's permission must show the period for using the ship and the fishing means intended for use.

Article 9

One licence is granted per ship, and its granting by the Chief of Transportation will be the sole responsibility of the licensee, with no ensuing responsibility whatsoever on the part of the authority issuing it regardless of the acceptance by the crew, divers or any other person.

Article 10

The Chief of Transportation will specify in the statement mentioned in Article 6 the number of licences to be granted to foreign ships whose governments have signed agreements with the Libyan Government for sponge fishing in the Libyan territorial waters.

If such agreements do not exist, the Chief of Transportation may permit temporary issuance of a limited number of licences to other foreign ships if this is deemed economically beneficial to the country, on the condition that he obtains, in advance, the approval of both the Ministries of the Exterior and the National Economy, and submits the licence application through them.

Article 11

If the applicant fails to receive the licence issued to him on the prescribed date the Chief of Transportation may cancel it and offer the licence to another who meets the legal conditions required, taking into consideration the priority of applicants.

Article 12

In the absence of violations of rules set in this statute, foreign ships whose owners request licences to fish in territorial waters because of international agreements, are subject to the following rules :

1. The application must be submitted by the consul or his deputy of the country the ship is subject to, through the Ministries of the Exterior and National Economy.
2. Official certificates, authenticated by the consul, must be submitted stating the following :
 - A. The fitness of the ship for navigation, the soundness of its engine and equipment, especially the diving equipment, if there was any.
 - B. The availability of health conditions on board, including the necessary medical aid supplies.
 - C. The availability of food supplies, and their storage in clean areas on board.
 - D. The application of medical examination procedure on all the crew and divers by the authorities concerned in the country the ship is subject to.
 - E. Accident insurance by insurance agencies approved by the foreign country and whose responsibility extends to Libya.

Article 13

All ships, Libyan and foreign, must deposit, at the time of receiving the licences, all their papers and documents for safe keeping at the fishing office according to Libyan maritime law.

These papers will be returned to the ship at the end of the fishing season after it submits to the office its licence and a full account of the amounts of sponge fished, their types, weight in kilograms, value in Libyan pounds, the areas at which each type was fished, and a statement from the Department of Customs or Ports indicating the payment of required fees.

There must be attached to this account a list of the type and weight of the amount fished by each diver, its value, the advance the diver received during the season ; this list must be signed by both the diver and the captain.

Article 14

All licenced ships that intend to fish outside the Libyan waters must obtain a special permit from the fishing office concerned before sailing. They must also state at that time, the weight, type and value of the amounts fished in Libyan territorial waters.

Libyan ships must carry their licences when they sail for fishing in foreign waters.

Section 3. On Fishing Ships and their Inspection

Article 15

Ships which use mechanical equipment in their operation should have an engine.

Article 16

The person who is in charge of the operations should provide storage ships of the following types :

1. One storage ship carrying no less than 10 tons for each fishing ship.
2. A residence ship whose load is not less than 20 tons for two fishing ships.
3. A residence ship whose load is not less than 30 tons for three fishing ships.
4. A residence ship whose load is not less than 40 tons for four fishing ships.
5. A residence ship whose load is not less than 50 tons for five fishing ships.

Suppliers may agree to use one residence ship for a number of fishing ships not to exceed the number stated in this article, taking into consideration the close distance between the fishing zones licenced for each of them. This agreement must be written and presented to the authorities concerned before the issuance of a licence.

Article 17

The supplier must provide the fishing and residence ships with boats and sufficient equipment to use in saving the crew. A licence will not be issued until these have been inspected.

The ship-master must make sure of the presence of these boats and equipment before it sails.

Article 18

Subject to inspection before the issuance of a licence are every residence ship or fishing ship in which divers use mechanical means. The inspection, after the ship has been prepared for fishing, will ensure the following conditions :

- A. The good condition of the ship's engine, instruments and equipment.
- B. The good condition of diving instruments.
- C. The availability of fishing equipment and its fitness for use.
- D. The availability of spare parts for fishing and diving instruments.
- E. The sufficiency of food supplies and their storage in clean areas.
- F. The healthy physical condition of members of the crew, ensuring in particular that divers are in condition good enough to allow them to dive or continue diving.
- G. The first-aid box must contain the medicines and medical supplies that the divers may need.

Article 19

The ship's inspection is carried out in the following manner :

- A. A marine engineer is to be in charge of inspecting the ship, navigation instruments, and lifeboats and their equipment.
- B. A mechanical engineer will inspect the ship's engine and all its systems and instruments, also the divers' mechanical instruments and related gear such as clothing, pipes, the metallic head gear and other accessories.
- C. The port's medical officer must examine the physical condition of all members of the ship's crew and make sure the first-aid box contains the necessary medicines and medical supplies.

Article 20

Fishing ships must be identified on both sides of the prow by the letter (S) to indicate they are designated sponge fishing ships. The letter (T) is to be added if the ship works in the district of Tripoli, or the letter (B) if it works in the district of Bargha.

These letters, together with other signs required by law, are to be fixed with the knowledge of the fishing office concerned. They must be well maintained and clearly legible.

Section 4. On the Conditions and Rules of Fishing

Article 21

Sponge fishing is prohibited if the sponge's diameter is less than 8 centimetres in the Quina type, and if it is not more than 6 centimetres in all other types.

The fishing office is to designate the locations where the sponge already fished is to be unloaded under the supervision of the public authority men.

Article 22

Fishing for sponge is prohibited unless one of the following methods is followed :

- A. Al-Scavendor (with swim suit and mechanical instrument).
- B. Al-Furness (with mask and mechanical instrument).

- C. Al-Saleeb (with mask and manual instrument).
- D. Al-Sibaha (without clothes or instrument).
- E. Al-Fusina (the spear).

The chief of transportation, with the approval of the Minister of National Economy, may issue orders for the use of other methods of fishing besides the methods mentioned, or for the prohibition of fishing by one of them in some areas or at certain times if it is deemed beneficial for fishing.

Article 23

It is prohibited to change the method of fishing indicated in the licence unless the issuing authority approves a request submitted and giving reasons for the change.

Article 24

It is not permitted to exceed the following depths when using divers in fishing :

- 10 metres in the method of Al-Saleeb.
- 35 metres in the method of Al-Furness.
- 60 metres in the method of Al-Scavendor.

Article 25

Divers must not stay underwater from the time of diving to the time of surfacing beyond the following periods, and the ship-master must supervise that :

A. In the method of Al-Scavendor :

Depth	Period underwater from time of diving	Surfacing period
from 10 to 20 metres	30 minutes	15 minutes
from 21 to 30 metres	20 minutes	15 minutes
from 31 to 35 metres	15 minutes	15 minutes

B. In the method of Al-Furness :

from 10 to 20 metres	30 minutes
from 21 to 30 metres	20 minutes
from 31 to 35 metres	15 minutes
from 36 to 40 metres	10 minutes

Article 26

The diver is prohibited to dive two consecutive times ; he is also prohibited to repeat diving except after all other divers on board have taken their turns. At all times he is not permitted to dive more than four times in one single day.

Article 27

The diver must surface from the sea bottom to the water surface by means of the special rope known as the guide rope (Jwaida). In the method of Al-Scavendor he is prohibited to take off his diving gear before 30 minutes have passed from the time of his surfacing above water.

Section 5. On the Ship's Crew

Part I. On the Ship-master

Article 28

The master of a fishing ship that employs five or more divers working with mechanical instruments, and the master of a residence ship are required to :

- A. Be of Libyan nationality.
- B. He must not be convicted of a felony or a crime of dishonour or dishonesty unless he is later exonerated.
- C. His name must be registered in the seamen's register.
- D. He must successfully pass the examination held before he is conferred the status of master.
- E. He must have engaged in marine work for a period not less than three years under the supervision of an approved master, and must submit a statement signed by him certifying that he worked under his supervision for the period mentioned. During the ten years following the implementation of this Bill, the nationality condition may be overlooked.

Article 29

The examination mentioned in the preceding article will cover the following subjects :

- A. Knowledge of using the mariner's compass.
- B. Duties of the ship-master according to the orders of marine law.
- C. The prescribed directives for avoidance of collisions.
- D. Procedures to avoid accidents and injuries divers may fall subject to.
- E. Measures of aiding divers when they are injured away from ports and the use of medicines in emergencies.

Article 30

The examination will be administered by a committee composed of the following persons or their deputies in case of their absence :

Harbour Master	Chairman
Fishing Office Representative	Member
Port's Medical Officer	Member

If the applicant passes the examination the status of ship-master will be conferred on him.

Part II. On the Duties of Ship-master

Article 31

The ship-master is not authorized to order the ship to sail for fishing unless it has on board all seamen necessary for operating the machines, and for navigation and manoeuvres according to the prescribed orders ; the ship must also have on board all the divers and the person in charge of signals exchanged with the diver while under water.

It is not permitted to make any changes in crew men unless a written permit has been obtained from the fishing office concerned.

No one other than the ship-keeper or his representative, and other than the members of the crew, is permitted to be on board the fishing ship during its operation in the areas it is licensed to fish in.

Article 32

The ship-master must, before sailing, make sure of the following :

- A. All machines, equipment and tools must be in good condition to ensure their protection against damage, and make them fit for immediate use. In particular he must secure the safety of the diving equipment and its fitness for use during the season and inspect the diving suit and air pipes and provide all the needs of the diver while operating under water.
- B. Life boats and equipment in good condition.
- C. Spare parts sufficiently available to meet any breakdown in the ship or diving operations.
- D. Food supplies sufficient for the ship men during the period of their absence, and the storage of these supplies in places protective against spoilage and damage.

Article 33

The master of a ship that uses mechanical instruments of any kind in fishing must do the following before the start of daily operations :

- A. Inspect these instruments, the air compressor, the metallic head gear, the air pipes and valves, the diving outfit to ensure their safety and fitness.
- B. Measure the water depth where fishing will take place using the designated instrument to make sure it corresponds with the depth permitted for fishing and which is indicated in the licence.

Article 34

The ship-master must verify prior to the diving operation that the diver thoroughly knows the functions of the instruments he uses in his job, and the special signals he exchanges with the ship during his dive.

Article 35

The ship-master must maintain a record book in which he enters daily observations on fishing, the areas in which it takes place, the depth of water, the weather conditions, the accidents and injuries that befall the ship or crew men, and other observations and information he considers necessary to record.

Article 36

The ship-master is considered responsible for the ship from the time it sails till the time it returns. He is to execute all the orders related to his job whether they are set in this Bill or any other Bill.

Neither the ship-keeper nor his representative, if he happens to be on board for fishing supervision, is to interfere in any of the ship's affairs.

Article 37

If the ship returned to port because of the termination of operations in the fishing season, its master or its supplier must notify the fishing office of that.

Part III. On Seamen and Divers

Article 38

Two registers are to be established in the fishing office, one for the registration of divers licensed to engage in diving, and the other for the registration of seamen licensed to work in fishing ships.

Orders are to be issued regulating the conditions and requirements pertinent to this register.

Article 39

The age of a person who works as diver must not be less than 18 years and not more than 60. A person whose age is less than 21 years may not be registered in the divers register until a written consent by his guardian has been obtained.

Article 40

A diver or a seaman is not to be employed in the fishing profession unless his name is registered in one of the two registers mentioned in Article (38), and unless he possesses a registration card.

Employment will be on the grounds of a written employment contract signed by both parties and witnessed by the fishing officer.

Every contract not in compliance with the orders of this article is invalid.

Article 41

If the ship-keeper is an alien he must obtain a special permit to employ Libyan divers or seamen. The permit is to be issued by the transportation head office in the district that issues the licence ; and the contracting will not be valid until this permit has been obtained.

The orders of this Bill will apply to the contract.

Article 42

The contract between the contractor and the seamen, including the captain is based upon the monthly salary, or on the basis of this salary plus an agreed upon share of the sponge gathered by the sponge boat during the seasons.

The contract between the contractor and the divers is also based upon a share of the gathered sponge. Under all circumstances, the contractor is to bear all the feeding, supply and accommodation expenses and other aspects related to the sponge-gathering project.

Article 43

The sponge-gathering captain is to be sure that all divers' and other seamen's families are cared for during the sponge-gathering period. If needed, the captain is permitted to force the boat's owner to pay a portion of the divers' or seamen's salary to their families.

Article 44

If one of the seamen or divers did not get on board the boat after he had been notified of its sailing date, the contractor has the right to breach the contract, request what had been advanced and ask to be compensated for -- if it could be justified.

.....

Article 46

The seaman or diver cannot be asked to perform a job not within his skill or not included in his employment contract unless he has been ordered to by the captain because of extraordinary circumstances, or a danger threatening the boat, the people on board or its cargo, the seamen or diver then will not be entitled for extra pay for these works.

The crew on board of the boat is considered to be united towards saving it and themselves.

Article 47

The seamen and divers are entitled for a paid rest period of 24 hours for every six working days. They are also entitled for a paid rest day on official holidays.

If the need arises to ask them to work during the holidays they are entitled to another rest day at a later time or they could be compensated for by double pay for the duration of the time worked during those holidays. In this case, the diver's salary is based upon the highest salary paid to a seaman.

Article 48

The port director is to settle any sponge gathering disputes arising between the boat's captain, seamen or divers. If the director cannot settle the dispute amicably, he is then to write a report and send it to the concerned court to take the necessary action. The court will not accept any cases unless this measure has been taken.

CHAPTER SIX

*Accidents and Injuries**Article 49*

The contractor is to insure the lives of the seamen, divers and captain against work accidents and resulting injuries. The boat will be granted a permit after a letter presentation by the Social Security Organization stating that the contractor has paid his insurance fees and that the insurance covers the present employees as well as the new ones who are working during the same season. The Transportation Office is to mark that on the permit.

Article 50

At the end of the sponge gathering season, the contractor is to have his divers, seamen and captain inspected by the port's doctor after their return to port to be sure of their safety. If anyone is injured or sick, the doctor is to take the necessary medical measures and inform the sponge gathering office. Under all circumstances, the doctor is to register his results in their register book.

Article 51

The captain and the contractor are to inform the sponge gathering office of all accidents or injuries occurring on board or to the boat itself in order for it to be marked down in its register and permit.

Article 52

The contractor is responsible for treating the captain, seamen and divers in case of their illness or injuries and is to pay their wages under the following conditions :

- A. If the illness or injury is a result of the work, all medical expenses are to be paid by him during the treatment period, but not to exceed 120 days. He is to pay their full wages during this period.
- B. If the illness or injury is not the result of work, but not done on purpose or is not due to carelessness on the part of the patient, then the contractor is to pay his treatment expenses for a maximum period of 120 days ; yet, he is entitled to be reimbursed for expenses that exceed an 80-day period. He also has to pay the full wages during the treatment period if it does not exceed 80 days.
- C. If the sickness or injury is a result of misbehaviour, drunkenness or is done on purpose, the contractor is to pay the treatment expenses, as long as the patient is on board the boat ; but, he is not obliged to pay his wages during that time.
- D. The diver's salary in A and B above is based upon the highest salary paid to a seaman.
- E. The contractor then could claim all expenses to the insurance company which will reimburse him according to the terms of their contract.

Article 53

An illness or injury is to be proven by testimony from the doctor of the port. Those concerned could question the doctor's judgment by referring to the committee stated in Article 55.

Article 54

The port's doctor is to observe the patient's injury or illness through his treatment period. The doctor is to prove whatever information or knowledge he gets in writing on the patient's or injured's card and special register. In case of death, the doctor is to write a report of its causes.

Article 55

The captain, seamen and divers could be prevented from carrying on their responsibilities when the port's doctor proves that they are not physically fit. Their permit would be cancelled.

They could question the doctor's judgment by presenting a petition to a committee to be formed by authorization from the health supervisor. The contractor could also question the doctor's judgment, in front of the same committee, if he determines that they can work.

Article 56

If the seaman or diver dies as a result of his accident the boat's captain is to carry the dead body to the nearest port where there is a government authority.

The captain is to present the authorities with a detailed report of the causes and conditions of the accident. The police authorities have to detain the boat and its crew and guard its machines until all investigations are complete and the cause of death has been established.

The boat would be permitted to sail again after being granted a permission from the Public Defence. All this has to be done at utmost speed.

Article 57

The contractor is to bear the burial expenses of the boat's captain, one of its seamen or divers if they die while on duty. If it is decided that an indemnity be awarded to the family of the deceased, and the contractor does not pay it, the Transportation Supervisor could then withdraw the boat's permit. He will only regain it after he presents an official acknowledgement from the heirs that he has executed the indemnity requirements according to Article 49.

CHAPTER SEVEN

*Crimes and Punishments**Article 58*

The contractor, captain, one of the divers or seamen could be sentenced to six months' imprisonment and the payment of a fine not exceeding 100 Guineas, or with either of the two if he does not abide by any of the clauses of this law or the published bulletin.

Article 59

The sponge gathering equipment and the gathered sponge would be confiscated if the sponge gathering took place without a permit in the Libyan Territorial Waters. The confiscation ruling could also take place if the sponge gathering took place in an area other than the one that had been authorized.

Article 60

The court could stop the boat's permit for no more than six months at the time of a guilty ruling. The authorities concerned could confiscate the boat during that time at the responsibility and expense of its owner.

Article 61

Whoever possesses, owns, sells, transfers, or deals in any way with sponges that do not meet the requirements stated in Article 21, would be sentenced according to the terms of Article 58 and the cargo confiscated.

Article 62

The employees appointed by the Communication Supervisor have the legal power to check for all violations breaching this law and regulations.

Article 63

The Minister of National Economy is to enforce this law after two months of its publication in the official paper.

IDRIS.

Issued at Dar El Yemen Palace on 9 Moharram, 1379 Hejreyah = 15 July 1959.

Ragab Ben KATO,
Minister of National Economy.

By order of the King
Abdel Meguid KAABAR,
Prime Minister.

Royal Decree

Law amending some rules of Law 12 of year 1959 regarding fishing for sponge.

We Idris the First, King of United Kingdom of Libya,

After reviewing Article 64 in the Constitution, and Law 12 of year 1959 regarding fishing for sponge, and according to what is presented to us by the Minister of Industry, and the approval of the Council of Ministers,

We issue the following :

Article One

The expressions "Minister of National Economy" and "Ministry of National Economy", which appear within the paragraphs of Law 12 of year 1959 regarding fishing for sponge, are to be replaced by the expression "Minister of Industry".

Article Two

The Minister of Industry is to enforce this Decree, and to be effective from the date of its publication in the official paper.

IDRIS.

Issued in Al Beydaa on 8 Rabei El Awal, 1382 Hejreyah = 8 August 1962.

By order of the King

Mohamed Osman El SEID,
Prime Minister.

Belkassem Al ELAKI,
Minister of Industry.

(Translation)

5. Sponge

8

9

A. Tripoli's Legislation

Decision No. 1 for the year 1960 – Restricted Areas in which sponge could be gathered¹, the Transportation Supervisor for the Province of Tripoli (Tarablus Al Gharb)

after reviewing Article 1 of Law No. 12 for the year 1959, with respect to sponge fishing.

It was decided

Decision No. 1 for the year 1961 – Restricted Areas in which sponge could be gathered¹, the Transportation Supervisor for the Province of Tripoli (Tarablus Al Gharb)

after reviewing Article 1 of Law No. 12 for the year 1959, with respect to the gathering of sponge and Decree No. 1 for the year 1960 for restricting the areas in which sponge could be gathered, published in the official newspaper dated 1 May 1969. It was decided

¹ Tripoli's official newspaper, No. 9, dated 1 May 1961.

¹ Tripoli's official newspaper, No. 5, dated 1 May 1961.

Article 1

The areas in which sponge fishing may be permitted are situated along the coast of the Province of Tripoli, as follows :

1. *Local spongers* : From the point of Ras Abi Kammash to the north-east, between longitudes 30° - 22° east, and Afra Quarry which is located at longitudes 17° - 14° east.

This quarry is between Al Khums and Zlitan of the northern and eastern provinces.

2. *Foreign spongers* : Starting point is from Abi Kammash and along the same degrees mentioned in the above item, and to end at the port of Tripoli between longitudes 11° - 13° east.

Article 2

This decision will be effective as of its published date in the official newspaper.

(Signed) Abdallah ALZIDAM.
Transportation Supervisor.

Article 1

The areas in which sponge gathering is permitted are along the coastal strip of the Province of Tripoli, as follows :

1. *Local spongers* : from the Head (Ras) Aghdeer at the demarcations of longitudes 30° - 34° - 11° east to Zlitan Quay at the demarcation of longitudes 00° - 34° - 14° east and the water across.

2. *Foreign spongers* : foreign spongers are permitted to gather sponge in the Province of Tripoli from Head (Ras) Aghdeer, from the same demarcations mentioned in the above paragraph, to the area west of Tripoli's port lighthouse i.e., in the demarcations of longitude 00° - 07° - 13° east and the water across from it.

Article 2

This decision will be effective as of its published date in the official newspaper.

(Signed) Shams Al Deen MOHSEN,
Transportation Supervisor.

Annex 48

PAGES 41-47 OF
THE *BULLETIN DE L'INSTITUT NATIONAL SCIENTIFIQUE ET TECHNIQUE
D'Océanographie et des Pêches*, SALAMMBÔ, 1971, VOL. 2, NO. 1

[Not reproduced]

Annex 49

PAGE 2 OF
LIBYAN WORKING PAPER ON AGENDA ITEM 6 FOR THE FORTHCOMING AFI
REGIONAL AIR NAVIGATION MEETING IN TANZANIA FROM 20 NOVEMBER
THROUGH 13 DECEMBER 1979

3. The Socialist People's Libyan Arab Jamahiriya considers and will continue to do so the creation of the new Malta FIR and the delineation of latitude 342° N as an interim measure which cannot attain permanent existence. The Socialist People's Libyan Arab Jamahiriya therefore, submits to the Sixth AFI RAN Meeting to consider amendment of PLAN as proposed herein.
 4. The Socialist People's Libyan Arab Jamahiriya, purely in the spirit of regional co-operation in the field of international air navigation, delegated the upper airspace over its territory to Tunisia and Algeria and secondarily as a gesture of good neighbourly relations which Jamahiriya continues to harbour for them. Meridian 113° E intersecting latitude 363° N on the western side of Tripoli FIR is, therefore, the firm, inalienable and inviolable airspace limit for Tripoli FIR based solely on considerations of international air navigation and national territorial integrity. Any discussion or proposal short of this limit, the Socialist People's Libyan Arab Jamahiriya is constrained to view as detrimental to the interests of international aviation and perpetuation of British military strategy and interests which caused the creation of an intervening new Malta FIR and which interests do not exist now.
 5. On the western side of Tripoli FIR, the Socialist People's Libyan Arab Jamahiriya has plans for the establishment of TMAs and CTRs supported by modern ground aids at Nalut, Ghadames and Ghat airports with the opening up of ATS route over, to and from these airports.
 6. The Socialist People's Libyan Arab Jamahiriya has already in operation VORs and DMEs within Tripoli TMA at Zawia, Tripoli, and Abu-Argub. Firm plans exist for the establishment of primary and secondary radars at Tripoli Airport with semi-automated data exchange links in the very near future. Establishment of extended long range VHF to cover the western and southern parts of Tripoli FIR is also underway.
-

Annex 50

PAGES 73, 79, 123, 137 AND 140 OF
MAHMOUD SEKLANI, *ECONOMIE ET POPULATION DU SUD TUNISIEN*, PARIS,
ÉDITIONS DU CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE,
1976

[Not reproduced]

Annex 51

PAGES 99 AND 156 OF
TUNISIAN SECRETARIAT OF STATE FOR INFORMATION, *TUNISIA'S FISHING PRO-
DUCTION AND VALUE ADDED 1971-1975*

[Not reproduced]

Annex 52

PAGE 250 OF
ANNUAIRE STATISTIQUE DE LA TUNISIE, 1974-1975, SERVICE TUNISIEN DES STA-
TISTIQUES, TUNIS, 1975

[Not reproduced]

Annex 53

ANNEX VIII OF *MINISTÈRE DU PLAN 1972-1976*, TUNIS, 1976

[Not reproduced]

Annex 54

TRUMAN PROCLAMATION

PROCLAMATION 2667

*Policy of the United States With Respect to the Natural Resources of the Subsoil and Sea Bed of the Continental Shelf*¹

Whereas the Government of the United States of America, aware of the long range world-wide need for new sources of petroleum and other minerals, holds the view that efforts to discover and make available new supplies of these resources should be encouraged ; and

Whereas its competent experts are of the opinion that such resources underlie many parts of the continental shelf off the coasts of the United States of America, and that with modern technological progress their utilization is already practicable or will become so at an early date ; and

Whereas recognized jurisdiction over these resources is required in the interest of their conservation and prudent utilization when and as development is undertaken ; and

Whereas it is the view of the Government of the United States that the exercise of jurisdiction over the natural resources of the subsoil and sea bed of the continental shelf by the contiguous nation is reasonable and just, since the effectiveness of measures to utilize or conserve these resources would be contingent upon cooperation and protection from the shore, since the continental shelf may be regarded as an extension of the land-mass of the coastal nation and thus naturally appurtenant to it, since these resources frequently form a seaward extension of a pool or deposit lying within the territory, and since self-protection compels the coastal nation to keep close watch over activities off its shores which are of the nature necessary for utilization of these resources ;

Now, therefore, I, Harry S. Truman, President of the United States of America, do hereby proclaim the following policy of the United States of America with respect to the natural resources of the subsoil and sea bed of the continental shelf.

Having concern for the urgency of conserving and prudently utilizing its natural resources, the Government of the United States regards the natural resources of the subsoil and sea bed of the continental shelf beneath the high seas but contiguous to the coasts of the United States as appertaining to the United States, subject to its jurisdiction and control. In cases where the continental shelf extends to the shores of another State, or is shared with an adjacent State, the boundary shall be determined by the United States and the State concerned in accordance with equitable principles. The character as high seas of the waters above the continental shelf and the right to their free and unimpeded navigation are in no way thus affected.

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States of America to be affixed.

¹ See Executive Order 9633, *infra*.

Done at the City of Washington this 28th day of September, in the year of our Lord nineteen hundred and forty-five, and of the Independence of the United States of America the one hundred and seventieth.

HARRY S. TRUMAN.

By the President :

Dean ACHESON,
Acting Secretary of State.

Annex 55

**PAGES 151 AND 152 OF
INTERNATIONAL LAW REPORTS, 1951,
"ABU DHABI ARBITRATION"**

addendum to something which has gone before. (I discuss an alternative meaning suggested for it below.) But if it simply means 'plus', then the expression 'the whole of the lands which belong to the rule of the Ruler' cannot be read literally; for read literally that phrase would include in any case the islands, and probably the territorial waters, and it would not be necessary or sensible to make these items addenda. On this meaning of 'and', the 'land' must be limited to the mainland (no doubt not excluding inland or landlocked waters in an indented coast). What, on this basis, does the second addendum mean? Viz.: 'the sea waters which belong to that area'? Placing oneself in the year 1939 and banishing from one's mind the subsequent emergence of the doctrine of the 'Shelf' and everything to do with the negotiations, I should have thought this expression could only have been intended to mean the territorial maritime belt in the Persian Gulf, which is a three mile belt; together with its bed and sub-soil, since oil is not won from salt water. In what other sense at that time could sea waters be said to 'belong' to a littoral power or to the 'rule of the Ruler'? In point of fact, that is the meaning the Claimant Company were asserting for the expression as late as March 1949, ten whole years after the contract (see letter page 86A of the Correspondence).

"Even if 'and' had a different signification, not cumulative but epexegetic: such as 'and mark you, in case you are in doubt, I include in the "lands" the islands and sea waters which belong to the area', I should still hold, in the absence of what I have termed the two complicating factors, that the Concession covered the sea-bed and subsoil of the territorial belt. Nothing less. The only question would be whether it covered *more*.

"*Conclusion as to territorial waters' subsoil.* I therefore hold or find that the subsoil of the territorial belt is included in the Concession. Neither the ambiguity, if any, of the word 'and' nor any of the considerations dealt with hereafter affect this conclusion. In particular I cannot accept the argument put forward for the Respondent that sea waters are merely 'included' as a means of access to dry land, whether mainland or insular. To read the word 'included', in the Concession, as meaning in the case of the mainland and islands 'included as petroliferous areas': and, to read it in relation to the 'sea waters' as something totally different, namely, 'included as means of access to the petroliferous areas', seems to me unjustifiable, if not perverse.

"I am not impressed by the argument that there was in 1939 no word for 'territorial waters' in the language of Abu Dhabi, or that the Sheikh was quite unfamiliar with that conception. Mr. Jourdain had none the less been talking 'prose' all his life because the fact was only brought to his

Case
No. 37
Contd.

notice somewhat late. Every State is owner and sovereign in respect of its territorial waters, their bed and subsoil, whether the Ruler has read the works of Bynkershoek or not. The extent of the Ruler's Dominion cannot depend on his accomplishments as an international jurist.

" So far affirmatively. Negatively, (still leaving aside what I have called the complicating factors) I should certainly in 1939 have read the expression ' the sea waters which belong to that area ' not only as including, but as *limited* to, the territorial belt and its subsoil. At that time neither contracting party had ever heard of the doctrine of the Continental Shelf, which as a legal doctrine did not then exist. No thought of it entered their heads. None such entered that of the most sophisticated jurisconsult, let alone the ' understanding ' perhaps strong, but ' simple and unschooled ' of Trucial Sheikhs.

" Directed, as I apprehend I am, to apply a simple and broad jurisprudence to the construction of this contract, it seems to me that it would be a most artificial refinement to read back into the contract the implications of a doctrine not mooted till seven years later, and, if the view which I am about to express is sound, not even today admitted to the canon of International Law. However, the time has now come to consider the doctrine more narrowly.

" (d) *The doctrine of the Continental Shelf, its substance and history.* The expression ' Continental Shelf ' was first used by a geographer in 1898.¹ The legal doctrine which later gathered round this geographical term was possibly foreshadowed when in 1942 England and Venezuela concluded a treaty about the Gulf of Paria providing for spheres of influence in respect of areas covered by the high seas and followed by certain annexations coincident with these spheres. The doctrine was perhaps first explicitly asserted as a legal doctrine (in a very exaggerated form) in a proclamation by the Argentine Republic in 1944, but its classical enunciation in the form in which it has mainly to be considered in this case was the well-known proclamation by President Truman of 28th September, 1945.

" The substance of the doctrine then proclaimed, as I understand it, was this : A coastal power is not surrounded, even at low water, by a precipice leading vertically to the bottom of the ocean, perhaps two miles below. As a rule the sea-bed shelves very gently outwards and downwards for a considerable distance, a distance generally (but not invariably) exceeding the three mile territorial limit.² Again, not always

¹ It made a fleeting appearance on the legal stage in 1916 : but passed over it with ' printless feet '.

² If I speak of the three mile limit and of the Territorial Maritime Belt interchangeably, this is only for brevity. I am aware that some States claim more than a three mile belt, but about 80 per cent. of the merchant shipping in the world is registered in " three mile " countries ; and this is the width of territorial waters on the Persian Gulf.

Annex 56

PAGES 77 THROUGH 79 OF
YEARBOOK OF THE INTERNATIONAL LAW COMMISSION 1953,
VOL. II, UN DOCUMENT A/CN.4/61

plusieurs lignes de 10 milles peuvent être tracées, on choisira la ligne enfermant dans la baie la superficie d'eau la plus grande.

Article 10. — Groupes d'îles

L'article 10 a été modifié comme suit :

1. On peut tracer des « lignes de base droites » entre plus de deux îles situées à une distance de moins de 5 milles les unes des autres. Dans ce cas, ces îles constituent un « groupe ». Les eaux renfermées par ces lignes de base doivent être considérées comme eaux intérieures.

2. Est reconnu comme cas spécial un « groupe » d'îles dans lequel ces lignes entre les îles n'ont pas plus de 5 milles de longueur, sauf une pouvant atteindre 10 milles de longueur au maximum. Ce cas pourrait être appelé une « baie fictive ».

3. Une baie fictive de ce genre peut encore être formée par un chapelet d'îles en conjonction avec une partie de la ligne côtière continentale, comme indiqué dans l'article 5, paragraphe 5.

Article 13

Délimitation de la mer territoriale de deux États

1. La frontière internationale entre deux États dont les côtes sont situées en face l'une de l'autre à une distance de moins de 2 T milles (T étant la largeur de la mer territoriale) devrait être comme règle générale la ligne médiane dont chaque point est équidistant des lignes de base des États en question. Toute île doit être prise en considération lors de l'établissement de cette ligne, à moins que les États adjacents n'en aient décidé autrement d'un commun accord. De même, les fonds affleurants à basse mer, situés à moins de T milles d'un seul État, devraient être pris en considération ; par contre, ceux situés à moins de T milles de l'un et l'autre État ne devraient pas entrer en ligne de compte lors de l'établissement de la ligne médiane. Il peut toutefois y avoir des raisons spéciales, telles que des intérêts de navigation ou de pêche, écartant la frontière de la ligne médiane. La ligne devrait être tracée sur les cartes en service à grande échelle, surtout lorsqu'une partie quelconque de l'étendue d'eau est étroite et relativement tortueuse.

2. La ligne de frontière à travers la mer territoriale de deux États adjacents — là où elle n'a pas encore été fixée d'une autre manière — doit être tracée selon le principe d'équidistance des lignes de côte respectives. La méthode la plus appropriée pour l'application de ce principe doit être fixée par les États en cause, de commun accord, pour chaque cas séparé.

Annexe

Rapport du Comité d'experts sur certaines questions d'ordre technique concernant la mer territoriale

Se rendant à une invitation du professeur J. P. A. François, rapporteur spécial de la Commission du droit international pour le régime de la mer territoriale, les

experts suivants se sont réunis à titre personnel dans le Palais de la Paix à La Haye du 14 au 16 avril 1953 pour examiner certaines questions d'ordre technique soulevées pendant les discussions de la Commission :

Professeur L. E. G. Asplund (Département de Cartographie, Stockholm) ;

M. S. Whittemore Boggs (*Special Adviser on Geography, Department of State, Washington (D. C.)*) ;

M. P. R. V. Couillault (ingénieur en chef du Service central hydrographique, Paris) ;

Commander R. H. Kennedy, O.B.E., R.N. (Retd.) (Hydrographic Department, Admiralty, Londres) accompagné de M. R. C. Shawyer (*Administrative Officer, Admiralty, Londres*) ;

M. le vice-amiral A. S. Pinke (retraité) [Marine royale néerlandaise, La Haye].

Le Comité d'experts fut présidé par le rapporteur spécial, et le rapport fut rédigé par M. C. W. van Santen, conseiller juridique adjoint du Ministère royal néerlandais des affaires étrangères, secrétaire du Comité.

Un questionnaire dressé par le rapporteur spécial fut soumis aux experts. Les questions ainsi que les réponses des experts sont données dans les pages suivantes.

Il convient de remarquer que ces réponses ont été formulées en tenant compte du point de vue technique et en vue d'être interprétées facilement par les navigateurs.

I

Si l'on accepte le principe que la mer territoriale soit mesurée à partir de la laisse de basse mer, quelle sera alors la ligne qui serait de préférence adoptée comme telle ?

1. Sauf dans les cas où d'autres dispositions seront prévues, la ligne de base, à partir de laquelle est mesurée la mer territoriale, devrait être la laisse de basse mer (longeant la côte) ainsi qu'elle se trouve indiquée sur les cartes à grande échelle en service, reconnues officiellement par l'État côtier. Si des cartes détaillées, indiquant la laisse de basse mer, n'existent pas, c'est la ligne côtière (ligne de marée haute) qui devrait servir de ligne de départ.

2. La Commission n'a pas estimé qu'il y avait lieu de craindre que l'omission des dispositions arrêtées par la Conférence de 1930, concernant les indications spéciales en cette matière, ne soit de nature à inciter les gouvernements à déplacer les lisses de basse mer sur leurs cartes de façon exagérée.

3. Toutefois, le Comité a ajouté la restriction qu'on ne devrait pas tenir compte des rochers ou fonds affleurants au niveau de réduction des sondes, choisi pour la carte (*rocks awash*).

4. Si des rochers ou fonds, couvrants et découvrants, se trouvent dans la mer territoriale, ils peuvent être pris comme points de départ pour mesurer la mer territoriale. En pareil cas ils formeront un saillant dans le tracé de la limite extérieure de la mer territoriale.

5. En ce qui concerne les bancs de coraux, on considérera le rebord de ces bancs, indiqué sur ces cartes, comme la laisse de basse mer pour tracer la limite de la mer territoriale.

II

Si l'on accepte le système de la laisse de basse mer comme règle générale pour tracer la limite extérieure de la mer territoriale, tandis que dans les baies une ligne

droite à travers la baie doit circonscire « les eaux intérieures », quelles sont les observations d'ordre technique sur les questions suivantes :

A. La distinction entre une baie et toute autre échancre ?

B. L'établissement d'un rapport entre la longueur maximum (B milles) de la ligne droite susmentionnée et l'étendue de la mer territoriale ?

C. Les points entre lesquels ladite ligne droite devrait être tirée ?

D. La direction à donner à cette ligne, ou les points entre lesquels cette ligne doit être tirée, au cas où plusieurs lignes de B milles peuvent être tracées ?

ad. A.

1. Une baie est une baie *juridique* lorsque sa superficie est égale ou supérieure à la superficie du demi-cercle ayant comme diamètre la ligne tirée entre les points limitant l'entrée de la baie. (Sont exceptées les baies historiques, ainsi libellées sur les cartes.)

2. Si la baie a plus d'une entrée — voir paragraphe B — le demi-cercle devra être tracé en prenant comme diamètre la somme des lignes fermant toutes ces entrées.

3. Si des îles existent dans une baie, leurs superficies seront comprises dans la superficie totale de la baie.

ad. B.

1. La ligne délimitant l'entrée d'une baie (au sens juridique) ne devrait pas dépasser 10 milles en largeur (deux fois l'horizon visuel par un temps clair pour un observateur situé sur une passerelle à une hauteur de 5 mètres). Dans le cas de grand marnage, la laisse de basse mer sera considérée comme ligne côtière pour calculer la ligne d'entrée.

2. Si par suite de la présence d'îles une baie comporte plusieurs entrées, des lignes de démarcation peuvent être tracées fermant ces ouvertures, pourvu qu'aucune d'elles ne dépasse une longueur de 5 milles — sauf une pouvant atteindre 10 milles.

ad. C.

1. Au cas où l'entrée d'une baie ne dépasserait pas 10 milles, la ligne *inter fauces terrarum* devrait constituer la ligne de démarcation entre les eaux intérieures et la mer territoriale.

2. Au cas où l'entrée de la baie serait de plus de 10 milles, il faudrait tracer la ligne de démarcation à l'intérieur de la baie, là où elle n'excéderait pas 10 milles. Si plusieurs lignes de 10 milles peuvent être tracées, on devrait choisir la ligne enfermant dans la baie la superficie d'eau la plus grande.

ad. D.

Devenue superflue à cause de la réponse à la question C.

III

Si la laisse de basse mer peut être remplacée par des lignes de base droites, système reconnu par la Cour internationale de Justice dans l'affaire des pêcheries anglo-norvégienne, quelles seront les questions d'ordre technique qui pourront surgir concernant :

A. Le choix des points entre lesquels ces lignes doivent être tirées ?

B. La longueur de ces lignes ?

C. Les îles, les rochers, les récifs se trouvant à moins de T milles devant la côte ? (T indique l'étendue de la mer territoriale).

1. Le Comité était d'avis que la longueur maximum admissible pour une « ligne de base droite » (au sens technique "*straight base-line*") devrait être fixée d'abord. Le Comité s'est prononcé en faveur d'une longueur maximum de 10 milles (voir explication par. II, B).

2. Ces « lignes de base » pourraient être tracées — si le droit international le permet formellement — entre promontoires de la côte ou entre un promontoire et une île, pourvu qu'elle soit située à moins de 5 milles de la côte, ou enfin entre des îles, pourvu que ces promontoires et/ou ces îles ne soient pas séparés entre eux par une distance de plus de 10 milles.

3. Le Comité a estimé que l'on pourrait tracer des « lignes de base droites » entre plus de deux îles situées à une distance de moins de 5 milles les unes des autres. Dans ce cas, ces îles constitueraient un « groupe ». Les eaux renfermées par ces lignes de base devraient être considérées comme eaux intérieures.

4. Le Comité a reconnu comme cas spécial un « groupe » d'îles dans lequel ces lignes entre les îles n'ont pas plus de 5 milles de longueur sauf une pouvant atteindre 10 milles de longueur au maximum. Ce cas pourrait être appelé une « baie fictive ».

5. Une baie fictive de ce genre peut encore être formée par un chapelet d'îles en conjonction avec une partie de la ligne côtière continentale, comme indiqué au paragraphe II, B.

6. Le Comité était d'accord que les soi-disant « lignes de base droites » ne devraient pas être tracées vers des fonds affleurants à basse mer ni à partir de ceux-ci. Le rôle de ces fonds affleurants à basse mer dans le tracé de la limite de la mer territoriale a été développé au paragraphe I, alinéa 3.

IV

Si, comme règle générale, le tracé des lignes de base ne peut s'écarter de façon appréciable de la direction générale de la côte, quelle sera l'exécution technique de ce système ?

1. Le Comité était d'accord que dans plusieurs cas, pour une côte quelconque, il sera impossible d'établir une « direction générale de la côte », et il a pris acte que tout effort en ce sens entraîne des questions comme celle de l'échelle de la carte à employer dans ce but et la décision quelque peu arbitraire sur l'étendue de la côte à utiliser dans la recherche de la « direction générale ».

2. Tenant compte de cette réserve, le Comité a répondu à la question IV en fixant la longueur maximum de toute « ligne de base droite », à 10 milles.

3. Dans des cas exceptionnels, lorsque le droit international le permet spécialement, on peut admettre de tracer des lignes plus longues sur une côte donnée. Toutefois, aucun point desdites lignes ne devrait être situé à plus de 5 milles de la côte.

4. Le Comité a estimé du point de vue technique qu'en principe le recours aux « lignes de base droite » devrait être évité, excepté comme prévu au paragraphe II pour la limite d'une baie. Ces lignes, en effet, étendent de

manière injustifiée la superficie des eaux intérieures, et reportent par trop vers le large la limite extérieure de la mer territoriale.

5. Dans les cas où les « lignes de base droites » sont permises, l'État côtier sera tenu de publier le tracé adopté d'une manière suffisante.

6. Le Comité est opposé à l'établissement de toute liaison entre la longueur des « lignes de base droites » et l'étendue de la mer territoriale.

V

Comment faut-il fixer la limite extérieure de la mer territoriale, lorsque celle-ci aurait une largeur de T milles ?

La limite extérieure de la mer territoriale est constituée par la ligne dont tous les points sont à une distance de T milles du point le plus proche de la ligne de base. Cette ligne est formée par une série continue d'arcs de cercle qui s'entrecoupent, et qui sont tracés avec un rayon de T milles, ayant leurs centres à tous les points de la ligne de base. La limite extérieure de la mer territoriale est composée des arcs de cercle les plus avancés dans la mer. (Cette méthode a déjà été utilisée avant 1930, mais les définitions données parfois comme « enveloppe des arcs de cercle », paraissent être fréquemment mal comprises.)

VI

Comment faut-il déterminer la frontière internationale entre deux pays dont les côtes se trouvent vis-à-vis l'une de l'autre à une distance de moins de 2 T milles ?

La frontière entre deux États dont les côtes sont situées en face l'une de l'autre à une distance de moins de 2 T milles devrait être comme règle générale la ligne médiane dont chaque point est équidistant des deux côtes. Toute île doit être prise en considération lors de l'établissement de cette ligne, à moins que les États adjacents n'en aient décidé autrement d'un commun accord. De même, les fonds affleurants à basse mer, situés à moins de T milles d'un seul État, devraient être pris en considération ; par contre, les fonds de ce genre qui ne sont pas soumis à une souveraineté déterminée et qui se trouvent à moins de T milles de l'un et l'autre État ne devraient pas entrer en ligne de compte lors de l'établissement de la ligne médiane. Il peut toutefois y avoir des raisons spéciales, telles que

des intérêts de navigation ou de pêche, écartant la frontière de la ligne médiane. La ligne devrait être tracée sur les cartes en service à grande échelle, surtout lorsqu'une partie quelconque de l'étendue d'eau est étroite et relativement tortueuse.

VII

Comment faut-il déterminer la délimitation des mers territoriales de deux États adjacents ? Est-ce que cela peut se faire par :

A. Le prolongement de la frontière de terre ?

B. Une ligne perpendiculaire à la côte à l'endroit où la frontière entre les deux territoires atteint la mer ?

C. Le tracé d'une ligne perpendiculaire partant du point mentionné sous B suivant la direction générale de la ligne de côte ?

D. Une ligne médiane ? Si oui, comment faut-il tracer cette ligne ?

Dans quelle mesure faut-il tenir compte de la présence des îles, des sèches, ainsi que des chenaux navigables ?

1. Après une discussion approfondie le Comité a déclaré que la frontière (latérale) entre les mers territoriales respectives de deux États adjacents, là où elle n'a pas déjà été fixée d'une autre manière, devrait être tracée selon le principe d'équidistance de la côte de part et d'autre de l'aboutissement de la frontière.

2. Dans certains cas, cette méthode ne permettra pas d'aboutir à une solution équitable, laquelle devra alors être recherchée dans des négociations.

Observation sur VI et VII

Le Comité s'est efforcé de trouver des formules pour tracer les frontières internationales dans les mers territoriales qui pourraient en même temps servir pour délimiter les frontières respectives de « plateau continental » concernant les États devant les côtes desquelles s'étend ce plateau.

Observation générale

Le Comité tient à souligner que le tracé des limites extérieures de toute « zone contiguë » devra se baser sur la même ligne que celui des limites de la mer territoriale.

Annex 57

PAGE 6 OF
YEARBOOK OF THE INTERNATIONAL LAW COMMISSION 1954,
VOL. II, UN DOCUMENT A/CN.4/77

Commentaire

Le rapporteur spécial a emprunté cet article à celui de la Sous-Commission II de la Conférence de 1930; mais, pour tenir compte des observations du Comité d'experts relatives à l'expression « suivant la direction générale de la côte » (voir le paragraphe 2 du commentaire à l'article 6), il a remplacé les termes critiqués par « de cap en cap » (*inter fauces terrarum*).

Article 16

*Délimitation de la mer territoriale
de deux Etats dont les côtes sont situées
en face l'une de l'autre*

1. La frontière internationale entre deux Etats dont les côtes sont situées en face l'une de l'autre à une distance de moins de 2 T milles (T étant la largeur de la mer territoriale) est, en règle générale, la ligne médiane dont chaque point est équidistant des lignes de base des Etats en question. Toute île sera prise en considération lors de l'établissement de cette ligne, à moins que les Etats adjacents n'en aient décidé autrement d'un commun accord. De même, les fonds affleurants à basse mer, situés à moins de T milles d'un seul Etat, seront pris en considération; par contre, ceux situés à moins de T milles de l'un et l'autre Etat n'entreront pas en ligne de compte lors de l'établissement de la ligne médiane.

2. Exceptionnellement, les intérêts de navigation ou de pêche pourront justifier un autre tracé de la frontière, à fixer d'un commun accord entre les parties intéressées.

3. La ligne sera tracée sur les cartes en service à grande échelle.

Commentaire

1) La Conférence pour la codification du droit international de 1930 ne s'était pas occupée de cette question. Le rapporteur spécial a emprunté cet article au rapport du Comité d'experts. La solution donnée semble être celle qui, jusqu'à présent, a été acceptée pour délimiter la frontière entre deux Etats dont les côtes sont situées en face l'une de l'autre à une distance de moins de 2 T milles (voir la réponse du Gouvernement danois, A/CN.4/71, p. 10; du Gouvernement néerlandais, *ibid.*; du Gouvernement suédois, A/CN.4/71/Add.1).

2) La Commission du droit international s'est déjà ralliée à l'application d'un système analogue pour la fixation de la frontière sur un plateau continental contigu au territoire de deux Etats situés l'un en face de l'autre.

Article 17

*Délimitation de la mer territoriale
de deux Etats adjacents*

La ligne de frontière à travers la mer territoriale de deux Etats adjacents, là où elle n'a pas encore été fixée d'une autre manière, sera tracée selon le principe d'équidistance des lignes de côte respectives.

La méthode, suivant laquelle ce principe sera appliqué, fera, dans chaque cas spécial, l'objet d'un accord entre les parties.

Commentaire

1) La Conférence de 1930 n'a pas donné de règle relative à ce cas qui peut être résolu de plusieurs manières.

2) En premier lieu, on pourrait envisager le prolongement vers le large de la frontière de terre jusqu'à l'extrême limite de la mer territoriale. Cette ligne n'est susceptible d'être utilisée que si la frontière terrestre atteint la côte sous un angle droit; si l'angle est aigu, elle devra être écartée.

3) Une deuxième solution serait de tirer une ligne perpendiculairement à la côte au point où la frontière terrestre atteint la mer. Cette méthode est critiquable si la côte présente une courbe dans le voisinage du point où la frontière terrestre touche la mer. Dans ce cas, cette ligne perpendiculaire pourrait rencontrer la côte à un autre point.

4) Une troisième solution consisterait à tirer la ligne perpendiculairement à la direction générale de la côte. L'adoption de cette ligne a été recommandée entre autres par le Gouvernement belge dans sa réponse à la lettre circulaire du Secrétaire général en date du 13 novembre 1952 (A/CN.4/71). Le Gouvernement norvégien a attiré l'attention sur la sentence arbitrale du 23 octobre 1909 entre la Norvège et la Suède, dont l'exposé des motifs contient la phrase suivante: « Le partage doit être fait en traçant une ligne perpendiculairement à la direction générale de la côte » (A/CN.4/71). Le Gouvernement suédois se réfère à la même décision (A/CN.4/71/Add.2).

5) Le Comité d'experts n'a pas cru devoir se rallier à cette méthode de détermination de la frontière. Il était d'avis qu'il serait souvent impossible d'établir une « direction générale de la côte »; le résultat « dépend de l'échelle de la carte à employer dans ce but et de l'étendue de la côte à utiliser dans la recherche ». Puisque, par conséquent, la méthode de la ligne tirée perpendiculairement à la direction générale de la côte manque de précision juridique, la meilleure solution semble être celle de la ligne médiane, proposée par le Comité d'experts, et que le rapporteur spécial a faite sienne. Cette ligne devrait être tracée selon le principe d'équidistance de la côte de part et d'autre de l'aboutissement de la frontière (voir la réponse du Gouvernement français, A/CN.4/71/Add.2). En utilisant cette méthode, la ligne de frontière coïncidera, s'il s'agit d'une côte droite, avec la ligne tirée perpendiculairement à la côte à l'endroit où la frontière terrestre atteint la mer. Si toutefois il s'agit d'une côte courbée ou irrégulière, la ligne tient compte du tracé de la côte tout en évitant les difficultés du problème de la « direction générale de la côte ».

CHAPITRE III

DROIT DE PASSAGE

(Voir A/CN.4/61, art. 14 à 23. Le numérotage des articles pertinents devra être modifié pour les mettre à la suite de ceux proposés au présent rapport.)

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control in the sea over the continental shelf. If there is any such right to exercise customs or fiscal control beyond the limits of the territorial sea, it can only derive from the concept of the contiguous zone.

37. The only question which the Commission should consider in this connexion is whether a contiguous zone twelve miles broad, intended as a customs vigilance zone, is sufficient to protect the fiscal interests of the coastal State in cases where a much wider continental shelf, extending opposite its coast, is used for the installation of drilling equipment and for the shipment of the wealth obtained therefrom. The Commission will have to decide whether, in such a case, the contiguous zone should be extended beyond twelve miles and, if the answer is in the affirmative, what should be the limit of that extension.

V. Regulation of fisheries

38. The systematic classification of the provisions concerning fishing raises certain difficulties. Questions concerning fishing arise: (a) in the territorial sea; (b) in contiguous zones; (c) in the sea over the continental shelf; (d) on the high seas.

(a) Fishing in the territorial sea may be regulated by the coastal State, which may reserve all the fishing rights to its own nationals. The question arises, however, whether States, or an international authority dealing with questions of fisheries, should be empowered to intervene if the fishing operations in such waters constitute a threat to the conservation of the living resources of the sea. The rules adopted by the Commission at its seventh session do not provide for this contingency. It would seem that such a right of intervention would not be unreasonable if it were vested in States having a special interest in the maintenance of the productive capacity of the living resources in such waters. This would require an extension of the provisions of article 30 of the rules concerning the high seas.¹² A State having a special interest in the conservation of living resources in the sea of another State should have the right to request that other State to take the necessary measures to ensure conservation. Failing satisfaction, the requesting State should be entitled to submit the dispute to arbitration.

(b) As the Commission does not recognize the existence of a contiguous zone for purposes of fishing, fisheries in such zones are governed by the régime of the high seas. The provisions concerning the conservation of the living resources of the high seas are also applicable therein.

(c) As to the sea area covering the continental shelf, the applicable rule is contained in article 24, according to which all States may claim for their nationals their right to engage in fishing on the high seas, subject to their treaty obligations and to the provisions contained in the Commission's proposals concerning conservation of the living resources of the high seas.¹³ Fishing will not give rise to any difficulties as long as there are few installations for the exploitation of the sea-bed. If the number of

such installations increases, it is possible that they may interfere with fishing in some areas. This case is, however, envisaged by article 6, paragraph 1, of the draft articles on the continental shelf, which reads as follows:

"The exploration of the continental shelf and the exploitation of its natural resources must not result in any unjustifiable interference with navigation, fishing or fish production."¹⁴

VI. Sedentary fisheries

39. In the report on the work of its third session,¹⁵ the Commission made the régime of the continental shelf applicable only to mineral resources and proposed special provisions for sedentary fisheries. Under that plan, the provisions applicable to sedentary fisheries would have been included in the chapter concerning fisheries. At its fifth session,¹⁶ the Commission decided, after considerable discussion, to retain the term "natural resources" rather than "mineral resources". The Commission came to the conclusion that the products of sedentary fisheries, to the extent that they were natural resources permanently attached to the bed of the sea, should not be outside the scope of the régime adopted and that this aim could be achieved by using the term "natural resources". It was then pointed out in the comment that the coastal State must respect, in this connexion, the existing right of other States. It might be desirable to insert a provision to that effect in the articles themselves. It might also help if an explicit statement in the comment confirmed that attachment to the sea-bed is a necessary condition for the application of that provision, thus clearly showing that the article did not cover the removal of roving species. With the text thus amplified the only "sedentary fisheries" requiring separate provisions would be those situated outside the continental shelf. In view of the fact, however, that according to the Commission's definition the continental shelf includes the submarine areas contiguous to the coast, but outside the area of the territorial sea, to a depth of 200 metres and that, to the best of the Commission's knowledge, sedentary fisheries are never encountered at a depth exceeding 200 metres, it seems unnecessary to mention sedentary fisheries other than those already governed by the provisions concerning the continental shelf.

40. There is, however, one aspect on the question which the Commission has overlooked; this was pointed out by Mr. Mouton in his lecture at the Academy of International Law at The Hague in 1954,¹⁷ and by Mr. Viktor Böhmert in an article entitled "*Meezestfreiheit und Schelfproklamationen*".¹⁸ In the report on the work of its third session, the Commission stated:

"the proposals refer to fisheries regarded as sedentary because of the species caught or the equip-

¹² *Ibid.*, Eighth Session, Supplement No. 9, para. 62.

¹³ *Ibid.*, Sixth Session, Supplement No. 9.

¹⁴ *Ibid.*, Eighth Session, Supplement No. 9, chap. III.

¹⁵ M. W. Mouton, "The Continental Shelf", *Recueil des cours de l'Académie de droit international*, 1954, I, p. 445.

¹⁶ *Jahrbuch für internationales Recht*, Vol. 5, 1954 (Göttingen, Vandenhoeck & Ruprecht, 1955), p. 19.

¹⁷ Official Records of the General Assembly, Tenth Session, Supplement No. 9, chap. II.

¹⁸ *Ibid.*

ment used, e.g., stakes embedded in the sea-floor".¹⁹ In the report on the work of its fifth session, the Commission states:

"The Commission, however, came to the conclusion that the products of sedentary fisheries, in particular to the extent that they were natural resources permanently attached to the bed of the sea, should not be outside the scope of the régime adopted and that this aim could be achieved by using the term 'natural resources'. It is clearly understood, however, that the rights in question do not cover so-called bottom-fish and other fish which, although living in the sea, occasionally have their habitat at the bottom of the sea or are bred there."²⁰

41. It follows from the above that the products of fisheries regarded as sedentary fisheries because of the equipment used are not included in the expression "natural resources" and that such fisheries do not fall within the scope of draft article 2. The equipment used, even if it is embedded in the sea-floor, is not devoted to the exploration or exploitation of the natural resources of the continental shelf. There is consequently no provision in the Commission's last draft concerning fisheries of this nature.

42. The Rapporteur suggests that the original article concerning sedentary fisheries should be reintroduced in the chapter dealing with fisheries, subject to an express exception with regard to natural resources permanently attached to the bed of the sea. The article would thus be worded as follows:

"1. The regulation of sedentary fisheries may be undertaken by a State in areas of the high seas contiguous to its territorial waters, where such fisheries have long been maintained and conducted by nationals of that State, provided that non-nationals are permitted to participate in the fishing activities on an equal footing with nationals.

"2. The provisions of the preceding paragraph shall not apply to fisheries on the high seas over the continental shelf, where the products are natural resources permanently attached to the bed of the sea. These fisheries shall be governed by the provisions of article 2, subject to the proviso that the existing rights of nationals of other States must be respected."

VII. Points on which discussion was deferred at the seventh session

A. RIGHT OF PASSAGE IN WATERS WHICH BECOME INTERNAL WATERS WHEN THE STRAIGHT BASE-LINE SYSTEM IS APPLIED

43. At the seventh session, the question arose whether in waters which become internal waters when the straight base-line system is applied the right of passage should not be granted in the same way as in the territorial sea. The Commission did not feel called upon to take a deci-

¹⁹ *Official Records of the General Assembly, Sixth Session, Supplement No. 9, annex, Part II, article 3, first paragraph of comment.*

²⁰ *Ibid., Eighth Session, Supplement No. 9, para. 70.*

sion on this subject, and proposed to refer to it at a later date.

44. The same question had already been raised by the United Kingdom Government in its comments on the provisional articles concerning the régime of the territorial sea as adopted by the Commission at its sixth session. Her Majesty's Government stated the following:

"The measurement of the territorial sea from base lines has, even where justified, two main consequences as compared with the measurement of the territorial sea from the low-water mark. The first is that the internal waters of the coastal State are extended. In other words, there is a greater area of water from which it may be argued that, in principle, under present rules, the coastal State may exclude foreign shipping. The second consequence is that, though the actual area of territorial waters is not increased — the belt of territorial waters remains a three-mile belt whether it is measured from the low-water mark or from base lines — the outer limit of territorial waters is pushed further out to sea than would otherwise be the case. In other words, the total area of high seas is reduced. In these circumstances, Her Majesty's Government regard it as imperative, in any new code which would render legitimate the use of base lines in proper circumstances, it should be clearly stated that the right of innocent passage shall not be prejudiced thereby, even though this may involve that, in certain cases, this right shall become exercisable through internal as well as through territorial waters. Her Majesty's Government consider that the Commission would be performing a most useful function if it were to give mature consideration to the problem how the use of base lines is to be reconciled with existing rights of passage. For their part, Her Majesty's Government can only say at this stage that, in their view, in case of conflict, the right of passage, as a prior right and the right of the international community, must prevail over any alleged claim of individual coastal States to extend the areas subject to their exclusive jurisdiction."²¹

45. At the Commission's 299th meeting, Sir Gerald Fitzmaurice again raised this question. He recalled the following:

"... that at the sixth session Mr. Lauterpacht had introduced a proposal concerning the right of passage in internal waters; a proposal which he had subsequently withdrawn while reserving the right to reintroduce it. He (Sir Gerald Fitzmaurice) now wished to propose the insertion of a similar article, which could well find its place after article 21, and which would read as follows:

"The principle of the freedom of innocent passage governing the territorial sea shall also apply to areas enclosed between the coastline and the straight base line drawn in accordance with article 5."

"The judgement of the International Court of Justice rendered on 10 December 1951 in the Fisheries Case between the United Kingdom and Norway had recognized the right of a country such as Norway, the coast

²¹ *Ibid., Tenth Session, Supplement No. 9, pp. 43-44.*

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article 7, paragraph 1, of the draft articles on the continental shelf adopted at its fifth session.

16. Mr. ZOUREK could not agree with that approach. There was no doubt that the question was one of *lex ferenda*, as there was no law in force to cover the matters dealt with in those paragraphs. He saw no reason for imposing on States a single method for delimiting their maritime frontiers, particularly as the possible situations were so diverse that no single method sufficed to cover them all. The article before the Commission should be applicable also to cases where States did not have the same breadth of territorial sea, as it would not be realistic to expect agreement on a uniform breadth for the territorial sea. The most that could be done was to retain the Special Rapporteur's draft article as a subsidiary rule and to say that the principle of equidistance applied to cases where the requirements of shipping, the configuration of the coastline or the interests of the States involved did not call for the application of another method. He also thought that if article 16 were replaced by paragraph 1 of article 7 on the continental shelf, it would be too rigid and would have little hope of being adopted by States.

17. The CHAIRMAN pointed out that the adoption of article 7, paragraph 1, on the continental shelf as a basis for article 16 still left States a certain margin for agreement as it stated expressly: "... the absence of agreement between those States or unless another boundary is justified by special circumstances ..."

18. He put to the vote the proposal that paragraphs 1 and 2 of article 16 as drafted by the Special Rapporteur should be replaced by an article drafted on the lines of article 7, paragraph 1, relating to the continental shelf as contained in the Commission's report on the régime of the high seas.⁵

The proposal was adopted by 4 votes to 1, with 8 abstentions.

Paragraph 3 was adopted by 10 votes to none, with 3 abstentions.

Article 16 as a whole, as amended, was adopted by 6 votes to 1, with 6 abstentions.

19. Mr. ZOUREK said he had voted against article 16 for the reasons he had given during the discussion.

Article 17: Delimitation of the territorial sea of two adjacent States (A/CN.4/77)⁶

20. Mr. FRANÇOIS, Special Rapporteur, said that for article 17 he now proposed the same method as that

adopted at the Commission's fifth session for the delimitation of the continental shelf. The article should accordingly be redrafted on the lines of article 7, paragraph 2, relating to the continental shelf⁷ and the phrase "in the absence of agreement between those States or unless another boundary line is justified by special circumstances" added.

21. The question of arbitration could provisionally be left open.

22. Mr. SCELLE did not agree with the Special Rapporteur's proposal that the question of arbitration should for the time being be left open. Differences could very well arise concerning the delimitation of the territorial sea of two adjacent States, particularly if a third party's interests were affected.

23. Mr. FRANÇOIS, Special Rapporteur, replied that there was no question of a third party as the Commission was dealing with the delimitation of the territorial sea between two States only.

24. Mr. SCELLE pointed out that as long as no fixed uniform breadth had been agreed for the territorial sea, two States, the coasts of which were separated by twenty miles, could adopt territorial waters twelve and eight miles in breadth, respectively. In that case, they would eliminate the high seas completely and a third State would be entitled to protest.

25. Mr. FRANÇOIS, Special Rapporteur, said that the case referred to by Mr. Scelle would not arise if agreement was reached on a uniform breadth.

26. Mr. PAL said that in certain cases the territorial sea might be measured from the base lines and not from the coastline, and suggested that the word "coastlines" at the end of the first sentence of the article should be replaced by the words "base lines".

27. He also suggested that the last sentence of the article beginning with the words "The methods whereby..." should be entirely deleted.

28. Mr. FRANÇOIS, Special Rapporteur, recalled that he had already withdrawn his draft of article 17 in favour of article 7, paragraph 2, on the continental shelf, which referred to base lines.

29. Mr. SCELLE hoped that a general arbitration clause would be inserted in the draft regulation to cover all possible disputes.

30. The CHAIRMAN put to the vote article 17 formulated, in principle, by analogy with article 7, paragraph 2, of the draft articles on the continental shelf adopted by the Commission at its fifth session.⁷

The article, to be redrafted on these lines, was adopted in principle by 9 votes to 1, with 3 abstentions.

31. Mr. ZOUREK said he had voted against the adoption of article 17, for the same reasons as he had given with regard to article 16.

⁵ *Vide supra*, para. 2 and footnote 3.

⁶ Article 17 read as follows:

"Except where already otherwise determined the boundary line through the territorial sea of two adjacent States shall be drawn according to the principle of equidistance from the respective coastlines. The methods whereby this principle is to be applied shall be agreed upon between the parties concerned in each specific case."

⁷ *Vide supra*, footnote 3.

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*Normal baseline**Article 4*

Subject to the provisions of article 5 and to the provisions regarding bays and islands, the breadth of the territorial sea is measured from the low-water line along the coast, as marked on large-scale charts officially recognized by the coastal State.

*Straight baselines**Article 5*

1. Where circumstances necessitate a special régime because the coast is deeply indented or cut into or because there are islands in its immediate vicinity, the baseline may be independent of the low-water mark. In these cases, the method of straight baselines joining appropriate points may be employed. The drawing of such baselines must not depart to any appreciable extent from the general direction of the coast, and the sea areas lying within the lines must be sufficiently closely linked to the land domain to be subject to the régime of internal waters. Account may nevertheless be taken, where necessary, of economic interests peculiar to a region, the reality and importance of which are clearly evidenced by a long usage. Baselines shall not be drawn to and from drying rocks and drying shoals.

2. The coastal State shall give due publicity to the straight baselines drawn by it.

3. Where the establishment of a straight baseline has the effect of enclosing as internal waters areas which previously had been considered as part of the territorial sea or of the high seas, a right of innocent passage, as defined in article 15, through those waters shall be recognized by the coastal State in all those cases where the waters have normally been used for international traffic.

*Outer limit of the territorial sea**Article 6*

The outer limit of the territorial sea is the line every point of which is at a distance from the nearest point of the baseline equal to the breadth of the territorial sea.

*Bays**Article 7*

1. For the purposes of these articles, a bay is a well-marked indentation whose penetration is in such proportion to the width of its mouth as to contain land-locked waters and constitute more than a mere curvature of the coast. An indentation shall not, however, be regarded as a bay unless its area is as large as, or larger than, that of the semi-circle drawn on the mouth of that indentation. If a bay has more than one mouth, this semi-circle shall be drawn on a line as long as the sum total of the length of the different mouths. Islands within a bay shall be included as if they were part of the water area of the bay.

2. The waters within a bay, the coasts of which be-

long to a single State, shall be considered internal waters if the line drawn across the mouth does not exceed fifteen miles measured from the low-water line.

3. Where the mouth of a bay exceeds fifteen miles, a closing line of such length shall be drawn within the bay. When different lines of such length can be drawn that line shall be chosen which encloses the maximum water area within the bay.

4. The foregoing provisions shall not apply to so-called "historic" bays or in any cases where the straight baseline system provided for in article 5 is applied.

*Ports**Article 8*

For the purpose of delimiting the territorial sea, the outermost permanent harbour works which form an integral part of the harbour system shall be regarded as forming part of the coast.

*Roadsteads**Article 9*

Roadsteads which are normally used for the loading, unloading and anchoring of ships, and which would otherwise be situated wholly or partly outside the outer limit of the territorial sea, are included in the territorial sea. The coastal State must give due publicity to the limits of such roadsteads.

*Islands**Article 10*

Every island has its own territorial sea. An island is an area of land, surrounded by water, which in normal circumstances is permanently above high-water mark.

*Drying rocks and drying shoals**Article 11*

Drying rocks and drying shoals which are wholly or partly within the territorial sea, as measured from the mainland or an island, may be taken as points of departure for measuring the extension of the territorial sea.

*Delimitation of the territorial sea in straits and off other opposite coasts**Article 12*

1. The boundary of the territorial sea between two States, the coasts of which are opposite each other at a distance less than the extent of the belts of territorial sea adjacent to the two coasts, shall be fixed by agreement between those States. Failing such agreement and unless another boundary line is justified by special circumstances, the boundary is the median line every point of which is equidistant from the nearest points on the baselines from which the breadths of the territorial seas of the two States are measured.

2. If the distance between the two States exceeds the

extent of the two belts of territorial sea, the waters lying between the two belts shall form part of the high seas. Nevertheless, if, as a consequence of this delimitation, an area of the sea not more than two miles in breadth should be entirely enclosed within the territorial sea, that area may, by agreement between the coastal States, be deemed to be part of the territorial sea.

3. The first sentence of the preceding paragraph shall be applicable to cases where both coasts belong to one and the same coastal State. If, as a consequence of this delimitation, an area of the sea not more than two miles in breadth should be entirely enclosed within the territorial sea, that area may be declared by the coastal State to form part of its territorial sea.

4. The line of demarcation shall be marked on the officially recognized large-scale charts.

Delimitation of the territorial sea at the mouth of a river

Article 13

1. If a river flows directly into the sea, the territorial sea shall be measured from a line drawn *inter fauces terrarum* across the mouth of the river.

2. If the river flows into an estuary the coasts of which belong to a single State, article 7 shall apply.

Delimitation of the territorial sea of two adjacent States

Article 14

1. The boundary of the territorial sea between two adjacent States shall be determined by agreement between them. In the absence of such agreement, and unless another boundary line is justified by special circumstances, the boundary is drawn by application of the principle of equidistance from the nearest points on the baseline from which the breadth of the territorial sea of each country is measured.

2. The boundary line shall be marked on the officially recognized large-scale charts.

SECTION III. RIGHT OF INNOCENT PASSAGE

Sub-section A. General rules

Meaning of the right of innocent passage

Article 15

1. Subject to the provisions of the present rules, ships of all States shall enjoy the right of innocent passage through the territorial sea.

2. Passage means navigation through the territorial sea for the purpose either of traversing that sea without entering internal waters, or of proceeding to internal waters, or of making for the high seas from internal waters.

3. Passage is innocent so long as the ship does not use the territorial sea for committing any acts prejudicial to the security of the coastal State or contrary to the present rules, or to other rules of international law.

4. Passage includes stopping and anchoring, but only in so far as the same are incidental to ordinary navigation

or are rendered necessary by *force majeure* or by distress.

5. Submarines are required to navigate on the surface.

Duties of the coastal State

Article 16

1. The coastal State must not hamper innocent passage through the territorial sea. It is required to use the means at its disposal to ensure respect for innocent passage through the territorial sea and must not allow the said sea to be used for acts contrary to the right of other States.

2. The coastal State is required to give due publicity to any dangers to navigation of which it has knowledge

Rights of protection of the coastal State

Article 17

1. The coastal State may take the necessary steps in its territorial sea to protect itself against any act prejudicial to its security or to such other of its interests as it is authorized to protect under the present rules and other rules of international law.

2. In the case of ships proceeding to internal waters the coastal State shall also have the right to take the necessary steps to prevent any breach of the conditions to which the admission of those ships to those waters is subject.

3. The coastal State may suspend temporarily in definite areas of its territorial sea the exercise of the right of passage if it should deem such suspension essential for the protection of the rights referred to in paragraph 1. Should it take such action, it is bound to give due publicity to the suspension.

4. There must be no suspension of the innocent passage of foreign ships through straits normally used for international navigation between two parts of the high seas.

Duties of foreign ships during their passage

Article 18

Foreign ships exercising the right of passage shall comply with the laws and regulations enacted by the coastal State in conformity with the present rules and other rules of international law and, in particular, with the laws and regulations relating to transport and navigation.

Sub-section B. Merchant ships

Charges to be levied upon foreign ships

Article 19

1. No charge may be levied upon foreign ships by reason only of their passage through the territorial sea.

2. Charges may only be levied upon a foreign ship passing through the territorial sea as payment for specific services rendered to the ship.

isdiction of the coastal State for the purpose of maintaining order and of the civil and criminal competence of its courts.

(7) While, generally, the Commission, by formulating the test of unjustifiable interference, thought it advisable to eliminate any semblance of rigidity in adapting the existing principle of the freedom of the sea to what is essentially a novel situation, it thought it desirable to rule out expressly any right of interference with navigation in certain areas of the sea. These areas are defined in paragraph 5 of this article as narrow channels or recognized sea lanes essential to international navigation. They are understood to include straits in the ordinary sense of the word. The importance of these areas for the purpose of international navigation is such as to preclude, in conformity with the tests of equivalence and relative importance of the interests involved, the construction of installations or the maintenance of safety zones therein, even if such installations or zones are necessary for the exploration or exploitation of the continental shelf.

ARTICLE 72

1. Where the same continental shelf is adjacent to the territories of two or more States whose coasts are opposite to each other, the boundary of the continental shelf appertaining to such States shall be determined by agreement between them. In the absence of agreement, and unless another boundary line is justified by special circumstances, the boundary is the median line, every point of which is equidistant from the baselines from which the breadth of the territorial sea of each country is measured.

2. Where the same continental shelf is adjacent to the territories of two adjacent States, the boundary of the continental shelf shall be determined by agreement between them. In the absence of agreement, and unless another boundary line is justified by special circumstances, the boundary shall be determined by application of the principle of equidistance from the baselines from which the breadth of the territorial sea of each of the two countries is measured.

Commentary

(1) For the determination of the limits of the continental shelf the Commission adopted the same principles as for the articles 12 and 14 concerning the delimitation of the territorial sea. As in the case of the boundaries of the territorial sea, provision must be made for departures necessitated by any exceptional configuration of the coast, as well as the presence of islands or of navigable channels. This case may arise fairly often, so that the rule adopted is fairly elastic.

(2) There would be certain advantages in having the boundary lines marked on official large-scale charts. But as it is less important to users of such charts to have this information than to know the boundary of the territorial sea, the Commission refrained from imposing any obligation in the matter.

ARTICLE 73

Any disputes that may arise between States concerning the interpretation or application of articles 67-72 shall be

submitted to the International Court of Justice at the request of any of the parties, unless they agree on another method of peaceful settlement.

Commentary

(1) The text of the draft as adopted at the fifth session contained a general arbitration clause providing that any disputes which might arise between States concerning the interpretation or application of the articles should be submitted to arbitration at the request of any of the parties.

(2) At its eighth session the Commission amended this article to provide that disputes should be settled by the parties by a method agreed between them. Failing such agreement, each of the parties would have the right to submit the dispute to the International Court of Justice.

(3) The majority of the Commission considered that a clause providing for compulsory arbitration would not be of much practical value unless the Commission at the same time laid down the procedure to be followed, as in the case of disputes relating to conservation of the living resources of the sea. It was pointed out, however, that in the present context the disputes would not be of an extremely technical character as in the case of the conservation of the living resources of the sea. It was therefore considered that arbitration could be replaced by reference to the International Court of Justice.

(4) The Commission did not agree with certain members who were opposed to the insertion in the draft of a clause on compulsory arbitration or jurisdiction, on the ground that there was no reason to impose on States one only of the various means provided by existing international law, and particularly by Article 33 of the United Nations Charter, for the peaceful settlement of international disputes. These members also pointed out that the insertion of such a clause would make the draft unacceptable to a great many States. The majority of the Commission nevertheless considered such a clause to be necessary. The articles on the continental shelf are the result of an attempt to reconcile the recognized principles of international law applicable to the régime of the high seas, with recognition of the rights of the coastal State over the continental shelf. Relying, as it must, on the continual necessity to assess the importance of the interests at stake on either side, this compromise solution must allow for some power of discretion. Thus, it will often be necessary to rely on a subjective assessment—with the resultant possibilities of disagreement—to determine whether, in the terms of article 71 paragraph 1, the measures taken by the coastal State to explore and exploit the continental shelf result in "unjustifiable" interference with navigation or fishing; whether, as is laid down in paragraph 2 of that article, the safety zones established by the coastal State do not exceed a "reasonable" distance around the installation; whether, in the terms of paragraph 5 of the article, a sea lane is "recognized" and whether it is "essential to international navigation"; finally, whether the coastal State, when preventing the laying of submarine cables or pipelines, is really acting in the spirit of article 70, which only authorizes such action when it comes within

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YEARBOOK OF THE INTERNATIONAL LAW COMMISSION 1958,
UN DOCUMENT A/CONF.13/42

proposal (A/CONF.13/C.4/L.42) until Mr. Kennedy had made his explanatory statement.

21. Mr. KENNEDY (United Kingdom), speaking on paragraph 3 of the United Kingdom proposal, said that, once a boundary was fixed by agreement, it must be entirely independent of the low-water line. That line varied from year to year, particularly at the mouths of rivers. The turning points of boundary lines should be related to fixed points on land, such as a church, a beacon, or a lighthouse. Furthermore, latitude and longitude represented a movable grid dependent on the timekeeping methods employed. Many charts were extremely old; they were being brought up to date, but some years might elapse before that process was completed. That was why the United Kingdom proposal specially provided that boundaries should be defined with reference to charts as they existed at a particular date.

The meeting rose at 11.35 p.m.

THIRTY-SECOND MEETING

Wednesday, 9 April 1958, at 10.20 a.m.

Chairman: Mr. A. B. PERERA (Ceylon)

Consideration of the draft articles adopted by the International Law Commission at its eighth session (A/3159) (continued)

ARTICLE 72 (A/CONF.13/C.4/L.16 and Add.1, L.23, L.24/Rev.1, L.25/Rev.1, L.28, L.42, L.60) (continued)

1. Mr. KENNEDY (United Kingdom) said that sea boundaries established by projection of a land boundary, by projection of a parallel of latitude or meridian, or by intersection of the radii of two fixed points on the coastlines of States which were adjacent or opposite to each other were not satisfactory in many cases; such boundaries often did not result in a fair apportionment of the sea area between the two States concerned, and might, indeed, cut across land territory. Similarly, the line of deepest water was not, he thought, a satisfactory criterion for establishing a boundary; in the presence of a number of pools of varying depth it would be difficult to establish the exact position of such a line.

2. The fairest method of establishing a sea boundary was that of the median line every point of which was equidistant from the nearest points of the baselines from which the breadth of the territorial sea was measured, as stated in the United Kingdom proposal (A/CONF.13/C.4/L.28). When properly drawn, the median line was a precise line consisting of a series of short straight lines. In agreeing upon a boundary, adjacent or opposite States might well decide to straighten that series of lines so as to avoid an excessive number of angles, giving an equal sea area to each State and also taking into account any special circumstances. It had been suggested at the 31st meeting (para. 9) that the high-water line might be a more satisfactory criterion; he pointed out, however, that

while the high-water line did not move as rapidly as the low-water line, it was nevertheless liable to move, and in certain places it had moved seaward by several miles in the course of about 50 years.

3. Among the special circumstances which might exist there was, for example, the presence of a small or large island in the area to be apportioned; he suggested that, for the purposes of drawing a boundary, islands should be treated on their merits, very small islands or sand cays on a continuous continental shelf and outside the belts of territorial sea being neglected as base points for measurement and having only their own appropriate territorial sea. Other types of special circumstances were the possession by one of the two States concerned of special mineral exploitation rights or fishery rights, or the presence of a navigable channel; in all such cases, a deviation from the median line would be justified, but the median line would still provide the best starting point for negotiations.

4. The United Kingdom proposal also stated that boundaries should be defined with reference to charts as they existed at a particular date, since a boundary line, once drawn, should remain constant regardless of any subsequent changes in the coastline. It was also essential that both the States involved should reach agreement on what chart was used, as charts differed considerably, depending on the date on which they were drawn, and those "officially recognized" by the State might not conform in every detail.

5. Mr. GABRIELLI (Italy) said that, while the criterion of the median line proposed by the International Law Commission could not be contested in principle, it might, if rigidly applied, lead to inequitable results and considerable technical difficulties. The International Law Commission had shown itself to be aware of that fact by providing for the possibility of establishing other boundaries by agreement, and also by allowing for special circumstances which might necessitate divergencies from the median line. So far as agreements were concerned, it was unlikely that a State which found the median line advantageous to itself would agree to depart from it in the interests of another State. Adequate arrangements which would satisfy the interests of both parties could only be reached by giving due consideration to special circumstances. The most satisfactory solution, therefore, was that proposed by the International Law Commission and by the Netherlands delegation (A/CONF.13/C.4/L.23). The Italian delegation would be unable to vote in favour either of the United Kingdom proposal or of the Yugoslav proposal (A/CONF.13/C.4/L.16 and Add.1), which contained no reference to special circumstances.

6. The Italian proposal (A/CONF.13/C.4/L.25/Rev.1) dealt with the special case of islands belonging to a continuous continental shelf between two States which were opposite to each other. The importance of that case was borne out by paragraph 12 of the memorandum submitted by the secretariat of the United Nations Educational, Scientific and Cultural Organization (UNESCO) (A/CONF.13/2), and he would quote a statement made by the representative of Chile in the Sixth Committee of the General Assembly at its Eleventh Session (A/CONF.13/19, p. 397) to the effect that, in 1916, the Russian Government had "declared

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the animal kingdom in the classification of English Criminal Law, they ought certainly to be treated as animals highly serviceable to man, though otherwise than as food, and such serviceableness must, according to the principle of the authorities, be held to make them the subject of larceny, considering how the law views the case of another animal prized not as food, the rule as to which is expressed quaintly enough thus: "Only of the reclaimed hawk in respect of the nobleness of its nature and use for princes and great men, larceny may be committed" (Hale's 'Pleas of the Crown', p. 512). However this may be, it is scarcely necessary to say that, under our own criminal law, subject only to the exception provided for by section 95 of the Indian Penal Code, an animal which is recognised as property is *ipso facto* capable of being stolen.

Now as to the last branch of the question I cannot see what difficulty there can be in holding that chanks and pearl oysters while still in the beds are, within the meaning of section 307 of the Indian Penal Code, in the possession of persons who may show a title thereto. The circumstance that the subjects of His Majesty and others may navigate the waters could not preclude the predictability of possession in the largest sense of the term with regard to beds forming the subject of these fisheries, on the part of those entitled exclusively to carry on the fisheries. The right of such persons being admitted, it follows that so long as chanks and pearl oysters have not actually been manually taken hold of by strangers, the animals, notwithstanding their continuance in their natural habitat, must, on the principle that "property in personal chattels draws after it the possession" (see *State v. Taylor*(1)), be held to be in the possession of the owner and of none else. That, here, the thing owned lies buried under the waters of the sea, operates rather as a security of the owner's possession than otherwise, as that in many ways interposes serious obstacles in the way of unobserved intrusion on the rights of the proprietors. The bed of the sea being vested in the Crown the soundness of postulating possession in the Crown in regard to chanks and oysters belonging to it is too obvious to require further discussion.

As regards the Ramnad proprietor also the same conclusion would follow if he has the immemorial right claimed. Without

(1) 72 Am. Dec., 348; 8 Dutcher, 117.

Annex 63

COLUMNS 1417 AND 1418 OF
PARLIAMENTARY DEBATES, H.C. 5TH SER., VOL. 163

[Not reproduced]

Annex 64

PAGES 536 AND 537 OF
GOLDIE, AUSTRALIA'S CONTINENTAL SHELF

[Not reproduced]

Annex 65

PAGES 7 AND 9 OF
*LIMITS IN THE SEAS, NO. 87, 20 AUG. 1979 ; TERRITORIAL SEA AND CONTINENTAL
SHELF BOUNDARIES : AUSTRALIA AND PAPUA NEW GUINEA-INDONESIA*

[Not reproduced]

Annex 66

PAGES 324 THROUGH 327 OF
INTERNATIONAL LEGAL MATERIALS, VOL. 18

[Not reproduced]

Annex 67

EXTRACT FROM PAGE 185 AND PAGE 186 OF
THE AMERICAN JOURNAL OF INTERNATIONAL LAW, VOL. 43, SUPP.

BAHRAIN GOVERNMENT

PROCLAMATION NO. 37/1368, JUNE 5, 1949¹

To whom it may concern :

Whereas it is desirable to encourage any efforts to facilitate the derivation of greater benefit from the natural resources of the earth, and

Whereas valuable resources exist beneath parts of the Persian Gulf near the shores of Bahrain, and it has become possible to derive increasing benefit from these submarine resources, and

Whereas it is desirable, for the purposes of conservation, preservation, and orderly development, that extraction of these resources shall be regulated as necessity dictates, and

Whereas it is just that the sea bed and the subsoil extending a reasonable distance from the shore should belong to and be administered by the government of the adjacent coast, and

Whereas the right of any coastal government to exercise its sovereignty over the natural resources of the sea bed and the subsoil in the vicinity of its shores has been established by international practice through the action taken by other governments.

Accordingly, we, Salman Ibn Hamad al Khalifah, Ruler of Bahrain, by virtue of the powers vested in us in this respect, are pleased to issue hereby the following proclamation :

We, Salman Ibn Hamad al Khalifah, Ruler of Bahrain, hereby declare that the sea bed and the subsoil of the high seas of the Persian Gulf bordering on the territorial waters of Bahrain and extending seaward as far as limits that we, after consultation with the neighbouring governments, shall determine more accurately in accordance with the principles of justice, when the occasion so requires, belong to the country of Bahrain and are subject to its absolute authority and jurisdiction.

There is nothing in this proclamation that may be interpreted as affecting dominion over the islands or the status of the sea bed and the subsoil underlying any territorial waters.

There is nothing in this proclamation that may be interpreted as affecting the character of the high seas in the waters of the Persian Gulf overlying the sea bed and beyond the limits of the territorial waters, or the status of the air space above the waters of the Persian Gulf beyond the territorial waters, or fishing, or the traditional rights of pearling in these waters.

SALMAN IBN HAMAD AL KHALIFAH,
Ruler of Bahrain.

8 Sha'ban 1368
June 5, 1949

¹ Translation from the Arabic original.

Annex 68

PAGES 313 AND 314 OF
THE STATUTES AT LARGE OF THE UNITED STATES, VOL. XXXIV

PAGES 692 AND 693 OF
THE STATUTES AT LARGE OF THE UNITED STATES, VOL. XXXVIII

"(c) For instruments at places situated at such distances from the central office of the company requiring more than five miles of constructed line, not more than six dollars and twenty-five cents per month:

"*Provided, however,* That nothing in this section contained shall prohibit the making of any special contract for any special service.

Offices.

"SEC. 18. The said Standard Telephone Company shall during the existence of this franchise have and maintain an office for the transaction of business of the company at some place in Honolulu convenient of access to the public, and a majority of the board of directors of said company and other persons having the charge, management, and control thereof shall be residents of the Territory of Hawaii.

Inspection.

"SEC. 19. The entire plant, operation, books, and accounts of said Standard Telephone Company shall at any time be open and subject to the inspection of the treasurer of the Territory of Hawaii or any person appointed by him for the purpose.

Forfeiture.

"SEC. 20. FORFEITURE OF FRANCHISE. —Whenever said company refuses or fails to do or perform or comply with any act, matter, or thing requisite or required to be done under the terms of this act, and shall continue so to refuse or fail to do or perform or comply therewith after reasonable notice given by the superintendent of public works or other proper authority to comply therewith, the governor and attorney-general shall cause proceedings to be instituted before the proper tribunal to have the franchise granted by this act, and all rights and privileges granted hereunder, forfeited and declared null and void.

Franchise not exclusive.

"SEC. 21. FRANCHISE NOT EXCLUSIVE. —It is hereby expressly provided that nothing herein contained shall be so construed as to grant to the company the exclusive right to install or operate a telephone system or systems.

Effect.

"SEC. 22. This act shall take effect from and after its approval by the Congress of the United States of America.

"Approved this twenty-sixth day of April, anno Domini nineteen hundred and five.

"G. R. CARTER,

"Governor of the Territory of Hawaii."

SEC. 2. That Congress, or the legislature of the Territory of Hawaii with the approval of Congress, may at any time alter, amend, or repeal said Act.

Amendment, etc.

Approved, June 20, 1906.

CHAP. 3442. —An Act To regulate the landing, delivery, cure, and sale of sponges.

June 20, 1906.
[S. 1906.]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That from and after May first, anno Domini nineteen hundred and seven, it shall be unlawful to land, deliver, cure, or offer for sale at any port or place in the United States any sponges taken by means of diving or diving apparatus from the waters of the Gulf of Mexico or Straits of Florida: *Provided,* That sponges taken or gathered by such process between October first and May first of each year in a greater depth of water than fifty feet shall not be subject to the provisions of this Act: *And provided further,* That no sponges taken from said waters shall be landed, delivered, cured, or offered for sale at any port or place in the United States of a smaller size than four inches in diameter.

[Public, No. 250.]

Sponges,
Landing, etc., taken
by diving in Gulf of
Mexico, etc., unlaw-
ful.

Proviso.
Exception.

Size restricted.

SEC. 2. That every person guilty of a violation of this Act shall for each offense be liable to a fine of not less than one hundred dollars or more than five hundred dollars, which fine shall be a lien against the

Penalties.

vessel on which the offense was committed. And every vessel used or employed in violation of this Act shall be liable to a fine of not less than one hundred dollars or more than five hundred dollars or forfeiture, and shall be seized and proceeded against by process of libel in any court having jurisdiction of the offense.

Prosecutions.

Sec. 3. That any violation of this Act shall be prosecuted in the district court of the United States of the district wherein the offense was committed.

Enforcement.

Sec. 4. That it shall be the duty of the Secretary of Commerce and Labor to enforce the provisions of this Act, and upon his request the Secretary of the Treasury and the Secretary of the Navy may employ the vessels of the Revenue-Cutter Service and of the Navy, respectively, to that end.

Approved, June 20, 1906.

June 20, 1906.
[H. R. 4464.]

[Public, No. 251.]

CHAP. 3443.—An Act To classify the officers and members of the fire department of the District of Columbia, and for other purposes.

District of Columbia.
Fire department.
Extent, etc.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the fire department of the District of Columbia shall embrace the whole of the said District, and its personal and movable property shall be assigned and located as the Commissioners of said District may direct within the appropriations made by Congress.

Commissioners. To have exclusive jurisdiction.

Sec. 2. That the Commissioners of the District of Columbia shall appoint, assign to such duty or duties, promote, reduce, fine, suspend, with or without pay, and remove all officers and members of the fire department of the District of Columbia according to such rules and regulations as said Commissioners in their exclusive jurisdiction and judgment may from time to time make, alter, or amend; *Provided,* That the rules and regulations of the fire department heretofore promulgated are hereby ratified and shall remain in force until changed by said Commissioners.

Proviso. Present rules ratified.

Officers and men.

Sec. 3. That the fire department of the District of Columbia shall consist of one chief engineer, one deputy chief engineer, both of whom shall have had at least five years of experience in some regularly organized municipal fire department, such number of battalion chief engineers as said Commissioners may deem necessary from time to time within the appropriations made by Congress; one fire marshal; such number of deputy fire marshals, inspectors, and clerks as said Commissioners may deem necessary from time to time within the appropriations made by Congress; such number of captains and lieutenants as said Commissioners may deem necessary from time to time within the appropriations made by Congress; one superintendent of machinery; such number of assistant superintendents of machinery, engineers, assistant engineers, pilots, marine engineers, assistant marine engineers, drivers, assistant drivers, privates of class numbered two and privates of class numbered one as said Commissioners may deem necessary from time to time within the appropriations made by Con-

Provision. Restriction.	existing liabilities: <i>Provided, however,</i> That no bank shall at any time make new loans or shall pay any dividends unless and until the total reserve required by law is fully restored.
Basis of reserves.	"In estimating the reserves required by this Act, the net balance of amounts due to and from other banks shall be taken as the basis for ascertaining the bank deposits against which reserves shall be determined. Balances in reserve banks due to member banks shall, to the extent herein provided, be counted as reserves.
Alaskan and insular banks.	"National banks located in Alaska or outside the continental United States may remain nonmember banks, and shall in that event maintain reserves and comply with all the conditions now provided by law regulating them; or said banks, except in the Philippine Islands, may, with the consent of the Reserve Board, become member banks of any one of the reserve districts, and shall, in that event, take stock, maintain reserves, and be subject to all the other provisions of this Act."
Banks in Philippine Islands excepted.	

Approved, August 15, 1914.

August 15, 1914. [S. 5313.] [Public, No. 172.]	CHAP. 253. —An Act To regulate the taking or catching of sponges in the waters of the Gulf of Mexico and the Straits of Florida outside of State jurisdiction; the landing, delivering, curing, selling, or possession of the same; providing means of enforcement of the same; and for other purposes.
Sponges. Taking, in Gulf of Mexico, etc., under restricted size unlawful.	<i>Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,</i> That on and after the approval of this Act it shall be unlawful for any citizen of the United States, or person owing duty of obedience to the laws of the United States, or any boat or vessel of the United States, or person belonging to or on any such boat or vessel, to take or catch, by any means or method, in the waters of the Gulf of Mexico or the Straits of Florida outside of State territorial limits, any commercial sponges measuring when wet less than five inches in their maximum diameter, or for any person or vessel to land, deliver, cure, offer for sale, or have in possession at any port or place in the United States, or on any boat or vessel of the United States, any such commercial sponges.
Landing, etc., unlawful.	SEC. 2. That the presence of sponges of a diameter of less than five inches on any vessel or boat of the United States engaged in sponging in the waters of the Gulf of Mexico or the Straits of Florida outside of State territorial limits, or the possession of any sponges of less than the said diameter sold or delivered by such vessels, shall be prima facie evidence of a violation of this Act.
Prima facie evidence of violation.	SEC. 3. That every person, partnership, or association guilty of a violation of this Act shall be liable to a fine of not more than \$500, and in addition such fine shall be a lien against the vessel or boat on which the offense is committed, and said vessel or boat shall be seized and proceeded against by process of libel in any court having jurisdiction of the offense.
Penalty.	SEC. 4. That any violation of this Act shall be prosecuted in the district court of the United States of the district wherein the offender is found or into which he is first brought.
Jurisdiction.	SEC. 5. That it shall be the duty of the Secretary of Commerce to enforce the provisions of this Act, and he is authorized to empower such officers and employees of the Department of Commerce as he may designate, or such officers and employees of other departments as may be detailed for the purpose, to make arrests and seize vessels and sponges, and upon his request the Secretary of the Treasury may employ the vessels of the Revenue Cutter Service or the employees of the Customs Service to that end.
Enforcement.	

SEC. 6. That the Act approved June twentieth, nineteen hundred and six, entitled "An Act to regulate the landing, delivery, cure, and sale of sponges" and all other laws in conflict herewith be, and the same hereby are, repealed.

Approved, August 15, 1914.

Former Act repealed.
Vol. 34, p. 313.

CHAP. 254.—An Act Authorizing the Board of Trade of Texarkana, Arkansas-Texas, to construct a bridge across Sulphur River at or near Pace's ferry, between the counties of Bowie and Cass, in the State of Texas.

August 15, 1914.
[S. 6011.]

[Public, No. 173.]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the consent of Congress is hereby granted to the Board of Trade of Texarkana, Arkansas-Texas, to build, maintain, and operate a bridge across the Sulphur River, at a point suitable to the interests of navigation, at or near Pace's ferry, between the counties of Bowie and Cass, in the State of Texas, in accordance with the provisions of the Act entitled "An Act to regulate the construction of bridges over navigable waters," approved March twenty-third, nineteen hundred and six.

Sulphur River.
Texarkana Board of Trade may bridge, at Pace's ferry, Tex.

Construction.
Vol. 34, p. 84.

Amendment.

SEC. 2. That the right to alter, amend, or repeal this Act is hereby reserved.

Approved, August 15, 1914.

CHAP. 255.—An Act To tax the privilege of dealing on exchanges, boards of trade, and similar places in contracts of sale of cotton for future delivery, and for other purposes.

August 16, 1914.
[S. 110.]

[Public, No. 174.]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act shall be known by the short title of the "United States cotton futures Act."

Cotton futures Act.

SEC. 2. That, for the purposes of this Act, the term "contract of sale" shall be held to include sales, agreements of sale, and agreements to sell. That the word "person," wherever used in this Act, shall be construed to import the plural or singular, as the case demands, and shall include individuals, associations, partnerships, and corporations. When construing and enforcing the provisions of this Act, the act, omission, or failure of any official, agent, or other person acting for or employed by any association, partnership, or corporation within the scope of his employment or office, shall, in every case, also be deemed the act, omission, or failure of such association, partnership, or corporation as well as that of the person.

Construction of terms.

Corporations liable for acts of officials, etc.

SEC. 3. That upon each contract of sale of any cotton for future delivery made at, on, or in any exchange, board of trade, or similar institution or place of business, there is hereby levied a tax in the nature of an excise of 2 cents for each pound of the cotton involved in any such contract.

Tax on contracts at exchanges, etc., for future delivery.

SEC. 4. That each contract of sale of cotton for future delivery mentioned in section three of this Act shall be in writing plainly stating, or evidenced by written memorandum showing, the terms of such contract, including the quantity of the cotton involved and the names and addresses of the seller and buyer in such contract, and shall be signed by the party to be charged, or by his agent in his behalf. If the contract or memorandum specify in bales the quantity of the cotton involved, without giving the weight, each bale shall, for the purposes of this Act, be deemed to weigh five hundred pounds.

Written contracts required.
Contents.

Weight of bales.

SEC. 5. That no tax shall be levied under this Act on any contract of sale mentioned in section three hereof, if the contract comply with each of the following conditions:

Conditions relieving contracts from tax.

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EXTRACT FROM PAGE 166 AND PAGES 175 THROUGH 177 OF
THE UNITED STATES REPORTS, VOL. 223

PAGES 672 THROUGH 675 OF
HACKWORTH, *DIGEST OF INTERNATIONAL LAW*, VOL. II

THE ABBY DODGE.¹

APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES
FOR THE SOUTHERN DISTRICT OF FLORIDA.

No. 41. Argued November 6, 7, 1911.—Decided February 19, 1912.

Each State owns the beds of all tide waters within its jurisdiction unless they have been granted away; also the tide waters themselves and the fish in them so far as they are capable of ownership while running. *McCready v. Virginia*, 94 U. S. 391.

Congress has no control over sponges growing on the land beneath tide water within the jurisdiction of a State.

Where two interpretations of a statute are admissible, one of which makes the statute constitutional and the other unconstitutional, the former must be adopted. *United States v. Delaware & Hudson Co.*, 213 U. S. 366, 407.

The act of June 20, 1906, 34 Stat. 313, c. 3442, regulating the landing of sponges at ports of the United States, relates only to sponges taken outside of the territory of any State.

The power of Congress over foreign commerce is complete; no one has a vested right to carry on foreign commerce with the United States. *Buttfield v. Stranahan*, 192 U. S. 470.

Congress can, by exertion of its power to regulate foreign commerce,

¹The docket title of this case is the vessel "Abby Dodge," A. Kalimeris, Claimant, Appellant, v. The United States.

223 U. S.

Opinion of the Court.

States were subject to state ownership "so far as they are capable of ownership while so running," the question was reserved as to whether or not Congress would have the right to control the Menhaden fisheries. But here also for the reason that the question arising relates only to sponges growing on the soil covered by water we are not concerned with the subject of running fish and the extent of state and national power over such subject.

The obvious correctness of the deduction which the proposition embodies that the statute is repugnant to the Constitution when applied to sponges taken or gathered within state territorial limits, however, establishes the want of merit in the contention as a whole. In other words, the premise that the statute is to be construed as applying to sponges taken within the territorial jurisdiction of a State is demonstrated to be unfounded by the deduction of unconstitutionality to which such premise inevitably and plainly leads. This follows because of the elementary rule of construction that where two interpretations of a statute are in reason admissible, one of which creates a repugnancy to the Constitution and the other avoids such repugnancy, the one which makes the statute harmonize with the Constitution must be adopted. *United States v. Delaware & Hudson Co.*, 213 U. S. 366 407, and cases cited.

While it is true that it would be possible to interpret the statute as applying to sponges taken in local waters, it is equally certain that it is susceptible of being confined to sponges taken outside of such waters. In view of the clear distinction between state and national power on the subject, long settled at the time the act was passed and the rule of construction just stated, we are of opinion that its provisions must be construed as alone applicable to the subject within the authority of Congress to regulate, and, therefore, be held not to embrace that which was not within such power.

Opinion of the Court.

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In substance the argument is that this case does not come within the rule, since it is insisted to confine the statute to sponges taken or gathered outside of state territorial limits would also, although for a different reason, cause it to be plainly unconstitutional. This but assumes that the second proposition, denying all power in Congress to exert authority in respect to the landing of sponges taken outside of the territorial jurisdiction of a State is well founded, and we come therefore to the consideration of that proposition. For the sake of brevity we do not stop to review the general considerations which the proposition involves for the purpose of demonstrating its inherent inaccuracy, or to point out its conflict with the law of nations, and its inconsistency with the practices of the Government from the beginning. We thus refrain since there is a simpler and yet more comprehensive point of view disposing of the whole subject.

Undoubtedly, (*Lord v. Steamship Company*, 102 U. S. 541), whether the *Abby Dodge* was a vessel of the United States or of a foreign nation, even although it be conceded that she was solely engaged in taking or gathering sponges in the waters which by the law of nations would be regarded as the common property of all and was transporting the sponges so gathered to the United States, the vessel was engaged in foreign commerce, and was therefore amenable to the regulating power of Congress over that subject. This being not open to discussion, the want of merit of the contention is shown, since the practices from the beginning, sanctioned by the decisions of this court, establish that Congress by an exertion of its power to regulate foreign commerce has the authority to forbid merchandise carried in such commerce from entering the United States. *Buttfield v. Stranahan*, 192 U. S. 470, 492-493, and authorities there collected. Indeed, as pointed out in the *Buttfield Case*, so complete is the authority of Congress over the subject that no one can be said to have a vested

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Opinion of the Court.

right to carry on foreign commerce with the United States.

Although, for the reason stated, we think the statute, limited by the construction which we have given it, is not repugnant to the Constitution, we are nevertheless of opinion that as thus construed the averments of the libel were not sufficient to authorize the imposition of the penalty which the court below decreed against the vessel. As by the interpretation which we have given the statute its operation is confined to the landing of sponges taken outside of the territorial limits of a State, and the libel does not so charge—that is, its averments do not negative the fact that the sponges may have been taken from waters within the territorial limits of a State—it follows that the libel failed to charge an element essential to be alleged and proved, in order to establish a violation of the statute. *United States v. Britton*, 107 U. S. 655, 661-662, and cases cited.

As we deem that it has no relevancy to the power of Congress to deal with a subject not within its constitutional authority, that is, the taking of sponges within the exclusive jurisdiction of a State, we have not considered it necessary to refer to a statement made by the district judge concerning legislation of the State of Florida making it unlawful to gather or catch sponges “in and upon any of the grounds known as sponging grounds along the coast of Florida from Pensacola to Cape Florida by diving either with or without a diving suit and armor.” Equally, also, have we refrained from attempting to reconcile the enactment of this state law with some reference made by the Government in argument to certain statements in testimony given before a committee of the House when the act which is before us was in process of adoption, to the effect that there were no sponge beds within the jurisdiction of Florida, because “the sponge beds were from fifteen to sixty and sixty-five miles out.”

Portugal, Ethiopia, Chile, Muscat, Finland, Venezuela, Uruguay, Bulgaria, and Iran.

3 Treaties, etc. (Redmond, 1923) 3752, 3757-3767.

Convention
on trade in
arms, 1925

A convention for the supervision of the international trade in arms and ammunition and in implements of war was signed at Geneva on June 17, 1925. It contains provision that when a warship belonging to one of the high contracting parties encounters within a specified maritime zone (stated to include the Red Sea, the Gulf of Aden, the Persian Gulf, and the Gulf of Oman) but outside of territorial waters, a presumed native vessel of under 500 tons' burden, flying the flag of one of the high contracting parties or flying no flag, and the commanding officer of the warship has good reason to believe that the vessel is flying the flag of a high contracting party without being entitled to do so or is illicitly conveying articles covered by the convention, he may stop the vessel and conduct her to the nearest port, certain procedure in these respects being required. If the authority subsequently entrusted with the inquiry into the matter decides that the detention and diversion of the vessel or other measures imposed upon her were irregular, he is to assess the amount of compensation which he considers to be due.

Although the convention was submitted to the Senate of the United States by President Coolidge on January 12, 1926, that body did not finally give its advice and consent thereto until June 6, 1935, when it did so subject to a reservation that the convention should not come into force as to the United States until it should come into force as to Belgium, the British Empire, Czechoslovakia, France, Germany, Italy, Japan, Sweden, and the Union of Soviet Socialist Republics.

In addition to the United States, the British Empire, Denmark, France, and Sweden have ratified with reservations. Ratifications without reservations have been deposited by Latvia, Canada, Bulgaria, Spain, Egypt, Poland, Netherlands, Venezuela, and China. Since article 41 of the convention requires ratification by fourteen powers, and since only nine of the ratifications were without reservation, the convention was not in force on March 31, 1939.

4 Treaties, etc. (Trenwith, 1938) 4903-4917.

UTILIZATION OF MARINE RESOURCES

§202

The United States contended before the tribunal established by the United States and Great Britain pursuant to the terms of the con-

vention signed January 27, 1909 for the arbitration of the *North Atlantic Coast Fisheries* case that—

while a State may renounce the treaty right to fish in foreign territorial waters, it cannot renounce the natural right to fish on the High Seas.

The tribunal held that it was—

unable to agree with this contention. Because though a State cannot grant rights on the High Seas it certainly can abandon the exercise of its right to fish on the High Seas within certain definite limits. Such an abandonment was made with respect to their fishing rights in the waters in question by France and Spain in 1763. By a convention between the United Kingdom and the United States in 1846, the two countries assumed ownership over waters in Fuca Straits at distances from the shore as great as 17 miles.

Rights ..
abandoned
but not
granted

Award of the tribunal of arbitration, Sept. 7, 1910, official report of the Per. Ct. Arb. (The Hague, 1910) 134-135; Scott, *Hague Court Reports* (1916) 146, 182.

While there would seem to be no legal restriction upon the right of American citizens to take fish in the high seas off the coasts of Ireland, the question of their right to establish a fishery on the west coast of Ireland and to take fish from the adjacent waters within the territorial jurisdiction of Great Britain, is one which, in the absence of specific treaty provisions on that point, would appear to be governed by the laws of that country, subject only to the guarantees contained in the above mentioned Article I of the Treaty of July 3, 1815 . . .

Surface
fisheries

The Counselor of the Department of State (Lansing) to Messrs. Comstock & Washburn and Carroll E. Pillsbury, Apr. 27, 1915, MS. Department of State, file 841d628/2.

Section 1 of the act of Congress approved August 15, 1914, provides that—

Bed of sea

it shall be unlawful for any citizen of the United States, or person owing duty of obedience to the laws of the United States, or any boat or vessel of the United States, or person belonging to or on any such boat or vessel, to take or catch, by any means or method, in the waters of the Gulf of Mexico or the Straits of Florida outside of State territorial limits, any commercial sponges measuring when wet less than five inches in their maximum diameter, or for any person or vessel to land, deliver, cure, offer for sale, or have in possession at any port or place in the United States, or on any boat or vessel of the United States, any such commercial sponges.

Sedentary
fisheries

38 Stat. 692. An earlier act of June 20, 1906 making it unlawful to land, etc., "any sponges taken by means of diving or diving apparatus from

the waters of the Gulf of Mexico or Straits of Florida" was construed by the Supreme Court as not applicable to sponges taken or gathered from land under water within the territorial limits of the various states of the Union and, as so construed, held to be constitutional. 34 Stat. 313 (repealed: see 38 Stat. 692, 693); *The "Abby Dodge"*, 223 U.S. (1912) 160, 175-177.

For regulation of sponges by the State of Florida beyond the three-mile limit but within a belt of marginal waters of three leagues as fixed in the State constitution, see *Pope et al. v. Blanton*, 10 F. Supp. 18 (N.D. Fla., 1935); *Lipcomb, Sheriff v. Giatourakis*, 101 Fla. 1130, 133 So. 104 (1931).

The principle enunciated by Hall is that the true key to the development of the law is to be sought in the principle that maritime occupation must be effective in order to be valid. If it is disuse and disuse alone which has led to a restriction of the rights of the Sovereign in the bed of the sea, it follows that in cases where there has been effective occupation of a portion of the bed of the sea within the meaning of the principle enunciated by Hall, and such occupation still continues, there has been no abandoning of the rights of ownership, and consequently the ownership still continues. Assuming that this proposition is sound, it removes a difficulty which has found expression in writings on international law as regards sedentary fisheries occurring outside the three-mile limit. Vattel's statement: "Who can doubt that the pearl fisheries of Bahrein and Ceylon may lawfully become property?" ceases to cause any difficulty to even the stoutest upholders of the principle that the limits of the territorial belt are not more than three miles if it is realised that the exclusive right to the pearls to be obtained from the banks flowed from the ownership of the bed of the sea where the banks were situated, and not from any claim to maritime jurisdiction over the waters. Wherever it can be shown that particular oyster beds, pearl banks, chank fisheries, sponge fisheries or whatever may be the particular form of sedentary fishery in question outside the three-mile limit have always been kept in occupation by the Sovereign of the adjacent land, ownership of the soil of the bed of the sea where the fishery was situated may be presumed, and the exclusive right to the produce to be obtained from these fisheries may be based on their being a produce of the soil. Ownership of the soil by the Sovereign of the country under such circumstances must carry with it the right to legislate for the soil so owned and for the protection of the wealth to be derived from it, and no doubt need be felt as to the binding force of the various enactments which have been issued for the protection of these sedentary fisheries outside the three-mile limit.

The instances where ancient usage justifies a claim to sedentary fisheries outside the three-mile limit do not seem to be numerous, and of those which are known some appear to be situated in bays or gulfs which are claimed as part of the national territory by the State contiguous to whose shore they lie. For instance, the chank fisheries and the pearl fisheries in the Gulf of Manaar have been the subject of regulation by local ordinances, etc., throughout the nineteenth century. The pearl and chank

fisheries in the Gulf of Manaar were claimed from early times by the successive Portuguese, Dutch and British masters of the neighbouring territory, and there can be little doubt but that a good title to the ownership of these beds can be made out, based on long-continued occupation. Both the Gulf of Manaar and Palk's Bay, the two great bays which divide India from Ceylon and are separated from each other by the long stretch of islets known as Adam's Bridge, would probably be claimed as part of the national territory, and not part of the high seas at all. Palk's Bay at any rate has now been held by the Madras Courts to be an integral portion of the British Dominions, and if the question arose a similar decision might possibly be given as to the Gulf of Manaar. Even if it were not, however, the claim to the ownership of the pearl and chank beds in that gulf could be based on long usage and uncontested enjoyment; and the right to legislate with regard to these beds could be rested on the ground of their ownership.

Another instance which can be cited, and one where there is no doubt that the site forms part of the high seas, is that of the oyster beds off the east coast of Ireland. By the Sea Fisheries Act of 1868 power was taken to issue an Order in Council enabling the Irish Commissioners to regulate the dredging for oysters on any oyster bank within a distance of twenty miles seawards from a straight line between Lambay Island and Carnsore Point. Some of these banks were between ten and twenty miles beyond the three-mile limit.

The above are instances where the State interested formed part of the British Empire. The same principle must of necessity apply also to sedentary fisheries on banks claimed by foreign Governments. The Bey of Tunis has, for instance, claimed the exclusive right to the sponges on a bank outside the three-mile limit off the coast of Tunis by the continuous and unquestioned enjoyment of the *fructus* of these banks. Such enjoyment would constitute a title to the bank which foreign States would no doubt recognise and would oblige their nationals to recognise. Similarly, Mexico is said to have legislated for regulating pearl fisheries off the Mexican coast though outside the three-mile limit.

The maintenance of a State's property rights in special areas outside the three-mile limit when more extensive general claims to sovereignty, jurisdiction and property were abandoned is in no way inconsistent with the principles laid down by Oppenheim, that the sub-soil beneath the bed of the open sea outside the marginal belt of territorial waters is a *no man's land*, property in which can be acquired on the part of the littoral State through occupation starting from the sub-soil beneath the bed of the territorial maritime belt. Farnelling in the sub-soil for purposes of mining or communications seems to be the only aspect of the problem which Oppenheim had in mind, but the principles he lays down are in no way inconsistent with the recognition of a right of exclusive ownership arising from long and undisputed occupation of sedentary fisheries lying on the surface of the bed of the sea.

Annex 70

PAGES 1073 THROUGH 1075 OF
INTERNATIONAL LEGAL MATERIALS, VOL. 17, 1978

TREATY ON MARITIME BOUNDARIES BETWEEN THE UNITED STATES
OF AMERICA AND THE UNITED MEXICAN STATES.*

The Government of the United States of America and the Government of the United Mexican States :

Considering that the maritime boundaries between the two countries were determined for a distance of twelve nautical miles seaward by the Treaty to Resolve Pending Boundary Differences and Maintain the Rio Grande and Colorado River as the International Boundary Between the United States of America and the United Mexican States, signed on November 23, 1970 ;

Taking note of the Decree adding to Article 27 of the Political Constitution of the United Mexican States to establish an Exclusive Economic Zone of Mexico outside the Territorial Sea, and of the Fishery Conservation and Management Act of 1976 establishing a fishery conservation zone off the coast of the United States ;

Bearing in mind that, by an exchange of notes dated November 24, 1976, they provisionally recognized maritime boundaries between the two countries between twelve and two hundred nautical miles seaward in the Gulf of Mexico and the Pacific Ocean ;

Recognizing that the lines accepted by the exchange of notes dated November 24, 1976, are practical and equitable, and

Desirous of avoiding the uncertainties and problems that might arise from the provisional character of the present maritime boundaries between twelve and two hundred nautical miles seaward.

Have agreed as follows :

Article I

The United States of America and the United Mexican States agree to establish and recognize as their maritime boundaries in the Gulf of Mexico and in the Pacific Ocean, in addition to those established by the Treaty of November 23, 1970, the geodetic lines connecting the points whose coordinates are :

In the Western Gulf of Mexico

GM.W-1	25° 58' 30.57" Lat. N.	96° 55' 27.37" Long. W.
GM.W-2	26° 00' 31.00" Lat. N.	96° 48' 29.00" Long. W.
GM.W-3	26° 00' 30.00" Lat. N.	95° 39' 26.00" Long. W.
GM.W-4	25° 59' 48.28" Lat. N.	93° 26' 42.19" Long. W.

* The Decree adding Article 27 of the Political Constitution of the United Mexican States appears at 15 *ILM* 380 (1976). The US Fishery Conservation and Management Act of 1976 appears at 15 *ILM* 634 (1976).

In the Eastern Gulf of Mexico

GM.E-1	25° 42' 13.05" Lat. N.	91° 05' 24.89" Long. W.
GM.E-2	25° 46' 52.00" Lat. N.	90° 29' 41.00" Long. W.
GM.E-3	25° 41' 56.52" Lat. N.	88° 23' 05.54" Long. W.

In the Pacific Ocean

OP-1	32° 35' 22.11" Lat. N.	117° 27' 49.42" Long. W.
OP-2	32° 37' 37.00" Lat. N.	117° 49' 31.00" Long. W.
OP-3	31° 07' 58.00" Lat. N.	118° 36' 18.00" Long. W.
OP-4	30° 32' 31.20" Lat. N.	121° 51' 58.37" Long. W.

The coordinates of the geodetic points referred to above were determined with reference to the 1927 North American Datum.

Article II

North of the maritime boundaries established by Article I, the United Mexican States shall not, and south of said boundaries, the United States of America shall not, claim or exercise for any purpose sovereign rights or jurisdiction over the waters or seabed and subsoil.

Article III

The sole purpose of this Treaty is to establish the location of the maritime boundaries between the United States of America and the United Mexican States.

The maritime boundaries established by this Treaty shall not affect or prejudice in any manner the positions of either Party with respect to the extent of internal waters, of the territorial sea, of the high seas or of sovereign rights or jurisdiction for any other purpose.

Article IV

This Treaty shall be subject to ratification and shall enter into force on the date of exchange of the instruments of ratification which shall take place in Washington, D.C., at the earliest possible date.

Done at Mexico, May 4, 1978, in the English and Spanish languages, both texts being equally authentic.

FOR THE GOVERNMENT OF THE
UNITED STATES OF AMERICA

(Signed) Cyrus VANCE.

FOR THE GOVERNMENT OF THE
UNITED MEXICAN STATES

(Signed) [ILLEGIBLE]

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BOOK V. 12. 1-4

the islands which lie on the other side ¹. For off the south of Sicily three islands lie out in the sea, and each of them possesses a city and harbours which can offer safety to ships which are in stress of weather. The first one is that called Melitè ², which lies about eight hundred stades from Syracuse, and it possesses many harbours which offer exceptional advantages, and its inhabitants are blest in their possessions ; for it has artisans skilled in every manner of craft, the most important being those who weave linen, which is remarkably sheer and soft, and the dwellings on the island are worthy of note, being ambitiously constructed with cornices and finished in stucco with unusual workmanship. This island is a colony planted by the Phoenicians, who, as they extended their trade to the western ocean, found in it a place of safe retreat, since it was well supplied with harbours and lay out in the open sea ; and this is the reason why the inhabitants of this island, since they received assistance in many respects through the sea-merchants, shot up quickly in their manner of living and increased in renown.

After this island there is a second which bears the name of Gaulus ³ lying out in the open sea and adorned with well-situated harbours, a Phoenician colony. Next comes Cercina ⁴ facing Libya, which has a modest city and most serviceable harbours which have accommodations not only for merchant vessels but even for ships of war.

But now that we have spoken of the islands which are to the south of Sicily, we shall turn back to those

¹ I.e., of Sicily.

² Malta.

³ The modern Gozo.

⁴ The modern Kerkenna or Kerkenah, at the west end of the Lesser Syrtis.

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MEETING/14 (1978)

*Article 62**Delimitation of the exclusive economic zone between adjacent or opposite States*

1. The delimitation of the exclusive economic zone between adjacent or opposite States shall be effected by agreement in accordance with equitable principles, employing, where appropriate, the median or equidistant line, and taking account of all the relevant circumstances.

2. If no agreement can be reached within a reasonable period of time, the States concerned shall resort to the procedures provided for in Part . . . (Settlement of disputes).

3. Pending agreement or settlement, the States concerned shall make provisional arrangements, taking into account the provisions of paragraph 1.

4. For the purposes of the present Convention, "median or equidistant line" means the line every point of which is equidistant from the nearest points of the baselines from which the breadth of the territorial sea of each State is measured.

5. Where there is an agreement in force between the States concerned, questions relating to the delimitation of the exclusive economic zone shall be determined in accordance with the provisions of that agreement.

*Article 63**Charts and lists of geographical co-ordinates*

1. Subject to this Chapter, the outer limit lines of the exclusive economic zone and the lines of delimitation drawn in accordance with article 62 shall be shown on charts of a scale or scales adequate for determining them. Where appropriate, lists of geographical co-ordinates of points, specifying the geodetic datum, may be substituted for such outer limit lines or lines of delimitation.

2. The coastal State shall give due publicity to such charts or lists of geographical co-ordinates and shall deposit a copy of each such chart or list with the Secretary-General of the United Nations.

Chapter IV: Continental shelf*Article 64**Definition of the continental shelf*

The continental shelf of a coastal State comprises the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.

*Article 65**Rights of the coastal State over the continental shelf*

1. The coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources.

2. The rights referred to in paragraph 1 are exclusive in the sense that if the coastal State does not explore the continental shelf or exploit its natural resources, no one may undertake these activities without the express consent of the coastal State.

3. The rights of the coastal State over the continental shelf do not depend on occupation, effective or notional, or on any express proclamation.

4. The natural resources referred to in this Chapter consist of the mineral and other non-living resources of the sea-bed and subsoil together with living organisms belonging to sedentary species, that is to say, organisms which, at the harvestable stage, either are immobile on or under the sea-bed or are unable to move except in constant physical contact with the sea-bed or the subsoil.

*Article 66**Superjacent waters and air space*

The rights of the coastal State over the continental shelf do not affect the legal status of the superjacent waters or the air space above those waters.

*Article 67**Submarine cables and pipelines on the continental shelf*

1. All States are entitled to lay submarine cables and pipelines on the continental shelf, in accordance with the provisions of this article.

2. Subject to its right to take reasonable measures for the exploration of the continental shelf, the exploitation of its natural resources and the prevention of pollution from pipelines, the coastal State may not impede the laying or maintenance of such cables or pipelines.

3. The delineation of the course for the laying of such pipelines on the continental shelf is subject to the consent of the coastal State.

4. Nothing in this Chapter affects the right of the coastal State to establish conditions for cables or pipelines entering its territory or territorial sea, or its jurisdiction over cables and pipelines constructed or used in connexion with the exploration of its continental shelf or exploitation of its resources or the operations of artificial islands, installations and structures under its jurisdiction.

5. When laying submarine cables or pipelines, States shall pay due regard to cables or pipelines already in position. In particular, possibilities of repairing existing cables or pipelines shall not be prejudiced.

*Article 68**Artificial islands, installations and structures on the continental shelf*

Article 48 applies *mutatis mutandis* to artificial islands, installations and structures on the continental shelf.

*Article 69**Drilling on the continental shelf*

The coastal State shall have the exclusive right to authorize and regulate drilling on the continental shelf for all purposes.

*Article 70**Payments and contributions with respect to the exploitation of the continental shelf beyond 200 miles*

1. The coastal State shall make payments or contributions in kind in respect of the exploitation of the non-living

species and take into account the responsibilities of the State mentioned in paragraph 1 for the maintenance of these species.

Article 56

The provisions of this part shall not apply to sedentary species as defined in article 63, paragraph 4.

Article 57

1. Land-locked States shall have the right to participate in the exploitation of the living resources of the exclusive economic zones of adjoining coastal States on an equitable basis, taking into account the relevant economic and geographic circumstances of all the States concerned. The terms and conditions of such participation shall be determined by the States concerned through bilateral, sub-regional or regional agreements. Developed land-locked States shall, however, be entitled to exercise their rights only within the exclusive economic zones of neighbouring developed coastal States.

2. The provisions of this article are without prejudice to the provisions of articles 50 and 51.

Article 58

1. Developing coastal States which are situated in a subregion or region whose geographical peculiarities make such States particularly dependent for the satisfaction of the nutritional needs of their populations upon the exploitation of the living resources in the exclusive economic zones of their neighbouring States and developing coastal States which can claim no exclusive economic zones of their own shall have the right to participate, on an equitable basis, in the exploitation of living resources in the exclusive economic zones of other States in a subregion or region.

2. The terms and conditions of such participation shall be determined by the States concerned through bilateral, subregional or regional agreements, taking into account the relevant economic and geographic circumstances of all the States concerned, including the need to avoid effects detrimental to the fishing communities or to the fishing industries of the States in whose zones the right of participation is exercised.

3. The provisions of this article are without prejudice to the provisions of articles 50 and 51.

Article 59

Rights granted under the provisions of articles 57 and 58 to exploit living resources cannot without the express consent of the coastal State be transferred to third States or their nationals by lease or licence, by establishing joint collaboration ventures or by any other arrangements.

Article 60

1. The coastal State may, in the exercise of its sovereign rights to explore, exploit, conserve and manage the living resources in the exclusive economic zone, take such measures, including boarding, inspection, arrest and judicial proceedings, as may be necessary to ensure compliance with the laws and regulations enacted by it in conformity with the provisions of the present Convention.

2. Arrested vessels and their crew shall be promptly released upon the posting of reasonable bond or other security.

3. Coastal State penalties for violations of fisheries regulations in the exclusive economic zone may not include imprisonment, in the absence of agreement to the contrary by the States concerned, or any other form of corporal punishment.

4. In cases of arrest or detention of foreign vessels the coastal State shall promptly notify, through appropriate channels, the State of registry of the action taken and of any penalties subsequently imposed.

Article 61

1. The delimitation of the exclusive economic zone between adjacent or opposite States shall be effected by agreement in accordance with equitable principles, employing, where appropriate, the median or equidistance line, and taking account of all the relevant circumstances.

2. If no agreement can be reached within a reasonable period of time, the States concerned shall resort to the procedures provided for in part... (Settlement of disputes).

3. Pending agreement, no State is entitled to extend its exclusive economic zone beyond the median line or the equidistance line.

4. For the purposes of this article, "median line" means the line every point of which is equidistant from the nearest points of the baselines from which the breadth of the territorial sea of each State is measured.

5. In delimiting the boundaries of the exclusive economic zone, any lines which are drawn in accordance with the provisions of this article should be defined with reference to charts and geographical features as they exist at a particular date, and reference should be made to fixed permanent identifiable points on the land.

6. Where there is an agreement in force between the States concerned, questions relating to the delimitation of the exclusive economic zone shall be determined in accordance with the provisions of that agreement.

Part IV: Continental shelf

Article 62

The continental shelf of a coastal State comprises the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.

Article 63

1. The coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources.

2. The rights referred to in paragraph 1 are exclusive in the sense that if the coastal State does not explore the continental shelf or exploit its natural resources, no one may undertake these activities without the express consent of the coastal State.

3. The rights of the coastal State over the continental shelf do not depend on occupation, effective or notional, or on any express proclamation.

4. The natural resources referred to in these articles consist of the mineral and other non-living resources of the sea-bed and subsoil together with living organisms belonging to sedentary species, that is to say, organisms which, at the harvestable stage, either are immobile on or under the sea-bed or are unable to move except in constant physical contact with the sea-bed or the subsoil.

Article 64

The rights of the coastal State over the continental shelf do not affect the legal status of the superjacent waters or the air space above those waters.

Article 65

1. All States shall be entitled to lay submarine cables and pipelines on the continental shelf.

2. Subject to its right to take reasonable measures for the exploitation of the continental shelf, the exploitation of its natural resources and the prevention of pollution from pipelines, the coastal State may not impede the laying or maintenance of such cables or pipelines.

3. The delineation of the course for the laying of such pipelines on the continental shelf is subject to the consent of the coastal State.

4. Nothing in this part shall affect the right of the coastal State to establish conditions for cables or pipelines entering its territory or territorial sea, or its jurisdiction over cables and pipelines constructed or used in connexion with the exploration of its continental shelf or exploitation of its resources or the operations of artificial islands, installations and structures under its jurisdiction.

5. When laying submarine cables or pipelines, States shall pay due regard to cables or pipelines already in position. In particular, possibilities of repairing existing cables or pipelines shall not be prejudiced.

Article 66

The provisions of article 48 shall apply *mutatis mutandis* to artificial islands, installations and structures on the continental shelf.

Article 67

The coastal State shall have the exclusive right to authorize and regulate drilling on the continental shelf for all purposes.

Article 68

The coastal State shall, with respect to the artificial islands, installations and structures and sea-bed activities subject to its jurisdiction, take appropriate measures for the protection of the marine environment from pollution, and ensure compliance with appropriate minimum international requirements provided for in part . . . (Preservation of the marine environment) and with other applicable international standards.

Article 69

1. The coastal State shall make payments or contributions in kind in respect of the exploitation of the

non-living resources of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.

2. The rate of payment or contribution shall be . . . per cent of the value or volume of production at the site. Production does not include resources used in connexion with exploitation.

3. The International Authority shall determine the extent to which developing countries shall be obliged to make payments or contributions provided for in paragraphs 1 and 2.

4. The payments or contributions provided for in paragraphs 1 and 2 shall be made to the International Authority on terms and procedures to be agreed upon with the Authority in each case. The International Authority shall distribute these payments and contributions on the basis of equitable sharing criteria, taking into account the interests and needs of developing countries.

Article 70

1. The delimitation of the continental shelf between adjacent or opposite States shall be affected by agreement in accordance with equitable principles, employing, where appropriate, the median or equidistance line, and taking account of all the relevant circumstances.

2. If no agreement can be reached within a reasonable period of time, the States concerned shall resort to the procedures provided for in part . . . (Settlement of disputes).

3. Pending agreement, no State is entitled to extend its continental shelf beyond the median line or the equidistance line.

4. For the purposes of this article, "median line" means the line every point of which is equidistant from the nearest points of the baselines from which the breadth of the territorial sea of each State is measured.

5. In delimiting the boundaries of the continental shelf, any lines which are drawn in accordance with the provisions of this article should be defined with reference to charts and geographical features as they exist at a particular date, and reference should be made to fixed permanent identifiable points on the land.

6. Where there is an agreement in force between the States concerned, questions relating to the delimitation of the continental shelf shall be determined in accordance with the provisions of that agreement.

Article 71

The provisions of article 49 shall apply *mutatis mutandis* to research concerning the continental shelf and undertaken there.

Article 72

The provisions of this part shall not prejudice the right of the coastal State to exploit the subsoil by means of tunnelling, irrespective of the depth of water above the subsoil.

2. A straits State may, when circumstances require and after giving due publicity to its decision, substitute other sea lanes or traffic separation schemes for any previously designated or prescribed by it.

3. Before designating sea lanes or prescribing traffic separation schemes, a straits State shall refer proposals to the competent international organization and shall designate such sea lanes or prescribe such separation schemes only as approved by that organization.

4. The straits State shall clearly indicate all sea lanes and separation schemes designated or prescribed by it on charts to which due publicity shall be given.

5. Ships in transit shall respect applicable sea lanes and separation schemes established in accordance with this article.

Formula B

1. In the case of narrow straits or straits where such provision is necessary to ensure the safety of navigation, coastal States may designate corridors suitable for transit by all ships through such straits. In the case of straits where particular channels of navigation are customarily employed by ships in transit, the corridors shall include such channels. In the case of any change of such corridors, the coastal State shall give notification of this to all other States in advance.

2. In all straits where there is heavy traffic, the coastal State may, on the basis of recommendations by the Inter-Governmental Maritime Consultative Organization, designate a two-way traffic separation governing passage, with a clearly indicated dividing line. All ships shall observe the established order of traffic and the dividing line. They shall also avoid making unnecessary manoeuvres.

3. Coastal States may designate special air corridors suitable for overflight by aircraft, and special altitudes for aircraft flying in different directions, and may establish particulars for radio communication with them.

Provision 60

Formula A

A straits State shall not hamper transit passage and shall give appropriate publicity to any danger to navigation or overflight within or over the strait of which it has knowledge. There shall be no suspension of transit passage.

Formula B

1. No State shall be entitled to interrupt or suspend the transit of ships through the straits or engage therein in any acts which interfere with the transit of ships, or require ships in transit to stop or communicate information of any kind.

2. The coastal State shall not place in the straits any installations which could interfere with or hinder the transit of ships.

3. No State shall be entitled to interrupt or suspend the transit or overflight of aircraft, in accordance with this article, in the air space over the straits.

Provision 61

The provisions of this chapter shall not affect the sovereign rights of the coastal States with respect to the surface, the sea-bed and the living and mineral resources of the straits.

Provision 62

1. Subject to the provisions of this article, a straits State may make laws and regulations:

(a) In conformity with the provisions of article . . . (provision 59, formula A);

(b) Giving effect to applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances in the straits.

2. Such laws and regulations shall not discriminate in form or in fact among foreign ships.

3. The straits State shall give due publicity to all such laws and regulations.

4. Foreign ships exercising the right of transit passage shall comply with such laws and regulations of the straits State.

5. If a ship entitled to sovereign immunity does not comply with any such laws or regulations and damage to the straits State results, the flag State shall in accordance with article . . . (provision 63, formula A and provision 64) be responsible for any such damage caused to the straits State.

Provision 63

Formula A

Responsibility for any damage caused to a straits State resulting from acts in contravention of this chapter by any ship or aircraft entitled to sovereign immunity shall be borne by the flag State.

Formula B

Liability for any damage which may be caused to the coastal States of the straits, their citizens or juridical persons by the ship in transit, shall rest with the owner of the ship or other person liable for the damage, and in the event that such compensation is not paid by them for such damage, with the flag State of the ship.

Provision 64

If a straits State acts in a manner contrary to the provisions of this chapter and loss or damage to a foreign ship or aircraft results, the straits State shall compensate the owners of the vessel or aircraft for that loss or damage.

Provision 65

Liability for any damage which may be caused to the coastal States of the straits or their citizens or juridical persons by the aircraft overflying the straits shall rest with the owner of the aircraft or other person liable for the damage and in the event that compensation is not paid by them for such damage, with the State in which the aircraft is registered.

Provision 66

Formula A

The provisions of this chapter shall not affect the legal regimes of straits through and over which transit and overflight are regulated by international agreements, specifically relating to such straits.

Formula B

The provisions of this chapter shall not affect obligations under the Charter of the United Nations or under conventions or other international agreements already in force relating to a particular strait.

Provision 67

User States and straits States should by agreement co-operate in the establishment and maintenance in a strait of necessary navigation and safety aids or other improvements in aid of international navigation or for the prevention and control of pollution from ships.

PART IV. CONTINENTAL SHELF (item 5)*

Provision 68

Formula A

The term "continental shelf" means the sea-bed and subsoil of submarine areas adjacent to the coast but outside the area of the territorial sea, to the outer limits of the continental rise bordering on the ocean basin or abyssal floor.

Formula B

The continental shelf of a coastal State extends beyond its territorial sea to a distance of 200 miles from the applicable baselines and throughout the natural prolongation of its land territory where such natural prolongation extends beyond 200 miles.

Formula C

. . . (Same as formula B) . . . to the outer limit of its continental margin, as precisely defined and delimited in accordance with article . . .

Formula D

The continental shelf comprises the sea-bed and subsoil of the submarine areas adjacent to the territory of the State but outside the area of the territorial sea, up to the outer lower edge of the continental

* For purely methodological reasons the position of delegations for whom the acceptance of an economic zone would entail the elimination of the legal concept of the continental shelf is not reflected as a trend in part IV. For those delegations the concept of the continental shelf will be subsumed under the concept of the economic zone and any portion of the continental shelf which extends beyond the economic zone shall fall under the international area.

margin which adjoins the abyssal plains area and, when that edge is at a distance of less than 200 miles from the coast, up to this last distance.

1. Nature and scope of the sovereign rights of coastal States over the continental shelf. Duties of States

Provision 69

Formula A

The coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources.

Formula B

The sovereignty of a coastal State extends to its continental shelf.

Provision 70

The rights referred to in paragraph . . . (provision 69, formula A) are exclusive in the sense that if the coastal State does not explore the continental shelf or exploit its natural resources, no one may undertake these activities, or make a claim to the continental shelf, without the express consent of the coastal State.

Provision 71

The rights of the coastal State over the continental shelf do not depend on occupation, effective or notional, or on any express proclamation.

Provision 72

Formula A

Subject to its right to take reasonable measures for the exploration of the continental shelf and the exploitation of its natural resources, the coastal State may not impede the laying or maintenance of submarine cables or pipelines on the continental shelf.

Formula B

The delineation of the course for laying submarine cables and pipelines on the continental shelf by a foreign State is subject to the consent of the coastal State.

Formula C

Subject to its right to take reasonable measures for the exploration of the continental shelf, the exploitation of its natural resources and the prevention of pollution, the coastal State may not impede the laying or maintenance of submarine cables or pipelines on its continental shelf.

Nothing in this article shall affect the jurisdiction of the coastal State over cables and pipelines constructed or used in connexion with the exploration or exploitation of its continental shelf or the operations of an installation under its jurisdiction, or its right to establish conditions for cables or pipelines entering its territory or territorial sea.

When laying submarine cables and pipelines due regard shall be paid to cables and pipelines already in position on the sea-bed. In particular, possibilities of repairing existing cables or pipelines shall not be prejudiced.

Provision 73

Formula A

The exploration of the continental shelf and the exploitation of its natural resources must not result in any unjustifiable interference with navigation, fishing or the conservation of the living resources of the sea, nor result in any interference with fundamental oceanographic or other scientific research carried out with the intention of open publication.

Neither the installations or devices, nor the safety zones around them, may be established where interference may be caused to the use of recognized sea lanes essential to international navigation.

Formula B

The exercise of the coastal State's rights over the continental shelf shall not result in any unjustifiable interference with the freedom of navigation in the superjacent waters and of overflight in the superjacent air space, nor shall it impede the use of recognized lanes essential to international navigation.

Formula C

The coastal State shall exercise its rights and perform its duties without unjustifiable interference with navigation or other uses of the

sea, and ensure compliance with applicable international standards established by the appropriate international organizations for this purpose.

Provision 74

Formula A

The coastal State is entitled to construct, maintain or operate on or over the continental shelf installations and other devices necessary for the exercise of its rights over the same, to establish safety zones around such devices and installations, and to take in those zones measures necessary for their protection. Ships of all nationalities shall respect these safety zones, which may extend up to . . . around the installations or devices.

Formula B

The coastal State shall have the exclusive right to authorize and regulate on the continental shelf the construction, operation and use of artificial islands and installations for the purpose of exploration or exploitation of natural resources or for other economic purposes, and of any installations which may interfere with the exercise of the rights of the coastal State.

The coastal State may where necessary establish reasonable safety zones around such off-shore installations in which it may take appropriate measures to ensure the safety both of the installations and of navigation. Such safety zones shall be designed to ensure that they are reasonably related to the nature and function of the installation. Ships of all nationalities must respect these safety zones.

The breadth of the safety zones shall be determined by the coastal State and shall conform to applicable international standards in existence or to be established by the Inter-Governmental Maritime Consultative Organization regarding the establishment and breadth of safety zones. In the absence of such additional standards, safety zones around installations for the exploration and exploitation of non-renewable resources of the sea-bed and subsol may extend to a distance of 500 metres around the installations, measured from each point of their outer edge.

States shall ensure compliance by vessels of their flag with applicable international standards regarding navigation outside the safety zones but in the vicinity of such off-shore installations.

Installations and safety zones around them may not be established where interference may be caused to the use of recognized sea lanes essential to international navigation.

Provision 75

Due notice must be given of the construction of any such installations, and permanent means for giving warning of their presence must be maintained. Any installations which are abandoned or disused must be entirely removed.

Provision 76

Formula A

Such installations and devices, though under the jurisdiction of the coastal State, do not possess the status of islands. They have no territorial sea of their own, and their presence does not affect the delimitation of the territorial sea of the coastal State.

Formula B

For the purpose of this section, the term "installations" refers to artificial off-shore islands, facilities, or similar devices, other than those which are mobile in their normal mode of operation at sea. Installations shall not afford a basis for a claim to a territorial sea or economic zone, and their presence does not affect the delimitation of the territorial sea or economic zone of the coastal State.

Provision 77

Formula A

The establishment of any other type of installation by third States or their nationals is subject to the permission of the coastal State.

Formula B

No State shall be entitled to construct, maintain, deploy or operate on the continental shelf of another State any military installations or devices or any other installations for whatever purposes without the consent of the coastal State.

5. In the case of atolls or of islands having fringing reefs, the baseline for measuring the breadth of the territorial sea shall be the seaward edge of the reef, as shown on official charts.

[These provisions are intended to be without prejudice to the question of the delimitation of island ocean space as between adjacent or opposite States, or in other special circumstances. Nor do they purport to deal with the régime of islands applicable to an archipelagic State or to the off-lying archipelago of a coastal State, or the case of a fringe of islands along a coast in its immediate vicinity referred to in article 4, paragraph 1, of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone.]¹⁴

¹⁴ United Nations, *Treaty Series*, vol. 516, p. 206.

B. TERRITORIES UNDER FOREIGN DOMINATION OR CONTROL

In respect of a territory whose people have attained neither full independence nor some other self-governing status following an act of self-determination under the auspices of the United Nations, the rights to the resources of the economic zone created in respect of that territory and to the resources of its continental shelf are vested in the inhabitants of that territory to be exercised by them for their benefit and in accordance with their needs and requirements. Such rights may not be assumed, exercised or profited from or in any way infringed by a metropolitan or foreign power administering or occupying that territory.

DOCUMENT A/CONF.62/C.2/L.31/Rev.1

Japan: revised draft article on the continental shelf

[Original: English]
[16 August 1974]

1. The coastal State exercises sovereign rights over the continental shelf (the coastal sea-bed area) for the purpose of exploring it and exploiting its mineral resources.
2. The outer limit of the continental shelf (the coastal sea-bed area) shall not exceed a maximum distance of 200 nautical miles from the baseline for measuring the breadth of the territorial sea as set out in . . .
3. (a) Where the coasts of two or more States are adjacent or opposite to each other, the delimitation of the boundary of the continental shelf (the coastal sea-bed area) appertaining to such States shall be determined by agreement between them, taking into account the principle of equidistance.
(b) Failing such agreement, no State is entitled to extend its sovereign rights over the continental shelf (the coastal sea-bed area) beyond the median line, every point of which is equidistant from the nearest points of the baselines, continental or insular, from which the breadth of the territorial sea of each State is measured.
4. Nothing provided herein shall prejudice the existing agreements between the coastal States concerned relating to the delimitation of the boundary of their respective continental shelf (coastal sea-bed area).

DOCUMENT A/CONF.62/C.2/L.32

Greece: draft articles on the exclusive economic zone beyond the territorial sea

[Original: English]
[31 July 1974]

Article . . .

The provisions applicable for the determination of the economic zone of a State are as a general rule applicable to its islands.

Article . . .

1. Where the coasts of two or more States are adjacent or opposite to each other and the distance between them is less than double the uniform breadth provided in this Convention, the delimitation of their economic zones and of their sea-bed areas shall be determined by agreement among themselves.
2. Failing such agreement, no State is entitled to extend its rights over an economic zone and sea-bed area beyond the limits of the median line every point of which is equidistant from the nearest points of the baselines, continental or insular, from which the breadth of the above areas of each of the two States is measured.

A/Conf.62/L.37

26 April 1979.

COMPROMISE SUGGESTIONS BY THE CHAIRMAN OF NEGOTIATING GROUP 6
AMBASSADOR ANDRES AGUILAR (VENEZUELA)*Article 76**Definition of the Continental Shelf*

1. The continental shelf of a coastal State comprises the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.

1. *bis*. The continental shelf of a coastal State shall not extend beyond the limits provided for in paragraphs 3 and 3 *bis* of this article.

2. The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the sea-bed and subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor nor the subsoil thereof¹.

3. For the purpose of this Convention, the coastal State shall establish the outer edge of the continental margin wherever the margin extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by either :

- (a) A line delineated in accordance with paragraph 4 by reference to the outermost fixed points at each of which the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope ; or,
- (b) A line delineated in accordance with paragraph 4 by reference to fixed points not more than 60 nautical miles from the foot of the continental slope².

In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base.

3 *bis*. The fixed points comprising the line of the outer limits of the continental shelf on the sea-bed, drawn in accordance with subparagraphs (a) and (b) of paragraph 3, shall not exceed 350 miles from the baseline from which the breadth of the territorial sea is measured, or, not to exceed 100 miles from the 2,500-metre isobath, which is a line, connecting the depth of 2,500 metres.

4. The coastal State shall delineate the seaward boundary of its continental shelf where that shelf extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured by straight lines not exceed-

¹ General understanding has been reached to the effect that on the question of underwater oceanic ridges there will be additional discussion and a mutually acceptable formulation to be included in Article 76 will be drawn up.

² The suggestion of the delegation of Sri Lanka for an additional method of delimitation applicable to its geological and geomorphological conditions received widespread sympathy. However, the matter has been left for negotiation at the forthcoming session of the Conference.

ing 60 nautical miles in length, connecting fixed points, such points to be defined by co-ordinates of latitude and longitude.

5. Information on the limits of the continental shelf beyond the 200-mile economic zone shall be submitted by the coastal State to the Commission on the Limits of the Continental Shelf set up under Annex on the basis of equitable geographic representation. The Commission shall make recommendations to coastal States on matters related to the establishment of the outer limits of their continental shelf. The limits of the shelf established by a coastal State taking into account these recommendations shall be final and binding.

6. The coastal State shall deposit with the Secretary-General of the United Nations charts and relevant information, including geodetic data, permanently describing the outer limits of its continental shelf. The Secretary-General shall give due publicity thereto.

7. The provisions of this Article are without prejudice to the question of delimitation of the continental shelf between opposite or adjacent States.

Article 78 bis

Exercise of the Rights of the Coastal State

The exercise of the rights of the coastal State over the continental shelf must not infringe, or result in any unjustifiable interference with navigation and other rights and freedoms of other States as provided for in the present Convention.

Article 82

Payments and Contributions with Respect to the Exploitation of the Continental Shelf Beyond 200 Miles

1. The coastal State shall make payments or contributions in kind in respect of the exploitation of the non-living resources of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.

NG6/8
18 April 1979.

USSR : INFORMAL PROPOSAL

Article 76

Definition of the Continental Shelf

1. The continental shelf of a coastal State comprises the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.

1 bis. *The continental shelf of coastal States may not in any circumstances extend beyond the limits provided for in paragraphs 3 and 3 bis of this article.*

2. The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the sea-bed and subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor, the subsoil thereof, nor underwater ocean ridges and the subsoil thereof.

3. For the purposes of this Convention the coastal State shall establish the outer edge of the continental margin wherever the margin extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by either :

- (a) a line drawn in accordance with paragraph 4 by reference to the outer fixed points at each of which the thickness of sedimentary rocks is at least 1% of the shortest distance from that point to the foot of the continental slope ; or
- (b) a line drawn in accordance with paragraph 4 by reference to fixed points more than 60 nautical miles from the foot of the continental slope.

In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base.

3 bis. *The fixed points comprising the line of the outer limit of the continental shelf on the sea-bed, drawn in accordance with subparagraphs (a) and (b) of paragraph 3, must be situated at a distance either not exceeding 100 nautical miles from the line on the sea-bed, corresponding to the outer limit of the 200-mile economic zone, or not exceeding 60 nautical miles from the 2,500-metre isobath, is a line connecting depths of 2,500 metres.*

4. The coastal State shall delineate the seaward boundary of its continental shelf where that shelf extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured by straight lines not exceeding 60 nautical miles in length and connecting fixed points on the sea-bed ; such points shall be defined by co-ordinates of latitude and longitude.

5. *Information on the limits of the continental shelf beyond the 200-mile economic zone shall be submitted by the coastal State to the Commission on the Limits of the Continental Shelf set up under Annex on the basis of equitable geographic representation. The Commission shall make recommendations to coastal States on matters related to the establishment of the outer limits of their continental shelf. The limits of the shelf established by a coastal State taking into account these recommendations shall be final and unalterable.*

6. The coastal State shall deposit with the Secretary-General of the United Nations charts and relevant information, including geodetic data, permanently describing the outer limits of its continental shelf. The Secretary-General shall duly publish them.

7. The provisions of this article are without prejudice to the question of delimitation of the continental shelf between opposite or adjacent States.

Article 80 (new wording)

1. The exercise of the rights of the coastal State regarding the continental shelf must not infringe or result in any unjustifiable interference with the exercise of navigation and other rights and freedoms of other States; the exercise of navigation and other rights and freedoms of other States must not infringe or result in any unjustifiable interference with the exercise of the rights of the coastal State regarding exploration and exploitation of the natural resources of the continental shelf.

2. Without prejudice to the provisions of paragraph 1, Article 60 applies *mutatis mutandis* to artificial islands, installations and structures on the continental shelf beyond the economic zone.

3. Any artificial islands, installations and structures constructed on the continental shelf shall be used exclusively for peaceful purposes.

Article 82

2. The third sentence of paragraph 2 should read as follows: "The rate shall increase by one per cent for each subsequent year until the twelfth year and shall remain at seven per cent thereafter."

Article 258 bis

Articles 247, 249, 250 and 255 apply *mutatis mutandis* to marine scientific research of direct significance for the exploration and exploitation of the natural resources of the continental shelf in areas beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured. Articles 249, 250 and 255 apply *mutatis mutandis* to other scientific research on this part of the continental shelf.

NG6/1
1 May 1978.

INFORMAL SUGGESTION BY IRELAND

Article 76

Definition of the Continental Shelf

1. Same as ICNT, viz. :

The continental shelf of a coastal State comprises the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.

2. The continental margin comprises the submerged prolongation of the land mass of the coastal State, and consists of the sea-bed and subsoil of the shelf, the slope and the rise. It does not include the deep ocean floor nor the subsoil thereof.

3. For the purpose of this Convention, the coastal State shall establish the outer edge of the continental margin wherever the margin extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by either :

(a) A line delineated in accordance with paragraph 4 by reference to the outermost fixed points at each of which the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope ; or,

- (b) A line delineated in accordance with paragraph 4 by reference to fixed points not more than 60 nautical miles from the foot of the continental slope.

In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base.

4. The coastal State shall delineate the seaward boundary of its Continental Shelf where that Shelf extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured by straight lines not exceeding 60 nautical miles in length, connecting fixed points, such points to be defined by co-ordinates of latitude and longitude.

5. Every delineation pursuant to this Article shall be submitted to the Continental Shelf Boundary Commission for certification in accordance with Annex . Acceptance by the Commission of a delineation so submitted in accordance with Annex and the seaward boundary so fixed, shall be final and binding.

6. The coastal State shall deposit with the Secretary-General of the United Nations charts and relevant information, including geodetic data, permanently describing the outer limit of its Continental Shelf. The Secretary-General shall give due publicity thereto.

7. The provisions of this Article are without prejudice to the question of delimitation of the Continental Shelf between opposite or adjacent States.

NG6/2

11 May 1978.

INFORMAL SUGGESTION BY THE ARAB GROUP

Article 76. Definition of the Continental Shelf

The continental shelf of a coastal State comprises the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.

C.2/Informal Meeting/14.

27 April 1978.

INFORMAL SUGGESTION BY THE USSR

Part VI

Article 76

The continental shelf of a coastal State comprises the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, but not further than 100 nautical miles from the outer limit of the 200-mile economic

zone, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend beyond the outer limit of the 200-mile zone.

The Soviet delegation deems it necessary to propose that the outer edge of the continental shelf should be defined with reference to a precise distance criterion, by fixing a specific maximum distance of up to 100 miles beyond the limit of the 200-mile economic zone. This would make it possible to determine exactly where the continental shelf of a particular State ends and where the international area, i.e., the area proclaimed to be the common heritage of mankind, begins.

For this reason it is suggested that the words "*but not further than 100 nautical miles from the outer limit of the 200-mile economic zone*" should be inserted in the existing text of Article 76 after the words "to the outer edge of the continental margin".

Within the indicated 100-mile strip beyond the limit of the economic zone, any scientifically sound geological and geomorphological data could be used to determine the precise limits of the continental shelf of a particular State, and in cases where such data are not available, paragraph 3 (b) of the Irish amendment submitted at the fourth session of the Conference could be applied.

Thus, according to the proposed formulation the outer edge of the continental shelf would be determined in the following manner :

(1) Where the continental margin does not extend beyond the confines of the 200-mile economic zone, the edge of the continental shelf will lie along the outer limit of the economic zone.

(2) In cases where the edge of the continental margin extends less than 100 miles beyond the outer limit of the 200-miles economic zone, the continental shelf of the coastal State will be determined on the basis of scientifically-sound geological and geomorphological data. If such data are not available, the outer edge of the continental shelf will be determined in accordance with paragraph 3 (b) of the Irish amendment ("not more than 60 nautical miles from the foot of the continental slope"), on the understanding, however, that the edge of the continental shelf shall not under any circumstances be fixed at more than 100 miles beyond the outer limit of the 200-mile economic zone.

(3) Where the continental margin extends beyond the 100-mile strip adjacent to the 200-mile economic zone, the edge of the continental shelf will be fixed at a distance of 100 miles from the outer limit of the economic zone.

Consequently, according to the suggested formula the 100-mile extension of the continental shelf beyond the outer limit of the 200-mile economic zone represents a maximum limit beyond which no State may exercise its sovereign rights over the continental shelf.

Annex 111

REPORT OF THE CHAIRMAN ON THE WORK OF NEGOTIATING GROUP 7, UN DOCUMENT NG.7/39 (1979)

STATEMENT BY THE CHAIRMAN MADE AT THE 28TH MEETING ON NG.7 PREPARED FOR THE LAST SERIES OF NEGOTIATIONS OF THE GROUP, UN DOCUMENT NG.7/26 (1979)

MEXICO, INFORMAL PROPOSAL, UN DOCUMENT NG.7/29 (1979)

IVORY COAST, INFORMAL PROPOSAL, UN DOCUMENT NG.7/35 (1979) (WITHDRAWN BY UN DOCUMENT NG.7/35/CORR.1 (1979))

NG7/39

20 April 1979.

REPORT OF THE CHAIRMAN ON THE WORK OF NEGOTIATING GROUP 7

The Negotiating Group was established in accordance with the decisions taken by the Plenary at its 90th meeting on 13 April 1978 (document A/CONF.62/62) to deal with the hard-core issue of delimitation of maritime boundaries between adjacent and opposite States and settlement of disputes thereon. Accordingly the Group was to consider Articles 15, 74, 83 and 297 1 (a) of the ICNT. In its work the Group had to take into account that for the possible modification or revision of the ICNT only such solutions could be suggested, as a result of the Group's deliberations, which could be found to offer a substantially improved prospect of a consensus. During the seventh and eighth sessions of the Conference the Group convened in a total of 41 meetings, with 39 working documents being distributed in the course of its discussions.

Results of Negotiations

Article 15

As stated in my report of 17 May 1973 (document NC7/21), there would seem to be widespread support to the retention of the present formulation, in the ICNT, of Article 15 with two drafting amendments. Accordingly the text would read as follows :

Where the coasts of two States are opposite or adjacent to each other, neither of the two States is entitled, failing agreement between them to the contrary, to extend its territorial sea beyond the median line every point of which is equidistant from the nearest points on the baselines from which the breadth of the territorial seas of each of the two States is measured. The

above provision does not apply, however, where it is necessary by reason of historic title or other special circumstances to delimit the territorial seas of the two States in a way which is at variance therewith.

Articles 74/83 (1)

From the outset the negotiations were characterized by the opposing positions of delegations supporting the equidistance rule and those specifically emphasizing delimitation in accordance with equitable principles.

At the end of the seventh session I stated in my report (document NG7/24) that during the discussions general understanding had seemed to emerge to the effect that, in broad terms, the final solution could contain the following four elements : (1) a reference to the effect that any measure of delimitation should be effected by agreement ; (2) a reference to the effect that all relevant or special circumstances are to be taken into account in the process of delimitation ; (3) in some form, a reference to equity or equitable principles ; (4) in some form, a reference to the median or equidistance line.

This scheme was further referred to in my statement at the beginning of the present session (document NG7/26), wherein I also expressed the view that the necessary compromise might be within reach if the Group could agree upon a "neutral" formula avoiding any classification or hierarchy of the elements concerned.

During the present session a number of compromise proposals were made, particularly by the delegations of Mexico and Peru. At least one of them, that contained in document NG7/36, received a fair amount of interest as a possible basis for further negotiations. The proposal, as well as a revised version thereof (document NG7/36/Rev.1), was, however, later withdrawn by its sponsors.

Despite intensive negotiations, the Group did not succeed in reaching agreement on any of the texts before it. The reasons why the various compromise efforts made during the Group's work did not succeed have been clearly voiced by different delegations. I will not, of course, criticize those reasons, being most important to the respective delegations, but personally I doubt, whether, in view of our lengthy deliberations and taking into account the controversies still prevailing, the Conference may ever be in a position to produce a provision which would offer a precise and definite answer to the question of delimitation criteria.

In the light of the various suggestions presented, and assuming that, in one form or another, negotiations on the issue of delimitation are to be continued at the next stage of the Conference, the following text is offered as the Chair's assessment of a possible basis for a compromise :

The delimitation of the exclusive economic zone (or of the continental shelf) between States with opposite or adjacent coasts shall be effected by agreement between the parties concerned, taking into account all relevant criteria and special circumstances in order to arrive at a solution in accordance with equitable principles, applying the equidistance rule or such other means as are appropriate in each specific case.

Articles 74/83 (3)

As pointed out in my before-mentioned statement at the beginning of the present session, the question of a rule on interim measures to be applied pending final delimitation has been approached from different angles.

Some delegations did not consider such a provision necessary at all. Others advocated inclusion of provisions obliging or encouraging the parties, having a delimitation problem, to agree on provisional arrangements pending final delimitation. A number of delegations also found it necessary to suggest prohibitive rules against arbitrary exploitation of natural resources or other unilateral measures within the disputed area.

In addition to previous proposals several new formulations were introduced at the present session. In this regard main interest was accorded to the proposal by India, Iraq and Morocco, contained in document NG7/32, as well as the proposal by the Chair (document NG7/38) presented after consultations in a private group composed of the three delegations mentioned above and the delegations of the Union of Soviet Socialist Republics, and the Ukrainian Soviet Socialist Republic.

Though these proposals seemed to signify a step forward in the search for a compromise, they did not gain such widespread and substantial support that would justify a revision of the ICNT. In view of the comments made, it would seem that the most serious difficulty with these proposals concerned the prohibitive references therein to activities or measures potentially to be taken during the transitional period. A number of delegations criticized the proposals of introducing what they felt to be a moratorium arguably prohibiting any economic activities in the disputed area.

NG 7/26

26 March 1979.

STATEMENT BY THE CHAIRMAN
MADE AT THE 28TH MEETING OF NG 7
PREPARED FOR THE LAST SERIES OF NEGOTIATIONS
OF THE GROUP

At the outset of our negotiations I would like to give a survey on the results and prospects of the work of NG 7 at its present stage. My statement will also contain some comments and suggestions concerning possible ways and means to reach a final compromise.

The following basic points of view are essential for estimating the present situation :

(1) The Group has held 27 meetings without being able to find consensus with regard to the three main problems concerning delimitation criteria, interim measures and settlement of delimitation disputes. Although a number of delegations could accept Articles 74 and 83, as well as subparagraph 1 (a) of Article 297, as they now stand in the ICNT, this position is rejected by many others. On the other hand, there appears, among the members of the Group, increasing willingness to strive for a compromise solution. It is understood that if consensus is not reached within the Group, there are hardly better possibilities to find it in the Plenary.

(2) During the work of the Group it has been repeatedly pointed out, that the three issues still pending solution are closely interrelated and should be treated as

a "package". At the same time, some stress has also been placed on the link between the problem of delimitation disputes and other unsolved questions relating to dispute settlement. The importance of this link should, however, not be overestimated, nor the potential necessity of connecting the problems within the mandate of NG 7 with hard-core issues entrusted to other negotiating groups.

(3) The unofficial consultations which have taken place during and between the Conference sessions have proved to be useful. This is the case, in particular, as concerns the work of the group of experts chaired by Professor L. B. Sohn as well as the intersessional consultations held at Geneva last February. Although attended by a limited number of delegations, the intersessional consultations brought forth some useful new approaches which are considered in the following.

Delimitation Criteria

The basic positions relating to the criteria of delimitation are still maintained by the supporters of the equidistance line on the one hand and the advocates of equitable principles, on the other. None of the proposals presented by the members of these two groups, seems to offer a basis for a consensus. The same would also seem to apply to any other formula which may be considered to give preference to one or another of the proposed delimitation criteria.

On the other hand, there seems to prevail general understanding, that the four main elements reflected in the various proposals should be included in the definition, namely (1) that any measure of delimitation should be effected by agreement ; (2) that all relevant or special circumstances should be taken into account ; that there should be (3) a reference to equitable principles ; as well as (4) a reference to the equidistance line.

As to the re-drafting of paragraph 1 of Articles 74/83, it has been pointed out that the crucial problem is, how to avoid any classification or hierarchy of the elements concerned which could make the definition unacceptable to some delegations. In this regard the following points of view would seem to have relevance.

The provision that the delimitation should be effected by agreement, is as such, a procedural rule, but it also speaks out the principle that every (new) delimitation must be an agreed delimitation, and consequently, that neither the equidistance line, nor any other line not effected by agreement (or by other settlement), can be substituted for an agreed (or otherwise settled) delimitation. Because of its "leading role" the provision concerning agreement might be mentioned first in the definition, but this does not mean that the other elements were of less importance.

The three other elements emerge as material criteria which are to form the basis for the agreement. The special or relevant circumstances are, of course, of various kind and importance. It goes without saying that local conditions and circumstances usually render relevant to the conclusion of delimitation as well as other territorial agreements. Mentioned as one of the three "material" delimitation criteria, special circumstances should, however, be considered in relation to the two others, partly as an independent criterion and partly as an element having an effect upon the application of the other criteria. In certain cases, special geographic or historical circumstances may be given preference over the employment of the equidistance line. In some others, again, special circumstances may serve as a basis for the estimation of equitable principles. For these

reasons special or relevant circumstances should be included in the definition together with the two other criteria, but without priority over them.

One of the most difficult problems the Negotiating Group has to solve refers to the relation between equitable principles and the equidistance line (some prefer to speak of a method, others of a principle of equidistance) as elements of the definition of delimitation criteria. Although it is generally admitted that delimitation agreements should be concluded with a view of reaching an equitable solution, and often the employment of the median or equidistance line appears in accordance with equitable principles, the question of "preference" has, so far, proved too hard to be solved. At this late stage of negotiations the necessary compromise might be within reach, if the Group could agree upon a neutral formula, taking into account some suggestions made, i.e., during the inter-sessional consultations in Geneva, as well as the observations mentioned above.

Interim Measures/Provisional Arrangements

The question of a rule on interim measures, to be applied pending final delimitation, has been approached from different angles. Some delegations do not consider such a provision necessary at all. Some others advocate inclusion of provisions obliging or encouraging the parties, having a delimitation problem, to agree on provisional arrangements pending final delimitation. Such arrangements might contain, e.g., the establishment of so-called "white" or "gray" zones.

Looking at the matter from the opposite direction, a number of delegations have found it necessary to suggest prohibitive rules against arbitrary exploitation of natural resources or other unilateral measures within the disputed area. Such rules are aimed to prevent States from acting in a manner which could prejudice or impede the completion of the final delimitation. While the concept of a moratorium has raised considerable criticism in this connection, many delegations seem to agree that the parties to a delimitation dispute should avoid activities which could aggravate the situation.

NG7/29

30 March 1979.

MEXICO

INFORMAL PROPOSAL

Articles 74 and 83

The delimitation of the exclusive economic zone (or of the continental shelf) between adjacent or opposite States shall be effected by peaceful means through agreement between the parties concerned and taking into account, on an equal footing, the criteria of equidistance and special circumstances, with a view to their application as appropriate in each specific case, and always for the purpose of arriving at an equitable solution in all cases.

NG7/35
10 April 1979.

IVORY COAST
INFORMAL PROPOSAL

Articles 74 and 83

1. The delimitation of the exclusive economic zone (or of the continental shelf) between adjacent or opposite States shall be effected by agreement between the States concerned on the basis of principles which, in their view, are equitable and taking into account, without prejudging in any way the preference or order of importance accorded to all these criteria or methods, the median or equidistance line and any other relevant factors or circumstances which might contribute to the peaceful but final settlement of the question.

2. Notwithstanding the provisions of paragraph 1 of this article, the States concerned may, if they so desire, resolve the question of delimitation on the basis of criteria or methods other than those described in the present Convention, provided that international peace and security are safeguarded.

NG7/35/Corr.1
12 April 1979.

IVORY COAST
INFORMAL PROPOSAL

Corrigendum

Document NG7/35 is hereby withdrawn.

Annex 112

PAGES 691 AND 692 OF
INTERNATIONAL LEGAL MATERIALS, VOL. 8, 1969

[Not reproduced]

Annex 113

EXTRACT FROM PAGE 371 AND PAGE 372 OF
ANNUAL DIGEST OF PUBLIC INTERNATIONAL LAW CASES, 1919-1922

ARBITRATION - BOUNDARY COMMISSIONS - TECHNICAL EXPERTS - CHARACTER OF
- WHETHER ENDOWED WITH ARBITRAL POWERS

(Case No. 262)

COLOMBIA AND VENEZUELA
(Swiss Federal Council as Arbitrator)

24 March, 1922

The Facts - (See also Case No. 54¹.) Article 3 of the Arbitration Agreement of 3 November, 1916, between Colombia and Venezuela provided as follows :

"The High Contracting Parties agree to entrust the arbitrator with the task of laying down and delimiting the frontier, which task he will perform through experts immediately after the award has been given. The experts shall be of the same nationality as the arbitrator. They shall fulfil their task within the period indicated by the arbitrator, and they shall take into account, before or in the course of the delimitation, the cases, plans, and other documents submitted to them by the parties."

Subsequently the question arose as to the powers of the said commission of experts. Colombia maintained that the correct interpretation of the Arbitration Agreement was that the arbitrator (the Swiss Federal Council) had no power to decide as to the details of the delimitation, that task having been reserved for the experts only and exclusively. Venezuela was of the opinion that by virtue of the special agreement the final decision as to laying down the frontier rested with the Swiss Federal Council ; that the experts were merely agents entrusted with the execution of the award ; and that the Federal Council was entitled to give instructions to the experts and to reserve its decision until after having received their report².

Held : That the correct interpretation of Article 3 of the Arbitration Agreement was that the task of deciding questions of boundary and their delimitations did not fall upon the Swiss Federal Council ; that this was the task to be fulfilled by experts nominated by the Federal Council ; and that the experts were to possess arbitral powers exercised as the result of delegation from the Federal

¹ On the question of occupation as provided in Article 1, see Case No. 54.

² Attention ought perhaps to be drawn to the practical consequences of the divergence of views as outlined above. While the result of the adoption of the Colombian contention would be a definite settlement of the boundary controversies, the Venezuelan view might have had the result of postponing the final settlement until the receipt by the arbitrator of the report of the experts or otherwise. It will be noted that in *Venezuelan Reply*, p. 270, the view was expressed that as a rule of international practice the findings of the experts are subject to approval on the part of the respective Governments.

Council. It was clear from the evidence that a long series of precedents in the relations between Colombia and Venezuela attributed to members of technical boundary commissions the character of arbitral tribunals. (See also Case No. 54 (5).) [Report : *Sentence Arbitrale*, pp. 87-91, 113-116.]

Annex 114**CERTIFICATION**

I, the undersigned, KAMEL H. EL MAGHUR, Agent of the Socialist People's Libyan Arab Jamahiriya, hereby certify that the copy of each document attached as a Documentary Annex in Volume II of the Counter-Memorial submitted by the Socialist People's Libyan Arab Jamahiriya is an accurate copy ; and that all translations into English are accurate translations.

(Signed) Kamel H. EL MAGHUR
*Agent of the Socialist People's
Libyan Arab Jamahiriya*

INTERNATIONAL COURT OF JUSTICE

PLEADINGS, ORAL ARGUMENTS, DOCUMENTS

CASE CONCERNING THE
CONTINENTAL SHELF

(TUNISIA/LIBYAN ARAB JAMAHIRIYA)

VOLUME III

COUR INTERNATIONALE DE JUSTICE

MÉMOIRES, PLAIDOIRIES ET DOCUMENTS

AFFAIRE
DU PLATEAU CONTINENTAL

(TUNISIE/JAMAHIRIYA ARABE LIBYENNE)

VOLUME III



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PLEADINGS. ORAL ARGUMENTS. DOCUMENTS

CASE CONCERNING THE
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(TUNISIA/LIBYAN ARAB JAMAHIRIYA)

VOLUME III

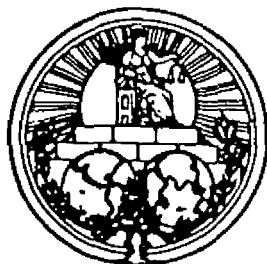
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VOLUME III



The case concerning the *Continental Shelf (Tunisia/Libyan Arab Jamahiriya)*, entered on the Court's General List on 1 December 1978 under number 63, was the subject of Judgments delivered on 14 April 1981 (*Continental Shelf (Tunisia/Libyan Arab Jamahiriya), Application to Intervene, Judgment, I.C.J. Reports 1981*, p. 3) and 24 February 1982 (*Continental Shelf (Tunisia/Libyan Arab Jamahiriya), Judgment, I.C.J. Reports 1982*, p. 18).

The pleadings and oral arguments in the case are being published in the following order:

- Volume I. Special Agreement ; Memorials of Tunisia and the Libyan Arab Jamahiriya.
- Volume II. Counter-Memorials of Tunisia and the Libyan Arab Jamahiriya.
- Volume III. Annexes to the Counter-Memorial of the Libyan Arab Jamahiriya (concluded) ; Application by Malta for Permission to Intervene, and consequent proceedings.
- Volume IV. Replies of Tunisia and the Libyan Arab Jamahiriya ; commencement of Oral Arguments.
- Volume V. Conclusion of Oral Arguments ; Documents submitted to the Court after closure of the written proceedings ; Correspondence.
- Volume VI. Maps, charts and illustrations.

Certain pleadings and documents are reproduced photographically from the original printed text.

In addition to the normal continuous pagination, this edition features on the inner margin of pages a bracketed indication of the original pagination of the Memorials, the Counter-Memorials, the Replies and certain Annexes.

In internal references, bold Roman numerals (in the text or in the margin) are used to refer to Volumes of this edition ; if they are immediately followed by a page reference, this relates to the new pagination of the Volume in question. On the other hand, the page numbers which are preceded by a reference to one of the pleadings, relate to the original pagination of that document and accordingly refer, in the present edition, to the bracketed pagination of the document in question.

The main maps and charts will be reproduced in a separate volume (Vol. VI), with a renumbering, indicated by ringed numerals, that will also be added in the margin in Volumes I-V wherever corresponding references appear ; the absence of such marginal reference means that the map or illustration is not reproduced in the present publication.

Neither the typographical presentation nor the spelling of proper names may be used for the purpose of interpreting the texts reproduced.

6

L'affaire du *Plateau continental (Tunisie/Jamahiriya arabe libyenne)*, inscrite au rôle général de la Cour sous le numéro 63 le 1^{er} décembre 1978, a fait l'objet d'arrêts rendus le 14 avril 1981 (*Plateau continental (Tunisie/Jamahiriya arabe libyenne), requête à fin d'intervention, arrêt, C.I.J. Recueil 1981*, p. 3) et le 24 février 1982 (*Plateau continental (Tunisie/Jamahiriya arabe libyenne), arrêt, C.I.J. Recueil 1982*, p. 18).

Les pièces de procédure écrite et les plaidoiries relatives à cette affaire sont publiées dans l'ordre suivant :

Volume I. Compromis ; mémoires de la Tunisie et de la Jamahiriya arabe libyenne.

Volume II. Contre-mémoires de la Tunisie et de la Jamahiriya arabe libyenne.

Volume III. Annexes au contre-mémoire de la Jamahiriya arabe libyenne (suite et fin) ; requête de Malte à fin d'intervention et procédure y relative.

Volume IV. Répliques de la Tunisie et de la Jamahiriya arabe libyenne ; début de la procédure orale.

Volume V. Suite et fin de la procédure orale ; documents présentés à la Cour après la fin de la procédure écrite ; correspondance.

Volume VI. Cartes et illustrations.

Certaines pièces sont photographiées d'après leur texte imprimé original.

Outre leur pagination continue habituelle, les volumes de la présente édition comportent, entre crochets sur le bord intérieur des pages, l'indication de la pagination originale des mémoires, des contre-mémoires, des répliques et de certaines de leurs annexes.

S'agissant des renvois, les chiffres romains gras (dans le texte ou dans la marge) indiquent le volume de la présente édition ; s'ils sont immédiatement suivis par une référence de page, cette référence renvoie à la nouvelle pagination du volume concerné. En revanche, les numéros de page qui sont précédés de l'indication d'une pièce de procédure visent la pagination originale de ladite pièce et renvoient donc, dans la présente édition, à la pagination entre crochets de la pièce mentionnée.

Les principales cartes seront reproduites dans un volume séparé (VI) où elles recevront un numérotage nouveau indiqué par un chiffre cerclé. Dans les volumes I à V, les renvois aux cartes du volume VI sont portés en marge selon ce nouveau numérotage, et l'absence de tout renvoi à la présente édition dénote une carte ou illustration non reproduite.

Ni la présentation typographique ni l'orthographe des noms propres ne sauraient être utilisées aux fins de l'interprétation des textes reproduits.

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**COUNTER-MEMORIAL OF THE
LIBYAN ARAB JAMAHIRIYA**

(Cont.)

**CONTRE-MÉMOIRE
DE LA JAMAHIRIYA ARABE LIBYENNE**

(Suite)

VOLUME III

TECHNICAL ANNEXES TO THE
COUNTER-MEMORIAL

Annex 1

A REVIEW OF THE GEOGRAPHICAL FEATURES
OF THE GULF OF GABES AND THE JEFFARA PLAIN

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1. Introduction

The coastline between Ras Kaboudia and Tripoli bounds a coastal tract which falls naturally into three major regions, one of which can according to geological and climatic data be divided into two further minor sub-regions. The regions are the Sahel of Tunisia, the Gulf of Gabes and the Jeffara Plain. It will be the purpose of this memorandum to show that the definition of regions in the Tunisian Memorial was not in accord with the geographical evidence and that the alignment of the international boundary is also discordant with the criteria normally used to define natural regions. Rather the international boundary cuts across and divides the most easterly of the regions.

The three natural regions can be defined as follows: first the Sahel from Ras Kaboudia to Ras Yonga, second the Gulf of Gabes from Ras Yonga to Zarzis and third the Jeffara from Zarzis to beyond Tripoli. The second region, the Gulf of Gabes can be subdivided at a point between Skhirra and Ghannouchi. Thus the major geographical divides in the embayment defined by Ras Kaboudia and Tripoli are at Ras Yonga, and in the region of the Isle of Djerba in the Zarzis area between the eastern end of the Gulf of Gabes and the Jeffara Plain. Ras Ajdir, where the present frontier meets the coast, lies on a coastal plain marked by its uniformity of geology, landform, groundwater resources, vegetation, and land use.

2. The Sahel

The Sahel foreland which extends from Sousse to Ras Yonga (or some sources say to the Isle of Kneiss which lies 10 kilometres to the southeast) embraces a tract both to the north and south of Ras Kaboudia. The Sahel is characterized by a uniformity in its geology, by undulating landforms of low relief, and by modest seasonal rainfall which supports settled farming of dryland tree and field crops as well as livestock rearing.

The Sahel is a relatively well favoured region compared with the rest of the coastal tract of the former Sirtis Minor. Mean annual rainfall of over 200 millimetres is the rule; elsewhere only the Tripoli region of Libya enjoys such rainfall. As a result the type and quality of the agricultural and livestock practices mark off the Sahel from the rest of the southern Tunisian coast.

3. The Gulf of Gabes

A. *Defining the Gulf of Gabes*

The authors of the Tunisian Memorial sought to establish that the Gulf of Gabes, defined as extending from Ras Kaboudia to Ras Ajdir, embraced a single ecological system (Tunisian Memorial¹, Volume 1, page 77) which had in turn engendered a uniform economic system for the region (Tunisian Memorial, Volume 1, page 85). At the outset it is necessary to establish that the definition of the Gulf of Gabes by the coastal features of Ras Kaboudia and Ras Ajdir is both novel and unacceptable. That there was a feature known in antiquity as Sirtis Minor is uncontroversial. To claim that the modern equivalent is a Gulf of Gabes lying between Ras Kaboudia and Ras Ajdir is misleading and unscholarly.

¹ References are to the Tunisian Memorial in the original French, except for English quotations, where references are to the English translation of the Tunisian Memorial.

Despois, for example, one of the major sources quoted in the Tunisian Memorial, includes maps which label a coastal feature within the conventional definition of the waters lying within the line between Ras Yonga and Djerba (Despois 1961, Map A-2 reproduced in Tunisian Memorial, Volume 1, opposite page 150). Other figures in the Tunisian Memorial further reveal that the claim that the Gulf of Gabes extended to Ras Ajdir and beyond (see Tunisian Memorial, Volume 1; Figures 3.03, 5.07 and 5.22) are figments of the imagination of cartographers who took up their pens *after* 1979 (see Tunisian Memorial, Volume 1, Figures 1.04, 4.02 and 5.13). Thus many Tunisian agencies, both current (Ministère de l'Economie Nationale, Tunis, 1977, map showing offshore concessions of Tunisia, quoted in Tunisian Memorial, Volume 1, opposite page 23) and in the past (Compagnie des Chemins de Fer du PLM and shown in l'Atlas Tunisie have shown a limited Gulf of Gabes, and it must be emphasized that these were Tunisian government agencies. Another rather unfortunate inconsistency in the Tunisian Memorial is their claim that the Gulf of Gabes is generally used by "geographers to indicate the whole of Syrtis Minor, as the ancients called it" (Tunisian Memorial, Volume 1, page 76, paragraph 4.18), with the map which is reproduced in their own memorial which shows a very restricted Syrtis Minor within the Ras Yonga—Djerba embayment (Figure 4.02 in the Tunisian Memorial, Volume 1, opposite page 86).

The Gulf of Gabes to be discussed in this memorandum is the Gulf of Gabes lying between Ras Yonga and Djerba ("Gulf of Gabes"), although reference will be made to an enlarged Gulf of Gabes as defined by the authors of the Tunisian Memorial ("Gulf of Gabes area") where it is necessary to draw attention to inconsistencies in the Tunisian argument.

B. *Onshore Environment*

(i) *Natural Resources*

Climate

In the Tunisian Memorial it is claimed that the physical conditions on the mainland of the Gulf of Gabes are uniform in being "difficult, ... unfavourable to human settlement and the development of viable economic activity" (Tunisian Memorial, Volume 1, page 59, paragraph 4.20). The authors of the Tunisian Memorial recognize that there is a division between the coastal strip with limited rainfall, and the arid interior (Tunisian Memorial, Volume 1, page 78, paragraph 4.22). We are left then with the impression that there is a uniformity in the environment of the coastal strip of the whole of the Gulf of Gabes which endures unfavourable features such as "temperature, wind, aridity and evaporation". Unfortunately the Tunisian case also argues that the Gulf of Gabes extends from Ras Kaboudia (north of Sfax) to the Libyan frontier. By including the 60 or more kilometres of coast between Sfax and Ras Kaboudia in the ecological region of the Gulf of Gabes, a very different climatic zone has been added to the more arid zone lying to the south of the 200 millimetre mean annual isohyet which runs just to the south of

Sfax (see *Figure 1*). The different climate to the north of Sfax makes possible reliable dryland farming of grain and olives. South of Sfax all agriculture, except that based on groundwater, has always proved to be hazardous.

Even within the coastal strip south of Sfax, however, separate natural climatic zones are evident. On the basis of seasonal rainfall data there is a divide some 30 kilometres north of Gabes between Skhirra and Ghan-nouchi as a result of differing patterns of precipitation. North of this line 35-50 per cent. of rainfall falls in the autumn and 25-35 per cent. falls in winter. South of the line 35-50 per cent. falls in winter and 25-35 per cent. in autumn (the seasons being delimited as autumn, September to November; winter December to February; spring March to May; summer June to August) (Naval Intelligence Division 1945, page 426; see *Figure 4*). The differing seasonal rainfall patterns are reflected in the semi-natural vegetation and agriculture of the coastal strip (see *Figure 7*) which also show discontinuities at a point some 20-30 kilometres north of Gabes (see *Figures 6 and 7*).

Groundwater

Both the deep basement geology and the more recent Tertiary and Quaternary formations contain geological discontinuities which affect the disposition of groundwater resources on the mainland of the Gulf of Gabes. The African Platform dominates the deeper geology south of the (87) *chotts* (see *Figure 8*). Overlying the Saharan basement rocks are Tertiary deposits the structure of which by no means accords with the configuration of the coast.

The most important hydrogeological divide lies beneath the uplands of the Ksour (see *Figure 9*). The upwarped strata divide the groundwater provinces to the west and to the east. To the west the strata are part of the western Saharan system which drains considerable volumes of water towards Gabes, although little into accessible aquifers (see UNESCO 1972). The deeper groundwater resources to the east of the Ksour uplands are poor, reducing further the already low agricultural potential of the Tunisian Jeffara.

The most accessible groundwater resources are those of the Quaternary deposits which overlie the whole of the Sahel in the north, the lowlands of the mainland Gulf of Gabes area, and from Zarzis to the Libyan border and beyond. The recharge of these aquifers is very limited as precipitation is low throughout the recharge zone. It is possible that seepage from deeper reservoirs enhances the volume of water available in Quaternary aquifers near the coast especially to the north of Gabes. The Gabes area has always enjoyed abundant water resources and the abundance is mainly explained by the seepage of groundwater from the neighbouring groundwater province to the west.

Soils

As suggested in the Tunisian Memorial the soil resources in the Gulf of Gabes region are poor. The poverty mainly arises from the low organic

content of the soil (Despois 1961, page 27). However, as proved by the level of production achieved in those areas with reliable groundwater, soil fertility is not a constraint on agricultural activity except in those tracts affected by saline conditions associated with the *chott* (saline lakes and saline water saturated tracts) environment. It is the shortage of water, both rainfall, surface run-off and groundwater, which restricts crop production. Where groundwater does exist useful crops have long been raised, for example the extensive palm gardens near Gabes which depend on water from Cretaceous and Eocene limestone aquifers. Groundwater also supplied the palm and olive groves at Zarzis. Likewise the Isle of Djerba has Quaternary water possibly supplemented by deeper aquifers which support a vigorous and specialized agriculture.

A soils map of the Gulf of Gabes shows important regional differences in soil quality (see *Figure 5*). The most significant difference is between the sub-desert soils of the north and the saline soils of the coastal southern part of the region. Some 30 kilometres along the coast to the east of Gabes the soils have a sufficiently high salt content to affect both the natural vegetation and the range of crops which can be raised. Isolated tracts of similarly inhibiting soils exist on the coast between Gabes and Sfax. Even with assured supplies of groundwater such tracts have extremely limited agricultural potential.

The soil map *does not* show the Gulf of Gabes region to be a uniform environment either in terms of soil quality or with respect to its potential for agricultural or rangeland utilization.

Vegetation

The vegetation of southern Tunisia varies according to climate and soils. In regions with more than 200 millimetres of rainfall annually most of the land which is not barren or rocky is cultivated as olive groves or for grain. The two major vegetation types in the regions with lower rainfall near the coast vary according to soil quality, with salt resistant vegetation on the saline tracts, while xerophytic shrubs and ephemeral herbs form the plant communities in the non-saline areas. The former are not able to support much livestock, but the latter provide an essential element in the livestock economy of the Tunisian Jeffara and the semi-arid tracts south and west of Gabes and south of the saline coastal strip. These rangeland resources are an important complement to the better grazing resources of the steppe environment of the Ksour uplands.

The livestock of the Gulf of Gabes and its margins were and remain an important part of the region's economy and the flocks of the south increased from the beginning of the century, and their contribution to regional income rose accordingly. In the 1930s, there was an export of sheep to Libya, for example, 65,000 in 1938 (Naval Intelligence Division, 1945, pages 305 and 469).

(ii) *Ecological Systems*

The environment of the coast of the Gulf of Gabes determines that resource use must be at a low intensity if the resources of the region are not

to be degraded. Viable resource sustaining strategies such as grazing and shifting cultivation have been the traditional ways to gain a livelihood in the region. More recently the shifting cultivation has declined but livestock rearing has grown in importance partly as a result of the cultivation of fodder to provide feed during barren seasons or during a sequence of barren years.

Livestock Rearing

In semi-arid regions such as those of southern Tunisia the environment is extremely vulnerable to degradation. It was estimated in the late 1960s that the productivity of the southern rangeland was approximately 300 million forage units per year, against the theoretical needs of 450,000 sheep and 400,000 goats, which were in the order of 450 million forage units. In such circumstances the rangeland was being overexploited and progressively reduced in productivity by overgrazing especially in low rainfall years (Seklani 1976, pages 66-67).

The governorate of Sfax with its higher rainfall, is better endowed agriculturally than any other region of the Gulf of Gabes area, and also sustains higher stocking levels than elsewhere. This situation obtains in the Sfax governorate despite the competition for land for settled farming. Nevertheless it is in the southern governorate that livestock play a relatively more important part in the economic life than they do in Sfax.

Agriculture

A wide range of crops is grown in the Sfax area and it is the main area of the whole of Tunisia for the olive. Formerly the export of olive oil was one of the most important revenue earning activities with a very high proportion of total production being exported. In 1938, the Gulf of Gabes region had 32 per cent. of Tunisia's olive bearing trees with 23 per cent. of the nation's total being in the Sfax governorate (cf. 2.5 per cent. in Djerba and 0.8 per cent. in Gabes) (Naval Intelligence Division, 1945, page 463).

Further south the important crops are the vine and the date, although the best producing areas are away from the coast. The best dates are grown at Djerid and Nefzaoua, but important production takes place at Gabes, Djerba and around Zarzis. The Medenine governorate is the vine raising region of the south and though total production is not high it is a significant economic activity in the southern onshore area. The agriculture of the south is characterized by specialization. In the oases tree crops are the rule (dates, pomegranates) and vegetable growing, while in the semi-arid steppes grain and olives are raised. Two of these crops, the high quality dates and the olives, happen to be the most valuable agricultural products of the country and they remain important export earners (Seklani 1976, page 69). Exports of olive oil were in the order of 8 million dinars in the years 1968 and 1972.

The following tables indicate that a high proportion of Tunisian production of one particular crop, the olive, is raised on the shores of the Gulf of Gabes area, that is, on the shores of the Gulf of Gabes as defined in the

Tunisian Memorial¹. The southern governorates of Tunisia have been responsible for between 44 per cent. and 65 per cent. of national production; this proportion varies according to the climatic conditions and other factors in particular years. Sfax governorate has always been the dominant producer of the region with approximately 80 per cent. of the production.

TABLE 1
Southern Tunisia
Olive-Producing Areas
'000 ha

	Sfax			Gefara		
	1971	1972	1973	1971	1972	1973
Olives alone	244.3	219.0	236.5	41.5	41.5	44.0
Olives in association with other crops	68.6	143.5	115.5	77.8	78.0	75.5
	312.9	362.5	352.0	119.3	119.5	119.5

Source: Seklani 1976, page 73.

Some idea of the variation in olive production is evident in the following table which shows the quantity of triturated (pressed) olives produced in the south and in Tunisia between 1965 and 1973:

TABLE 2
Production of pressed olives in the South and in Tunisia
'000 Tonnes

	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73
South (per cent. of Tunisia's)...	61	45	60	49	45	63	56	54
South	166.7	41.2	160.5	135.0	55.0	250.0	450.0	201.1
Tunisia	272.0	92.3	268.4	275.0	123.0	400.0	800.0	371.5

Source: Seklani 1976, page 74.

The date is the other important crop of the south and the high value varieties earn important export revenues. The main centres of the high value production are in the inland oases of Gafsa, and the coastal area yields only a small part of the region's date production. The value of date exports varies from year to year. In the period 1962 to 1973, the value of exports varied from 600,000 dinars (1967-1968) to 2.4 million dinars (1972-1973).

C. Offshore Environment

(i) Natural Resources

The Tunisian Memorial presents the Gulf of Gabes area as an extraordinarily rich resource with respect to both the Mediterranean as a whole and in terms of Tunisia's food production and the livelihood of a significant

¹ Includes Sfax.

number of its coastal residents. The Pelagian Sea and especially the Gulf of Gabes area are certainly rich in fish species and Tunisia is well favoured in its coastal environment. This is well shown in the SOGREA (1977) Study.

(ii) *Ecological Systems*

Fishing

The fish resource, though important to the Tunisian economy, is by no means a major element in the national economy and even in the south its place is declining compared with other economic sectors, such as industry and tourism. Production has not risen significantly in the past 20 years in the south, and between 1968 and 1973 at 4.3 per cent. it rose much less quickly than in Tunisia as a whole which showed an increase of 15.2 per cent. (Seklani 1976, page 79).

It was observed in the section on agriculture that Sfax was the most productive governorate of the Gulf of Gabes area because of its relatively favourable rainfall and soil resources. It is not just in agriculture that Sfax (which includes the Isles of Kerkennah) is more productive than the rest of the region. Sfax also fishes a much higher proportion of the fish caught in the Gulf of Gabes. Thus it is misleading to argue that fishing provides a livelihood for a significant proportion of the people who live on the southern margins of the Gulf, to such an extent that the region is "one of the most densely populated regions of the Mediterranean" (Tunisian Memorial, Volume 1, page 61). The region is not heavily populated, and the population which does live in the southern governorates is only supported to a limited extent by fishing. In the section on the economy of the region it is shown that the value of production from fishing was much lower than from agriculture, and much lower than from recently developed contributors to the economy such as tourism¹.

D. *Economic Performance and Planning*

(i) *Production and Productivity*

The Natural Resources of the Gulf of Gabes

The economy of the littoral of the Gulf of Gabes and the interior depends, as we have seen, on a number of natural resources which vary in availability. Tunisia's major non-renewable resources, phosphates and petroleum, lie within the region, but do not much benefit the residents of the coast of the Gulf of Gabes. On the other hand the renewable resources, climate, soil and water and semi-natural vegetation, are the basis of a number of activities which vary in their production according to the quality of the resource endowment.

Non-Renewable Natural Resources

During the 1970s the extractive industries, phosphates and petroleum, mined in Gafsa and Medenine respectively, contributed 24 per cent. of total industrial production and almost all the production of Tunisia's

¹See p. 9 below for estimates of the fishing population. See also Table 4, p. 10.

extractive industries. Much more important, however, was the contribution of this production to foreign exchange earnings, and additionally to import substitution in the case of petroleum. As a result the Tunisian economy has been sheltered from the worst form of the problems of rising oil prices through the existence of its own petroleum sector.

TABLE 3
Petroleum and the trade balance
TD millions—current prices projection

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Value of exports (fob)	160.5	178.8	397.7	345.6	338.3	386.0
Value of imports (fob)	<u>216.1</u>	<u>261.6</u>	<u>445.2</u>	<u>521.8</u>	<u>598.3</u>	<u>685.0</u>
Trade balance (fob)	<u>-55.6</u>	<u>-82.8</u>	<u>-47.5</u>	<u>-176.2</u>	<u>-260.0</u>	<u>-299.0</u>
Value of exported crude oil	38.8	52.1	136.9	146.6	138.5	
as % of exports	24%	29%	34%	42%	41%	

Source: Ministère du Plan 1976b, Fifth Plan.

Phosphate mining has not held its place as a contributor to the national economy. The value of exports at current prices was TD10.3 million in 1972, rose to TD 46.4 million in 1975, but fell away in the face of world market forces to TD 26.1 million in 1976 and to under TD 10 million in 1977.

Renewable Natural Resources—Agriculture and Fishing

In dealing with the livestock rearing and agricultural activities it was evident that part of the region contributes a significant proportion of the Tunisian agricultural sector production, approximately 18 per cent. in the early 1970s, with the governorate of Sfax producing more than the other two coastal governorates (Gabes and Medenine) together.

It is quite erroneous to argue that the south is desolate and by inference not productive. Even the coastal areas of the Gulf of Gabes have significant agricultural production, and the productivity of the Isle of Djerba has been significant throughout the 20th Century. It is not difficult to find references which confirm also the productiveness of the Gulf of Gabes earlier in the century. "The oasis receives its water supply from excellent springs in the oued (wadi) about 6 miles from the sea." On the Arad Plain to the southeast of Gabes there were "large supplies of slightly brackish underground water, fit for irrigating cereal crops and olive trees and for watering sheep". Further on at Zarzis "palm and olive plantations (were) irrigated by artesian wells and large tanks". Nearby the Isle of Djerba was "fertile and well developed, with flourishing palm and olive plantations". The same source observes that along the southern coast of

the Gulf of Gabes there were "small fishing villages and sponge-fishing communities", certainly very small compared with the agricultural settlements of Gabes and Djerba (all quotations from Naval Intelligence Division, 1945, page 44). Djerba supported 50,000 people at this time, Zarzis over 1,000 and the total population of the coastal strip must have been in the region of 100,000 (excluding Sfax governorate). The total fishing population of Tunisia could not have been much more than 10,000 of which under 1,000 operated from the *southern shores* of the Gulf. Assuming that each fisherman supported a family of five (a high figure), it would seem probable that an approximate breakdown of the economic activities of the population of the southern coastal strip was:

Agriculture	75%
Fishing	5%
Urban	20%.

The balance has changed substantially since the 1930s but the proportion of those depending on fishing has certainly not risen.

In dealing with the comparative importance of fishing and agriculture in terms of employment, we have introduced the other renewable natural resource, that of fishing. We have shown already that only a small proportion of the population of the coastal strip and islands is engaged in fishing. In terms of the region as a whole (including Sfax with the Kerkennah Isles) the fishing community was apparently 3.3 per cent. of the total population in the 1940s, and about 1.6 per cent. in the later 1970s. (Such figures are deduced from national census data (1946) and population estimates (1970s) and a fairly static fishing community of approximately 50,000 people.) On the basis of similar estimates the figure for the country as a whole for the 1970s would be 1.3 per cent.

The extent to which an economic sector generates employment is only one way to evaluate its importance and effectiveness in the economy as a whole. It is necessary also to look at its performance with respect to production, value added and the potential for future growth as reflected in government plans.

TABLE 4
Estimates of the value of production for some
important economic sectors for the South

	million dinars					
	<u>Sfax</u>	<u>Gabes</u>	<u>Gafsa</u>	<u>Medenine</u>	<u>The South</u>	<u>Tunisia</u>
Agriculture (1972)	11.0	5.0	7.0	4.0	27.0	154.0
Industry (1969) ..	65.2	5.2	12.8	30.5	114.8	463.3
Tourism (1971) ..	?	?	?	?	11.6	53.8
Fishing (1969)	1.4	0.1	-	0.3	1.8	3.7

Source: Seklani 1976, pp. 79, 123, 137, 140.

Even ten years ago fishing realized less than 20 per cent. of that contributed by the new tourist industry. The tourist industry is heavily concentrated in the south of the region at Djerba and Zarzis, and the relative expansion of the tourist industry has been more rapid in these southern locations than in any other parts of the country (see next section and *Figure 10*).

Tourism

The absence of any reference to tourism in the Tunisian Memorial is a very serious omission. It is serious because the Tunisian case rests firmly on the notion that the fish resource of the Gulf of Gabes area is the most significant contributor to the livelihood of the population residing on the shores of the Gulf and especially along its southern shores. The facts of the matter are that the fishing industry has never been a very large proportional employer, and its share in the employment market has declined substantially in the past two decades. Tourism meanwhile has grown rapidly in the recent past, especially in the 1960s, and has become an important element in the economy of southern Tunisia.

The tourist centres around the Gulf of Gabes, especially on Djerba, have grown more quickly than in any other region during the 1970s, and in 1970 Djerba was second only to Hammamet in the scale of its tourist enterprises (see *Figure 10* which depicts the Tunisian tourist industry). Even the Isles of Kerkennah had gained from the growth in tourist revenues. The early phase of growth in the industry in the 1960s was associated with low-cost holidays, and by the mid-1970s there were signs that this market was either saturated, or Tunisia was not sufficiently attractive to sustain the level of growth attained in the previous decade. After some difficult years in the mid-1970s when the number of visitors levelled off, the policy has been changed to encourage the creation of more luxurious and incidentally a much more revenue generating, type of tourist industry. Revenues have increased steadily despite the fluctuating level of the number of visitors.

TABLE 5
Some data on Tunisian tourism

Receipts TDmn										
1963	3.7		1966	13.6		1969	26.1		1972	67.4
1964	5.4		1967	16.4		1970*			1973	72.1
1965	9.2		1968	22.2		1971	53.8		1974	79.1
									1975	115.2

* not available to author

Source: *Annuaire Statistique de la Tunisie 1974-1975* and Secretariat of State for Information 1978

Tourism has attracted a high level of investment from both public as well as private sources and from both Tunisian and international sources. Some idea of the level of investment achieved between 1962 and 1974 is provided in *Figure 11*. Investment never fell below 10 million dinars per year after 1963 and in 1973 it reached 23.9 million dinars. The south received a disproportionately larger share of this investment which has led to the rapid growth of the Djerba and Zarzis tourist amenities¹.

Employment creation has already been mentioned with respect to tourism. Relatively small numbers were engaged in the industry in 1960. Official data of the Office National du Tourisme for 1965 suggested that there were 3,846 staff employed in hotels in Tunisia. The same source was suggesting that there were 12,676 in such employment by 1969. The number of Tunisians employed by the tourist industry as a whole rose further to 19,900 by 1973 and increased by 13,600 (68 per cent.) in the period 1973-1976 (Secretariat of State for Information 1978, page 99). In value added terms the industry was making a 45 million dinar contribution to the national economy in 1974 (see *Figure 11*).

The contribution of the tourist industry to the national economy is important both because of the value of revenues generated and especially because most of the revenues come in the form of hard currency. The 45 million dinar value added sum in 1974 and amounts of more than double that sum by 1977 were more important to the economy than other labour intensive manufacturing activities which did not figure in the export market.

To have ignored tourism as part of the economic system of the Gulf of Gabes region can only be interpreted as a serious attempt by the authors of the Tunisian Memorial to distort the picture of the real economic circumstances of southern Tunisia.

Tourism has for over 20 years been dynamic and expanding and has become a major feature of Tunisia's economic well-being. Meanwhile the fishing industry has expanded relatively little, and makes no equivalent contribution to the Tunisian economy whether measured in terms of value

¹ After 1966 investment in the Djerba-Zarzis zone alone ran at the rate of 5-6 million dinars per year, and in 1973 was still over 5 million dinars (Seklani 1976, p. 125).

added, employment creation and even more important with respect to the future. The prospects for fishing are that it will grow slowly, will employ progressively fewer people and will never contribute significantly to exports. Tourism, on the other hand, can consolidate its position by concentrating on the better value added performance derived from medium and high cost tourism, and thereby continue to make a major contribution.

A warning should be signalled concerning the tourist data for the second half of the 1970s. The number of visitors has fallen. The occupancy rates of hotels were already falling by 1975 and have continued to fall subsequently, although no recent data on this feature have so far been located. The position up to 1975 is shown in Table 6 and reveals that occupancy was lower in the south than in resorts close to Tunis such as Hammamet. Also the potential of the inland south, the Gafsa region, for tourism had not been proven by the mid-1970s. This last tends to confirm the value of the coastal resource, in this case the leisure amenities associated with a shore line with a reliable climate, where bathing, sailing and aquatic pursuits are all readily available. But all of these activities are very specifically in-shore and depend in no way on the central and further parts of the Gulf, which it is the purpose of the Tunisian authors to establish as an integral and essential part of the economy of the South; as part of their intent to prove that an enlarged Gulf of Gabes is Tunisian.

TABLE 6
Tourist accommodation—levels of occupancy by region 1970-75

<u>Zones</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>
	%	%	%	%	%
Nabeul—Hammamet	58.3	61.1	44.3	39.8	54.1
Sousse—Monastir	65.3	66.7	57.1	47.8	61.4
Djerba—Zarzis	59.9	57.2	36.1	39.6	50.8
Gafsa—Tozeur	—	—	—	25.6	32.3
Tunis et Banlieue	51.6	48.7	42.3	42.7	52.7
Tabarkea—Bizerte	—	—	—	34.7	34.7

Source: Ministère du Plan 1975, *Annuaire Statistique de la Tunisie*, p. 248.

(ii) *Government Investment and Planning*

The performance of the economy of the south has depended to a considerable extent on the perception of the central government about the region's resources. Investment in the south has been considerable, if selective, and *Figure 12*, showing the geographical distribution of investment, and *Figure 13* demonstrate the special features of the economy of the south.

The south attracted more government investment per head than any other region, between 1962 and 1971. Most of this investment was directed into extractive industries, in oil and phosphate mining, with limited investment in manufacturing in Sfax and Gabes. Agriculture and fishing were virtually neglected in the south and emphasis was given to tourism as reflected in the spending on services (see *Figure 13*). In agriculture the majority of investment was directed towards soil and forest protection, water conservation and related research, and those activities accounted for 75 per cent. of the investments in this sector up to 1970. There was little left for fishing and as a result the policy towards fishing has been to make loans available on favourable terms through the National Fisheries Board with a view to modernizing the sector. But the "authorities counted on individual effort to increase the inadequate production from the coastal waters rich in fish as they" were (Secretariat of State for Information 1978, page 156). This statement reveals the perception of those in central government that there was a big potential for fishing in the mid-1970s and that reasonable returns could be achieved with only limited assistance to the industry.

The effect of the pattern of investment in the south, and especially in the southern governorates of Gabes and Medenine, has been to stimulate local (Mzabi 1978) and inter-regional immigration and urbanization. The resources of the rural areas have not been able to support the growing population and there has been a marked move to the towns (Seklani 1976, pages 308-399). Medenine was the governorate which lost most population through emigration. The net emigration figure was 0.85 per cent. per year, compared with 0.16 per cent. from Sfax, 0.65 per cent. from Gabes and 0.12 per cent. from Gafsa (Seklani 1976, page 201). Other governorates in the north gained accordingly. Such are the pressures that even the growth of tourism has been quite inadequate to absorb the surplus rural population.

These signs of economic instability are reflected in the national arena. Tunisia's is a deficit economy and at no time in the past two decades has sufficient income been generated to balance external payments or to finance the development budget. Since independence Tunisia has been heavily dependent on external aid and loans. In the late 1960s, for example, Tunisia received more United States aid per head than any other African country.

TABLE 7

Tunisia's projected external debt—1977-1981

(TDmn)	1977	1978	1979	1980	1981
Total external debt	774.9	1004.9	1233.9	1449.9	1639.9
Composition of external debt					
Government debt	319.8	443.8	542.6	612.0	667.2
Debt of enterprises	455.1	561.1	691.3	837.9	972.7
(including State owned and private)					
Debt service	77	94	123	159	211
Principal	45	50	60	80	115
Interest	32	44	63	79	96
Debt service/current re- ceipts	10.8%	11.5%	12.8%	14.6%	17.4%

Source: Republic of Tunisia *Fifth Plan for Economic and Social Development 1977-1981*, Table IV-2-1.

By the late 1970s the total debt was expected to reach 1004.9 million dinars by which time gross domestic product had reached 2426 million dinars. In the same year the debt service/current receipts ratio would have risen to 11.5 per cent. and was expected to go as high as 17.4 per cent. by 1981.

The Tunisian economy, though somewhat protected from the worst problems of imported inflation through the possession of oil and some to spare, is nevertheless vulnerable to a number of economic draughts. First, its petroleum production has not proved to be reliable and there have been technical difficulties (*Middle East Annual Review*, 1979, page 380). Second, commodity prices have fluctuated for the other major exports, phosphates and olives. Third, agricultural production varies greatly from year to year as a result of the country's semi-arid climate, leading to the purchase of costly imported food. The fluctuations in national revenues which these circumstances bring about have caused, and will continue to cause, balance of payments problems, especially as development spending has always been sustained and continues to be planned.

The level of investment has only been possible through external contributions. Government to government payments have been the major source of such funds but private foreign finance varied between 40 and 50 per cent. between 1966 and 1974 (see *Figure 15* showing the evaluation of foreign contributions). A high proportion of the private foreign investment has gone into tourism and manufacturing industry and there is some reasonable cynicism about the motives of foreign investors in these enterprises (*Middle East Annual Review*, 1979, page 380). Some of the industries have proved to be vulnerable to trading quotas. Textiles for

instance suffered grievously in 1977 when European Economic Community quotas were introduced. Textiles had shown the biggest rise in employment of any sector (see *Figure 14*) and the impact of the quotas was very powerful.

Deficient in capital resources, Tunisia has a labour surplus and much of this surplus is highly educated. Temporary emigration overseas for employment is common in Tunisia, and the numbers crossing to Libya have been substantial whenever political circumstances have permitted such movements. The complementarity between the economies of Tunisia and Libya is obvious with respect to two of the factors of production, *labour* and *capital*. *Land* the other factor of production is, unquestionably arranged in Tunisia's favour. Tunisia has more rainfed land per head and those tracts enjoy more rainfall than rainfed tracts in Libya. Thus the matter of the current relative economic positions, attributable to unequal factor endowment, to which attention is drawn in the Tunisian Memorial (Volume 1, page 69, paragraph 3.51) should be considered further.

4. The Jeffara Plain - A Natural Region

A. *A Definition of the Region*

The Jeffara Plain is a region which is bounded by very distinctive geomorphological features. A change in relief marks out the boundary of the region very clearly. It is reflected in a line of hills which in the west has a northerly orientation in the Ksour of Tunisia; the escarpment swings to the east in the Jabal Nafusah and continues through the Jabal Tarhunah to meet the coast again in the Jabal Mslata to the west of Al Khums. The western part of the region lies in Tunisia; the eastern and major part of the Plain lies in Libya.

Because the Jeffara Plain is a relatively undisturbed geological feature the region has a natural uniformity. It will be shown that this uniformity is reflected in the geomorphology, soils and groundwater of the region. The agricultural potential of the Plain does vary as a result of the disposition of rainfall. The eastern part of the Plain is better favoured, and that part which enjoys over 200 millimetres of annual average rainfall, can support dryland farming. Elsewhere settled agriculture depends on the groundwater resource.

B. *The Natural Resources of the Jeffara Plain*

(i) *Climate*

The Jeffara Plain is a semi-arid area, with rainfall concentrated in the winter months. The important threshold determining the extent of rainfed agriculture is the 200 millimetres average annual isohyet. Less than one-third of the Libyan Jeffara and less than 20 per cent. of the whole Jeffara Plain which includes the Tunisian element of the region enjoy more than 200 millimetres of annual rainfall. A further third of the Libyan Jeffara Plain receives rainfall sufficient to provide grazing for livestock; approximately the same proportion of grazing land is available in the total Jeffara region.

Low rainfall areas also endure sharply fluctuating levels of rainfall from year to year, and the proportional fluctuation increases as the average level of rainfall decreases. Thus the marginal grazing resources are subject to increases, and rapid declines, in production. Likewise the marginal dry-land farming areas show marked fluctuations in grain production which closely correlate with the levels of annual rainfall (Ewing 1978).

(ii) *Groundwater*

The Jeffara Plain region, including the Libyan and Tunisian elements, is a single groundwater province (Desio 1940, Hill 1960, Welsh 1979). The deep and shallow water bearing strata, the aquifers, are connected as a single system in the south of the region, but are separated by a clay layer in the northern coastal strip of the Plain.

The upper (Quaternary) and deeper (Miocene) aquifers slope gently coastwards. The generally undisturbed and coastward dipping aquifers are ideal media for transmitting groundwater from the southern infiltration zone to the coastal zone. Here it supplements infiltration from the higher rainfall at the coast where most water withdrawal and use have conventionally taken place.

The geology of the Jeffara Plain has determined the disposition of groundwater, the region's most precious natural resource. This limited resource has tended to accumulate in the coastal tract in the north of the Plain. Because population and settled farming have tended to concentrate in the Tripoli area which is best favoured in terms of annual rainfall, it has been in this zone that the groundwater has been most heavily developed. Excessive groundwater withdrawal in the Tripoli area has led to a rapid decline in the groundwater resource. Withdrawals eight times the rate of recharge have been observed in the worst affected areas of Tripoli, which in 1978 was a rate much higher than the estimated four times average for the Libyan Jeffara as a whole (Floegel 1978).

The Jeffara Plain is hydrogeologically a single unit. The disposition of the northward dripping sediments causes the groundwater to accumulate in the coastal zone. The international boundary traverses the single Jeffara groundwater province which embraces both the Tunisian and Libyan elements.

(iii) *Soils*

The origin and development of the soils of the Jeffara Plain have tended to be uniform. Except for the *sebkha* deposits at the coast, and the water sorted materials of the wadi beds on the Plain itself, the soils are aeolian in origin. In composition they reflect the Quaternary geology of the Plain and the limestones, sandstones, marls and clays of the *Jabal Nafusah*. Their mechanical character is sandy and their organic content is uniformly low. Though everywhere poor in soil nutrients, they nevertheless can produce good yields of field and tree crops, but only with very high inputs of irrigation water because high infiltration rates characterize the sandy Jeffara soils. Unfortunately water is a scarce resource.

(iv) *Vegetation*

Vegetation varies according to the regional variation in rainfall. Like the water resource, the vegetation resource upon which the grazing activities depend has been very hard pressed in recent decades, and Gintzburger and Bayoumi (1977) have shown that the productivity of the range was not equal in the mid-1970s to the demands being placed upon it. At the same time dryland agricultural schemes have been set up in many agriculturally very marginal areas which were used almost exclusively for grazing for many centuries. As a result the area of semi-natural vegetation of the Jeffara Plain has declined by 10 per cent. in the past decade and by almost 50 per cent. since the beginning of the century.

The vegetation resources are not arranged equally over the Jeffara Plain. The quality of the range changes with rainfall and the eastern part of the Plain enjoys much more favourable rains than does the western and the Tunisian Jeffara. In the region traversed by the international boundary the vegetation resources are uniformly disposed from west to east. Progressively poorer quality rangeland is found as one moves away from the coast along the international boundary.

C. *The Problems of Managing Renewable Natural Resources in the Jeffara Plain Region.*

The Jeffara Plain is Libya's richest agricultural resource, but as already indicated its groundwater, upon which irrigated farming depends, is seriously depleted. Meanwhile the grazing resources in the areas of low rainfall are overgrazed and much disturbed by the attempts to grow cereals in places with less than 200 millimetres of average annual rainfall. Agricultural production rose steadily through the 1960s and into the mid-1970s, but with the realization that the groundwater resources were limited, measures were taken to reduce withdrawal and the planting of crops such as citrus and tomatoes was controlled. As a result the levels of agricultural production for the Jeffara have not risen since the mid-1970s. Water shortages have also forced some farmers to reduce levels of cropping.

These unpleasant environmental facts give the lie to the claim in the Tunisian Memorial that Libya has an easy set of economic circumstances to manage. Even in Libya's most favoured area for agricultural production the prospects for irrigated farming are poor. In the west of the Libyan Jeffara on the border with Tunisia, there is further evidence of resource management difficulties, in this case facing both governments. On the Libyan side of the border attempts have been made to cultivate low rainfall areas with supplementary irrigation. The absence of success of these ventures, privately financed (but indirectly funded by oil revenues to which farm owners have gained access by other work), confirms the deficiencies of the natural resource base of the Jeffara Plain, and especially of the western Jeffara.

5. Conclusion - The Major Natural Divisions of the Gulf of Gabes - Jeffara Region.

On the basis of a number of natural characteristics which affect the land utilization practices of the regions, the Gulf of Gabes can be shown to be non-uniform, while the Jeffara Plain can be shown to be a uniform geological, geomorphological, and soils region.

The most important factors which point to a natural subdivision of the onshore Gulf of Gabes are the differences first in levels of rainfall between the northern part of the Gulf of Gabes area and especially in the area north of Sfax (an area not usually included in the region defined as the Gulf of Gabes), and the southern shores of the Gulf of Gabes, as well as in the seasonal disposition of winter rains. Second, there are groundwater divides, one of which emerges at the coast to the west of the Isle of Djerba, and the other just to the north of Gabes.

It is the former of these groundwater divides which also has topographic expression in the upland of the Ksour and these bound the western margin of the Jeffara Plain. Unlike the Gulf of Gabes the Jeffara Plain is a geologically uniform region, and only rainfall variations cause there to be differences in the pattern of land utilization on what are otherwise uniform soils and generally uniform groundwater resources.

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Annex 2

THE MEDITERRANEAN COASTLINE OF NORTH AFRICA
EMPHASIZING THE COASTS OF TUNISIA AND LIBYA

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Part 1. THE MEDITERRANEAN COASTLINE OF NORTH AFRICA FROM CEUTA IN MOROCCO TO EL ARISH IN EGYPT

Before considering the coastlines and coastal zones of eastern Tunisia and western Libya¹, it is necessary to view this particular stretch in the context of the entire North African coastline for two reasons:

- (a) Whatever geomorphological or geological criteria are used, the coastline from Cape Bon to Ras Zorug occurs at a zone of major change.
- (b) When the exact position of change in each case is identified, it is found that none coincides with the international land boundary between Tunisia and Libya.

The Coast of North Africa from Ceuta to El Arish

This coastline, some 4,340 kilometres in length, includes the littorals of five States and, physically, presents extreme contrasts. The overall trend is east/west and only the coastlines of Tunisia and Libya display any major departure from this. It is therefore broadly orientated northward although locally the structural trends produce modifications.

The major morphological contrast is between the high rugged coastline of the western part, dominated by the Atlas Mountains, and the low coast of the east produced by the Nile delta². The former is a recessional coastline on which the major processes are erosional while the latter is an accretional area in which deposition predominates. The character of one was produced basically by the forces of the land and the other by the forces of the sea. Between these two extremes lie the coasts of Eastern Tunisia and Libya displaying in a measure characteristics which owe something to each source. However, while the highlands in the west are high and folded, those in the east are low and plateau-like.

As a result of these differences, the west tends to be a highly indented, complex coastline with a large range of offshore islands, reefs and shoals, while the east is very much more regular with depositional features and sandbanks.

The inclination of the continental shelf out to, for example, the 200 metre isobath also varies considerably from one end of the coastline to the other. Along the western mountainous coast it is a narrow fringe averaging some six nautical miles to the 200 metre line. Along the east coast the mean width is some 20 nautical miles. The shelf to the 200 metre line is extensively developed in only two places, off the east coast of Tunisia and west coast of Libya, and seawards of the Nile delta.

Geology

A further marked distinction is provided by geology, since the sediments to the west have been intensively crushed and folded to produce the various complex elements of the Atlas chain, whereas those of the east were laid on

the stable African platform. The structure along the eastern coastal zone is therefore simple, whereas that of the western end is highly complex.

The structural trend lines in the west are varied, and with few exceptions are between west/southwest to east/northeast and southwest to northeast. There is no such clear-cut pattern of trends on the African platform although the general tendency is towards the north and northwest. The pattern of faults in many ways parallels these fold trends. Major faults affecting the western end are aligned from southwest to northeast, while those in the African platform sediments are variously aligned ranging from southeast to northwest, to east to west.

From the complicated geological record it is therefore possible to identify key features which distinguish quite clearly the western part of the coastline from that to the east.

Salt Marshes

While climate and economic activities of the coastal zone, although they also provide a contrast, are not to be considered here, increasing aridity is also expressed in the prevalence of major landforms, salt marshes. These features which greatly influence the morphology of the coastal area become prominent from the east coast of Tunisia eastward.

From a consideration of the morphology and geology of the coastlines it is possible to establish a number of clearcut contrasts between the western end of the coast and the eastern end respectively:

- (a) Highland: lowland
- (b) Complexity: simplicity
- (c) Land dominated: sea dominated
- (d) Rugged relief: smooth relief
- (e) Erosion: deposition
- (f) Structural complexity: structural simplicity
- (g) Fold trends - southwest to northeast: southeast to northwest
- (h) Fault trends - southwest to northeast: variable

These variations identified on the macro-scale are confirmed by the more detailed examination of the coastlines as follows:

- (a) The northern coastline of Morocco
- (b) The coastline of Algeria
- (c) The northern coastline of Tunisia
- (d) The eastern coastline of Tunisia
- (e) The coastline of Libya
- (f) The coastline of Egypt

Contrast Boundaries (Figure 1)

The eastern coastline of Tunisia and western coastline of Libya both contain areas of highland and lowland but the boundary between the predominantly high areas and the predominantly low areas occurs at Ras

Kaboudia (A). South and east of this, upland, and particularly rugged highland, is exceptional. North and west there are very few bays or lowlands.

Obviously morphological complexity, and the presence of erosional features, are more closely aligned with a highland coastline. However, Ras Mostefa (B) marks the commencement of the first major depositional area with its smooth coastline. In the west there are some five bays with predominantly northwest facing sand dune coastlines, but these are all of limited extent. To the south and east, indentations and erosional features occur on the northeast orientated side of the Sahelian foreland and to a limited extent between the Gulf of Salum and Arabs Gulf. There are only two large scale shoreline accretional features before the Kerkennah banks but beyond is a well developed spit around the Isle of Kneiss, the tombolo linking the Isle of Djerba to the mainland, the spits and bars on either side of the Tunisian/Libyan frontier and a range of offshore banks before the major developments of the Nile delta.

The shelf width is extremely restricted along the whole of the west coast as far as Cape Blanc (C) from which point the distance to, for example, the 200 metre line becomes clearly more extensive. In one or two bays to the west and particularly on either side of Cape Tres Forcas the shelf is well developed. To the south and east of Cape Blanc it narrows noticeably near Misratah, in the neighbourhood of Ras el Hilal, and in Abu Hashaifa Bay.

Geologically the major boundary is that of the Saharan plate³ (D) which provides the eastern boundary of the Alpine fold area. However, the Alpine domain proper includes the Cape Bon peninsula and the Sahelian foreland; the boundary separating it from the African platform occurs at Gabes (E). This position also separates the fault line trends of the African platform from those of the Atlas system.

Finally, the development of coastal salt marshes commences in the neighbourhood of Sousse (F). There are occasional examples along the western part of the coast but south and east of Sousse they occur regularly and influence the morphology of the coast.

In conclusion, subdividing the coastline of North Africa clearly presents problems. However, using a number of clear-cut objective criteria it is possible to make a broad division between the west and the east. Although the eastern coastline of Tunisia and the western coastline of Libya present in many ways a zone of change, it is possible to assign a number of well defined boundaries, all of them occurring within this stretch. Thus the significance and importance of this coastline morphologically and geologically are clearly illustrated.

The Northern Coastline of Morocco

This coast stretching from Ceuta to Saidia, a distance of approximately 300 kilometres, has a scalloped appearance but no deeply inset bays (Figure 2). The trend is broadly east/west and therefore the orientation is north with variations locally. It is a highland coastline with very limited

coastal plain development and the main features are erosional. The shape is however governed more by the trend of the mountains than any coastal process.

South of Ceuta the coast is at first comparatively low and fringed with rocks and offshore banks. It becomes increasingly rugged with alternating high rocky points and restricted sandy beaches as far as Punta de Pescadores. From this point the coastal strip becomes increasingly arid. Eastward there are high rugged cliffs, particularly near Mestaza with little beach development and a number of offshore islets. The Bay of Alhucemas has high prominent headlands and the coastline eastward is backed by high mountains, in some cases over 1,000 metres. There is only one beach of any size and the coastline is a succession of rocky points and small islets as far as the most dominant promontory, the Cape Tres Forcas which reaches a height of over 400 metres. This steep rocky peninsula gives way to the one major depositional feature on the entire Moroccan coastline, a bay bar enclosing a lagoon, Puerto Novo, which is backed by low sand dunes. The remaining length of the coastline is composed of low cliffs and islets with beaches and shoals.

The northern coastline of Morocco is thus mainly high and rugged and backed by mountains, with very few beaches of any size, almost no lowland coastline, and only one obvious depositional feature.

The Coastline of Algeria

Stretching from Marsa Ben Mehidi to Cape Roux, a distance of some 990 kilometres, the coastline of Algeria is more than three times the length of the northern coast of Morocco (Figures 3 and 4). It is more obviously rectilinear with, for long stretches, no sizeable inlets at all. In fact there are only four bays of any extent: the Gulf of Arzew, the Gulf of Bejaia and the bays on either side of the Cape de Fer peninsula. The whole length describes a gentle convex curve with a basic northerly orientation. It is a highland coast dominated by the mountain chains and displaying the effects of erosion with few depositional features.

From the border to Oran the coast is rocky and comparatively high, broken occasionally by deep river valleys. The peninsulas are fringed with offshore rocks and islets. Oran Bay itself displays offshore shoals but the Gulf of Arzew has a low shoreline although it rises steeply inland. From Cape Ivi the coastline increases in height with rocky headlands, deep river valleys, offshore reefs and rocky islands. Immediately inland the mountains rise to over 1,000 metres before the low sandy coastline of the Bay of Algiers is reached. The coastline then continues with high points, offshore shoals, rocky patches and occasional islands, to the Gulf of Bejaia which is dominated by mountains reaching over 400 metres. The coast continues to be high and mountainous as far as Skikda, beyond which is the Oued el Kebir in a lowland depression with offshore shoals and wooded sand dunes. Beyond Cape de Fer the familiar pattern of promontories, shoals and

offshore islands continues to Annaba from which stretches a lowland with rocky spits to Cape Rosa. From Cape Rosa to the border beyond Cape Roux the coastline is again rocky and backed by lakes.

The Algerian coastline is thus high and rocky with offshore islands and shoals and virtually no lowland except in the neighbourhood of Oran, Algiers, Skikda and Annaba, where only limited areas exist. In these cases all clearly northwest facing, the coastline is smooth and backed by dunes.

The Northern Coastline of Tunisia

From the border to Cape Bon, a distance of some 240 kilometres, the coastline of Tunisia consists of two major promontories and one large inlet, the Gulf of Tunis (Figure 7). It thus displays the most prominent features on the whole north coast of the Maghreb. Furthermore, although a large part of the coastline is fringed by islands, the Isles of the Galite group are by far the most important. From the border the coast is high and indented with cliffs, narrow beaches and rocks offshore. Heights inland exceed 400 metres but are distinctly lower than those of the Kabylie to the west. The Isles of the Galite display steep coasts and the main island rises to almost 400 metres. There are two smaller rock fringed islands, three other rocks and a succession of shoals and banks. From Cape Serrat the coast diminishes in height to a number of sandy beaches although cliffs occur. Inland rather than fold mountains the main formation is a plateau of comparatively regular height. Beyond the cliffs of Cape Blanc there are sandy beaches with offshore rocks to Cape Farina, itself surrounded by rocks and shoals. Immediately to the south is a delta and the coastline to the southeast is low and marshy. The southern and eastern sides of the Bay of Tunis are mountainous with summits of over 500 metres and rugged cliffs and islands extend as far as Cape Bon.

The Coastline of Tunisia from Cape Bon to Ras Ajdir

Cutting across the mountain chains, this coastline, approximately 560 kilometres in length, is deeply indented with two major bays, the Gulf of Hammamet and the Gulf of Gabès, and two major promontories, Cape Bon and the Sahelian foreland (Figure 5). The most easterly part is a region of deposition in the area of the Isle of Djerba. Where the coastline parallels the mountain trend, facing southeast, it tends to be low and depositional, where it cuts sharply across, and is therefore orientated towards the northeast, it tends to be rugged with high promontories and offshore rocks. There is therefore a succession of coastal stretches displaying firstly erosional features and then those of deposition. Additionally there are several offshore islands and a major area of accretion around the Kerkennah Isles. Further large scale deposition occurs around the Isle of Kneiss and the Isle of Djerba.

The coastline of Tunisia is therefore one of comparatively major features with prominent headlands and deeply

indented bays. It possesses the most clearly differentiated features of the three coastlines described above and is the only one with major offshore islands and large stretches of deposition.

The Coastline of Libya

The coastline of Libya from Ras Ajdir to Salum is by far the longest possessed by a North African State, and while including the major inlet on the entire coast, lacks small scale indentations (Figures 6 and 7). The Libyan coastline also offers a sharp contrast in being basically lowland with sand dunes and a range of depositional features. The trend is east/west and the entire length, except locally in the Gulf of Sirt, is orientated northward. From Ras Ajdir to Ras Zorug there are several wide inlets but with the exception of stretches from Ras el Hallab to Ras el Msen, cliffs are either low or absent entirely. From Ras Zorug southward there are low sand dunes with occasional offshore rocks and the coastline is backed by a series of salt lagoons. Beyond Es Sider there are rocky points, extensive salt marshes and shoal banks. The coastline continues low but increasingly rock fringed to Bengazi near which a number of spits have developed. The dunes and coastal salt lagoons continue northward, but beyond Tocra the coastline becomes increasingly rugged with offshore reefs and hills near the sea rising to 300 metres. From Tolemaide the coast is characterized by rugged steep cliffs and narrow sandy beaches as far as Derna while occasional islands occur and the cliffs are in places dissected by deep ravines. Beyond Derna the high tableland produces bold cliffs, but the Gulf of Bomba is low and sandy with islands and offshore shoals. Between Tobruch and Ras el Mreisa steep slopes of the tableland become lower though more rugged with a shoal fringe.

The coastline of Libya is therefore very largely low with sand dunes and offshore banks although in places coastal hills and offshore rocks also occur. There are only two stretches of highland and these are in sharp contrast to the rugged peaks of the Maghreb. However, although there is hilly relief in the Al Khums region, beyond Bengazi the upland is basically a plateau.

The Coastline of Egypt

(87) The coastline of Egypt from Salum to El Arish, a distance of some 780 kilometres, falls naturally into two distinct sectors (Figures 8 and 9). From the border to Arabs Gulf it is low but comparatively rugged with erosional features. Beyond, it consists of the major depositional area of the Nile delta. It is therefore mainly a low coastline orientated northward with only one major feature, the delta.

The western side of the Gulf of Salum has vertical cliffs but the southern side is low with salt marshes and a sandy coastline with occasional rocky points. From Sidi Barrani to Ras Alum el Rum the coast is almost rectilinear with a few sharp indentations. It is backed by the flat summit

of the Libyan plateau and dissected by wadis, although there are occasional salt lagoons inland and rocks offshore. Abu Hashaifa Bay is sandy and backed by hills and terminates in Ras el Kanayis, a promontory with offshore reefs. From Ras el Dab'a to Arabs Gulf the coast is sandy with cliffs and fringed with rocks and shoals. Beyond is the Nile delta, a very low sandy coastline with shifting offshore banks and occasional sandhills. The major characteristic is the classic array of accretional features including spits and bay bars, the latter enclosing a series of lakes. Beyond, the coast to El Arish continues to be extremely low lying with many shoals extending far offshore.

The coastline of Egypt considered is thus almost entirely low and largely dominated by major depositional features. It therefore contrasts strongly with the coasts of the Maghreb.

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Part 2. THE COASTS OF TUNISIA AND THE LIBYAN ARAB JAMAHIRIYA FROM CAPE BON TO RAS ZORUG

Consideration of the coastlines and coastal zones of eastern Tunisia and western Libya reveals four points of significance:

- (a) While the Libyan coast is virtually monodirectional, facing north, the coast of Tunisia exhibits a wide range of orientations with the basic component well north of east.
- (b) A number of distinct and contrasting physical, ecological and economic zones can be distinguished along the coastlines. One such broadly homogeneous unit is bisected by the Tunisian/Libyan land border.
- (c) Libyan exploitation of the resources of and above the continental shelf to the north has been considerable. A separate memorandum on fisheries elaborates this point¹. That this utilization of the sea-bed has extended westward up to a line due north from Ras Ajdir is illustrated in the memorandum on the Greco Bank².
- (d) Contrary to impressions often given, Libya is a maritime State with a very high proportion of its population concentrated within 10 to 15 kilometres of the coast. This is particularly true of western Libya, the coastal zone of which has witnessed massive investment in a wide range of developments.

The Coast of Tunisia from Cape Bon to Ras Ajdir (Figure 1a)

This length of coast comprising approximately 70 per cent. of the entire Tunisian coastline, consists of five main elements: the Cape Bon peninsula, the Gulf of Hammamet, the Sahelian foreland, the Gulf of Gabès and the lagoonal coast of Bahiret el Biban. The whole area lies to the east of the Saharan plate boundary³ and has therefore been subjected to Alpine movements superimposed upon the basic African trends. The major trends as indicated by the Cape Bon peninsula are therefore from southwest to northeast and south/southwest to north/northeast, varying locally and being modified towards the south. The shape of the Gulfs of Hammamet and Gabès reinforces this general pattern. Coastlines parallel with the trend such as the north shore of the Gulf of Gabès tend to face southeast while those across the trend such as the southern coastline of the same Gulf are orientated towards the northeast.

The Cape Bon Peninsula

From Cape Bon to Ras Mostefa, a distance of some 23 kilometres, the coast is comparatively high and rocky with shoals offshore. It increases in height southward to 142 metres inland from Ras Mostefa and displays a pattern of alternating beaches and cliffs. It is an erosional coastline shelving comparatively steeply, with the 20 fathom line less than 1.5 nautical miles offshore.

There is one minor coastal road and settlement is thin, with only one small anchorage off El Haouaria. Agriculture along this strip consists of

extensive animal husbandry of generally low grade. However owing to the unspoiled beaches and comparatively spectacular scenery, it can be considered a developing touristic area.

From Ras Mostefa to Ras Maamoura, approximately 55 kilometres, the coastline is completely different, being low and sandy with offshore banks. It shelves more gently, the 20 fathom line being about three nautical miles offshore, the average width for the entire coastline as far south as Ras Kaboudia. It is backed by a well watered plain containing numerous villages. Agriculture improves southwards from traditional subsistence animal husbandry to increasingly commercial farming around Nabeul.

These two stretches of coastline illustrate clearly the relationship with the general trend of the relief in eastern Tunisia. The first cuts across the main grain of the highlands and is therefore rocky and faces approximately northeast. The second is parallel with the highlands and is a depositional lowland coast orientated approximately towards the southeast.

The Gulf of Hammamet

From Nabeul to Hergla the coastline describes a gentle arc for a distance of some 53 kilometres. Low and sandy and backed by hills, it is a depositional coastline with minor constructional features and a number of perennial rivers. The orientation varies from southeast to east to Hergla, where rock outcrops occur. South of Hergla the whole coastline becomes more obviously arid with the occurrence of salt lakes and marshes a few kilometres inland. Immediately south of Hergla there is a spit and well developed coastal lagoon from which the coastline continues south for a further 20 kilometres to Sousse. The sandy coastline is backed by dunes in this stretch until Ras Marsa, immediately north of Sousse, where a number of wadis reach the sea. From Ras Marsa the coastline becomes increasingly rocky with shoals offshore as again the orientation tends towards northeast, cutting across the structural trend. The offshore profile is similar to that of the southeast facing coast of the Cape Bon peninsula. The 20 fathom line is approximately three nautical miles from the coastline.

Settlement along the shores of the Gulf of Hammamet is comparatively dense and follows the line of the major trunk road from Tunis to the border. Therefore, in the central part where the road is inland, coastal settlement is relatively thin. Agriculture is commercial in the north around Hammamet itself, but changes to the typical extensive animal husbandry and olive plantations of the drier Mediterranean towards the south. With sandy beaches and easy road access, the complete coastline of the Gulf is of major importance for tourism.

The Sahelian Foreland

The Sahelian foreland stretching from Sousse to the Isle of Kneiss, a distance of approximately 225 kilometres, again falls naturally into two distinct parts. From Sousse to Ras Kaboudia there is a series of rocky

headlands fringed offshore with shoals. An undulating plateau gives way to the rugged cliffs of the Monastir peninsula behind which is a sheltered anchorage. To the southeast there are a number of sandy bays and a low depositional coastline with a shallow submerged spit linking the mainland to the Isle of Kuriate. From Thapsus a straight constructional coastline leads to Cape Afrique, a low rock fringed headland, again sheltering an anchorage. Ras Salakta, with cliffs and shoals, occurs to the south before a belt of sandstone hillocks, producing a lowish coastline culminating in Ras Kaboudia, a rocky plateau with an island fringe. The whole of this coastline is across the main trend of the relief and the general orientation is towards the north/northeast. It shelves away comparatively steeply offshore in contrast to the southern half of the Sahelian coast. Again the 20 fathom line is about three nautical miles offshore.

From Ras Kaboudia to the Isle of Kneiss, there is a low largely constructional coastline fringed with mudbanks. Offshore the shelf dips gently to the Kerkennah Isles, aligned parallel with the coast from southwest to northeast. Between the Islands and the southern Sahelian coast is a shallow, sandy area with mud and weed. The total extent of islands and mudbanks together, reaches, at a maximum, 37 nautical miles from the shoreline, and this triangular depositional area terminates off Ras Burmada.

The Sahelian coast is therefore in many ways similar to that of Cape Bon with clearly defined sectors. The northern part is densely populated with a fine network of roads although the main trunk road crosses the foreland inland, reaching the sea at Sfax. The southern sector is less densely populated until the main road follows the coastline. There are harbours at Monastir, Madhia and Sfax, and the Kerkennah Isles shelter an anchorage. The shallows between them and the mainland can be navigated with the aid of the Kerkennah Channel. The agriculture of the whole coastal strip is dominated by extensive traditional subsistence husbandry with olive growing particularly prominent. The northern sector of the coastline is an area of developing tourism, but the southern part is as yet little used.

The Gulf of Gabès

According to the *Mediterranean Pilot*, Volume 1⁴, the Gulf of Gabès is entered between Ras Yonga and the Isle of Djerba, and these two points are traditionally accepted as its boundaries. The southeast facing coast around Ras Yonga is low and marshy with areas of mud and weed offshore and a submerged spit. From Skhirra to Ghannouche, a distance of some 38 kilometres, the shoreline is fronted by low mudbanks which dry for almost one nautical mile offshore. Sand dunes become more apparent around Gabès and from there to Zarat, a stretch of 35 kilometres, there are occasional shoals offshore and low hills along the coastline. Again the northeast facing coast tends to be somewhat hillier, while the southeast

facing is basically constructional. The Isle of Djerba itself is low except in the centre, with shallow mudbanks and weed to the west and north and shoals off Sidi Garouz on the east coast.

The whole of the coastline of the Gulf of Gabès is semi-desert with occasional wadis reaching the shore and an agricultural system based on extensive animal husbandry and the growing of some olives and fruit trees. The aridity is indicated not only by the development of large salt lakes but also by the ephemeral nature of all the rivers.

The Lagoonal Coast of Bahiret El Biban

Southeastward from the Isle of Djerba is a very low coastline backed by salt lakes and lagoons. From Zarzis to Ras Ajdir, a distance of some 60 kilometres, the coastline is constructional and the climate arid with very limited possibilities for agriculture or arboriculture. However, the eastern coast of the Isle of Djerba and the area round Zarzis are both important for tourism. In this region the major trunk road leaves the coast and a large part of the area is served by tracks.

The Coast of Libya from Ras Ajdir to Ras Zorug (Figure 1b)

The Tripolitanian coast, some 28 per cent. of the coastline of Libya, lacks the major structural elements of the east coast of Tunisia. It therefore does not exhibit the large bays and headlands and, as a result, is clearly orientated in one direction, the north. While not rectilinear it is difficult to subdivide, although when the sections with a sandy shoreline are distinguished from those in which it is basically rocky, four broadly homogeneous stretches can be identified. The features providing boundaries to these lengths are: Ras Ajdir, Marsa Sabratah, Ras Tajura, Ras Eimsel and Ras Zorug.

Ras Ajdir to Marsa Sabratah

From Ras Ajdir almost to Zuara, a distance of some 55 kilometres, the coastline is actively constructional and in the same stage of development as that immediately to the west of the border. It is dominated by a well developed spit culminating in Ras el Talga which shelters a lagoon some 20 kilometres long. To the east is an area of salt lakes illustrating the aridity of the environment. From Zuara to Sabratah, approximately 43 kilometres, the coastline is still low and sandy, but at a somewhat later stage in development, with a wide coastal sand dune belt separating a series of salt lakes from the shoreline. The complete stretch is low and sandy and is, for most of its length, backed by dunes. The vegetation of the dunes is sparse, consisting of occasional low shrubs and scrubby undergrowth with large unvegetated areas. Immediately inland the coastal strip is very flat with a scanty cover of resistant grasses and low woody plants which can withstand the saline soils.

The whole area is barren semi-desert presenting few opportunities for agriculture other than very low grade rough grazing. However, the farmers are able to engage in fishing to supplement their living. The main settlements, Zaltan and Zuara, are both situated in oases and as each is

approached, settled agriculture appears with at first widely spaced olive trees, gradually denser groves and then palm trees and irrigated areas. There are of course no rivers and no obvious wadis and therefore water is obtained from subterranean sources or desalination plants.

The shelf dips comparatively gently with the 20 fathom line being about four nautical miles offshore, and fishing of all types is important. This includes the use of lines, nets, brinkali, and trawling together with the collection of sponges and the operation of land lines and tunny nets. Bu Kammash is important, with a cold store and approximately 100 boats using the facilities, but the main development is at Zuara where a completely new fishing port is being established. With long sandy beaches there is also potential for tourist development and access is facilitated by the trunk road of Libya which is nowhere far from the coast. The beaches are generally unpolluted except by weed although a few small globules of oil, probably from the Zawia terminal, were discovered. Settlement in general is comparatively thin and dispersed.

Marsa Sabratah To Ras Tajura

Marsa Sabratah marks the approximate start of the rocky coastline which stretches some 90 kilometres to Ras Tajura, with highly weathered sandstone outcropping as shoals offshore and low rugged cliffs along the coastline. A particularly resistant stratum is evident, and breaks in this determine the position of harbours and beaches. For example, Marsa Sabratah itself is a large bay eastward of which are several small inlets sheltering additional tunny fishing boats. The low weathered sandstone cliffs continue from Sabratah with occasional beaches at, for example, Sorman and Zanzur, to Tripoli (Tarabulus). The coastal features on which Tripoli is built consist of low hills with some sandy beaches and offshore shoals. However the nature of the coastline, virtually from Zanzur to Ras Tajura, is largely masked by urban development and port installations. Stretches of sandy beach occur particularly towards Tajura and, with easy access from the major road, tourism is important.

In contrast to the area to the west, this stretch is dominated by commercial agriculture, particularly mixed farming and arboriculture. At Sabratah olive plantations initially widely spaced occur with, increasingly, palms, citrus trees, shelter belts of eucalyptus and irrigated areas. The actual shoreline is still comparatively bare and covered in scrub with widely spaced trees. At least as far as Sorman the coastal strip is flat with sandy soils and agriculture becoming richer towards Tripoli. Also towards the capital, industry including tunny processing, textiles and oil refining becomes more important. Dense plantations of palms with eucalyptus and cypress trees cover the low cliffs to Ras Tajura. Settlement along the entire stretch is dense; the 40 kilometres from Zanzur to Tajura is almost continuously built up. This development is facilitated by the main trunk road of Libya and a fine network of secondary roads.

Ras Tajura to Ras Elmsel

From Ras Tajura with its low cliffs and beaches the coastline gradually rises in height at Sidi Ben Nur to 20 metre cliffs which continue almost to Al Khums, a distance of some 95 kilometres. The complete coastline is north facing and the cliffs are comparatively steep with a resistant wavecut platform at their base. As to the west of Tripoli, this persistent outcrop dictates the development of harbours and beaches. The shelf dips rather more steeply than to the west with the 20 fathom line some three nautical miles offshore. Inland the cliffs are backed by an area of undulating dunal topography fixed by eucalyptus and pine trees.

There are occasional olive groves but agriculture consists mainly of low grade subsistence animal husbandry. There is little irrigation and only a few small oases such as at Qasr al Qarahbulli, where palms and citrus trees occur. Towards Al Khums the landscape becomes higher and more rugged with very sparse low vegetation, accentuated as the soils become more calcareous. The landscape is semi-desert with several well defined wadis. A number of small harbours have been developed, particularly for tunny fishing and this provides a supplementary form of employment for the farmers. Settlement is comparatively sparse and dispersed, but again the trunk road provides good communications. In general, the shoals offshore and rocky shoreline preclude any potential for tourist development.

Ras Elmsel to Ras Zorug

The cliffline ends at Ras Elmsel immediately westwards of Al Khums and from there to Ras Zorug, a distance of about 105 kilometres, the coastline is lower and predominantly sandy. However, cliffs and rocky shores dominate between Marsa Dzeira and Ras Misratak while offshore rocks occur notably at Ras Sidi Magru and Ras Maeri. The complete section faces firstly north/northeast, then north for most of its length, and the coast shelves uniformly to the 20 fathom line some three nautical miles offshore.

From Al Khums to Zliten, agriculture is dominated by palm plantations with occasional irrigated areas and, in one or two drier parts, olive trees. At Zliten there is a greater variety of agriculture and the coastal dunes are bare or scrub covered. Eastward of Zliten the landscape becomes more arid and bare with occasional oases, the most notable being the Oasi di Zregh. Agriculture is based on subsistence animal husbandry supplemented by fishing. Throughout the area settlement is rather denser than the section immediately to the west and it, with tourism, benefits from the new east/west highway. Harbour developments are taking place at Al Khums and Qasr Ahmed (Misratak).

Coastline Analysis: Cape Bon to Ras Zorug

From the description it is clear that the two coastlines are physically very different but have aspects of human geography in common.

Orientation

The orientation of any coastline other than one that is rectilinear presents problems of assessment. If the coastal irregularities are smoothed to one straight line it can be seen that the Tunisian coast faces east/northeast and the Libyan coast a few degrees east of north (Figure 2). To obtain a more realistic valuation, the bays and headlands can be averaged to a limited number of straight lines. In this case (Figure 3) it can be seen that the Tunisian coast is dominated by a northeastern and a southeastern orientation with only the Gulf of Hammamet facing due east. The Libyan coastline is largely facing due north except for the eastern sector which is angled slightly to the east of north.

A more objective method is to subdivide the coastline regularly and aggregate the orientations of each point (Figure 4). This produces two orientation diagrams which illustrate clearly that the Libyan coast is predominantly north facing and almost exclusively orientated between north/northwest and north/northeast. In the case of Tunisia there is a very wide spread of orientation with a distinct bias towards the north of east.

These directions of course reflect the grain of the country as already mentioned. The main mountain trends throughout Tunisia are to the northeast and east/northeast. Furthermore all the erosion coastlines cutting across the grain are orientated in those directions. The deposition coastlines parallelling the trend tend to face towards the southeast. In the case of Libya the erosional coasts are all north facing, while the areas of deposition are also orientated to the north or north/northeast.

Offshore Profiles

If the 20 fathom line is taken as a realistic seaward extension of contemporary and modern sedentary fishing activities, it can be seen that along the complete length of coastline in question the width is comparatively restricted, averaging some three nautical miles except in five specific instances. Where offshore islands, the Isle of Kurate, the Kerkennah Isles and the Isle of Djerba occur, the extension to seaward from them is somewhat greater, averaging approximately 12 nautical miles. In the Gulf of Gabès the distance between the 20 fathom line and the actual coastline immediately southeast of Gabès is 35 nautical miles, while off Marselet el Briga in Libya, the width is 30 nautical miles. However, these last two instances are exceptional and very limited in extent. Apart from the Kerkennah banks, where the actual value is difficult to measure, the greatest width of shelf to the 10 fathom line is off Ras Ajdir. Therefore, while the bathymetric pattern is complicated by the islands, the average width of shelf, whichever fathom line is used, is basically similar on the two coasts. These points are illustrated by profiles (Figure 5).

The Land Boundary Position

The land boundary can be easily traced on the ground since it follows a northerly valley and reaches the coast at Ras Ajdir, a clearly identified position. It nonetheless divides what is a geographically homogeneous

region. From approximately Gabès to Marsa Sabratah the coastline is low, sandy and depositional. It displays an array of accretional features, notably spits and offshore banks, together with coastal lagoons and immediately inland a series of salt lakes. There are no perennial rivers but a number of wadis debouch on to the shore and this illustrates the aridity of the climate which produces a semi-desert landscape.

Along the entire stretch of coast the vegetation is dominated by low scrub, sparse in places on the coastal dunes and behind these, saline vegetation on the flat salt areas. The agriculture is basically subsistence with low grade animal husbandry and the occasional cultivation of olives. This pattern is interrupted only by oases which tend to have developed into the major settlements. The poverty inland and the comparative wealth to seaward and the seasonal nature of tunny fishing in particular, have allowed a type of mixed economy to develop in which local farmers spend part of the year fishing. Methods of fishing also illustrate this relationship between land and sea, with, for example, the construction of tunny nets. However, since to be economical these need to be constructed to a depth of no more than 45 metres (24 fathoms) they are more easily laid out on the Libyan side of the border. As a result of the local economy the density of settlement is similar on either side of the border and both areas are gradually developing local or international tourism aided by a road network largely parallel to the coast.

Land and Sea Relationships

The importance of the sea to Libya and indeed the designation of the country as a maritime state can be judged from the fact that the majority of the population lives within a few kilometres of the coastline and the main trunk road of the country follows it closely. In fact by 1973, 92 per cent. of the total population, 14 of the 15 towns with a population of 10,000 or over, 86 per cent. of the country's agricultural production, 96 per cent. of all livestock and 95 per cent. of all electric power production capacity were within the coastal region⁵. This trend has been confirmed by modern developments. The concentration of economic activity and settlement within the narrow coastal zone results from a wide range of geographical factors.

Firstly, the coastal areas tend to receive a rather higher rainfall and temperatures are ameliorated by land and sea breezes. There are no permanent rivers in Tripolitania and nutrients are added to the sea, particularly towards the western end of the coast by the ghibli, a southerly wind which blows for approximately 12 to 14 days a year. A further consequence of the lack of rivers is of course the importance of desalination plants to provide water. In September 1980, there were 14 major stations in operation and by the end of 1980 it is anticipated that all towns will be dependent upon desalinated water for drinking.

Apart from the areas of comparatively intensive commercial agriculture, most farming in Libya is subsistence and incomes are commonly

supplemented by fishing or working during the season in the tonnaras. Sedentary fishing from the shore and the collection of sponges and other bottom-dwelling organisms have also long been practised.

The importance of the fishing industry is discussed separately, but the modern developments particularly at Zuara highlight the significance of this sector of the economy in Libya. Industry, including refining, power stations and textile factories is also nearly all located along the coast, largely since communications both seaward and landward parallel the coastline. In fact there are 17 power stations, including the largest, located along the coast (Figure 6).

A further aspect is recreation, which is again heavily orientated towards the coast although tourist activities are as yet comparatively little developed. However, there has been a definite government emphasis upon the development of coastal sports.

During intensive fieldwork in Libya in September 1980, we were able to gain a first-hand impression of the character of human activity along the western coast of Libya, much of which we visited. We were impressed by the density of settlement along a narrow coastal belt, and by evidence of heavy capital investment in coastal projects—housing, power stations, factories, and ports. No information on coastal military activities was obtained, but we understood that coastal security is a matter of genuine national concern. At several locations (Marsa Sabratah, Zliten, Zuara, Marsa Sorman and Bu Kammash) we encountered men whose livelihood on the land is supplemented by seasonal fishing. Parallel with this traditional practice, we found many signs of a new national interest in the sea, for fishing, leisure, and residential preference.

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Annex 3

THE LIBYAN FISHING INDUSTRY

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General

A detailed examination of the Libyan fishing industry shows the following:

- (a) Although Libyan fisheries were relatively poorly developed until recently, fishing was more important than has been generally recognized;
- (b) Certain traditional fishing techniques involve activity on the seabed itself, particularly fishing for tuna and sponges;
- (c) Objective scientific surveys have indicated that Libyan waters are productive, and the Libyan Government is currently investing large sums of money in developing the fishing industry; and
- (d) Evidence concerning the Greco Bank sponge fisheries shows that Libyan live fishing activities extend as far west as the due north line from Ras Ajdir (see this separate study at *Annex 4*, Volume III).

Historical Perspective

(a) *Pre-Italian Period*

There was very little indigenous fishing along the Libyan coast in the early years of the 20th Century. With 1,685 kilometres of coastline bordering some productive fishing grounds, particularly in western Libya, this neglect of fishing is surprising. Several reasons can be suggested including:

- (i) Coastal waters noted for their frequent storms;
- (ii) Lack of natural harbours;
- (iii) Absence of a seafaring tradition and indifference to fish eating;
- (iv) Ignorance about the productivity of coastal waters;
- (v) High price of fish compared with meat;
- (vi) Small and scattered population, many of whom favoured the hilly districts of the interior to the coast.

The last point deserves emphasis; at the beginning of this century the population of Libya was probably around half a million, many of whom were nomads.

Details of fishing off Libya before the First World War are sketchy. A few small boats engaged in inshore fishing, notably in Tripolitanian waters. Traditional sponge fishing was already highly developed, largely by the Greeks, and sponge production increased during the 19th Century to reach an all-time peak of 71,883 kilograms in 1911. Foreign fishing boats (Greek, Maltese and Italian) also fished in Libyan waters and visited Libyan ports from time to time.

(b) *The Italian Period 1912-1943*

The Italians had some knowledge of Libyan waters, and appear to have been determined to exploit their potential for fisheries, sponges, corals, and the cultivation of pearls. As early as 1912 fishing boats from Naples were

sent to undertake fishing trials from Tripoli, and in the same year a scientific survey of fisheries was attempted by Professor Scolart, with inconclusive results. A further survey was conducted in 1923, and, in 1923 and 1927, the Italian naval ship "Tritone" carried out cruises in Libyan waters to collect data on sponge banks¹. The Italian administration was clearly anxious to regulate and control the exploitation of offshore resources, particularly the sponge banks. Several legislative measures were adopted (see below), and "illegal" fishing was actively prevented. An interesting aspect of the use of the seabed in Italian times was the attempt from 1921 to cultivate pearls in Libyan coastal waters. The project does not appear to have gone beyond the experimental stage, though one report mentions "harvesting" of pearls from the seabed in 1927. Both tuna fishing and sponge fishing reached their peak production during the inter-war period. The record year for sponges was 1929 (66,740 kilograms) and for tuna it was probably 1940 when 20,497 tuna were caught². The number of tuna stations or tonnara in use during these years varied from 6 to 12 or 13.

(c) *Post-World War II to 1970*

It is possible to put together a useful profile of Libyan fisheries during the post-war period because of two F.A.O. reports³, and an International Bank survey of the economy of Libya⁴. Unfortunately, annual statistics of catches, apart from sponges, do not appear to have been systematically collected until the 1970s. Available figures tend to be ill-defined or unreliable, but it seems certain that total catches were in the 2,000 to 2,500 tonne range through the 1950s, rising to 3,000 to 3,500 tonnes during the 1960s. In addition, foreign boats from Italy, Malta, and Greece fished in Libyan waters, marketing their catches in their home ports. About half the Libyan catch was tuna, and a high proportion of the other half was sardines (*Sardinella aurita*) and anchovies (*Engraulis encrasicolus*). Two-thirds of the catch was canned or salted for domestic consumption and export. The processing plants were generally poorly equipped, and confined to the Tripolitanian coast. There plants, particularly the tonnara, provided an important source of seasonal employment, the total labour force in the 1950s being over 1,000. The number of fishermen was probably around 200, including a number of foreigners resident in Libya. The annual value of the fish catch was put at £ 200,000 to £ 250,000 and of the sponge catch at £ 30,000 in 1958, or about 0.5 per cent. of Libya's gross national product. In general, fishing methods (other than sponge fishing) were regarded as rather primitive, the catch per man fishing day being as low as 10 kilograms, compared with 100 kilograms in many other Mediterranean countries⁵.

During the later years of this period, the sponge fishing industry virtually disappeared, while the number of tonnara in operation declined to five or six as a result of falling catches of tuna.

(d) 1970-1980

The 1970s witnessed extremely significant advances in the Libyan fishing industry. Total catches rose to over 4,000 tonnes per annum, largely as a result of the operations of three companies using modern trawlers to exploit the waters of the continental shelf, beyond the range of traditional boats. Figures of catches for 1974-1979 are shown in Table I. Libyan catches have thus doubled in about two decades, but the totals are still very small in comparison with other Mediterranean countries. Only Cyprus, Lebanon, Malta, and Albania have smaller catches, while Tunisia's catch is six or seven times greater (38,400 tonnes in 1977)⁶.

TABLE I LIBYA: FISH CATCHES 1974-1979
(in Tonnes)

(A) Companies

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
Libya Fishing Company	308	173	366	229	200	120
Libya-Tunisia Company	351	659	293	310	430	312
Libya-Greece Company	—	—	—	—	—	464
Total	659	832	659	539	630	896

(B) Private Sector

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
Tripoli	2426	2722	1602	1022	1783	1676
Benghazi	280	312	317	316	1123	600
Zawia, Zuara	294	337	197	151	206	560
Al Khums, Misratah, Sirt	325	506	1174	200	523	698
Derna, Tobruk	343	96	111	247	90	70
Total	3668	3973	3401	1936	3725	3604
Grand Total	4327	4805	4060	2475	4355	4500

Source: Department of Production, Tripoli, September 1980

During the 1970s the government of Libya evolved plans to develop the fishing industry to its optimum level. As emphasized elsewhere, Libya without oil is poorly endowed with natural resources, and diversification of the economy for the post-oil era is both essential and costly. The fishing industry is an important part of the policy of diversification. Justification for embarking on massive investment in fisheries is based upon a number of reports by international consultants⁷. While some of their proposals are probably over-optimistic, they provided important guidelines for government strategy.

Under the Three Year Plan of 1973-1975, improvement of the fishing ports at Al Khums, Tripoli, and Ganzur was begun, and refrigeration facilities were constructed at Sirt, Tobruk, Derna, Susa, Ayn Ghazalah, and Marsa Sabratah. Sardine canning factories with a capacity of 1,000 tonnes per annum were established at Zuara and Al Khums, and a 2,000 tonne capacity tuna plant was built at Zanzur. Other changes in the

1973-1975 period are shown in Table II. The Five Year Plan of 1976-1980 took these projects further and added a number of new features. Improvement of harbour facilities continued, and several new cold storage plants were established. The largest single project by far was the commencement of work on a major new fishing port at Zuara, due for completion in 1981. Several new joint companies were also founded to encourage fishing in deep waters. All these initiatives, together with investment in fisheries research and education were allocated large sums of money which it is assumed have been largely used (See Table III below).

TABLE II ACHIEVEMENTS OF THE 1973-1975 PLAN

	<u>1973</u>	<u>1975</u>
Libyan catch	2,492 tonnes	4,800 tonnes
Imported fish	4,305 tonnes	4,000 tonnes
Total consumption	6,797 tonnes	8,800 tonnes
Per capita consumption	3 kg	3.5 kg
Fishermen:		
Libyan	300	500
Non-Libyan	200	300
Total	500	800

Source: Libyan Arab Republic, The 1976-80 Socio-Economic Plan, Ministry of Planning, 1976, pp. 233-255.

TABLE III BUDGET ALLOCATIONS FOR FISHERIES 1976-1980

	LD
Harbours, lighthouses, etc.	20,000,000
	LD
Expansion of companies	5,000,000
	LD
Cooling and refrigeration plants	10,851,000
	LD
Research and training	2,500,000
	LD
Total	38,351,000

Source: Libyan Arab Republic, The 1976-80 Socio-Economic Plan, Ministry of Planning, 1976, p. 243.

For the present purposes, it is not important precisely how far this capital investment has been spent; the important fact is that the results of this capital outlay are tangible proof of Libya's determination to develop a modern fishing industry. This is emphasized in the proposed budget allocations for the period 1981-1985 (See Table IV below).

TABLE IV BUDGET ALLOCATIONS FOR FISHERIES 1981-1985

	<u>Total for 1981-85</u>		<u>Allocated for 1981</u>	
Research	LD	2,500,000	LD	1,000,000
Equipment and services	LD	92,995,000	LD	19,105,000
Company ventures, etc.	LD	62,000,000	LD	34,000,000
Training	LD	20,000,000	LD	5,000,000
Education	LD	1,000,000	LD	400,000
Salaries and consultancy	LD	1,500,000	LD	290,000
Total	LD	179,995,000	LD	59,795,000

Source: Secretary for Light Industries, *Programme for Development of Marine Resources, 1981-85*, February 1980, p. 77.

Marine Productivity

In an assessment of the possible development of a fishing industry, such factors as port construction, methods of practice and dietary requirements must be considered. However, more basic than these is the productivity of the waters, since this imposes the ultimate constraint on the size of catch. Commercial fisheries are normally concerned with the third or perhaps a higher stage in the food chain. The initial two stages, primary and secondary production, are therefore vital and need to be considered.

In each case it is necessary to measure the actual quantity of production, the geographical distribution and, crucially, variations of both in time. Such a research programme requires long-term investigations particularly as the relationships between fisheries and plankton, especially in the case of demersal fish, are complex. Results of the main research programme completed in the waters off Tripolitania are detailed in the SOGREAH Report (1975)⁸. However, it must be stressed that the research involved an incomplete sampling procedure and the whole programme lasted for only two seasons. Therefore the results must be treated with great caution.

According to the maps showing primary production for spring and summer, there appears to be a definite increase in productivity westwards. This was later confirmed at the Fisheries Research Station, Tripoli, where results from other surveys were discussed. Possible reasons for this include:

- (a) The generally shallow nature of the water allowing more light and higher temperatures at the lowest levels;
- (b) The dense banks of weed which commonly occur and provide a suitable ecological milieu for plankton development; and
- (c) The contribution of nutrient salts by the ghibli, the strong southerly wind.

Secondary production, zooplankton, provides an essential link between primary production and the upper levels of the food chain. Again from the maps an increase westwards in productivity is discernible although in this case it is less obvious.

Therefore the evidence, admittedly limited, from the SOGREAH Report, supplemented by discussions with experts, indicates that productivity in the first two stages of the food chain shows a definite increase from westwards along the Tripolitanian coast and into Tunisian waters where the maximum levels were generally recorded.

Types of Fishing

A considerable variety of fishing methods can be found in Libyan waters, reflecting in part skills inherited from foreign fishermen as well as indigenous techniques. It is worth noting that:

- (a) One way or another, Libyan waters are quite extensively fished, to about 12 nautical miles offshore. They are not intensively fished;
- (b) As previously mentioned, fixed installations are important;
- (c) The species caught and marketed include crustaceans, octopus and sponges.

(1) Inshore Fishing

Small boats of less than 8 metres operate from approximately 30 locations along the coast of Libya to a maximum distance of 5 or 6 nautical miles offshore. Most are motorized, and their crews are either full-time or part-time Libyan fishermen. Several techniques are used:

Nets: gill nets and trammel nets are used at depths of 35 to 40 metres.

Lines of between 1,500 to 4,000 metres in length may be used at depths of up to 80 metres.

Fixed lines (or brinkali) are commonly used in up to 40 metres of water. Lines of up to 1,500 metres are put out using float and sinker. These may remain in position for 12 hours or more. In summer 1980 the average number of *brinkali* in place in Tripolitania was reported as follows: Zuara 20; Tripoli 30; Al Khums 10; Zliten 10; Misratah 20. Brinkali may be found as far as 6 nautical miles offshore in certain coastal waters.

Inshore fishing: chief species

- Galeorhinus galeus* (dog-fish)
- Epinephalus guaza* (dusky perch)
- Dentex vulgaris* (a sea bream)
- Polyprion americanum* (stone bass)
- Mustelus mustelus* (smooth hound)
- Imbrina cirrhosa* (corb)
- Squatina squatina* (angel shark)
- Diplodus sargus* (a sea bream)

Diplodus vulgaris (a sea bream)
Lithognatus mormyrus (a sea bream)
Diplodus annularis (a sea bream)
Oblada melanura (saddled bream)

The list of typical species is far from complete. The variety of fish in Libyan waters is remarkable. In particular, it is important to note that several types of crustaceans, molluscs, and other bottom dwellers, are caught from time to time and sold in the fish markets. It would be misleading to claim that they are a specialty of Libyan waters, but their regular appearance in the markets is evidence of Libyan exploitation of species living primarily on the continental shelf. Some examples are as follows:

Lobsters, prawns, etc.:

Parapenaeus longirostris
Plesiopenaeus edwardsianus
Homarus gammarus (lobster)
Palaemon serratus (prawn)

Crabs and crayfish:

Scyllarides latus
Palinurus vulgaris (crayfish)
Maja squinado (spiny spider crab)

Squids and octopuses

Loligo vulgaris (common squid)
Sepiola rondeleti
Octopus vulgaris (common octopus)

(2) Lampara Fishing

Fishing for sardines and anchovies is done in summer between May and October, at night, the best catches being in July and August. Boats of between 7 and 13 metres work in pairs, one boat carrying a lamp to attract the fish. Surface seine nets are used, with small sinkers. Most lampara fishing is within 6 nautical miles of the shore. During autumn and winter some lampara boats fish for bonito and mackerel.

Lampara fishing: chief species

Sardinella aurita (sardine)
Engraulis encrasicolus (anchovy)
Trachurus trachurus (horse-mackerel)
Auxis thazard (frigate mackerel)

(3) Trawler Fishing in Libyan Waters

Small trawlers of 16 to 27 metres fish largely within 12 nautical miles of the Libyan coast, and always within the continental shelf. There is little trawling in summer. Three companies are now active, with 22 trawlers in operation. The Libyan Fishing Company (seven trawlers) was founded

in 1970, the Libya-Tunisia Company was founded in 1972 and has four trawlers, and the Libya-Greece Company (11 trawlers) was founded in 1978. All three companies also own a number of smaller fishing boats. In addition one or two groups of fishermen now own and operate small trawlers. There are plans to expand the number of trawlers operating in Libyan waters very rapidly, to a total of 95 in 1985, with a combined potential catch of over 9,000 tonnes⁹. This target is thought to be too high, particularly in the light of manpower shortages.

Trawling: chief species

- Mullus barbatus* (red mullet)
- Mullus surmeletus* (striped mullet)
- Pagellus erythrinus* (pandora)
- Merluccius merluccius* (hake)
- Trachurus trachurus* (horse mackerel)
- Pagellus centrodentus* (Spanish bream)
- Maena maena*
- Balistes carolinensis* (trigger fish)
- Boops boops* (bogue)
- Boops salpa* (saupe)
- Squatina squatina* (monkfish)
- Mustelus mustelus* (smooth hound)

(4) Tuna Fishing

Fishing for tuna has been practised along the Tripolitanian coast for several decades. The method depends on the use of a heavy "leader" net anchored firmly to the seabed and suspended from huge floats, extending seawards to a depth of about 45 metres. A large trap net to catch the tuna is similarly anchored to the seabed at the seaward end of the leader net. The migrating tuna moving along the coast from west to east are trapped as they try to evade the leader net. They are then lifted into boats and brought ashore for salting or canning. Tuna can weigh up to 500 kilograms and the whole installation (known as "tonnara") requires 100 tonnes of rope and net and a large quantity of heavy anchors and floats. Although the season lasts only about 40 days (mostly in June, depending on location) it takes three months to prepare the nets and anchor them to the seabed. Thus for several months the tonnara constitute a hazard to shipping, extending from 2 to 3 nautical miles offshore. Warnings to shipping are placed farther out to sea, and the tonnara are noted in various pilots' handbooks¹⁰.

The number of tonnara has declined from a peak of 15 before the Second World War to four in 1980 (Figure 1). Over 60 men are required to man the tuna nets of one tonnara during the catching season, and perhaps 250 more will be employed for two months to process the tuna. Most of the temporary employees are local farmers for whom the tuna season is a welcome bonus. Clearly the cost of operating a tonnara is high, and unless a heavy crop of tuna is obtained, it is easy to lose money. Tuna

catches have declined in Libya and elsewhere in the Mediterranean in recent years. Pollution, and changing migration patterns have been blamed, but the most likely explanation is the increasing exploitation of the Atlantic tuna population. Tuna caught off Libya are largely Atlantic Red Tuna (*Thunnus thynnus*) heading for spawning grounds in the east-central Mediterranean. The extent to which catches have declined in Libya is difficult to assess since the only statistics available are incomplete and ambiguous. Figures for the period 1951-1964 (see Table V below) indicate an overall decline, though it has to be remembered that fluctuations occur as a result of storms and the number of tonnara in operation. The figures in Table V may be compared with 499 tonnes (3,880 tuna) in 1971 and 236 tonnes in 1972. The number of tuna caught in 1980 was reported to be: Zliten 1,000; Misratah 2,000; Garabulli 400; Sabratah 400. If the average fish size was the same in 1980 as in 1971, the 1980 catch would be 617 tonnes.

TABLE V CATCHES OF TUNA (IN TONNES) 1951-1964

1951	1,149	1958	1,154
1952	1,004	1959	1,246
1953	1,785	1960	734
1954	833	1961	145
1955	791	1962	866
1956	1,399	1963	529
1957	1,800	1964	293

Source: SOGREA, Study for a General Master Plan for the Development of the Fishing in the Libyan Arab Republic, Part 1, Grenoble, 1973, p. 39.

Tuna fishing in Libya is unlikely to expand or contract greatly in the next few years. Its contribution to Libya's economy is not great, but it should be noted that the tuna industry was important in the past when Libya was among the poorest countries in the world. The tonnara (including the processing plants) employed between 1,500 and 2,000 in the tuna season, and with sardines contributed approximately 10 per cent. of the total value of Libya's exports¹¹.

(5) Deep-Sea Fishing

A number of joint fishing companies have been established in recent years between Libya and a foreign partner to fish in distant waters. Seven such companies are in existence and ten are under negotiation. Those already in existence are: Libya-Malta, Libya-Mauritania, Libya-Benin, Libya-Guinea, Libya-Spain, Libya-South Yemen, and Libya-Guiana. These ventures are not really relevant to the aims of this report, except to emphasize that the Libyan fishing industry will be acquiring valuable experience and knowledge of fisheries during the next few years.

(6) Sponge Fishing

Sponge fishing was an important economic activity in Libya for many decades. Recent reports on Libya's marine resources have suggested its revival in response to rising demand for natural sponge¹².

The map of sponge concentrations "in the Gulf of Gabes and along the coast of Libya" submitted with the Tunisian Memorial (Figure 5.26) is misleading. By choosing to map a species (*Hippospongia equina*) not notably common along the coast of Libya, the impression is given to the unwary that Libya has no important commercial sponge banks. This is far from the truth. Libyan waters have several types of commercial sponge including:

- Euspongia officinalis mollissima* (fine Turkey cup)
- Euspongia officinalis lamella* (elephant's ear)
- Euspongia zimocca* (zimocca sponge)

In addition, *Hippospongia equina* is found in Libyan waters, particularly in the west.

Table VI summarizes sponge catches landed in Libya by local boats only, between 1920 and 1962. Since 1962 the decline has continued, and in 1980 only two sponge boats were operating in Libya. In the period 1920-1960 approximately 100 to 200 sponge boats of various kinds fished in Libyan waters annually, about 10 per cent. being Libyan boats. The decline is largely due to competition with cheap sponge substitutes, and the dangers associated with sponge diving. Sponge production fluctuated from year to year, total yields from Libyan waters ranging between 30 and 140 tonnes a year, the average being around 80 tonnes from 1900 to 1960. A considerable proportion of total production was by foreign boats, chiefly Greek. Table VII shows total production compared with local Libyan production from 1948 to 1951.

**TABLE VI SPONGES LANDED IN LIBYA BY LOCAL BOATS
1920-1962**
(kg)

1920	47,108	1947	20,195
1921	18,091	1948	29,994
1922	20,425	1949	8,439
1923	24,779	1950	25,000
1924	16,919	1951	34,954
1925	19,789	1952	30,781
1926	49,750	1953	14,695
1927	40,250	1954	21,103
1928	46,400	1955	32,520
1929	66,740	1956	20,315
1930	N/A	1957	21,007
1931	36,559	1958	6,990
1932	47,424	1959	15,341
1933	25,947	1960	2,671
1934	30,972	1961	19,101
1935-46	N/A	1962	3,885

Source: Kingdom of Libya, *Statistical Abstract 1963*, Ministry of National Economy, Tripoli, 1964, p. 165.

**TABLE VII SPONGE PRODUCTION BY LOCAL BOATS AND
TOTAL PRODUCTION FROM LIBYAN WATERS
1947-1951**

<u>Year</u>	<u>Total production (1)</u> (kg)	<u>Landed by local boats (2)</u> (kg)
1947	138,665	20,195
1948	75,036	29,994
1949	98,887	8,439
1950	120,000	25,000
1951	100,723	34,954

Source: (1) C.D. Serbetis, *Report to the Government of Libya on the Fisheries of Libya*, F.A.O., Rome, 1952, p. 37.

(2) Kingdom of Libya, *Statistical Abstract 1963*, Ministry of National Economy, Tripoli, 1974, p. 165.

Although Libyan sponge banks have been intensively fished for generations, they have shown no signs of exhaustion. The F.A.O. report attributes this to the vast area of Libyan sponge grounds, estimated to be around 15,000 square kilometers¹³. However, sponges rarely thrive in water depths of over 120 metres.

Scarcely a stretch of Libyan coast has not been fished for sponges in the past (Figure 1), and some rich sponge banks have also been worked at great distances from the coast. The following, for example, were specified by C.D. Serbetis in the F.A.O. report of 1952:

- (i) The Lapsi bank—83 miles north-northeast of Zuara;
- (ii) The Trafili bank—17 miles east of the Lapsi bank;
- (iii) The Fondazzo bank—75 miles north of Zuara;
- (iv) The Foro bank—22 miles north-northeast of Ras Makaber¹⁴.

The best survey of sponge fishing was incorporated into the F.A.O. report of 1952, and this remains a standard source of scientific and historic detail on the subject.

Methods of Sponge Fishing

- (a) *Primitive diving*
Primitive diving in shallow waters (20 to 30 metres) without equipment had become very rare by 1950.
- (b) *Waterglass and sponge hook*
Having located sponges through a waterglass, they were removed using a harpoon which could be used, with skill, in up to 25 metres of water.
- (c) *Machine diving*
The diver wore a rubber suit and received air pumped through a rubber pipe.
- (d) *Fernez diving*
The method in which a rubber mask is used in lieu of the diving suit. A rubber pipe supplied air to the diver.
- (e) *Gangava system*
A dredge of 2 by 5 metres was dragged over the sponge bank by a motor-powered vessel. Sponges obtained were usually abundant, but of poor quality.

Since 1900, approximately two-thirds of sponge production has been from divers using rubber suits or the Fernez system. In 1950 for example 81 boats (chiefly Greek) operated divers, and 52 boats used other methods.

Fisheries Legislation

The Italian administration and its successors in Libya clearly claimed the right to control sponge fishing in Libyan waters, wherever sponge

banks were found. Such control has been consistently exercised, with detailed regulations being promulgated and legally enforced. The following are various of the texts related to fisheries regulations:

Royal Decree of 27th March 1913 n. 312 (64 articles)

The following features are noteworthy:

- (a) regulations about fishing included crustaceans and molluscs (article 15).
- (b) licences would be required on all sponge banks beyond territorial waters (article 17).
- (c) sponge licenses may be granted to foreigners (article 20).
- (d) dredge and diving suit fishing for sponges was prohibited seaward to the 20 metre isobath (article 25).
- (e) coral fishing was submitted to the same rules as sponge fishing (article 40).
- (f) regulations concerning tonnara concessions were included (articles 33-39).

Royal Decree of 22nd November 1925 n. 2273

This modified certain details of the 1913 regulations.

Royal Decree of 9th January 1939 n. 1402 (33 articles)

New and comprehensive fishing regulations were introduced, but excepted all previous regulations concerning sponge fishing, which remained in force.

These laws, which may be taken as examples of a considerable number of laws, seem to establish beyond any doubt that fishing has been regarded as of crucial importance to the economy of Libya and the welfare of its inhabitants. This policy continued during the British administration, 1943-1951, and after independence. Principles established during Italian times have continued, with some modification to specific regulations. A British Declaration (No. 179 of 17 May 1948) concerning sponge fishing, and the Libyan Law No. 12 of 1959, and a further Libyan Decree of 8 August 1962 on sponge fishing may be cited as examples. It might be useful to point out however, that with the exception of coral fishing which has never been practised commercially in Libyan waters, all fisheries legislation has been heavily utilized, and its provisions carefully enforced.

Number of Boats

The estimated number of fishing boats using certain ports in Libya in 1979 is given in Table VIII. It will be noted that they are distributed throughout the Libyan coast, with a marked concentration towards the west where the population is greatest and fisheries most productive.

The total number of boats is 338, excluding specialized boats associated with tuna fishing. About 90 per cent. are motor powered boats. The

figures in Table VIII do not correspond with a survey conducted in 1972-1973 which counted 467 boats, including 180 in Tripoli¹⁵. If tuna boats are excluded, the total is still over 400. It is unlikely that numbers have fallen since 1973; fish catches have increased, and the number of fishermen rose from 500 to 800 from 1972 to 1975. The discrepancy probably lies in differences of definition or data collection, the higher figure being more acceptable. Several boats of traditional wooden build were seen to be under construction in September 1980, and there is every sign that the fishing boat fleet will grow in the coming decade. In the 1972-1973 survey 78 per cent. of boats were under 8 metres in length.

TABLE VIII FISHING BOATS IN LIBYA 1979

<u>Port</u>	<u>Trawlers</u>	<u>Small and medium size boats</u>	<u>Total capacity (tonnes)</u>
Bukhamesh	—	20	300
Marsa Zuara	—	24	600
Tripoli	8	120	2,450
Al Khums	—	45	500
Zorug (Misratah)	—	12	300
Sirte	—	12	300
Benghazi	5	45	3,500
Talmita	—	12	300
Susa	—	15	300
Ayn Ghazalah	—	20	400
Total	13	325	8,950

Source: Secretary for Light Industry, *Programme for Development of Marine Resources*, 1981-83, Tripoli, 1980, p. 67.

Number of Fishermen

SOGREAH gives the following details, which are assumed to refer to 1973 (See Table IX below). Accurate figures are again difficult to obtain, partly because part-time fishermen are still common among inshore fishermen in Libya. It is also worth noting that recreational fishing is becoming more popular among Libyans. The number of professional fishermen in 1980 is estimated to be between 1,000 and 1,200.

TABLE IX NUMBER OF FISHERMEN BY REGION

<u>Region</u>	<u>Total Fishermen</u>	<u>Of which Foreigners</u>
Zuara	151	32
Tripoli	420-470	200-250
Al Khums	46	15
Misratah	100	20
Benghazi	90	40
Al Bayda	10	—
Derna	55	41
Total	872-922	348-398

Source: SOGREA, *Study for a General Master Plan for the Development of the Fishing Ports in the Libyan Arab Republic*, Part I, Grenoble, 1973, p. 25.

Conclusion

SOGREA made a useful estimate of the potential for expanding Libyan fisheries in 1973. Their conclusions were extremely optimistic, and it is difficult to concur with them all. It is important to realize however that recommendations of SOGREA and other reputable consultants have been used as guidelines for the large investment now taking place in Libyan fisheries, and the results are already tangible. To give an idea of the scale of expansion proposed by SOGREA, some sample figures have been extracted (Table X).

TABLE X PROPOSALS FOR THE EXPANSION OF LIBYAN FISHING

(A) Inshore fishing

	<u>Slow growth (3%)</u>		<u>Rapid growth (5%)</u>	
	<u>1990</u>	<u>1995</u>	<u>1990</u>	<u>1995</u>
Boats	564	656	772	983
Catch in tonnes	6,272	8,150	8,580	12,280

(B) Trawling (assuming an unfavourable continental shelf allocation)

	<u>1985</u>	<u>1990</u>
Trawlers	55	77
Catch in tonnes	8,195	13,500

(C) Sponge fishing

Catches of 3,000 to 5,000 kilograms per annum from 32 teams working from 70 boats.

(D) Manpower requirements

	<u>1985</u>	<u>1990</u>
Captains and mates:		
trawlers, etc.	182	186
lamparos, inshore boats, etc.	750	850
Mechanics	518	553
Sailors, fishermen and divers	<u>4,455</u>	<u>4,730</u>
Total	5,905	6,139

Source: SOGREA, Study for a General Master Plan for the Development of the Fishing Ports in the Libyan Arab Republic, Part II, Grenoble, 1973, pp. 42-53.

While commercial fisheries in Libya could certainly be expanded considerably¹⁶, it is doubtful whether such targets can be achieved, certainly in the period to 1990. The Libyan Government is however clearly committed to a policy of fisheries expansion; probably the most spectacular evidence of this is the new port under construction at Zuara. The new fisheries complex at Zuara (Figure 2) which is scheduled to open in May 1981, will be the most modern in the Mediterranean and, for its size, one of the most complete and efficient in the world. The harbour has 470 metres of quays for larger trawlers and 220 metres for smaller vessels. There are spacious fish handling facilities (6) linked to a 1,000 tonne freezing plant capable of producing 30 tonnes of ice per day. Nearby are two large maintenance blocks (16) to facilitate net mending, etc., a general store (5) and a gear store in which each ship will be allocated its own compartment (7). There is also a large ship repair area, capable of handling 450 tonne trawlers, and a range of services for the fishermen, including a medical and residential centre (2). With its own generators and power plant, the whole complex will be virtually self-sufficient.

Such large scale investment reflects Libyan confidence in the development of its fisheries within and beyond home waters. The selection of Zuara for such a project illustrates confidence in the retention of access to local sources.

During an intensive field visit to Libya (25-30 September, 1980) we were able to assess the state of the Libyan fishing industry for ourselves. We had consultations with officials at the Fishery Research Institute, and at the Ministry of Production, and we visited several small ports from Bu Kammash to Al Khums as well as the Zuara port project. We also spoke to many fishermen, and to officials in the fish market in Tripoli and at the

tonnara stations at Marsa Sabratah and Zliten. We saw much evidence of investment in fishing, from new cold stores and ice factories to modern navigational aids and expanded harbour installations. Our overall conclusions were that:

- (a) Libya has a maritime tradition which is by no means negligible, bearing in mind the total population, contrary to the assertion made in the Tunisian Memorial, Volume I, page 67;
- (b) Libya's marine resources represent one of the most important opportunities for the diversification of the national economy, after oil runs out; and
- (c) Libyan fishing can expand without prejudice to the interests of Tunisia's fisheries. It is in this connection that a brief comment on Figures 5.26 to 5.30 in the Tunisian Memorial follows:

30-34

30-34 Comments on Figures 5.26 to 5.30 in the Tunisian Memorial

The maps are probably irrelevant to the continental shelf debate. They purport to show the ecological unity of the Gulf of Gabès, but the term is inappropriately applied throughout, to a vast area of the Mediterranean Sea. Figures 5.28 and 5.29 show nothing in the Gulf of Gabès proper. All these maps should be examined very critically as evidence. It has not been possible to find any record of the *Thalassa's* voyage, since no proper reference is cited in the Tunisian Memorial. It is quite likely that "Thalassa's" investigations are included in a Tunisian paper¹⁷ on the southeast Tunisian seas; if so, it will be seen that no investigations were attempted in Libyan waters (Figure 3). In any case, a month-long voyage in November is no basis on which to draw such bold and detailed maps of the distribution of several species. Altogether, the maps must be called into question. For example: Figure 5.26: Sponges; see comments under sponge fishing. We heard no evidence from Libyan divers concerning Tunisian claims to sponge banks east of the land frontier (Tunisian Memorial, page 180). Figure 5.27: Hake. Hake is more widespread than the map suggests. Figure 5.28: Mullet. The gap in the mullet population off Tripoli is dubious; local fishermen land mullet regularly in Tripoli. The reference in the text of the Tunisian Memorial (page 182) to 85 per cent. of the mullet catch being derived from the eastern regions of Tunisia is ambiguous. The reference must be to *Tunisian* not Mediterranean catches. Figure 5.29: Sea bream. None is shown in the Gulf of Gabès, but the text refers to the Gulf as a "veritable fishpond" (Tunisian Memorial, page 183). Figure 5.30: Anchovy. Why only show the winter map? Anchovies are plentiful off Libya in summer. Again, the basis for this map would be of interest.

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References

- (1) Mazarelli, G.: "La pesca sui banchi di spugne esplorati; con la R.N. 'Tritone' ", published in *Società Italiana Per Il Progresso Delle Scienze*, Nov. 1936, pp. 4-15.
- (2) Kingdom of Libya: *Statistical Abstract 1963*, Ministry of National Economy, Tripoli, 1964, p. 165; Serbetis, C.D. (1952), p. 52.
- (3) Serbetis, C. D.: *Report to the Government of Libya on the Fisheries of Libya*, F.A.O. Report No. 18, Rome, 1952; F. Bourgeois, *The present situation of Libyan fisheries*, F.A.O. Report No. 817, Rome, 1958.
- (4) International Bank for Reconstruction and Development, *The Economic Development of Libya*, John Hopkins Press, Baltimore, 1960, p. 205.
- (5) International Bank (1960), p. 204.
- (6) F.A.O. *Yearbook of fishing statistics*, 1977, Vol. 44, Rome, 1978, Table A-I.
- (7) (a) SOGREAH, *Study for a general masterplan for the development of the fishing ports in the Libyan Arab Republic, Final report*, April 1975

Part 1—*Present situation*, August 1973

Part 2—*General development plan of fishing activities*, December 1973

Part 3—*Preliminary general masterplan*, August 1974.

In collaboration with Ministry of Industry and Minerals, Department of Aquatic Wealth, SOGREAH, Grenoble, France, 1973.

(SOGREAH recommended exploitation of available fish resources to the optimum by 1985, with special reference to harbour facilities).

(b) SOGREAH, *Trawl fishing ground survey off the Tripolitanian coast*

Part 1—*Bathymetry and sedimentology*

Part 2—*Hydrology*

Part 3—*Nutrient salts and primary production*

Part 4—*Secondary production*

Part 5—*Fishery biology and trawling resources study*

Final report: *Introduction and general conclusions*, August 1977.

In collaboration with Ministry of Food and Wealth, General Department of Marine Wealth, SOGREAH, Grenoble, France, 1977.

(SOGREAH began this work in 1973, and the scientific findings were of limited value; the report recommended the optimization of fish production in a favourable marine environment.)

- (c) CONTRANSIMEX (Rumania) *Oceanographic survey in the eastern territorial waters of the Libyan Arab Republic between Ras Azzaz and Ras Kar Kura, May 1975 - August 1976*. Two volumes, 1977.

(Contransimex reported that demersal stocks (bottom communities) are underexploited, though they are not abundant. Medium-size trawlers could be introduced to supply the local market.)

- (d) INSTRUPA (West Germany) *Final report on results of the test fishing program, Gulf of Sirt, Libyan Arab Republic, Tannenwaldallec, F. R. Germany, July 1975*.

(The prospects for commercial fisheries in the Gulf of Sirt were found to be good. Shrimp could be very abundant).

- (8) SOGREAH (1975), Vols. 1-5.

- (9) Secretary for Light Industry, *Plan for development of marine resources 1981-85*, Tripoli, February 1980, p. 63.

- (10) See, for example, *Mediterranean Pilot*, Hydrographer of the Navy. Taunton, England, 1976, Vol. V, 6th edition, p. 39, which warns that tonnara may extend 5 miles offshore.

- (11) Serbetis, *op. cit.* (1952), p. 52.

- (12) SOGREAH (1973) Vol. 11, p. 53.

- (13) Serbetis, *op. cit.* (1952), pp. 39-40.

- (14) Serbetis, *op. cit.* (1952), p. 7.

- (15) SOGREAH (1973), Vol. I, p. 23.

- (16) See under (7) above.

- (17) Ktari-Chakroun, F. et Azouz, A.: "Les fonds chalutables de la région sud-est de la Tunisie", published in, *Bulletin de L'Institut Scientifique et Technique d'Océanographie et de Pêche*, Salamambo, Tunisie, Vol. 2 No. 1, 1971, pp. 5-47.
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Annex 4

THE GRECO BANK

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GENERAL POSITION AND DESCRIPTION

Immediately east of a line due north from Ras Ajdir (Figure 1), between the 5 and 10 fathom lines and at a distance of some 12 nautical miles is an area of shallows. This bank, which extends in an approximately northeasterly direction causing a marked distension in the 20 fathom line, is commonly called the Greco Bank. The position and general alignment can be confirmed from a number of charts including:

- (a) Service Hydrographique de la Marine, Paris, 1878 (Figure 2)
- (b) U.S. Navy Hydrographic Office, Washington, 1944 (Figure 3)
- (c) Admiralty, London, 1957 (Figure 4).

The shallow westerly edge of the bank appears undulating and is in places submerged to a depth of less than 5 fathoms while to the northeast, greater depths of up to 18 fathoms are recorded. The shallow western part occupies an area of some 5 nautical miles (east to west) by 2 nautical miles (north to south). From the western to the eastern edge is a distance of approximately 23 nautical miles.

A further indication of the general position of the shallowest western area of the Greco Bank can be obtained from LANDSAT imagery (Environmental Research Institute of Michigan, 1979). For such interpretation LANDSAT has a number of limitations, notably:

- (a) It lacks precision since each square plotted represents an area of 80 metres square.
- (b) Depth must be inferred from water surface measurements.

Thus since such factors as suspended sediment provide the information from which water depth is calculated, coincidence with chart soundings would not be expected. However, since LANDSAT survey results for the area are available, it was felt that they should be discussed, even though they cannot be presented as definitive evidence. The full extent of the Greco Bank lies between the line due north from Ras Ajdir and one at 45 degrees (i.e., northeast) from the same point. Furthermore the shallowest area, most clearly seen on charts and detected at sea, abuts almost onto the due north line (Figure 5).

NOMENCLATURE AND LEGISLATION

Individual names of shoals and banks are rarely given on charts and indeed only those of vital importance to shipping would appear to acquire a name. Toward the end of the 19th Century this particular area was known as the Bank of Farwah, after the nearest Tripolitanian fishing village situated approximately half way along the spit culminating in Ras el Talga¹. During the early part of this century it acquired the name Greco Bank possibly because of its popularity with Greek sponge divers. Thus, in protracted correspondence between the Governor of Tripolitania and the Captain of the Italian naval torpedo boat "Monfalcone" in July 1934 concerning the suppression of illegal sponge fishing in the area, the term "Banco Greco" is used throughout². The locations given for the fishing position on the Bank were 349 degrees from Zuara at a distance of

30 nautical miles by the "Governor", and 347 degrees from Ras Giogghig (a promontory immediately to the west of Zuara identified, for example, in the United States Sailing Directions³), at a distance of 35.5 nautical miles by the Captain of the "Monfalcone" (Position A on Figure 6). It will be seen that these points refer to the eastern area of the Bank. However the key issue is that the term "Greco Bank" was used in official correspondence, and that unlicensed sponge fishing in the area was considered illegal by the Italian authorities.

EVIDENCE FROM WITNESSES

To further establish the position and customary usage of the Greco Bank it was decided to locate Libyan fishermen who had been to the area. Five interviews were conducted, each with at least two English-speaking Arabs present so that an effective commentary on proceedings could be maintained and our questions could be interpreted without ambiguity. The fishermen were interviewed one at a time so that complicity was out of the question. The answers given were recorded, some in English and some in Arabic, the latter being translated and checked the same day.

In each case the directions given were discussed so that there was complete agreement on what the interviewee intended. Distances were harder to assess but were calculated by the interviewee using the known speed of his vessel. The final positions are denoted on the chart (Figure 6) by the letters A to G, which are given in parentheses as appropriate in the text. It might be important to add, that as far as we are aware, none of these men knew the purpose of our enquiries and, as can be seen (Figure 6), all were able to give correct bearings to the Bank.

The following testimonies were collected and are reported, as far as possible, exactly as they were received.

Testimony of Said El-Hezzabi

Zuara: 27 September 1980

I fished for sponges on the Greco Bank between 1956 and 1968.

The Bank is located at approximately 10 degrees northwest of Farwah.

The distance took between three and four hours sailing time.

This gives a position (B) on the eastern edge of the main shallow part of the Bank. The distance is more difficult to calculate since in sailing from the lagoon there would be delays in negotiating the shallows. Said el-Hezzabi also stated that in depths of under about 10 fathoms, fishing for sponges was by harpoon.

Testimony of Suliman Ahmed El Azzabi

Zuara: 29 September 1980

I have worked on the Greco Bank as did my father and grandfather. We have fished there over the period from 1939 until 1967. The Bank lies 5 degrees northeast from Ras Ajdir at a distance of approximately 20 miles and over 30 miles from Zuara.

This position is beyond the shallowest part in the centre of the northeastern extension of the Bank (C). This was confirmed when Suliman Ahmed el Azzabi stated that he worked in depths varying from 10 to over 20 fathoms. He also recalled that normally four Libyan boats worked the Bank, each with seven in the crew including four divers. Greek fishermen also worked the Bank, but Tunisians were precluded and used other banks west of Ras Ajdir.

Testimony of Mustapha Omran Ballouz

Zuara: 29 September 1980

I fished for sponges from 1949 to 1956 on the Greco Bank in depths of 10 fathoms and less. The Greco Bank is 36 miles from Zuara and at 11 degrees east of north from Ras el Taiga. (Mustapha Omran Ballouz is a boat owner and indicated the direction using his boat's portable compass.)

This position is in the centre of the Bank (D). Mustapha Omran Ballouz also declared that there were seven "tops" of "heads" to the Bank, and in the shallow western area these can be clearly seen (Figure 2). Furthermore, he confirmed that the Bank was actually identified at sea, by its depth which characteristically increases very sharply at the edges. He also recalled watching spear spongers working the Bank.

Testimony of Bashir Yakhliif Abdul Sallam

Zuara: 29 September 1980

I fished for sponges on the Greco Bank.

The Bank extends a long way to the east from the shallowest part in the west. The depth varies from 6 to 15 fathoms. The Bank begins at 5 degrees northeast of Ras Ajdir.

This position indicates the main shallow area of the Bank, near its western edge (E). Bashir Yakhliif Abdul Sallam also stressed that sponges were fished by Libyans and Greeks and no Tunisians were allowed on the Bank. When he had last fished there in 1953-1954, there were three boats, including one large one, from Zuara and three large boats from Tripoli. The Tripoli boats frequently stayed for a long time and, in rough weather,

sheltered in the small deeper water anchorage immediately south of the main bank. This anchorage is described in the *Mediterranean Pilot*, Volume V⁴.

Testimony of Ali Sallam

Tripoli: 30 September 1980

The Greco Bank is especially important for sponges. The depth of the shallowest part of the Bank varies from 5 to 6 fathoms.

Ali Sallam, who is both a fisherman and a boat owner, states that his knowledge of the Bank extended over the period from 1936 to 1955. The Bank was worked by Libyan, Greek and Italian vessels only, and large supply ships might stay in the vicinity for months, being replenished from Tripoli. The sponges were cleaned on the Bank.

VISUAL EVIDENCE

In order to obtain a definite guide to the western edge of the Bank it was decided to use a large harbour tug, "Jado", captained by Abdul Rahman. The captain had experience of the Bank and stated from this experience in fixing the position of his ship, that the western edge lies approximately 247 degrees from El Biban and 156 degrees from Ras el Talga (F). Bashir Yakhliif Abdul Sallam, the fisherman interviewed earlier, directed the boat, the position of which was regularly plotted on a British Admiralty chart (Figure 6). When he had reached a position familiar to him at precisely 11:35 (local time), he indicated the exact course to the western edge of the Greco Bank. The position of the tug at that time was fixed from Sidi Ali and the conspicuous building by the harbour at Zuara. The course indicated had a true bearing of 311 degrees (G) and it can be seen that this passes through the shallow western area.

CONCLUSION AND TESTIMONY

In the light of the evidence we have been able to collect concerning the location and customary use of the Greco Bank, it is our belief that:

1. The Greco Bank is clearly identified with the shallows marked on numerous charts and maps. The range of positions witnessed indicates the spread of the Bank from a westerly position immediately northward of Ras Ajdir to its northeasterly extension.
2. The Greco Bank lies precisely within those waters defined by Libya's northern line claim and Tunisia's 45° claim (Fig. 5).
3. The Greco Bank has been fished by Libyan sponge divers at least for several decades, and Tunisians have not been permitted to fish there.
4. The Italian administration took active steps to protect Libyan interests on the Greco Bank.

REFERENCES

- (1) Servonnet et Laffite, *Le Golfe de Gabès en 1888* (Challamel et cie. Paris).
- (2) The archives of the Port Authority in Tripoli, to which we had access, contain many examples of documents relating to the control of illegal sponge fishing. The following are samples:

Document No.

- C (59c) Letter dated 5/19/1934 addressed to the Port Captain of Tripoli re abusive sponge fishing.
- D (59d) Letter dated June 1, 1934 to the Port Captain of Tripoli re abusive sponge fishing.
- E (59e) Letter dated 5/12/1934 re Italian Navy's gunboat "Alula" mission.
- F (59f) Handwritten note, undated, alluding to a mission of the Italian Navy vessel "Malocello".
- H (61) Letter dated 6/1/1934 from the "Commissary of the Occidental Boundary" re the surveillance of sponge fishing.
- J (63) Letter dated 6/24/1934 from the "Commissary of the Occidental Boundary" re the surveillance of sponge fishing vessels.
- L (65) Letter dated 7/20/1934 re the eventual purchase of a vessel for the use of the Zuara district in the surveillance of sponge fishing.
- N (67) Letter dated 6/2/1934 to the Port Captain from the government of Tripolitania re the abusive fishing of sponges by Tunisian and Greek vessels, and the dispatching of the naval unit "Monfalcone" for surveillance purposes.
- Q (69b) Letter dated 7/14/1934 from the "Commissary of the Occidental Boundary" re the position of infringing fishing vessels.
- R (69c) Letter dated 7/16/1934 from the naval command to the Command of the Tripoli district, and to the commander of the "Monfalcone" re repression of abusive fishing by the vessel "Monfalcone".
- S (69d) Letter dated 7/16/1934 addressed to the Office of Economic & Colonial Affairs of Tripolitania, referring to the above-mentioned letter dated 7/14/1934 at pp. 291-292.
- T (69e) Two telegrams dated 7/16 and 7/17/1934 re departure and arrival of torpedo-boat "Monfalcone".
- V (71) Letter from torpedo-boat "Monfalcone" to the Tripolitanian government, dated 7/17/1934 indicating par-

ticulars of a repressive mission against unauthorized sponge fishers, including navigational coordinates.

X (73) Letter dated 9/15/1934 #3630, drafted by the Port Captain, directed to the Economics and Colonial Affairs of Tripolitania, demanding the authorisation for the purchase of an 8 metre patrol boat.

- (3) *Sailing Directions in the Mediterranean* : U.S. Navy Hydrographic Office, Washington, D.C., (H.O. No. 154A) 1942 Vol. IV, p. 58.
 - (4) *Mediterranean Pilot*: 6th edition. Hydrographer of the Navy, Taunton, England, 1976, Vol. V, p. 39.
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Annex 5A

**TECHNICAL DATA AS TO RELIEF MODEL OF THE PELAGIAN BASIN AND
SURROUNDING LAND**

BY

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**MEMBER, EDITORIAL BOARD
INTERNATIONAL BATHYMETRIC CHART OF THE MEDITERRANEAN SEA**

MUNICH, 1980

1. **Base Map** (to be furnished to the Court with the Relief Model)

Area covered:

Lat. 30°N to 37°30'N
 Long. 9°E to 18°E (of Greenwich)

Projection: Mercator (cylindrical)

Scale: 1 : 1,500,000 (at Lat. 38°N)

Source maps:

- (1) *Marine area:* Mer Ionienne Carte N° 2, Mémoire du Gouvernement de la République Tunisienne, Vol. III, Tunis, 1980.

Land areas:

- (2) for Tunisia: 1 : 1,000,000, Office de Topographie et de Cartographie, Ministère de l'Équipement, Tunis, 1975;
- (3) for SE Tunisia, Libya and Sicily: Tunis, sheet 3 of Africa 1: 2,000,000; Edition 4-TPC; U.S. Army Topographic Command, Washington, D.C., 1969.

The land contours of (2) and (3) were photographically transferred to the scale and projection of the chart (1).

Land topography: in "+" contours of 100 metre steps with omission of lines when contours are too closely spaced.

Coastal line ("0"): bold line.

Submarine topography:

- a) In very shoal water depth contour lines at - 20 metres, - 50 metres;
- b) 100 metre interval where contour lines are separate (normal shelf and slope);
- c) 200 metre interval where contour lines are very close together.

2. **Relief Model** (coloured, without vertical exaggeration)

Land topography: (yellow) at 200 metre interval

Sea bottom topography: (blue)

100 metre - 600 metre water depth: 100 metre interval
 600 metre to deepest area: 200 metre interval

Sea colouration:

pale blue:	below "0" including the - 800 metre step;
light blue:	"surface" of the 1000 metre step ¹ including the -1800 metre step;
medium blue:	"surface" of the 2000 metre step ¹ including the -2800 metre step;
deep blue:	"surface" of the 3000 metre step ¹ down to the deepest area (-4074 metre, Messina Abyssal plain).

¹ Due to a technical mistake the "surface" of the 1000 metre, 2000 metre etc., steps were painted with the colour which was intended to symbolize the water depth *below* 1000 metres, etc.

Annex 5B

**EXPLANATORY NOTE TO THE "THREE-DIMENSIONAL" COMPUTER
PRINTOUTS OF THE PELAGIAN SEA AND SURROUNDING LAND
("LARGE AREA BLOCK DIAGRAMS")**

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INTERNATIONAL BATHYMETRIC CHART OF THE MEDITERRANEAN SEA

MUNICH, 1980

TECHNICAL DATA

Base Charts: Bathymetric Chart 1:500,000 by SOGREAH Consulting Engineers, 1975 (under contract with the Libyan Government).

Bathymetric Chart 1:75,000 by C. MORELLI, G. GANTAS and M. PISANI (1975) used in completing the northeast corner of the SOGREAH chart¹.

Geographical Area (identical with the area of the two "Block Diagrams"):

Longitudes: from 9° E to 18° E.

Latitudes: from 30° N to 37.5° N.

The base chart used for digitisation of about 20,000 points is identical with that used for the "Block Diagrams".

Horizontal Scale of the base charts and of the original computer printout (without reduction for the perspective distortions) is 1: 1,600 000. (This scale is not valid for the photographic reductions.)

Vertical Scale: Variable, depending on the vertical exaggeration ("V.E.") of the different groups of graphics.

Group a: no V.E.

Group b: 10 times.

Group c: 25 times.

Direction of View: Three aspects were selected:

(1) from northeast (N 45° to E)

(2) from east/northeast (N 67.5° to E)

(3) from east/southeast (N 112.5° to SE).

Angle of View ("Theta" = Azimuth): "Theta" is the angle at which the observer seems to look down at the centre of the graphic; or the angle at which the area was tilted from the horizontal position towards the observer. This angle was changed depending on the grade of vertical exaggeration in order to limit the lack of information behind areas of steep relief:

Theta: 10° in all diagrams with no V.E. (Group a);

Theta: 12° in all diagrams with 10 x V.E. (Group b);

Theta: 15° in all diagrams with 25 x V.E. (Group c).

MORPHOLOGICAL ANALYSIS

The purpose of this series of "Large Area Block Diagrams" is to show the morphology of the solid surface on land and below the sea of the entire area between the northern part of the African mainland (latitude 30° N) and Sicily (latitude 37.5° N), and between the east extension of the Atlas Mountain ranges in northern Tunisia (longitude 9° E) and to the beginning of the Messina Abyssal Plain at longitude 18° E.

The "landscape" of this area is shown without any suggestive influence by the coastal line or other contour lines, by coloration or shading. The observer should not see, at first sight, where the land ends and the sea starts. Furthermore, the observer should be able to evaluate objectively

¹ See Annex 11, pp. 10 and 11 for a detailed discussion of each chart.

the relief which can be seen (or could be seen below the sea) "with the naked eye". He also should be able to visualize those morphological features which can be detected only by an important vertical exaggeration. These differences in visibility of features on the three Groups of diagrams (each Group with a different V.E.) can be used to evaluate the degree of importance of a given morphological feature:

Only a "gross feature" is visible without vertical exaggeration. Gross features are those of *major morphological and tectonical importance* (i.e., important geological changes).

The other features have to be considered either as "small features" or "features with low relief".

Gross Features

The morphological features which can be seen best, i.e., without any vertical exaggeration are (in order of decreasing intensity):

- I. The Malta Escarpment and the Medina Ridge with adjacent sea mounts;
- II. The system of northwest/southeast running grabens (troughs) near the Pelagian Islands;
- III. The cliff of the Djebel Nefusa - Dj. Duirat;
- IV. The spur of the Tell Atlas Mountain ranges till Cape Bon;
- V. The slope northeast off Missurata.

All other features are of a lower rank of intensity and cannot be detected on the diagrams without V.E.

Small Features or Features of Low Relief

Contrasting to the few "gross features" there are many features showing a relief which can only be demonstrated by a vertical exaggeration of 10 times or even 25 times. Their visibility on the different series of diagrams depends in part on the direction of view too.

The large number of single features cannot be named here; only the following ones seem to be worth mentioning:

1. The depression west of Gabes connecting the Pelagian Basin with the area of the *chotts*;
2. The Kerkennah High, showing an approximately northeast/ southwest directed elevation;
3. Special features within and adjacent to the area of the Medina and Melita banks;
4. Features south off Sicily and around Malta.

Lack of Features

On the other hand, the consistency between the Jeffara Plain and the adjacent vast flat offshore area can be demonstrated by the lack of any feature. Especially on diagram 3c (view from east/southeast, V.E. 25 x) it can be demonstrated that the natural border of the Pelagian Basin is the cliff (and its related fault zones) of the Nefusa-Duirat Mountains. Off

the Jeffara Plain there are no depressions or troughs or slopes of importance running west to east at all. To the contrary, the area between Tripoli - Gabes - Kerkennah Islands - up to the southeast/ northwest directed graben features, i.e., the area under consideration, is uniform.

Annex 6

**SOVEREIGNTY, FRONTIERS AND THE
HISTORICAL BACKGROUND**

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Introduction

This memorandum is intended to provide a background of historical evidence for an examination of the arguments put forward by each side in the dispute over the demarcation of the maritime border between the Republic of Tunisia and the Socialist People's Libyan Arab Jamahiriya.

Libya has argued that the present territorial demarcation is the result of a constant eastward push by the former colonial power in Tunisia, France. Before the French occupation of Tunisia in 1881, the border marches between the old Regency of Tripoli, the precursor of modern Libya, and the then Regency of Tunis lay well to the west, extending even as far as Gabes in the early 19th Century. When the present land boundary was delimited in 1910, no demarcation of the maritime boundary was made, beyond a general statement that it should be a projection of the land boundary at the coast—thus in a direction generally north/south.

Tunisia, on the other hand, has suggested that the Gulf of Gabes region, from Sfax down to the present land boundary, is a social and economic unity, as well as existing in a unique historical continuum. These features depend on the major economic activity there, fishing for edible fish and sponges—an activity which has been dominant ever since classical times. The consequence of this unity is that Tunisia has enjoyed sovereignty over the area since time immemorial and this sovereignty has always been recognized by third parties.

One way in which this sovereignty has manifested itself has been in the recognition by the Tunisian State of public and private property rights in fishing and fishing banks there, as well as through the recourse by alleged owners of such rights to Tunisian courts in case of dispute. Public rights over sponge fishing have traditionally been accepted by third parties, particularly European powers, as extending beyond the conventional limits set to territorial waters to cover sponge banks in the Gulf of Gabes and off the Kerkennah Isles. This recognition is the counterpart of the economic and social unity of the area and further reinforces Tunisia's sovereign rights to the region both on land and on the seas.

In view of these detailed Tunisian arguments, the discussion that follows has necessarily concentrated on material dealing with Tunisia, so that the validity of these arguments can be considered objectively. The material covers the following areas:

- (a) Sovereignty, in relation to the Regency of Tunis's links to the Ottoman Empire before the French occupation in 1881, and to the attitudes adopted by European powers, as well as to domestic concepts of sovereignty used to define the extent of the Tunisian State at that time;

(b) The maritime traditions of the Barbary States up to colonial times, to indicate what was the nature of maritime relations between the Barbary States and other Mediterranean and European powers;

(c) Historical unity of society and economy in the Jeffara Plain as compared with the Tunisian claims over the unity of the Gulf of Gabes;

(d) Ethnic complexity in the Jeffara Plain as a demonstration of the way in which local society was organized to maintain its independence from central authority;

(e) The history of the border between Libya and Tunisia where the fluid border marches were pushed steadily eastward, to Ottoman Libya's disadvantage, and hardened into an impenetrable frontier, interfering with traditional patterns of social and economic activity;

(f) The development of the concept of territorial waters and maritime boundaries in the southern Mediterranean since the end of the 18th Century; and

(g) The significance of fishing in the area and the disputes that occurred between colonial powers there, in view of their implications for the delimitation of maritime frontiers.

SECTION 1. SOVEREIGNTY

1. The Tunisian Memoire has laid considerable emphasis on the concept of "Sovereignty" in describing its claim that the Gulf of Gabes region is an economic and social unit extending at least to the present border and forming part of an historic continuum. Since this continuum has been accepted by third parties, so the argument runs, it may be considered as contributing to the spatial sovereignty claimed by the Beys of Tunis or any successor government. Indeed, the Memoire seems to imply that such a claim is also retrospective.

A. Sovereignty in Ancient Times¹

2. It should go without saying that any ancient historical or historico-geographic evidence will be largely anachronistic in respect of modern legal definitions of sovereignty, territorial waters, fishery zones or use of the continental shelf. Not only was sovereignty over coastal waters in antiquity largely restricted to a few, ill-defined rights, such as the control of access to ports of trade, but the actual territories themselves were differently defined. The period of North African history occupied with Greeks, Phoenicians and Romans, although relatively well documented, provides only general truths about the nature of the regions in question (see Section 5 for a detailed discussion of these points). Nonetheless, the "natural" frontier between Tunisia and Libya throughout antiquity was drawn along the line of the Tunisian *chotts*, and the site of Gabes and the Jeffara Plain was an economic and strategic unity, physically demarcated in Roman times by a frontier road.

3. The Tunisian Memoire also states that Tripoli was founded as a Phoenician colony. In fact, there is no real evidence of this, although there is no doubt of Punic influence. The only source to mention Oea (Tripoli) says the site was colonized by Africans and Sicilians, which is difficult to accept literally (Gsell 1913-1928 I: 372-73). The point is perhaps trivial but it leads on to the broader question of what is meant by colonization and sovereignty in the ancient world. Although the Tunisian Memoire implies that colonization meant loss of independence, actual colonization by Phoenicians in the sense of populations settled there by the Phoenician or later Carthaginian cities, was a relatively rare phenomenon. Colonization was not coupled with political subjection to a metropolitan power with the consequent extension of territorial sovereignty. Most of the cities of Tripolitania were independent enclaves of native communities, heavily influenced by and regularly trading with Carthage (Whittaker 1974: 58-59). They were only briefly under direct Carthaginian control, and even that control was disputed by a native Berber king.

4. The one historical example which could be used to support the Tunisian contentions for sovereignty over the Gulf of Gabes does not in fact do so. The famous Carthaginian treaties with Rome, recorded by the

¹ See *Figure No. 1*. (The figures referred to in the text have been placed in numerical order at the end of this Memorandum.)

Greek historian Polybius in the Second Century BC but which date back to 509 BC (Polybius III: 22, 24) seem to state that Carthage forbade all foreign shipping in and out of ports along the eastern Tunisian coast anywhere beyond Cape Bon.

5. However, this was not the case, for not only is there substantial evidence that foreign shipping operated along the Libyan coast without hindrance or permission from Carthage, but Carthage also positively encouraged long-distance trade in the ports it influenced. This influence was largely confined to special treaty rights in independent ports of trade extending down to the present-day Cyrenaican border, not unlike the grant of "Capitulations" in the mediaeval period to maritime states like Genoa.

6. In other words, Carthaginian "sovereignty" was limited to treaty (negotiated) rights, exercised in ports of trade and not on the high seas. No attempt was ever made to establish trade monopolies or blockades partly because enforcement would have been beyond the technical capacity of ancient naval formations (Whittaker 1978:80-85).

B. Pre-Protectorate Tunisian Sovereignty¹

7. The real thrust of the Tunisian argument, however, is concerned with the modern period. Specifically, the Tunisian Memoire implicitly rejects the idea that there was any substance in the claims by the Sublime Porte of the Ottoman Empire in Istanbul that it had residual but significant rights of sovereignty after control devolved on the hereditary Hus-sainid Beys of Tunis. By implication of course, the same arguments would apply to Tripolitania under the Qaramanli dynasty. However, in this case, the reimposition of Ottoman rule in 1835 necessarily gave reinstated Ottoman sovereignty, *de facto* and *de jure*, until the Italian occupation of Libya after 1913. The historical evidence indicates, however, that there were also residual rights of Ottoman sovereignty in the Regency of Tunis which were recognized both by the Porte in Istanbul and the Bey in Tunis.

8. Tunisia had been sovereign and independent under the Haf-sids (13th to 15th Centuries), with the Sultan referring to himself as "Amir al-Muminin" (Commander of the Faithful) in a treaty in 1270 (Silvestre de Sacy 1825). This ceased, however, once Tripoli and Tunis were occupied by the Ottoman Turks during the 16th Century (Pitcher 1974: 121).

9. By the start of the 17th Century, both Tunis and Tripoli had evolved into autonomous units within the Ottoman Empire. The reality of their relationships to the Empire was very complicated. European powers certainly made agreements with both Tunis and Tripoli over enslaved nationals and mutual freedom of access (France: Treaties) but such agreements were always with the Beys and Deys of Tunis or Tripoli - in other words with the officials appointed by the Sublime Porte in Istanbul to fulfill the functions of military and civil leaders in the Regencies.

¹ See Figure No. 2 and Figure No. 3.

10. Even the 18th Century hereditary dynasties of the Qaramanlis in Tripoli and the Beys in Tunis retained strong links with Istanbul. Each received a firman of investiture from the Ottoman sultan; firmans expressing Ottoman wishes would be sent to them, money would be struck in the name of the Ottoman sultan and annual tribute was expected from them (Mantran 1961: xix).

11. The Beys and Pashas were also very concerned about the attitude taken to them by the Ottoman Sultan. Ahmad Bey, for instance, requested in 1840 the titles of Marshal and Vizir, rather than the previous Governor and Ferik (Mantran 1961: xv-xviii). In 1843, the Ottoman Sultan finally accorded the Bey of Tunis the highest rank available to a provincial governor by addressing him as "valisi hazretlerine". In short, the Regency of Tunis was still considered to be a province of the Ottoman Empire, despite its very considerable autonomy.

12. This formal dependence also had a certain reality. In 1835, when the Ottoman Empire decided to put an end to the chaotic regime of the Qaramanlis in Tripoli, Tunisia was expected to provide troops and/or financial aid and supplies (Mantran 1961: 108). A similar request had been made in 1770, although the Khodja-basha sent from Istanbul had to act instead as a negotiator between the Bey and a French fleet which had attacked La Goulette (Broadley 1882: 2-349). During the Crimean War, Ahmad Bey also sent a contingent of troops to the Ottoman sultan (Brown 1974: 305).

13. The relationship was cemented in other ways. The Bey maintained a permanent representative at the Ottoman court - appointed by the sultan and paid for by the Bey - the Kapi Kethudan. There were permanent Tunisian consuls stationed in Smyrna, Tripoli, Chio and Morea - areas from which militia were recruited for service in Tunisia. Tribute continued to be paid up to 1845, when it was replaced by agreement by gifts to symbolize the basic sovereignty of the Ottoman Empire over Tunisia (Mantran 1961: xix).

14. Needless to say, the relationship was often extremely uneasy, as the Ottoman Empire continually strove to reassert its control and the Beys and Pashas to limit it. In Tripoli, Ali Pasha Burghol forced out the Qaramanlis in 1794 and threatened Djerba until he was repulsed by an army sent by the Bey. Burghol had claimed to hold a firman from the Sultan to recover control over both Tripoli and Tunis (PRO 1).

15. The Ottoman re-occupation of Tripoli led to fears that the same might happen to Tunis. A 10,000-man Ottoman army which appeared in Tripoli harbour in September 1837 caused lively apprehension in Tunis, which seems to have been unfounded (Brown 1974: 217). The French Foreign Ministry was later to claim that it had prevented two other attempts (SHAT 1). Again, in 1846 there were rumours that the Ottoman Pasha of Tripoli was planning to invade Djerba and was suborning local sheiks (PRO 2).

16. The Regencies were quite prepared to use European pressure to ensure their autonomy and to prevent direct Ottoman intervention - not

always successfully (Brown 1974: 240 ff). The reverse was also true and France began to develop considerable cynicism towards Ottoman claims (MAE 1). After the occupation of Algeria, for instance, Algerian dissidents received aid from Tunisian compatriots and the occupation of eastern Tunisia was considered. However, the Foreign Ministry was not prepared to destroy the Ottoman/Tunisian link, even though the military commanders in Algeria were anxious to raid offending Tunisian tribes (SHAT 2).

17. By 1851 France was less restrained and openly claimed the Ottoman link to be purely spiritual. Tunisia was now considered at least by the French an independent state (MAE 2 and 3). A military mission had been foisted on the Bey and French influence in Tunisia was by then considerable.

18. It was left to Britain to maintain Ottoman suzerainty there after the French invasion of Algeria in 1830 (Marsden 1971: 3). Britain warned France not to invade Tunisia on three separate occasions (Marsden 1971: 27) and Consul-General Wood put constant pressure on the Bey to reaffirm his links with the Ottoman Empire so as to better resist French pressure.

19. Eventually, in 1871, Mohammed Sadiq Bey requested a firman restating the Ottoman Empire's suzerainty and sovereignty over Tunisia from Istanbul (Marsden 1971: 32; Ganiage 1968: 342, 24). France was furious and refused point blank to recognize the validity of the firman, because it considerably limited her freedom of action (Raymond and Poncet 1971: 22; Marsden 1971: 33). In fact, contemporary French sources claimed that it was this French refusal that preserved Tunisian independence by preventing the Ottoman Empire from reasserting its control (SHAT 3).

20. Britain took great care to avoid treating Tunisia as an independent state. In 1856 Ahmad Bey refused to visit Britain because the Government there would only accord him the status of an Ottoman ambassador (Ganiage 1968: 24). In 1875 the commercial treaty signed with Tunisia was closely patterned on similar arrangements made with the Ottoman Empire (England, Foreign Office 1876).

21. Even after France had occupied Tunisia in 1881, Great Britain still refused to relinquish its support for ultimate Ottoman sovereignty there. In fact, the views of the British Government over the status of Tunisia prior to the French occupation had been typical of those commonly held in the rest of Europe (Broadley 1882: 1-vii).

22. Ironically enough, the Treaties that France forced on the Bey of Tunis in 1881 (the Treaty of Bardo) and 1883 (Al Marsa Convention) both created genuine Tunisian sovereignty and then assimilated it into that of France. Under Article 4 of the Bardo Treaty, all agreements with European powers were to be maintained - those with the Ottoman Empire were, by implication, to fall (SHAT 4). Under Article 1 of the Al Marsa

Convention, the French Government took the right to make whatever modifications it felt necessary in Tunisian institutions and the Bey was obliged to accept them.

23. Thus, despite the legal fiction of a Protectorate, after 1883 Tunisia *could not in any case claim any form of sovereignty, as France acted in her name*. Even the territorial extent of France's new subject state was subject to this sort of control—in 1882, the French War Ministry toyed with the idea of limiting its penetration to Gabes and leaving the area to the south to its own devices (SHAT 5).

24. By the 1890s, this had radically changed, because the French authorities had been overcome by the notion of the "hinterland". According to this view, each littoral state in North Africa had a hinterland that lay due south of it. In the case of Tunisia, the eastern limit of its coastline had the fortunate consequence that both Ghadames and Ghat, major staging posts on the Saharan trade routes, lay inside the claimed Tunisian hinterland, and thus rightfully under French control. This claim had the advantage that France could thus remove control of the Saharan caravan trade from Tripoli by eventually occupying these important oases (Vivien 1899: 260, 261).

25. Indeed, this concept played such a part in the thinking of the War Ministry that it saw the Turco/ Tunisian Border Conference of 1893 as a danger to this hinterland (SHAT 6). Luckily for them, the conference broke down for quite independent reasons.

26. In any case, quite apart from notions of "hinterland" or the application of European concepts of "sovereignty", France had consistently and deliberately ignored the corresponding Ottoman and Muslim concepts. It was in this way that France could unilaterally reject Ottoman claims, using as evidence the inability of the Ottoman Empire to fulfill the criteria that France, as a *European power, insisted should be satisfied for sovereignty to be established*.

27. Ideally, in Muslim eyes, sovereignty related not to territory but to consent. Muslims belonged to a general community which was involved in a complex series of interrelations between rulers and ruled. In general, these interrelations, which took the form of explicit contracts, required the rulers to preserve the integrity of the overall community as a primary requirement for the recognition by their subjects of their position.

28. Apart from these general considerations, separate communities within the general community were granted considerable autonomy to handle their own affairs. Only when the integrity of individual communities—by threats from Christendom, and later from European powers, for instance—and, by implication, the integrity of the overall Muslim community, were threatened, did the supreme rule of that community become directly involved.

29. In other words, the Ottoman Sultan-Caliph (by this time the Ottoman Sultan was the legal embodiment of the Sunni Caliphate) had an inescapable obligation to interest himself in the defence of a country like Tunisia when threatened, even though normally speaking, he left Tunisia

to look after its own affairs. The large degree of local autonomy granted to Tunisia did not, in Muslim eyes, imply any derogation of sovereignty, since such links became explicit only in times of threat.

30. It is this principle that explains Tunisian willingness in 1871 to turn to Istanbul for a firman of support, despite its long tradition of avoiding direct interference by the Porte in its affairs. In short, Muslim sovereignty, as practised by the Ottoman Empire, involved contractual bonds between communities rather than control over territory.

31. This was the principle that France (and later other European powers) was to consider an irrelevance and an example of the impotent hypocrisy of the Ottoman Empire in claiming interests in areas where its territorial authority did not extend in terms that Europeans could recognize. It was also the reason for Ottoman obstinacy over accepting French *faits accomplis* in both Tunisia and Algeria.

32. Although the Sublime Porte was powerless to prevent the French occupation of Tunisia, the Ottoman authorities consistently refused to accept the Bardo Treaty. Even as late as 1910, when the border situation was so serious that it seemed as if France might actually invade Tripolitania, the negotiations that both sides recognized as essential were delayed because of this "obstinacy" (MAE 4).

33. Nonetheless, the Sublime Porte had not wanted to exacerbate French anger and had early on instructed the Vali in Tripoli to be as accommodating as possible. This, in turn, led to Italian anger over apparent French influence in a region over which she had designs. As a result, in 1904, France came to terms with Italian fears by according Italian interests in Tunisia special status. This agreement, which directly related to Tunisian sovereignty, was signed without consulting the Bey of Tunis (SHAT 7).

34. In fact, Italy had been extremely concerned, ever since 1881, with French activities in Tunisia, because of the large number of Italians resident there and because of her own considerable economic interests, particularly in fishing. Italy had also been alarmed by French threats to Tripolitania, as France increasingly encroached eastward. Initially she had relied on British support in trying to maintain Ottoman control there, until it became clear that Britain too was prepared to see the Ottoman Empire collapse. It was at this point that Italy came to secret terms with France.

35. Of course, after Italy's occupation of Libya, these considerations became irrelevant. The Ottoman Empire had disappeared, its successor state made no claims on the Barbary States and decisions were made by European powers. By 1934, the only considerations that exercised French apprehensions were the dangers that conflicts within Europe might spill over into North Africa, particularly along the Libyan/Tunisian border.

C. Domestic Concepts of Sovereignty in Pre-Protectorate Tunisia

36. In pre-Protectorate Tunisia, these diplomatic considerations played little part in determining the extent of the geographic control

exercised by the central authority of the Bey. This was more usually defined by the Bey's government by its ability to collect taxes, appoint officials and exercise justice—both between Tunisians and between Tunisians and foreign nationals.

37. In the 19th Century juridical relations between foreign nationals resident in Tunisia and the Tunisian authorities were governed by the "Capitulations" system. This gave foreign consuls considerable influence in judicial matters which are normally the exclusive concern of a sovereign state, since they had rights of presence and even of participation in the legal process if their own nationals were involved, to the extent of actually trying cases themselves.

38. There was also an elaborate system for the administration of justice, particularly in the coastal ports (Braunschvig 1965: 64). Judicial officials were appointed as far south as Djerba (Kraiem 1973: 1-460) and, in the 19th Century, found themselves increasingly involved in disputes over fishing and trade. In such cases Europeans usually accepted indigenous Tunisian tribunals.

39. As early as 1826, British nationals had started to complain to the British consul over decisions by the Bey or his officials. Often this involved questions of extent of jurisdiction and sovereignty—as with the case of the London Pearl and Coral Association, where the Bey was accused of having usurped the sovereign rights of Algeria by granting fishing rights to regions outside his authority (PRO 3).

40. Later on, in the 1870s, several cases of dispute over Tunisian fishing rights arose. The Beys claimed rights over fishing outside the three-mile limit, on the grounds that there were internationally recognized prescriptive rights there. In the case of the Kerkennah region, the fact that Italian, Greek and Maltese fishermen tolerated Tunisian claims was held to be sufficient proof of these rights (PRO 4). However, Sir Travers Twiss, in his opinion (Tunisian Memoire Volume II, Annex 81), pointed out that there was also the matter of how coastal features such as bays (conventionally limited to a width of 10 miles), should be identified.

41. This opinion, of direct relevance to the question of Tunisian sovereignty in the Gulf of Gabes, was never tested, no doubt because most fishing of sponges and polyps was inshore and because the catch was landed at Tunisian ports for sale. Although this was required by Beylical law, it was in any case necessary for the sponges to be cleaned as soon as possible after removal. The disputes were really about whether foreigners could claim extra-territorial rights over catches they landed.

42. Amongst the rural populations of Tunisia, justice was a commodity dispensed by a local official (Braunschvig 1965: 40) although this tended not to be the case in the south. There local tribes did their best to ignore the central authority of the Beys and their appointed officials. The nature of the administration in these regions facilitated this attempt (Fitzner 1895: 282).

43. In fact, sovereignty inside Tunisia itself was not a simple question of territorial control. It related, as in the case of the Ottoman Empire to

links between communities rather than to control of territory as such. It depended on the mutual but conditional recognition of complementary obligations between ruler and ruled. Both had defined obligations towards the Muslim community at large of which each formed an integral part. Often, of course, such mutual obligations were reduced to simple coercion, but this was only tolerated to the extent to which it accorded with a general recognition of the legitimacy of central government—provided, of course, that those suffering from such coercion had sufficient power to make their views known.

44. Generally, Tunisia was controlled by a set of officials—the caids—appointed by the Bey and answerable to him. The appointments were for specific, limited durations and, during his period of authority, the caid could not leave his caidat without the Bey's permission. The caid was not usually a local man, and, with the really important caidats, such as that of Djerba, he would normally be a Mameluke, a member of the administrative slave caste (Kraiem 1973: 1-32), or an important notable (Kraiem 1973: 1-169/170).

45. However, in the case of al-'Aradh, the region running down from Gabes along the Jeffara Plain towards Tripolitania, this was not the case. Under Ahmad Bey, for example, the caid, both of the 'Aradh and of Djerba, was a member of the powerful Bin 'Ayad family, a local family from Djerba that may even have had Tripolitanian origins (Brown 1974: 88).

46. Furthermore, the 'Aradh caid (and the Tarabulsi caid who controlled Tripolitanian migrants settled south of Tunis), unlike all the others, was not obliged to reside in his caidat. Instead he lived in Tunis, his duties being discharged by two khalifahs (assistants), one resident in Tunis and the other in Gabes. The caid only visited his caidat during the annual winter mahalla to the Djerid in the south (Brown 1974: 119).

47. This was because the 'Aradh was almost uncontrollable, with constant tribal warfare between the Warraghma and Nuwayl or between both these nomadic groups and the sedentary Berber tribes of the Jabal. The relationships that did exist between the Warraghma and the Bey had little to do with the exercise of his authority directly there. They were more requests for aid to an outside and separate authority, than appeals to an institution which was considered inherently responsible for Warraghma security (TA 2).

48. The isolation of the 'Aradh caid from those whom he was supposed to govern was best shown after the French occupation. The French authorities appointed Joseph Allegro, ex-consul in Bone, as caid for the 'Aradh. He was only able to assert his authority by negotiating in person with the local tribes—because of their inherent refusal to recognize the central authority in Tunis, be it French or Beylical (Cambon 1948: 160).

49. Apart from the appointment of officials, the Bey could also claim sovereignty on the basis of the taxes he collected. To this end it was usual to send out the Tunisian Army as a mahalla twice a year. In summer it went to the Beja region and in winter to the Djerid. Its primary purpose

was to collect taxes due, but, in reality, it attempted to demonstrate the extent of Beylical power by its ability to extract taxes since the actual financial return was often hardly sufficient to cover its costs (Brown 1974: 131).

50. In fact, the mahalla did not even go to the 'Aradh normally. Even in 1857, when there were complaints against the Hammama and the Beni Zid, just to the north of Gabes, no attempt was made to divert the mahalla from its usual course to the Djerid (SHAT 8). In later periods an annual tribute of 160,000 piastres was assessed on the Warraghma—it never seems to have been collected effectively and no majba (poll tax) was ever paid (Fitzner 1895: 279).

51. Although some taxes were apparently paid in the 1840s, these were only ashur on olives—mainly found around Gabes, Djerba and Zarzis, coastal ports of easy access. In any case, all these ports had regular maritime contact with Sfax and other urban centres in the north, where they sold manufactured and craft goods. Taxation there was obviously quite a simple matter (TA 3, TA 4).

52. The ineffectiveness of Beylical authority is shown by the inability of his governors to catch rebels who settled in the Tripolitania marches of Tunisia in 1856 (PRO 5). By effective use of the uncertain and unpatrolled border marches, they were able to disturb the Tunisian and Tripolitanian authorities for considerable periods and it is clear that Tunisian authority at this time did not extend even as far south as Kebili (PRO 6).

D. Conclusion

53. The Regency of Tunis, despite its remoteness from Istanbul and despite the hereditary nature of the Hussainid Beys, was always considered by the Ottoman Sultan to form an autonomous part of his Empire. This suzerainty was accepted by successive Beys, although they naturally attempted to maximize their autonomy. Nonetheless, the link with the Ottoman Empire was far more than simple spiritual respect due to the Sultan as Caliph. It was the full recognition of being part of a Muslim body politic in which a contract of obligation and duty linked the constituent parts.

54. European powers may or may not have respected this, for their policies were really conditioned by their desire to obtain commercial, and, later, political advantage. By the 1840s, France, because of her occupation of Algeria, was no longer prepared to sustain the Ottoman thesis of sovereignty, but was opposed by Great Britain. This international stalemate made it possible for the Sultan to grant the firman reaffirming his suzerainty over Tunisia in 1871.

55. Within Tunisia itself, sovereignty was the ability of the central authority to control and tax its subjects with their implicit consent. However, the country's southeastern extremity was governed by an official who, unlike similar officials elsewhere, resided not in Gabes, the major town of the region, but in Tunis, the national capital. He was represented in Gabes by a khalifa. In fact, the only occasion when central authority

could have made its effect there was during the winter mahalla. Yet the mahalla never went to the 'Aradh, travelling instead to Djerid. As a result local power devolved on the tribes and local notables.

56. Equally, the central government rarely, if ever, successfully collected taxes there. Only taxes levied on agricultural produce, such as olives, were collected from the coastal oases which were easily accessible from the sea. Although the Bey regularly received petitions from the region, these were appeals for aid from an external power rather than requests for protection from the subjects of a government they recognized and obeyed.

SECTION 2. MARITIME TRADITIONS IN NORTH AFRICA

57. Although real links of sovereignty existed between the Sultan's government of the Ottoman Empire and the Regencies of Tunis and Tripoli (before 1835), both Regencies enjoyed considerable autonomy as well. This was true both under the hereditary dynasties of Qaramanli Pashas (Tripoli) and the Hussainid Beys (Tunis) in the 18th and 19th Centuries, and during the preceding period when pasha and bey were directly appointed by Istanbul. The reason was simple - *jihad*.

58. *Jihad*, as "holy war", was the obligation on every Muslim to maintain (not extend) the "Community of the faithful"—the Muslim *umma*—particularly against threats from European Christendom. After the destruction of the Crusader Kingdoms and the growth of the Ottoman Empire, the main arena for this struggle was the Mediterranean and the Barbary States of North Africa were a specific creation for this purpose. Even after Ottoman attention turned towards Eastern and Central Europe, the Mediterranean continued to be a hostile frontier between two competing ideologies, Christianity and Islam.

59. In this confrontation, it was usual for the Ottoman Sultan to voluntarily grant autonomy to local potentates who were prepared to prosecute the struggle. Tunis and Tripoli thus enjoyed considerable freedom of action in relation to third powers without thereby weakening the Ottoman state of residual sovereignty over them. The means used for prosecuting this struggle was corsairing.

A. The Barbary Corsairs

60. The term "corsair" is defined as "... a private individual granted a licence by his sovereign to fit out a ship to attack his sovereign's enemies. The prizes which he takes, if judged lawful by the courts of his country, are his to dispose of as he sees fit, subject normally to a share being paid to his sovereign." (Earle 1970: 6).

61. This definition applies equally to both the Barbary States and rival Christian corsairs - generally subsumed under the title of the "Maltese Corso", because of the dominance of the Order of Malta. It also covers activities by national navies and private individuals, for there was little difference between the two. "In fact the Corso among all civilized nations, until it was eventually abolished, represented a delegation of the right of war to individuals licensed for this purpose by the State." (Caruana Curran 1973: 3).

62. Until the end of the 1580s, the western Mediterranean corsairs were active allies of the Ottoman Turks against Christendom. However, after the Knights of St. John were expelled from Rhodes and Tripoli and after the failure of the Great Siege of Malta in 1565, Selim the Magnificent turned towards conquest on the European mainland. The Ottomans lost all interest in the Mediterranean theatre after their failure in the Battle of Lepanto in 1571 and thereafter the Barbary corsairs operated alone in small fleets, joining the Ottomans only for specific and limited purposes.

63. As far as the Barbary States were concerned, the sizes of the corsairing fleets underwent a general decline from the 1620s until the French Revolutionary Wars, when there was a last burst of activity before the Corso was finally suppressed. Actual fleet sizes are difficult to estimate because many ships were designed to be used both as corsair ships and for trade once their armament had been removed. In addition, there was a change in the late 17th and 18th Centuries from galleys towards the Mediterranean roundship, which was sail-powered, because of the predominant influence of renegades with their greater technical competence, within the Barbary Corso. Generally speaking Algiers had the largest fleet and Tripoli the smallest—at about 15 ships in the second half of the 17th Century.

64. The major forward bases, for the interception of Christian shipping were located around the Mediterranean islands. For the Barbary corsairs, the area of activity was confined to the Balearics, Sardinia, Stromboli and the Lipari Islands off Sicily and the Lampedusa/Linosa region, while Turkish corsairs used the Aegean and Adriatic archipelagos in the eastern Mediterranean.

65. Raiding was seasonal, Dutch and British ships off Andalucia and Provence being raided in December when charged with raisins and wine, and the Levant trade in autumn, as it returned westward. Although convoy systems were developed by European trading nations—in which the order of Malta played a major part—these were never very effective. Attacks tended to concentrate in areas which ships could not avoid—Sapienza for the Levant trade and St. Pierre or the Cap de Gatt for the western Mediterranean (Earle 1970: 55-58).

66. The Tripoli fleet tended to concentrate on the east coast of Sicily and on ships returning from the Levant, in regions around Crete and Morea. In this respect, it had to compete with the Tunis fleet, which also operated in Italy, Sardinia and Corsica, as well as making trips to Majorca. The Algiers fleet operated in the extreme west and the Atlantic.

67. For the Tripoli fleet, the Levant was a difficult area. Most trade was carried in Greek shipping which was under the protection of the Ottomans and thus untouchable. Later on, the other main trading nations, France, Britain and Holland, became too powerful to raid with impunity. As a result, Tripoli ships began to move into the Sardinia-Corsica region.

B. Relations with Foreign Powers

68. Once the period of generalized warfare was over, the Barbary States began to be more selective about their enemies. In the 17th Century they tended to concentrate on Catholics, particularly Spain, given Spanish traditions of intolerance after the Reconquista and attempts to fulfill, rather halfheartedly, Isabella's testament. Other states, such as France, Britain and Holland, with their greater technical competence and naval power, became "friendly powers", who were no longer subject to corsairing attacks.

69. Treaties were signed to regularize shipping and trade, immunity being granted in return for tribute, if the state concerned was weak. However, with the three major maritime powers, this ceased to be paid by the mid-18th Century. However, new problems arose. The first was to decide what was an enemy national. The second was how to apply the right of search—the “*visita*”—to friendly ships. A third was the process to be applied to enemy goods carried on friendly ships (they were sold and the captain of the friendly ship reimbursed for the lost carriage costs). Friendly goods on enemy ships were confiscated and, most important of all, friendly nationals on enemy ships were enslaved—although this was only supposed to occur if they resisted.

70. In short, there was a range of potential points of conflict with the “friendly powers”, during the 16th and 17th Centuries. Beyond that, the *rais* (corsair captains) were no saints and cynically exploited their advantages for commercial profit. In this way they were aided by the hypocrisy of northern European powers, for the ancient crusader tradition lingered - so that unprincipled attacks on Muslim shipping could be made by British, French or Dutch raiders, while consuls insisted on immunity for their own merchant ships. Most Barbary States were very patient over these problems, but anger did occur. Wars would break out, to be settled by bombardments of Tripoli, Tunis and Algiers which did little real damage but enabled the status quo to be restored.

71. By the start of the 18th Century, a new system was developed to replace the old system of “right of search”. Now passports were issued by “friendly” European powers, copies being sent to the Barbary rulers, so that their corsairs could check the pass of a particular ship against the copies held by their Bey. Of course the system was open to massive abuse for the many smaller nations but it still provided a workable system of control. This did not help the corsairs, who saw their returns diminish and thus became more unruly.

72. In fact, the very success of the pass/tribute system limited its effect. The Bey, to ensure that he could control his corsairs, could not make peace with all possible applicants, as a certain proportion of legitimate targets were needed for his corsairs. The major powers of Britain, France and Holland were too powerful and states like Venice or Livorno too useful for trade purposes. Malta was too close and itself the centre of Christian corsairs (ultimately much more efficient than the Barbary corsairs). As a result, small powers, such as Sardinia, the Scandinavian States and the Baltic Ports, became the typical prey (Dearden 1976: 16).

73. In fact, the European powers encouraged this. Britain and France could easily have suppressed corsairing in the 18th Century, but did not choose to do so. In the case of Britain, there was no real interest in doing so since she suffered little from corsairs and in the case of France, the Marseilles merchants benefited far too heavily from their involvement in Maltese corsairing for them to want to see its justification - Barbary corsairing - being suppressed. For both sides the nice balance of partial but continual war was very convenient (Earle 1970: 36-45).

74. It was precisely those Mediterranean nations which were most subject to Barbary corsair deprivations that formed the Maltese (Christian) Corso. This posed a far greater threat to the maritime activities of the Barbary States than their corsairs ever did to Christendom. Most important of all were the corsairs licensed by the Knights of St. John of Malta (Earle 1970: 11).

75. Nonetheless, relations between the Barbary States and European nations became more regularized. Consuls from the major powers became a regular feature of the capitals of the Barbary States, in the 17th Century. France had been the first to establish diplomatic representation in Tripoli in the 16th Century, followed by Britain in 1658 (Dearden 1976: 23). A consul, Balthazar Seguier, responsible for both Tripoli and Tunis was appointed in 1591 from among the merchants of Marseilles with commercial interests there, replacing the previous consul who had become a "heretic" (SHM 1)!

76. Surprisingly, some of the smaller Mediterranean States had anticipated this development. Venice, for instance, had had some kind of consular presence ever since the 14th Century, and other Italian city states had an intermittent consular presence thereafter—mainly for commerce.

77. In fact the economies of the Barbary States encouraged this development. Basically they were self-sufficient and had a choice of dealing either with sub-Saharan Africa and the Middle East, or of becoming Mediterranean powers. Europe was an excellent source for wood and war materials. Although trade in these goods was forbidden to all Catholics, from the 14th Century onwards there was regular trade in them, in return for wheat, particularly to France, Venice and Genoa. At both Tunis and Tripoli, the port was open to all—including the supposed arch-enemy Malta.

78. Tripoli imported wood from Anatolia and Egypt, iron from Thessalonika, cordage from Smyrna and Alexandria. Munitions and pitch came from the Baltic states or Britain and, by the 18th Century, was supplied as a treaty obligation. Within this pattern, corsairing was a secondary activity, not an economic necessity and, as it became more difficult, so it became dominated by the state, whereas earlier it had been controlled by private interests (Earle 1970: 32-34).

79. Nonetheless, the ambivalence of major European powers towards corsairing and the problems of operating the complex treaties, not to speak of the frustration felt by corsairs, led to frequent disagreements. These could even result in war, particularly if the internal strains of the Barbary States required a more relaxed rein on their corsairs and the major European nations were no more immune from this than the rest, although they were less often victimized.

80. In 1692, for example, war broke out between Tripoli and France. The situation was treated in a very matter-of-fact manner by Paris, as if such disruptions to diplomatic relations were nothing new (SHM 2). The Marseilles merchants were warned of the likely dangers to their activities

(SHM 3, 4 and 5) and everyone seems to have settled down to await the inevitable negotiations which took place one year later and resulted in a peace treaty (SHM 6, 7, 8, 9, 10), no doubt to everyone's relief.

81. It should be remembered that this outbreak of hostilities took place only seven years after the 1685 d'Estrées expedition against all the Barbary States—an expedition that resulted in solemn treaties and the apparent subjugation of the Barbary rulers! In fact, the Barbary States had by this time been integrated into wider concerns of French policy, since Paris was anxious to encourage any possibility of disrupting relations between Tripoli and Britain in 1696 and 1697 (SHM 11 and 12). Hence such minor disruptions in relations caused little disquiet in Paris.

82. The European powers were to wait a further 130 years before they finally forced Tripoli to destroy its corsairing tradition - not because they were unable to do so earlier, but simply because they did not want to. It was only after France had transformed herself into a North African power, with the occupation of Algiers in 1830, that she finally required the penultimate Qaramanli Pasha of Tripoli to ban corsairing once and for all.

83. With the decline of the Barbary States smaller nations were able to threaten them with impunity (Micacchi 1936: 209). By this time, for instance, the only states unable to exploit the parlous state of Tripoli under the later Qaramanlis to their own advantage were the Scandinavian and Baltic states which still paid tribute for maritime security. It was they, rather than the poorer Mediterranean states or the great maritime powers, that really benefited from the final suppression of the Barbary Corso in 1830.

C. The Knights of the Order of St. John of Malta and the Maltese Corso

84. In fact the activities of Christian corsairs had come to an end some 30 years previously in the western Mediterranean. The most important base for them had been Malta, then controlled by the Knights of the Order of St. John of Jerusalem. Indeed, in many respects the corsairing activities of the Order paralleled those of the Barbary States. They stemmed from a Christian vision of "holy war" and, like the Barbary States, the Order in Malta, in the last analysis, was an appendage of a greater power, the Papacy, with the Pope as its suzerain. The "Maltese Corso", penetrated deep into the coastal waters along the Barbary coast, just as the Barbary corsairs infested the coastlines of Italy and Spain up to the mid-18th Century.

85. The Order of St. John of Jerusalem was founded by pious citizens of Amalfi in 1070. Until the collapse of the Kingdom of Jerusalem in 1291, the Order specialized in defending the Christian pilgrimage centres in Palestine and in treating wounded soldiers and ill pilgrims in their massive hospitals in Acre and Jerusalem (Runciman 1952: 156/7).

86. The Order then moved to Rhodes to become a seafaring branch of the generalized defence of Christendom against Muslim advance in the Mediterranean. However, the Ottoman capture of Istanbul in 1453 made

it clear that Rhodes would be the next target. The Ottoman attack on Rhodes took place 70 years later and by 1 January 1523, the Order of St. John was obliged to leave.

87. In 1530 the Order reluctantly accepted Charles V's offer of the rocky and inhospitable island of Malta as its future base together with the defence of the Spanish outpost of Tripoli in Barbary. In 1551, the Order left Tripoli and devoted itself exclusively to seaborne warfare, particularly after the unsuccessful Ottoman siege of Malta in 1565 (Hess 978: 76; Bradford 1961: 135). It was during this siege that the great Tripoline corsair Dragut died.

88. The siege made both Europe and the Order realize the strategic importance of Malta and the Order's fleet was reorganized to escort merchant vessels, ensure communications with Europe, guard Malta and search out Barbary corsairs (Mizzi 1968: Intro). The Order's navy also took part in every major battle in the Mediterranean, from Lepanto (1571) onwards and only declined in strategic importance when Ottoman interests turned away from the Mediterranean and towards Europe.

89. From the latter part of the 17th Century the Order's navy turned more and more towards corsairing. Its fleet, recognized as the best in the Mediterranean and leading the change from galleys to roundships, numbered eight galleys in 1685, but by 1740 had six ships-of-the-line (three of them with 60 guns each) and only four galleys (Earle 1970: 104). The fleet's main duty was officially to control the Turkish Levant corsairs and, more importantly, the Barbary corsairs. Even this activity declined in the 18th Century. The Levant cruise stopped after 1716, and the Barbary cruises ceased in 1796, just two years before Napoleon suppressed the Order's activities in Valetta forever.

90. The Order's corsairing activities had begun in the early part of the 17th Century and its navy behaved just like all other corsairs although the Knights of St. John were never able to make a profit from corsairing. The Order also made a distinction between private and state corsairs (Earle 1970: 106 ff).

91. In 1605, the Order had set up a special tribunal to control the activity of the corsairs it licensed, both state and private—the *Tribunale degli Armamenti*. This was necessary because the Order's corsairs had begun to offend Christian opinion by attacking Christian shipping as well as its more legitimate target, the shipping of the Muslim world. The major cause for this sudden change in European attitudes towards the Order was the persistent habit of its corsairs of attacking Greek shipping which carried Muslim trade, but was organized by Christians who complained to the Pope. France was also a major conveyor of Ottoman trade from the late 17th Century onwards and the Order lost the right to inspect French ships in 1673 (Earle 1970: 111).

92. By the 1750s the Christian world—specifically the Pope (as head of the Order) and France whose commerce with the Muslim world suffered—had had enough. The official Maltese Corso effectively came to an end, being left only with the restricted area of the Barbary coast—from Cape Misurata to the Straits of Gibraltar—in which to operate.

93. Private corsairing from Malta still flourished because, although the Grand Master was prevented from licensing his own ships by the Pope, he could still license private individuals as a sovereign prince. When European protest made even this concession to commercial greed impossible, elaborate devices, such as the use of the flag of Monaco, were used instead (Earle 1970: 267). However, the Maltese corsairs had become unviable and in fact, the Maltese Corso was destroyed by Christian, not Muslim, opposition (Earle 1970: 269).

94. The effects of the Maltese Corso on the Barbary coast during the latter part of the 18th Century were not severe. "All in all, it may be said that ... corsairs operating annually off the Barbary coast did not in any year cause irreparable damage to the cities of Barbary. Nevertheless, up to the end of the Corso in 1798, they were a permanent thorn in the side of Barbary, not only by holding up their cargo ships but also by raiding the Muslim fishing boats and fishing villages inland, taking fishermen as slaves" (Caruana Curran 1973: 222).

95. On the Barbary coast, the favorite area for the Maltese corsairs patrolling the shipping routes of the Muslim Mediterranean was between Tripoli and Tunis, usually close to Djerba, in the "Sechi di Palo" - the fishing banks (Earle 1970: 144). In the 17th Century, the biannual Barbary patrol was regularly based on Lampedusa and operated in the region from there towards Djerba (1629 AOM 1) or to Sfax as well (1630 AOM 2). Two years after this, the patrol was based on Pantellaria and ventured into the Gulf of Gabes, touching on the Kerkennah Isles as well as Djerba and even approaching Gabes (AOM 3). The same happened in 1640 (AOM 4).

96. The patrol continued throughout the 17th and 18th Centuries, involving convoy protection in 1635, for example (AOM 5), raiding from bases in Lampedusa in 1638 (AOM 6), and from 1739 to 1742 constant cruising from Lampedusa to the Sfax, Kerkennah, Djerba region. By this time, however, most ships were French and Dutch, even though they were carrying Muslim cargo and passengers and could not be taken as prizes (Earle 1970: 248).

97. However, there were regular seizures of Tripoli corsairs, as on 19 July 1634 (Nasalli Rocca di Corneliano 1937) for example, or raiding on the Tunisian coast in 1640 at Bizerta, Porto Farina and the Gulf of Gabes (AOM 7). Major battles could also occur, as in 1699 off Cape Passero with Tripoli corsairs (AOM 8, 9 and 10). Raids and seizures were a common feature of relations with Tripoli (Rossi 1924: 53/54; 72/84) in the 17th Century, although this was to change when the Qaramanli dynasty appeared.

98. Towards the end of the Corso, from 1787 to 1797 the private corsairs licensed by the Grand Master were still very active, looting fishing vessels, capturing slaves, bringing back large vessels as prizes and bringing back valuable cargoes, particularly in the peak years of 1795 and 1796. Battles regularly occurred and the Maltese corsairs penetrated right into the Gulf of Gabes as late as 1797 (Caruana Curran 1973: 233-255).

99. French-backed merchants were involved in every stage of the Corso and were its main source of encouragement. In Peter Earle's words, "Everywhere we see the busy hand of capital helping the corsair to dispose of his booty" (Earle 1970: 169). This situation continued right up to the end of the Corso in 1798 (Clissold 1977: 160-162). However, the activities of the Corso formed only one aspect of the relations of the Order of St. John with the Barbary States and particularly with Tripoli.

D. Correspondence Between Malta and the Barbary States

100. Surprisingly, in view of the constant warfare and corsairing that characterized the relations between Malta and the Barbary States, the Grand Master of the Order of St. John of Jerusalem maintained correspondence with Barbary rulers from the late 16th Century onwards. This grew out of the profitable possibilities of ransoming slaves and extending trade with Europe. The Grand Master was ideally placed, given the international characteristics of the Order of St. John, to help in the complicated and protracted negotiations that ransoms required. In any case, the Order itself had many members enslaved in Barbary and, conversely, held many important Muslim slaves in its own galleys.

101. By the mid-18th Century, Malta had also come to depend on the Barbary States for food—mainly grain and meat. A selection of letters written by the Grand Master to Tunis in the year 1737 gives a good idea of the sort of subjects that the correspondence dealt with from requests for improved treatment for Christian slaves (AOM 11), warnings of a *tartana* on its way to collect meat and flour (AOM 12), the provision of passport indentures for the Bey, at the latter's request (AOM 13), to complaints about a rogue Tunisian corsair who was disturbing the peace needed for successful commerce (AOM 14).

102. The major correspondence was with the Qaramanlis in Tripoli during the 18th Century. From 1711 to 1754 the correspondence was regular and marked by a certain intimacy. It was not confined just to the Qaramanli Bey; it also involved members of the *taifa* (the guild of corsair captains) and other officials outside Tripoli, such as the Bey of Benghazi.

103. Early on, the correspondence dealt with the usual issues of treatment of slaves, contacts with Apostolic Missions in Tripoli, ransoms and exchanges, Europeans in Tripoli—usually French merchants—and other formal matters, such as aid for Jewish merchants from Livorno. However, by the late 1720s the tone was changing. The Grand Master was advising the Pasha—in the most cautious terms—on the dangers of war with France (1729 AOM 15-19), recommending an Egyptian visitor to him (AOM 6) and exchanging gifts as well as slaves (1726 AOM 20-24;

1727 AOM 25-28). The usual activities of returning ships and slaves continued, as did the Maltese support for the Apostolic Missions that frequently went to Tripoli to obtain the release of slaves. In 1737, the two rulers decided that they should maintain their correspondence as a matter of policy (AOM 29) and the letters continued throughout the 1740s. However, as the century wore on and the relative powers of the Order and the Qaramanlis declined, so their correspondence seems also to have come to an end.

E. Conclusions

104. It is clear that, up to the end of the Barbary and Maltese Corsos, there was little concept of maritime territoriality in the southern Mediterranean. Tripoli corsairs ranged over the western Mediterranean as far north as Sicily and as far west as Formentara. They were recognized as a separate entity within the complex array of Barbary corsairs and, although less numerous than those of Algiers, pursued their own pattern of raiding.

105. The early appearance of consuls in Tripoli, specifically dealing with matters of corsairing, indicates the importance placed on Tripoli as a corsairing centre by European powers. In fact, Tripoli had perhaps the longest history of all the corsairing states on the North African coast. The treaty relations between European powers and Tripoli from the 17th Century onwards related specifically to corsairing and slaves held there. To this extent such treaties mirrored the degree of autonomy granted to Tripoli and other Barbary States as a result of their involvement in the *jihad* of which corsairing formed a part.

SECTION 3. THE HISTORICAL UNITY OF THE JEFFARA PLAIN

106. The Tunisian Memoire has argued that archaeological evidence demonstrates that there used to be a complex settlement pattern in regions of the Gulf of Gabes which is now submerged by slow encroachment of coastal waters into the Tunisian land mass over the past 2000 years. This ancient settlement pattern, it is suggested, only emphasizes the social and economic unity of the Gulf of Gabes even in classical times. In addition, it is claimed that some parts of the region were far more fertile and prosperous than they are today, chief among them being the Kerkennah Isles. These arguments are used to reinforce the major thrust of the Tunisian claim that the Gulf of Gabes is a single economic unit where the most important resource has been fishing. However this does not correspond to the picture provided by historical sources.

A. The Gulf of Gabes in Classical Times

107. Underwater archaeology does not offer clear evidence of a consistent, "one-way" and uniform change in sea levels since antiquity. The Cambridge expedition to Sabratha in 1966 (Yorke 1966: 6, 9, 13), which examined a number of sites on the Tunisian and Libyan coast came to the conclusion at Sabratha harbour itself that, "submersion may have been caused by wave action and erosion, local tectonic change, subsidence or a rise in the sea level"; at another mainland site, "The drainage channels from the ruins of the baths was still above sea level implying that there can have been little change in the sea level since Roman times." Elsewhere along the coast of the Gulf of Gabes the expedition could find little evidence of a change in sea-level.

108. The data does not generally support claims of a general rise in sea-levels of approximately one millimetre per year, which the Tunisian Memoire suggests to be the case at Kerkennah. Not only is this figure a considerable exaggeration of the evidence from other points along the coast, but no consideration has been given to purely local conditions of erosion and subsidence or of fluctuations in the rise and fall of the sea. Despois, for instance, describes the site at Kerkennah in terms of "la falaise argileuse que la mer attaque mollement" (Despois 1937: 43). Delano Smith says, "There are what might be called 'one-way' changes ... But probably by far the greater proportion of the plains and coastlands of Mediterranean Europe have altered periodically ... The level of the sea, in relation to the land does vary ... continuously" (Delano Smith 1978: 32).

109. There has been some general rise in the sea-level since the Third Century BC but this has had little effect on the size or agrarian prosperity of the islands or coastal settlements of the Gulf of Gabes, as is alleged by the Tunisian Memoire, for the Isles of Kerkennah and Djerba. Herodotus, for instance, says that in the Fifth Century BC the island of Kyrainis (Kerkennah) was 200 Greek stades long and very narrow (Herodotus IV: 195). Since a Greek stade was 182 metres, the island according to this (very general) description was 36.4 kilometres long, which compares to the present distance of approximately 36 kilometres from Sidi Youssef to

Rmadia on each end of the islands. For Djerba in Roman times the dimensions given by the learned Pliny in the First Century AD are 25 times 22 Roman miles (Pliny V: 41), which the Tunisian Memoire incorrectly states to be far greater than the present day dimensions of approximately 35 times 32 kilometres. But if a Roman mile is 1.478 kilometres, the dimensions provided by Pliny work out as 36.95 kilometres times 32.51 kilometres, which is almost precisely as it is today. Pliny also states that the Isle of Djerba was one and a half miles from the mainland which almost exactly corresponds to the width of the Straits of Adjim today.

110. The other figures quoted by the Tunisian Memoire, which are drawn from the Greek mariner's manual attributed (wrongly) to Scylax, have long been considered corrupt and worthless (Muller I: 87). No great reliance can be placed on any of these figures, since numerals in ancient texts were peculiarly liable to copyists' errors. But the evidence, such as it is, suggests that actual change in the shape of the terrain has been remarkably small.

111. Nor do the ancient texts corroborate the view that the wealth of the islands was once far greater than it is today. Herodotus makes no statement about Kerkennah's prosperity but merely that it was covered with olive trees and vines—both of which still grow on the island today (Herodotus: 195). In 46 BC Julius Caesar sent his agent to the islands to collect corn, but this does not mean that local crops were necessarily prolific, only that grain was stored on the islands in time of civil war or for transshipment to trading vessels. For the islands had a port of some importance which served as an entrepot for long distance trade ships. Nevertheless, the town itself is described by the Sicilian historian, Diodorus, as "only of modest size, with excellent harbours"! There is therefore no reason to think Kerkennah was an agriculturally rich region in antiquity. By contrast the Isle of Djerba and the adjacent mainland had a reputation for fertility in the ancient world which continues today. In fact, there is an inconsistency in an argument which states that prosperous agrarian states have disappeared into the sea, and at the same time that fishing had always been an essential part of the existence of these communities because of the poverty of the land.

B. Unity and Economy in Islamic Times

112. While it may be true that the northern part of the Gulf of Gabes—the Sfax, Mahares, Kerkennah and Kneiss regions—does and has depended on fishing for survival, it does not correspond to the situation further south. In fact, the 'Aradh comprises a separate region of considerable economic diversity and wealth. Three clear zones of activity can be distinguished; the narrow coastal belt, where sea-induced humidity makes intensive garden agriculture possible and where subterranean water provides the basis for irrigated agriculture as well (Raymond and Poncet 1971: 12); the Jeffara Plain, given over to sparse cereal cultivation and grazing for sheep and goats; and the edge of the Jabal, which is the zone

for arboriculture (Louis 1975). All three zones are complementary to each other and all are linked through craft activities into the wider Tunisian and Mediterranean world.

(i) *The Isle of Djerba*

113. Nor is this economic activity of recent date. As long ago as the 15th Century al-Tijani had noted that the 'Aradh region produced garden produce, dates and olives (Brett 1976: 43). Leon Africanus, writing in the middle of the 16th Century, noted that "Gerbo" was a profusion of vines, dates, figs, olives and other fruit. He went on to point out that it was also an important market for neighbouring nomads, who brought in large quantities of animals and wool and that, as a result, it was a major centre for the manufacture and export of woollen blankets as far afield as Alexandria. Later Christian authors noted the same (Monchicault 1913: 75-77).

114. French consuls in 1670 and 1777 were struck by the comparative wealth of Djerba, noting how important weaving and commerce were to the island and its relatively large population (MAE 5 and 6). By 1777 too, Djerba had become renowned for the production of silk textiles, a tradition that continued through to the 19th Century (Valensi 1977: 211; Kraiem 1973: 37, 62, 70). The island was also well known for its potteries (Kraiem 1973: 1-47/2-62) and had acquired the honour of supplying the Bey with its textiles, as had the Matmata region to the south, at the edge of the Jabal (Valensi 1977: 214-215).

115. Djerba was also well-known for the industry of its indigenous Jewish population, a legacy from pre-Islamic days, who specialized in family-based craft activities, and for the dominant Ibadi Islamic sect of the Muslim population (Kraiem 1973: 1-53). Like their co-religionists in the Mzab, the Djerbi had also, by the 19th Century, gained a reputation for retail commerce that still persists today (Brown 1974: 184, 187). As a result of this interest in trade, up to 10 per cent. of Djerbi in the 18th Century had migrated elsewhere, a tradition that was mirrored elsewhere in the 'Aradh and even in the Kerkennah Isles (Valensi 1977: 25-26). In the latter case, however, it was the paucity of alternative resources that had caused the migrations, involving up to 20 per cent. of the total population.

116. The same sort of descriptions of the Djerba economy appear in late 19th Century sources, at a time when Europeans had already begun to settle there (L'Univers 1850: Etats Tripolitains 2; SHAT 9, 23; Fitzner 1895: 282). Surprisingly, fishing plays a very small part in these descriptions—it is mentioned in the 1777 report and cases of disputes between Italian and Maltese fishermen for sponges in Djerba were not uncommon (TA1). The 1884 military report (SHAT 9) does mention fishing, both for sponges and for food, as a relatively minor resource.

(ii) *Zarzis*

117. Just south of Djerba lies the coastal oasis of Zarzis. This, by the end of the 18th Century, had become the preserve of the Akkara tribe. They tended the gardens of the transhumant Tuazin and cultivated the

olives, palms and fruit trees that made up the oasis. The 380 hectares of gardens in 1890 supplemented 62,000 palms there, producing mediocre dates for local consumption and the 400 hectares of olives—some 200,000 trees (SHAT 10). Admittedly, by this date, many of the trees were recently planted under European supervision, but the olives of Zarzis were famous even in the 18th Century (Valensi 1977: 163).

118. Under French control, Zarzis prospered, the numbers of olives rising from 40,000 in 1881 to 453,000 in 1924 and 600,000 in 1930. Palms had increased from 20,000 to 130,000 and the oasis contained some 13 European farms on 20,000 hectares. The population of the five villages had grown from the 1888 estimate of about 7,000 in 2,500 houses to 16,581 by 1926 of whom 6,305 actually lived in Zarzis and 10,276 in the countryside. Tax revenues had increased correspondingly; from 44,808 francs in 1881 to 253,695.50 francs in 1929, most of it from the kanoun on olives (88,552.56 francs), the achour (33,445.76 francs) and the animal tax (23,111.18 francs) (Tunis. Service des Renseignements 1931 (a): 15, 19, 32-33).

(iii) Fishing

119. Fishing entered into this picture in a relatively minor way. It was an activity mainly confined to the Walad bu Ali fraction of the Akkara who concentrated on Bahiret al-Biban for edible fish and had two seasons for sponge fishing. From June to September, they fished off Kerkennah and Sfax, while, during November to February they fished off Ras Ajdir and Zouara—where the best sponges were to be found—in areas clearly outside the control of Tunisia. In 1930 sponge fishing involved 190 boats while edible fishing involved only ten! Some 40 years before, in 1888, there had only been 130 boats *in toto* at Zarzis. The sponges were sold in Sfax, Djerba and Zarzis, where in 1929, 3,700 kilograms were sold (unwashed) for a total of 370,422 francs—an annual turnover of little more than the monthly turnover in the two weekly markets in Zarzis (300,000 francs) (*Ibid*: 21-22, 34)!

120. In fact, fishing, sponge fishing particularly, in the 19th Century was mainly a European consideration—at least in the Zarzis region—undertaken by Greeks, Italians, Maltese and locals. Even the local tax collector was a European in 1871 (PRO 7 and 8). In the 20th Century, fishing became a major consideration for the local Akkara only after the Second World War. Since 1948, up to 11 per cent. of Djerbi and 2,500 Akkara have taken up fishing. Of them 200 to 250 Djerbi and about 800 Akkara gather sponges. All told, in 1971, there were about 600 boats involved. However, this is all of very recent origin (Despois 1961: 84-85) and involves no more people in Djerba, for instance, than take part in migrant retail commerce outside the island (Despois 1961: 85).

121. The relatively recent date for large-scale fishing—mainly for edible fish—in the Djerba-Zarzis region is further demonstrated by the fact that in Djerba the fishers come mainly from one village around Adjim and that the boats used are manufactured exclusively by Kerkennians who come to Adjim specifically for the purpose (Despois 1955: 462, 464). In

fact, the trade is still dominated by Italian and Greek fishermen who use Sfax as their base. In Gabes, fishing is even less important an economic activity, being confined to the village of Sidi Abdesselem (Despois 1961: 84).

122. One final point about fishing needs to be made. Although it is clearly the major activity for the northern part of the Gulf of Gabes and the Kerkennah Isles, the assumptions made in the Tunisian Memoire over the continuity of proprietary deeds over fishing grounds are open to question. In the first place, the Siala concessions, on which certain of the titles were based, were found by tribunals during the Protectorate period to have been insecure and had, in any case been revoked by the Bey before the Protectorate was instituted (Raymond and Poncet 1971: 30; Poncet 1962: 59-61). Furthermore, the French authorities were never prepared to confirm private title. Instead they provided a temporary absolute license, on the grounds that coastal fishing had to be available to the community and could not become the subject of private property (Despois 1955: 465-467). In any case, as Despois points out, any fisherman who could escape from dependence on fishing did so as rapidly as he could!

(iv) *Gabes*

123. Gabes is very similar to Zarzis in its economic activity. In the 1840s for example, the group of villages that made up Gabes—Djara, Menzel, Chenini and Mahal—based their economy on some 200,000 trees, 80,000 owned by the population of Djara alone. The trees were largely privately owned in a series of minifundia, either by individuals, families in division or as habus. In addition to olives, palms (190,000 in the Gabes region in the 1850s—out of a total of one million in Tunisia and second in importance after the Tozeur region) and fruit trees, Gabes had an active industrial agriculture based on henna, madder and, at the end of the 19th Century, cotton. Of vegetable products depending on irrigation from the Gabes River, peppers from Gabes were much prized elsewhere (Valensi 1977: 154-156, 170).

(v) *Markets and rural exchange*

124. The agricultural economy of Gabes, did not provide cereals. The oasis depended on its hinterland for grain supplies and it was in consequence, a very important market for the Hazam, Beni Zid, Matmata and western Warraghma. The Mareth and Hamma areas provided wheat, large quantities of barley, maize and beans (Valensi 1977: 174; SHAT 11 and 12).

125. The major market took place every day, except Saturday, at Djara and provided a means of exchange for rural goods—butter, animals, cereals and woollen cloth—against the oasis products of vegetables, fruit, henna, cotton and imported goods and manufactures. Pottery from Djerba, charcoal from Sfax and dates from the Nefzaoua, together with locally-made shoes, were particularly important. In fact, Gabes was a pole for the Beni Zid and Matmata as Djerba and Zarzis were for the Warraghma and Udarna (SHAT 11 and 12; MAE 7; Zaccone 1875: 30,

154; Vivien 1899: 215). It is interesting to note that fishing plays no significant part in this economic structure that is typical of the interchange between transhumant and sedentary populations.

C. The 20th Century

126. The 20th Century has seen little change in the main features of this economic structure and, certainly up to 1930, similar considerations applied to the Jeffara Plain area as well. In Medenine, for example, the local *Annexe des Affaires indigènes* regularly reported in detail on the economic situation. Medenine was the central *ksar* for the Warraghma and the population of the *Annexe* had risen from the estimated 5,000 in 1881 (almost certainly an under-estimate) to 25,000 by 1929. Dramatic changes had taken place in agriculture—as nomads became transhumants and then finally began to settle. Cereals now covered 45,000 hectares, ten times the area that they had covered in 1909. Olive trees had increased fivefold over the 1909 figure to 77,308 trees, palms had increased in number by 50 per cent. and fig trees by a factor of four. Livestock too had undergone a dramatic increase since 1885, sheep increasing fourfold to 28,000 and goats threefold to 25,000. No doubt these dramatic increases in a cereal and animal based economy in an inhospitable environment owed a lot to earlier under-estimates and to migrations into the new town that had begun to grow up around the French administrative centre, yet, nonetheless it gives a clear picture of an economy ideally suited to complement the coastal garden agriculture and arboriculture (Tunis, *Service des Renseignements* 1931 (b): 14-28).

127. At Ben Gardane the situation was similar. A population of 9,000 in 1880 had swollen by 1926 to 21,706. The old *Ksar* at Ben Gardane, built originally by the Nuwayl before their expulsion in the 18th Century, had become a town of 754 houses. The Tuazin around Ben Gardane, although still transhumant with an economy based on animals and cereals, supported by the fees paid by the Jabalia, were now settling into sedentary agriculture in the plantations the French had created—40,000 olives, 100,000 fig trees and almonds, 32,000 palms and 2,300 vines. Even more important, a market had been started in 1895 and opened to merchants from Djerba in 1901. In the same year, Tripolitarians were allowed to use it and the result was that Ben Gardane took away trade from Zouara—to the immense anger of the Zouari. The market also enjoyed a certain amount of caravan trade (Tunis: *Service des Renseignements* 1931 (c): 13-15, 26).

128. The interpenetration of the Jeffara with the Jabal and Dahar regions to the south is well illustrated by the way in which cereals were moved from the plains markets into the interior and how, in consequence, prices for wheat and barley showed steady increases. In 1910, for example, wheat which sold at Zarzis or Ben Gardane for between 23.25 and 22.05 francs a quintal, cost 28.25 francs at Medenine and as much as 34.50 francs at Dahibat and 36 francs in the Matmata (MAE 8, 412-414). Caravans arrived regularly at Ben Gardane to exchange Tripolitanian sheep against Tunisian grain.

129. The one feature that France had expected to be of considerable importance turned out to have no relevance at all. This was the trans-Saharan caravan trade. Despite all the attempts made in the 1890s to divert the trade away from Tripoli, there was no noticeable increase in caravans coming to Gabes or Tunis. One major reason was that the trade was dying in any case because slaving had finally been stopped in the 1890s, and France had itself diverted trade westward from the Sudan. Finally, the Kano-to-Lagos railway dealt the deathblow to an activity that had persisted for over a thousand years (Naji 1969: 80; SHAT 13 and 14; PRO 9).

D. Conclusion

130. The 'Aradh has been a region of complementary economic zones for at least 600 years, where the humid littoral, with its coastal oases, palms, olives and irrigated gardens, supported the nomadic tribes with arboreoculture, vegetable produce and manufactures and received in return the cereals that it could not provide. In the Jabal further south a similar symbiosis existed. Gabes served as the market for the Beni Zid and the western Warraghma, Djerba and Zarzis for the Udarna and the rest of the Warraghma.

131. Within this integrated economic situation, the export of grain to the south and east (Sahara and Tripolitania) was the rural complement to the export of textiles and pottery from Djerba and the Matmata, and the export of olive oil from Zarzis, Djerba and Gabes. Fishing in the Gulf of Gabes played a minor part in the overall economic pattern, being restricted to a minority of the Akkara around Zarzis and 11 per cent. of the population of Djerba. It is only since the Second World War that fishing has played a larger role in the region. In this respect, the economy of the southeast of Tunisia is quite unlike that of the Sfax-Kerkennah region.

SECTION 4. THE ETHNIC UNIQUENESS AND COMPLEXITY OF THE JEFFARA PLAIN

132. The economic unity of the 'Aradh in southern Tunisia—which sets it apart from the rest of the Gulf of Gabes—is only one aspect of those specific features that characterize the wider geographic and social unit of the Jeffara Plain from Khums in Tripolitania to Gabes in Tunisia. The ethnic structures of the Jeffara Plain have a long history, stretching back to pre-Islamic times, and the western edge of the Plain formed a natural divide with the different social systems found in the rest of Tunisia. It acted as one extreme of the natural border marches between the two Regencies until the deliberate eastward expansion of Tunisia began in the 1770s. The move towards the east was to be accelerated by France after 1881, when these marches also hardened into a formal frontier.

133. The tribal structures of the 'Aradh region are in large part dictated by its geography. Essentially the area consists of a narrow coastal strip behind which lies the Jeffara Plain varying in width from about 130 kilometres in the region of Wad al-Mukta down to about 30 kilometres by Gabes and meeting the sea close to Khums to the east. The region has always been an area of migration and the major thoroughfare between the Maghreb and the Mashriq. The traditional caravan of pilgrims from the Maghreb to Mecca passed through it annually (Brett 1976: 41/42).

A. Rural Society at the Start of the Islamic Era

134. Indeed, the inter-weaving of tribes across northwest Tripolitania and southern Tunisia was considerable and of great antiquity. Before the Seventh Century two major Berber groups inhabited the area, making up the base levels of the modern ethnic mixtures (British Admiralty (1945: 145-147)). The first group, the Branes, are represented by no less than ten tribes in modern Tripolitania, several with counterparts in Tunisia south of Chott al-Djerid (at-Tijani, *Rihlah*). The second group the Madghis, were all but absorbed by the Hawara, originally part of the Branes, but were the origin of four major tribal families in Western Libya, including the Nefusah of the Jabal Nefusah in both Tunisia and Tripolitania (Ibn Khaldun, *Kitab m-'Ibn*).

135. The origin of these Berbers provided a further sense of organic unity throughout the Jeffara. The Hawara moved into Tripolitania from western Tunisia and Algeria as did the majority of other Branes branches, probably quite late in the reign of the earliest Arab rulers of eastern North Africa, Hassan ibn Nu'man and Musah ibn Nasayr, in the Seventh Century. It was only in the Ninth or Tenth Century that Katamah and the Lema'a moved into Western Libya from Algeria (Chemali 1916: 11). There was also movement westward from Libya as the Berbers there participated in the invasion of the Iberian peninsula in the early Eighth Century. Over time the original Berber inhabitants of all but the Jabal Nefusah were to be absorbed into Arab society, though in the Zouara and Zavia areas of the Tripolitanian Jeffara the Berber strain remained strong (De Agostini 1917: 227-265).

B. The Arrival of the Arabs

136. The initial Arab incursion into Berber lands in the Seventh Century was essentially military in nature and had little effect upon the population. The Hilalian invasion of 1049-1050 and the subsequent attacks of the Beni Sulaim, were the paramount factors in determining the ethnic character of western Libya and much of southern Tunisia (Deambroggio 1902: 113-133, 266-276). The Hilalian and Sulaimian incursions had profound results, bringing up to one million Arabs into North Africa and changing the ethnic and linguistic map of Libya and Tunisia in two dimensions (Despois, J., p. 43). The Beni Hilal were forced to the west by the Sulaim and the Berbers retreated to the mountain refuges of the Jabal. At the same time, intermingling of racial elements brought a general Arabization of the Berbers and, in some places, a Berberization of the Arabs. Hence, boundaries between Arab and Berber groups were rarely precise—one tended merely to shade into the other¹.

137. The Beni Hilal and Beni Sulaim represented a varied range of tribal origins. The Atbeg, the Riyah and Zoghbah of the Beni Hilal were Arab tribes and the Ma'aqel and the Beni Ghushem were of mixed origins. The Atbeg and the Riyah preceded the Beni Zoghbah and the Beni Ghushem by several years. Then came the last groups to move into North Africa from Egypt - the al-Ma'aqel and a number of smaller tribes such as the Tarud, Udwan, Beni Gatafan and Fazara (BMA 1947:28).

138. Today, only the Ulad bn Hemayra of Zavia and the Ulad Shebel of the Shakshuk area of the Jeffara are descended from the Beni Hilal, whereas most of Libya is now occupied by descendants of the Beni Sulaim. The Beni Sulaim comprised five main branches with Beni Auf, the Debbab and the Zeghb moving into Western Libya, the Beni Hebayb moving towards eastern Libya and the Lebid ben 'Amer tribe gravitating towards the Libyan-Egyptian border. In the 12th Century the Beni Auf spread westward into Tunisia while the Nuwayl and part of the Ulad Ahmed of the Beni Debbab took over the Gabes area. The al-Jiwari tribes occupied the western parts of the Tripolitanian Jeffara and together with the Debbab Mahamid tribe controlled western Libya's coastal areas. The Nuwayl and the Si'an were crushed between them and the Berber Tuazin and Akkara of southern Tunisia.

139. There were several other social groups—the Sherif claiming origins in Fez; Marabouts, who claimed to have infiltrated from Saquiat al-Hamra in southern Morocco although they were probably of local Berber origin; and the Cologhli, descendants from the Janissaries who accompanied the Ottoman Turkish occupation after 1551. The Sherif constituted a religious hierarchy claiming direct descent from the Prophet Mohammed and they controlled extensive tracts of land in all the oases of western Libya. Maraboutic tribes claimed a similar descent, although with little clear evidence to justify it. Their maraboutic ancestors founded

¹ See Figure No. 4.

maraboutic dynasties pledged to continue their ascetic traditions. Among the major maraboutic aggregations of the Libyan/Tunisian border area was the Si'an tribe (Clarke 1963).

C. Later Social Developments in the Jeffara Plain

140. In the Jeffara Plain region, the results of the Hilalian and Sulaimian invasions were extreme. The indigenous Berber inhabitants were either exterminated or forced to flee into the hills and mountains of the Jabal for protection from the superior military skill of the Arab invaders. The Jeffara Plain itself became a region of period migrations by the transhumant and nomadic Arabs, particularly the Mahammad and Jawari in the east and the Beni Debbab in the west. Over the coastal oases of Zarzis, Djerba, Zouara and Gabes the nomadic overlords exercised a burdensome control, ensuring the major benefits from the produce of the oases went to them. The Berbers in the Jabal, needing access to the fertile land on the edge of the Plain, found themselves in a similar position of servitude (Martel 1965: 1-40/44).

141. It was only in the 15th Century that the mountain Berbers were able to redress the balance. The exhaustion of the plains nomads in their incessant wars allowed Berbers from the southern Jabal around Ghumrasan and Jabal Abiudh to re-enter the plains. The Arab nomads were forced northwest towards Gabes and the Sahel, and east into the Tripolitanian Jeffara¹.

142. Locally, it is claimed that it was at this time that marabouts from the Saquiat al-Hamra first appeared in the Jabal and led the Berber population there against the Arab nomads in the Jeffara Plain. In reality, the probable cause of the descent of the Berbers from the Jabal was one of population pressure, given the very poor resource base there and the need of mountain populations for access to agricultural lands in the plains. The mountain economy was necessarily based on arboriculture and garden produce, but was very limited by the lack of water. On the plains, rain-fed cereal agriculture was possible (Martel 1965: 1-51).

143. By the 17th Century, the social organization of the region was substantially that which was to remain until the 19th Century. The major part of the Tunisian Jeffara was now occupied by a Berber confederation—the Warraghma—consisting of the Hararaza, the Khazur, the Tuazin and the Taghuna. To the south of them was another large Berber grouping, the Udarna, busily involved in assimilating the Arab populations around the Jabal Abiudh. To the north of the Udarna and to the south of the Djerba was the Nuwayl, now under pressure from two sides, and along the coast was a unified coastal population which was to become the Akkara and which joined the Warraghma confederation. Around Gabes was the small tribe of the Hazam allied to the much larger Beni Zid.

144. In Tripolitania, the Nuwayl spread across the plain, coming into contact with the Zouara tribes on the coast, and the Mahammad. The Si'an noted for their pacificism did not participate in the constant struggle

¹ See *Figure No. 5*.

for land. Instead they migrated right across the Jeffara into the Sahel. Further south, in the Jabal, were the Naluti and the Wazzani, Berber sedentary groups (SHAT 14). Basically, all these dispositions of tribal power and location were established as the result of interactions between local tribal groups and owed nothing to intervention by central government, either in Tunis or in Tripoli.

D. Tribes and Central Power

145. From the 17th Century onwards the situation in the Jeffara followed the fortunes of the Regencies themselves¹. Both the Beys of Tunis and the Pashas of Tripoli sought the support of the tribes in the region to extend their respective areas of power. From 1598 to 1638, the Tunisian Beys were engaged in a continuous series of wars to impose their authority down as far as Djerba.

146. Although the Beni Zid had tried to resist the Ottoman pressure southward, the Warraghma accepted the Ottoman presence and used their support to bring pressure on their Arab rivals, the Nuwayl. By 1638 the Nuwayl had been pushed back to the Ben Gardane region. By the beginning of the 18th Century, the southern Nuwayl had been expelled from the Wad al-Mukta region and by the 1770s, the Warraghma factions of Akkara and Tuazin expelled the remainder from Ben Gardane (SHAT 15 and MAE 14). Further south, under direct encouragement from the Bey of Tunis, the Udarna had attempted to expand into the Dahar—the plateau leading down to the desert—but had bumped into the Tripolitanian Qaramanlis who were determined to retain control of the caravan trade across the Sahara (Martel 1965: 1-63/64).

147. Added to these complexities came a further one. The traditional local rivalries integrated into the formal rivalries of Tripoli and Tunis to create a form of alliance pattern known as the *soff*. The *soff* alliances divided the Jeffara and Jabal tribes into two groups, the Bashia and Hassinia. In reality, the *soffs* became another traditional alliance pattern which bore no relationship to wider political events, but codified patterns of warfare. They extended into Tripolitania, providing a sense of cohesion to balance the division caused by the constant eastwards expansion of the Warraghma (Martel 1965: 1-60/63, SHAT 16) who were simply concerned only with expanding their own territory, not with increasing the control of the Ottoman or Hussainid rulers of Tunis, despite their support.

E. Jeffara Society on the Eve of French Occupation

148. By 1881 the location of tribes in the Jeffara Plain demonstrated clearly that the Nuwayl, to the great advantage of the Tuazin and Akkara and Udarna, had been forced consistently eastward and now occupied land from close to Zarzis to south of Zouara². There were ten tribes around

¹ See Figure No. 6.

² See Figure No. 7.

Zouara itself owning oases and lands under grazing and shifting cultivation, the major one being the al-Atatsha with its affiliated tribe, the Ulad 'Isa. The ibn Jebarah faction of the al-Azzabah claimed to originate from the Island of Djerba.

149. The Nuwayl tribe was made up of two main groups, the Manan'ah and the al-A'rash. The latter was warlike and contained fractions originating from Tunisian maraboutic groups. Despite the use of land around Zarzis (Deambroggio 1902: 127), the Nuwayl had moved their tribal centre east from Ben Gardane towards Wad al-Mukta although cereal cultivation continued in the west. The Nuwayl were released from capitation taxes by the Turkish authorities in Tripoli since they were designated as protectors of the border marches. The privilege indicated that the border region was still indeterminate and rivalry between the Nuwayl and elements of the Warraghma confederation continued, especially in years of poor rainfall, when pasture was in short supply and the limits of grain cultivation were constrained.

150. Imposed on top of this static picture were the migratory patterns of the Si'an right across the Plain. The Si'an like the Nuwayl survived in a harsh environment by exploiting limited opportunities for nomadism across a wide geographical area westward from cereal growing areas in the Jabal Nefusah in the south across the pastoral Libyan and Tunisian Jeffara¹.

151. In addition to such migrations, the old tradition of *razzia* still continued. As late as 1902 French resources still considered the Hauamad, a Tripolitanian tribe, a potential source of danger and recalled how this tribe used to range as far north as Gabes in its raids (Revue Tunisienne 1902: 275). In 1884 there were still extensive contacts between tribes along the border, involving the use of common markets and social contacts stretching as far afield as the Mahammad and the Udarna (SHAT 17), and even involving the Nuwayl using Ben Gardane market rather than Zouara (Revue Tunisienne 1902: 127).

152. The relationships between adjacent nomad groups on the one hand and between nomads and sedentary populations on the other were complex. Between the Warraghma, or the Udarna, and the sedentary populations of the Jabal there existed a relationship of servitude. Known as a *sahab* it involved the payment by each Jabalia cultivator of fixed quantities of wheat, barley, oil and wool to his Udarni or Warraghmi protector. The relationship was personal and permanent. In return the Jabali had access to plains land in the region adjacent to his *ksar* (fortified village) and had—in theory—a guarantee of protection from raiders. In reality, of course, the relationship was one of vassalage (Louis 1975: 93).

153. Between nomadic tribes, relationships were governed by *soff* allegiance. The Warraghma confederation in which the Udarna rightfully belonged, although their size made them count as a separate tribe in most ways—confronted their traditional enemies of the Nuwayl to the east and

¹ See Figure No. 8.

the Beni Zid to the north. The latter played little part since they had long ceased to migrate south. Instead their main centre was north of Gabes, around the oasis of Al-Hamma (Zacone 1875: 155).

154. The Beni Zid were, however, a constant thorn to the local administration in Gabes. They were extremely bellicose, forming part of the *Bashia saff*, and periodically rose in revolt. In 1867 they revolted against the authority of Ali ben Khalifat, then khalifah in Gabes. In 1881 they rose again, this time against the French invasion of Tunisia and found themselves under the command of the very official against whom 14 years before they had revolted (Deambroggio 1902: 278).

F. Conclusion

155. Quite apart from the similarities in social organization and lifestyles, the Jelfara and Jabal tribes showed a common sense of political organization. They were basically acephalous segmentary societies, organized as kin groups claiming descent from eponymous ancestors. Their interactions were a consequence of their nomadic or sedentary lifestyles and the central authority of the Beys of Tunis or the Pashas of Tripoli played little or no part in their activities. Basically their lives and struggle to survive in a harsh environment dictated their settlement patterns, and their relationships to Tunis and Tripoli were merely an extension of these local considerations. Conversely, they certainly did not see themselves as primarily the guarantors of Tunisian or Tripolitanian control over the indeterminate border marches between the two Regencies, however much the central government in either capital would like to have claimed their allegiance.

SECTION 5. THE BORDER BETWEEN LIBYA AND TUNISIA

156. The Tunisian Memoire has argued for the unity of the Gulf of Gabes region as a means of reinforcing the present delimitation of the territorial boundary between Tunisia and Libya at Ras Ajdir. Although this has been fixed by treaty in 1910, and is not, in itself, an object of litigation, it may not be assumed that its location, of itself, can support any argument for the historical extent of Tunisia.

157. Certainly, in classical times, the evidence strongly suggests that the border, insofar as one existed, ran just to the north of Tacape (the original settlement at Gabes). Even in the early Islamic period the border ran well to the north of Gabes and for short periods Tripolitania extended north of Sfax. A Venetian consular treaty between Ibn Ahmed Ibn Mekki and Bernabo Geraldo on 9 June 1356 for instance, stated, *inter alia*, that Tripoli "... comprennent expressément. outre la ville de Tripoli, les villes de Gabès et Sfax et les îles de Gerba et Kerkeni, c'est-à-dire la Tripolitaine et la Petite-Syrte. ou pays des lotophages" (Mas-Latrie 1886: 387).

158. Once Ottoman control of Libya and Tunisia had been achieved by the mid-16th Century, there was at first, no real border. Only when the local administrations were given a certain degree of autonomy did one begin to develop. Insofar as it existed after 1587 in any formal sense (Pitcher 1971: 143), it was ill-defined and consisted of a region of border marches. In fact these extended at least 50 kilometres to the west of the present border position until 1770 (Tunis, Service de Renseignements, 1931 (a): 7), when Ali Bey urged the Akkara and Warraghma to push the nomadic Nuwayl eastward and thus increase the tribal territory under their control. Although the Hussainid Beys of Tunis in consequence claimed sovereignty and control over the Warraghma tribes—giving them certain tax advantages in return—the reality was that the Warraghma who in any case refused to pay taxes to, or recognize the authority of, the Bey's government, merely increased their local control in the Jeffara region for reasons of their own economic and political benefit. In fact the border marches merely became wider and less determinate as Warraghma influence increased.

159. One of the main reasons for this was that the marches represented social divisions—between two or more contiguous and mobile communities. In fact, the "border" was no more than the division between the lands used and controlled by two adjacent tribes, one claimed as subjects by the Bey and the other by the Qaramanli Pasha in Tripoli, or the Ottoman Vali who succeeded him after 1835. Since tribes in this region were largely nomadic or transhumant across the Jeffara Plain, and in the Jabal to the south in vassalage to nomads, the border tended to follow the fortunes of control over traditional pasture and agricultural lands. The antagonism between neighboring tribes made these divisions vary as their fortunes varied in the endemic petty wars they fought. The only feature that showed any constancy was the constant eastward move of the eastern edge of the border marches as the Warraghma increased their control there.

160. In fact, the division chosen as the "border" was only one of many possibilities. The choice had to be made in terms of which particular group of tribes the Bey or Vali could claim to control. Control existed only insofar as the central power (Bey or Vali) could collect taxes and appoint its own officials to administer the tribes there—a function that neither central government was able to claim with regularity. It was only when France had completed her occupation of Tunisia that the eastward expansion of her new Protectorate was completed with the creation of a defined and permanent border which bore little relation to any previous political or social division in the region.

A. The Classical and Byzantine Periods

161. It is not correct that the coastal strip from Ras Kaboudia to El Biban formed a single economic or political region for our earliest source, the Greek historian Herodotus, in the Fifth Century BC distinguished between the sedentary cultivators "west" of Lake Triton and nomadic herdsmen to the east (Gsell 1915: 77-84). Lake Triton, it is generally agreed, corresponds with the Chott el-Djerid/Chott el-Fedjadj region just to the east of Gabes. It is this line which thereafter, throughout ancient history, has been regarded as the natural dividing boundary of the maritime region.

162. The maximum boundaries of Carthaginian territory proper, did not extend beyond the so-called *fossa regia* (the King's Ditch), which terminated just south of Sfax at Thyna. There is no evidence whatsoever that the Carthaginians ever unified the entire littoral from Ras Kaboudia to Tripolitania under a single political administration. The territory extending from Gabes to the Cyrenaican border at Arae Philaenorum (Ras el Aali) on the Gulf of Sidra, though partially colonized by the Phoenicians and recognized from time to time as being a Carthaginian sphere of influence, was only very briefly under direct Carthaginian control. Even this claim was bitterly disputed by the Berber king, Masinissa, who demanded the entire district of Emporia as his ancestral heritage—the region from the Gulf of Gabes, south of the King's Ditch at Sfax, as far as the eastern Tripolitanian border.

163. Even when the district was briefly under Carthaginian control, it was still administered as a separate district from Leptis Magna (Lebda) in Tripolitania, not from Carthage. As the Roman historian Livy says, "They call that district Emporia; it is the coastland of the Syrtis Minor (Gulf of Gabes) and rich land; it has one city-state, Leptis; it produced each day one talent in tax for the Carthaginians" (Livy XXXIV 62.3). When finally annexed by Rome the *regio Tripolitana* continued as a separate administrative and tax district—separate, that is, from the main province of Africa, whose boundaries followed those of the earlier Carthaginian territory and were defined by the *fossa regia*. In the period of the Roman Empire this boundary was extended by a military road which ran from Gabes to Haidra, near Tebessa, but not beyond Gabes. By the Third Century AD the *regio Tripolitana* was formally defined by the *limes*

Tripolitanus, an inner escarpment of the Jebel Dahar and Jebel Nefusa as far as Leptis Magna, which remained the administrative centre of the region (Reynolds 1976: 17-45).

164. The reforms of Diocletian at the end of the Third Century AD finally detached Tripolitania as a separate province, which, although it fell within the diocese of Africa, was nonetheless regarded as too distant to be ruled from Carthage and was therefore given a governor (*praeses*) who (unusually) had independent military powers. Despite the name "Tripolis", which strictly meant the three cities of Leptis Magna, Sabratha and Oea, the province also included the cities of Tacape (Gabes) and Gightis (Bou Grara) in the Gulf of Gabes. The ecclesiastical region of Tripolitania in the Fifth Century likewise was composed of the five bishoprics of Leptis Magna, Sabratha, Oea, Tacape and Girba (Djerba). When the rest of the African diocese was subject to Vandal rule in the Sixth Century, Tripolitania broke away on its own in 533 to rejoin the Byzantine Empire (Jones 1968: 289-297).

165. The historical record of antiquity, therefore, makes it quite clear that the "natural" frontier on the Gulf of Gabes lies at the point where the Matmata Mountains come down to the coastal plain of the 'Aradh and that the natural territorial unit in ancient history was not the whole Gulf of Gabes, as alleged by the Tunisian Memoire "depuis le fond des ages". On the contrary, the southern half of the Gulf, as far as the region of the Chotts, was often regarded as nomadic no-man's land and the coastal strip was often associated with the *regio Tripolitana* to the east rather than with the old African province to the north. This was the situation that persisted right up to 1881 and the French occupation.

B. The Border in the Seventeenth and Eighteenth Centuries¹

166. Given the history of the 'Aradh region, as described above, it is hardly surprising that early European attempts to describe a "border" between Tunisia and Tripolitania should be imprecise and confused. In a note to the King of France in 1670, the Consul of France in Tunis suggested that the border was at the fortress of "Gerba" (MAE 6). In Anthony Knecht's *Guidebook to Tripoli*, probably written in 1767, the border is said to be at Gabes (PRO 10). A Spanish map in the British Museum, dated 1775, places the border between Gabes and "Gerba" (BM 1). A "Mémoire sur Tunis", dated 1777, held by the Ministry of Foreign Affairs in France, suggests the border was located at Djerba (MAE 5). Ali Bey, in 1816, suggested again that the border point was Djerba (Badia y Leyblich 1816: 1-242).

167. Most European maps drawn before the 1880s show the border between the two Regencies. In all cases it is described as being far to the west of the present position at the Wad al-Mukta. The first effective map of Tunisia was drawn by Captain de Sainte-Marie, a cartographer sent by

¹ See *Figure No. 9*.

King Louis Phillipe of France (Marty 1935: 186-192) between 1842 and 1849. A year later French encyclopaedia articles on Tunisia and Tripolitania claimed that Djerba was the border point (*L'Univers* 1859: 1,39).

C. The French Occupation Begins

168. Even by 1881, after the occupation of Tunisia had begun, the confusion continued. A military itinerary of that year suggested that the border was somewhere south of Biban (SHAT 18). A map accompanying a consular report from Tripoli claimed that the border was at Biban (SHAT 19). A similar report at the end of 1881 from a military attache in Istanbul also claimed that the border was at Biban (SHAT 20). The initial French advances into southern Tunisia in 1882 stopped on Wad Fassi, because the French army believed that the border was at Bahiret al-Biban (SHAT 20 and 18). It was only in 1887 that advances were made up towards the present border and the necessary diplomatic justification was provided.

169. At the end of June 1882, the French army had moved in force to Zarzis and thence up the Wad Fassi. Zarzis had been invested from the sea the previous year but this was the first major landward occupation. The Wad Fassi seemed an appropriate line for the army to control the border tribes of the Warraghma (SHAT 21). It had been suggested that the Warraghma should undertake the defence of the frontier as a Makhzen (government) tribe (SHAT 22).

170. The uncertainty of the border situation led Capitaine Rebillet, who was in charge of the 6e Compagnie mixte at Metameur to investigate. In his report, dated 11 February 1883, he clearly and unambiguously placed the border at Wad al-Mukta (SHAT 23). This is perhaps the most important investigation that the French army carried out, for all subsequent argument was based on the Rebillet report and on the sketch he provided. Rebillet's information came from Tuazin and Udarna informants. It is quite clear that the border he claimed was, for his informants, no more than a tribal demarcation. He noted that the Tuazin did not pay taxes to the Tripolitanian authorities, whereas the Si'an paid to both the Tripolitanian and the Tunisian authorities, depending on their seasonal migrations. Furthermore, the Udarna lands were clearly recognized by all, as the Si'an actually requested permission from the Udarna to pass through them. The actual line that Rebillet suggested, also had the advantage of being along a physical feature, the valley of the Wad al-Mukta, and thus militarily desirable.

D. France Continues the Push East

171. Once this report had been made, the sole problem was how to get the Turks and the local tribesmen to admit that the border was where Rebillet said it was. As a result, the manoeuvres of the next four years, when the French unilaterally occupied the region they claimed up to the border, were designed to force the tribes and the Turkish authorities in

Tripoli to admit that the Wad al-Mukta really was a border in the European sense of the word. French troops now began pushing into the region up to the Wad al-Mukta. By 1885 this had so provoked the Ottoman authorities that they protested at these incursions into what they considered to be their territory (SHAT 24). The French replied that the units in question were not violating any frontier and, in any case, they were engaged in mapping the region.

172. In 1886 a French survey vessel, the *Linois*, deliberately provoked an Ottoman response at Ras Ajdir. Once again the French authorities did not accept Ottoman protests (SHAT 25) and privately considered that the Tripoli authorities had been forced to concede French claims to Ras Ajdir as the coastal border point (SHAT 51). The Resident-General Paul Cambon, was also anxious to settle the border issue (MAE 15 and 16). He objected to the Army's *zone neutre* along the Wad Fassi, believing that this would become the border unless aggressive policies were followed. In May 1886 he visited the border and made his own investigation into where the border should lie (Cambon 1948: 190). Not surprisingly, he also decided that the Wad al-Mukta should become the actual border.

173. In fact, the army authorities were not standing still for they had realized that the *zone neutre* had allowed the border tribes to relapse into a state of anarchy and become a haven for dissidents. On occasion this spilled over into settled zones, or provoked a response from the Turkish authorities. The army felt that occupation of the border area was imperative to ensure that the Udarna and Warraghma should be properly controlled (SHAT 26, 27, 28 and 29). With the start of 1887, pressure mounted for the border occupation, the army in Tunisia repeatedly asking the Ministry of Foreign Affairs in Paris for its agreement and support. Cross border raiding in March (SHAT 29 and 30) was followed in May by marauding tribesmen penetrating as far as Gabes (SHAT 31). The army now got agreement for three new posts at Zarzis, Duirat and Metameur (SHAT 31) and, despite Ottoman rumblings of reprisals (SHAT 33), the occupations had been completed by the start of 1888 (SHAT 34, 35 and 36). The Ministry of Foreign Affairs was anxious not to provoke the Ottoman authorities by blatant occupation up to the border and insisted that patrols should keep to the line of posts recently created. The army pointed out that this was merely to narrow the *zone neutre*, not to remove it, and that the problems of the past would continue (SHAT 37). In fact, raiding continued up to 1894 (SHAT 38).

174. The next move to tighten up the border came in August 1891 from the Vali of Tripoli who decided to prevent Tunisian tribes from pasturing their flocks in Tripolitania since most of them caused trouble. The French authorities decided to take similar action. The first and most important victims were the Si'an who suddenly found that they could no longer harvest their crops along the Wad al-Mukta (SHAT 39 and 40). This incident passed, but was revived in the following November when the Si'an tried to plough the land under French control that they had traditionally used for crops. The French authorities, standing on the earlier agreement by the Ottoman authorities to close the border, refused even though the

Si'an had never caused any trouble. They pointed out that others, such as the Wazzani and the Naluti who used to plough the land in what was now Tunisia had also been prevented (SHAT 41, 42). Now, however, Si'an migration patterns were permanently disrupted and the new frontier had begun to become impermeable and permanent.

175. The French also claimed that, since they had prevented the traditional payment of fees to the Udarna and the Tuazin for the use of their land by others, the nature of land control had changed. The Udarna were encouraged to stay on their summer pastures, rather than migrate, and plough the land which traditionally had been the preserve of the Si'an in winter. Commander Rebillet in July 1891 had explained that the rights that the Si'an, Naluti and Wazzani claimed, on the basis of land deeds over areas now controlled by the Udarna and hence in Tunisia, were invalidated by their payment of a usage fee to the Udarna for at least 100 years. Once payments of this fee were stopped (as they had been by the French authorities) then so did the implied right to use the land.

176. French firmness over the new border was to cause another incident the following year when, in August 1892, some 300 Naluti and Wazzani attacked an Udarna patrol at Umm Zuggar. The reason was simple—for over 60 years they had had orchards in what so recently had become Tunisia and now were unable to harvest what they considered to be their rightful crop (SHAT 43). The French authorities had wanted to force the Wazzani to ask permission—and thereby recognize their sovereignty over the orchards. Soon the incident escalated, troops were moved up to the border and a major confrontation seemed likely. Diplomats of the Foreign Ministry in Paris soon persuaded the army to relent and the Wazzani were eventually allowed to harvest what remained of their figs—the rest had already been harvested on French orders by the Udarna (SHAT 44, 45 and 46).

E. The 1893 Zouara Conference

177. It was by now obvious that a formal delimitation of the border was essential and it was decided to hold a conference at Zouara in 1893. Amongst the Tunisian delegates was to be Commander Rebillet. Evidence was collected although the French army was now strangely reluctant to go through with the conference, since they realized that any final decision would fundamentally limit their freedom of action (MAE 18, 19 and 21).

178. It was also obvious that land deeds were a dangerous basis for claims of sovereignty. The Nuwayl, for instance, were known to have deeds in areas that were indisputably Tunisian (MAE 22 and 23). However, since they referred back to a period when the Nuwayl were installed around Ben Gardane, from which they had been expelled in 1770, the French claimed that the deeds had no validity. Ownership of land by private parties did not affect national sovereignty; if it did, then France could equally well claim parts of Nalut and Wazzan, where Tunisians also owned property. The French argument was based on whether or not

appropriate authorities had collected taxes from the populations they claimed to control. French attitudes had clearly changed from the 1891 Rebillet report over the Si'an and Dahibat land claims to the arguments used in the Zouara Conference.

179. The conference opened in March 1893, but by May had broken up in disagreement. Tripoli had claimed a line running south from Biban, and Tunisia of course claimed the Wad al-Mukta line (MAE 24). The Ottoman evidence of private property deeds had been rejected, as had Beylical decrees and tax evidence, the latter on the grounds that the taxes were collected at place of residence and thus showed nothing of where the material taxed had originated and thus where sovereignty lay (SHAT 47).

180. In August the French Army decided to move its garrisons forward to Ksar Ben Gardane, Sidi Toui, Moghri and Dehibat—almost on the *de facto* frontier that Rebillet was certain the Ottoman authorities would implicitly accept despite the failures of the Conference (SHAT 48; Marsden 1971: 142). The Army was anxious not to cause any unnecessary provocation and very careful instructions were issued to French patrols (SHAT 49). Nonetheless, incidents continued to occur and in April 1896 a group of Warraghma crossed into Tripolitania near Nalut to illegally pasture their animals. In the resultant fighting seven were killed and in a further incident at the beginning of May another five died (PRO 11).

F. The Border and the Saharan Trade

181. By now French interests had moved southward, for the Tunis administration believed that the Saharan trade routes were sources of vast potential wealth. From 1894 to 1901, French efforts in southern Tunisia were devoted to trying to gain control of Ghadames and Ghat, or at least to ensuring preferential access to these two desert markets. The aim was to divert caravans from Tripoli towards Zarzis or Gabes and Tunis (Marsden 1971: 162-168; 171-176; 233-238). It was an illusion, but it provided the impetus to the occupation of Djeneien in February 1898 (SHAT 50 and 51).

182. Italy—which hoped to occupy Libya—was reduced to watching these French moves which threatened Libyan trade and territory from the sidelines. In August 1894, the Italian consul in Tunis reported a meeting with Rebillet, in which Rebillet said that France had no intentions for Tripolitania as a whole but did believe that there should be some border adjustments—in particular that France should control Ghadames. While these were supposed to be Rebillet's own views, the consul believed that they reflected those of official circles as well (AME 1).

183. The general Italian view was that the French and the British were trying to fix the land boundaries of North Africa to their own advantage, before the Italians could occupy their portion—Libya. The Italians were particularly annoyed by a Franco/British agreement in 1894 in which Wadai, in the Sudan, was "ceded" to France (AME 2).

184. The French manoeuvrings over the Tripoline/Tunisian land frontier in 1893-1894 were, therefore, no more in Italian eyes than the

continuation of this process. In 1895 the Italian ambassador in Constantinople reported that the negotiations over the frontier had not begun again, and that it might be no bad thing if they did not do so, as on each occasion the French won more territory at the expense of Tripolitania (AME 3).

G. - The Zouara Agreement In 1910

185. It was not until 1909 that French attention was dragged back to the northern edge of the Tunisian/Tripolitanian border. In December, a French patrol at Dehibat was fired on from Wazzan. The incident escalated, as both sides rushed troops up to the frontier and, although the danger of open war rapidly receded it was clear to both France and the new Turkish authorities in Istanbul that the question of the border had to be settled definitively. By the end of January 1910, the Young Turks had finally accepted the Treaty of Bardo implicitly by entering into the negotiations. By May, the negotiations had been completed and the matter was effectively settled, apart from certain details that were settled that autumn on the ground. France had now formally ratified the *de facto* border that she had claimed first some 20 years before (MAE 25-33).

186. Although shortly after the completion of the survey down to Ghadames and the definitive fixing of the border there, the Italo/Libyan War broke out, this did not affect the border situation. There is a neat irony in this in that it seems that the Young Turks had capitulated over the border issue in the hope of persuading France to support their claims to Tripolitanian sovereignty against Italian annexation. Presumably they were unaware of the 1904 Italo/French agreement. In any case, their hopes were disappointed as France did not interfere in the war at all. France continued to make advances south of Ghadames and, although a further conference was proposed for 1914, the outbreak of the First World War seems to have prevented this (SHAT 52).

H. Conclusion

187. The social basis of human groups in the border zones developed from a tribal system of some complexity, and tribal structure was of utmost importance even at the time of the Franco/Turkish Accord of 1910. Land ownership, administration and, in the important semi-nomadic and nomadic areas, economy related directly to the tribal situation. In fact, local society had functioned very well without interference from Bey or Pasha. The sedentary oasis and Jabalia societies lived in uneasy and vassal-like symbiosis with the nomadic confederations of the Warraghma and the Udarna - the links being based on complementary economic interests and control of agricultural land. The nomadic societies had pushed their neighbours eastward over the previous centuries as the result of population pressure in the Jabal, and the Beys of Tunis associated themselves with this eastward move. It provided them with a greater freedom of action in the face of the Qaramanlis or Ottoman Pashas in

Tripoli and also relieved them of the need to maintain a standing army in the southeast. However, the Beylik exercised little meaningful sovereignty there, particularly since it could not collect taxes.

188. With the French occupation of Tunisia in 1881, the border issue was bound to become acute. However, it was only after Rebillet had made detailed investigations into local tribal structures that he was able to claim that the border was a tribal border between areas controlled by the Tuazin and Udarna on the Tunisian side and those controlled by the Nuwayl on the Tripolitanian side. Once stated, this principle became the basis of French policy. By 1910 the present borderline had been established *de facto* and nomadic migrations—the Si'an—and traditional usage of pasture and gardens in Tunisia by Tripolitanian populations had been suppressed.

189. The border as defined represented the success of a French policy of slow encroachment, based on a biased interpretation of the significance of tribal boundaries. It was also the consequence of the French "hinterland" policy and their desire to capture the caravan trade from Ghat and Ghadames. The finalization of the border was to define southeastern Tunisia as an autonomous sociological and economic region, cut off from its natural eastward extension in the Libyan Jeffara Plain.

SECTION 6. TERRITORIAL WATERS—CONCEPTS AND DISPUTES.

190. As with tracts of desert or virgin land Muslim law had no interest in assigning ownership of stretches of open water to anyone: certainly the corsair Bashaws of Tripoli regarded the Mediterranean as open for the use—peaceful or otherwise—of anyone who possessed the ships! Even the British Admiralty's dealings with the Barbary States before the period of European colonization did not provide adequate definitions beyond the "gunshot" or "24 hours" rule. It is altogether appropriate that the first clear indication of an international consensus on the question of territorial waters around Libya and Tunisia should be the occasion of a colonial war waged by a European power, Italy, on Ottoman Turkey in 1911. When disputes did arise, they were nearly always at the instigation of a European power, whether Italy because of fishing interests or France because of her occupation of Algeria.

A. Concepts of Territorial Waters Before 1881

191. The Tunisian Memoire claims that "Les pêcheries sédentaires tunisiennes sont très souvent prises par les auteurs comme l'exemple type de *'possession immémoriale'* détenue par un Etat sur des eaux adjacentes à ses côtes." This does not seem to be correct, given the example of a coral fishery off the Tunisian coast around the Island of Tabarca. In 1770, French fishermen were given sole rights by the Bey to fish in Tunisian waters. In 1784, the French complained that Italian boats were usurping their rights in the area of a small island, La Galite, 40 kilometres from the mainland. The Supremo Magistro di Commercio of the Kingdom of the Two Sicilies considered that as Italian activity was always more than 12 miles offshore it was not being carried out in Tunisian waters, and so did not impinge on French rights. The definition of Tunisian waters was those waters within cannon-shot of the land (Tescione, 1940: 139-142).

192. In fact, the definition of territorial waters as those waters within cannon-shot of land was widely accepted. The Qaramanlis accepted it in a Treaty with Austria-Hungary in 1749. Clause III stated:

"Tripoline Privateer Ships are absolutely forbid (sic) to hover and cruize, and do dammage within sight of the Ports and Country subject to their Imperial Majestys, that the security of commerce may not be disturbed."

They might, however, put into port to take shelter and pick up water:

"And then they shall be in Safety within Cannon-shot, but when they have been received therein, they shall not be suffered to pursue any ship of their Enemy, till 24 hours after the going out of the same."

A similiar treaty between Tunis and Austria-Hungary in 1748 forbade Tunisian warships to cruise within sight of the coast:

"The Tunisian Corsair-ships shall not cruize in the neighborhood of the Ports Roads and Islands subject to their Imperial Majestys, they being forbid to cruize in sight of the said Ports."

193. The earliest reference to territorial limits in the British records is Article 8 of the 5 March 1675 Treaty, between "Halil Bashaw, Ibraim Deay, Aga Divan and Governors of the noble City and Kingdom of Tripoli in Barbary", and Admiral Sir John Narborough: "That none of the Ships or other Smaller Vessells of Tripoly shall remaine near his said Majesty's City and Garrison of Tangier, or in sight of it, nor in any other way disturb the peace and commerce of the place" (PRO12). What can be surmised from this article is that where a special relationship existed between them, one state could require privateering ships of another not to frequent waters within eyesight of her dominions.

194. By the 19th Century, the more normal gunshot rule had come into operation. The Treaties between Tripoli and the Kingdom of the Two Sicilies and of Sardinia, both concluded on 29 April 1816 by the British Admiral Lord Exmouth on behalf of the Italian Kingdoms (PRO 13) state:

"No Ship of War or Privateer of either party shall take a station in sight of any particular Port in each others Dominions with the view to intercept any Enemy, nor shall they capture or take any Enemy's vessel within gunshot of the coast of a Friendly Power, or attack any Ship or vessel laying at anchor in any ... of the Bays within Gunshot, although there may not be any Battery or Guns to defend her".

Here we shall note that the claim is even more circumscribed: only stretches of water within eyesight of a port are barred to privateers, and the distance from land within which they may not attack is only that of gunshot distance—considerably less than eyesight in 1816. The treaty also contained a declaration of the 24 hour rule that allowed a vessel of the favoured nation to take shelter in the ports of the contracting power if chased by an enemy, and if "she should wish to prosecute her voyage, the Enemy's vessel shall not be permitted to get under weigh until 24 hours after the departure of the first, and that she is out of sight".

195. In short, such legal control as existed over territorial waters until the early 19th Century was only by virtue of treaties contracted between two consenting powers; treaties would generally give special rights to the shipping of certain nations; but the claiming of "territorial waters" as a way of protecting neutral trade was exceptional, limited and only introduced as a result of European pressure during a major continental war. The situation changed little until the French Protectorate was created.

B. Disputes Between Tunisia and Tripolitania After 1881

196. In 1893, the Ministère des Affaires Etrangères suddenly asked its representatives in Tunis about the relations between the Vilayat of Tripoli and Tunisia over fishing. The Minister particularly wanted to know whether the Ottoman authorities allowed Tunisians to fish in their waters or not (MAE 34). The answer was, essentially, that Tunisians did not need to move outside Tunisian waters, so there was no problem there. However, although Tripoline fishermen did not normally use Tunisian

waters, there were frequent incursions into Biban and similar raids on Tunisian sponge banks, particularly by people from Zouara. The writer felt too that some sort of convention should be established over mutual fishing rights with the Tripoli Government, since, "Aucun acte officiel réglementant l'exercice réciproque de la pêche dans les eaux des deux pays n'existe dans les archives du Gouvernement Tunisien" (MAE 31).

197. The matter stayed there until the decrees governing fishing and navigation in Tunisian waters were issued in 1897. On 14 March 1899, the Foreign Ministry wrote to the French consul in Tripoli to see how the Ottoman authorities treated Tunisians appearing in their ports, particularly in view of the new flag that Tunisian ships were now obliged to fly. The answer showed that such maritime visits were very restricted—there were only four ships from Djerba in 1898 and then a few small ships involved in tramp trading along the Tripoline coast. They were treated in exactly the same way as Ottoman or French boats (MAE 35). The Tunisian authorities pointed out that the Ottoman authorities usually treated Tunisians as Ottoman subjects when they came to Tripoline ports and that there was no reason for this to change. Ottoman ships coming into the ports of Tunisia were treated in exactly the same way as any other foreign boat. Their interests in Tunisia were under the control of the Greek consul, since there was no Ottoman consul. Trade was extremely limited, with only ten vessels coming to Tunisia in 1898.

198. Once Italy had taken over control of the Tripoline littoral, the situation began to change. In 1913, there was the affair of the Greek fishermen arrested and tried at Zouara in September. This case aroused no immediate interest in Tunisia, since it did not involve Tunisian nationals or Frenchmen and did not appear to have occurred in Tunisian territorial waters. However, the French authorities decided that the case did raise questions of general practice, particularly over whether or not Italy had the right to exercise fishing control over areas outside the Tripoline territorial waters. The issue became even more acute when the French realized that the Greek boats arrested had Tunisian fishing licences and that the Italians apparently wanted to force fishermen in the border region to take out Italian fishing licences and sell their produce to an Italian sponge company (MAE 36, 37 and 38).

199. The French then realized that the Italian authorities in Zouara were using a north/northeast extension of the 1910 land border to define the sea-limits between Tunis and Tripolitania (MAE 30). As far as the three-mile limit to territorial waters was concerned, the Italians were also using precisely the same arguments as Italian fishermen had been forced to accept by France in the 1890s. As a result, France did not feel that she could push the issue very far. Luckily, at this precise moment, the British Government, alarmed at the implications of Italian actions for Maltese fishermen, decided to protest. France was delighted to hang on British coat-tails (MAE 39 to 43). The issue never seems to have been satisfactorily resolved, the First World War intervening.

200. The following year, the Italian border patrols trapped several local boats from Zarzis which had run for cover from bad weather into the Tripoline port of Faroua. The boats were seized and the fishermen obliged to pay 200 francs to redeem them (MAE 44). There seems to have been some confusion over whether the boats were caught at sea or seized in port (MAE 46), but there was no doubt about local ill-feeling at Zarzis and Djerba over the incident (MAE 47). At the same time France wondered whether to renew complaints about the Italian sponge purchasing monopoly at Zouara, and the claims for both sides were carefully outlined in reports to Paris (MAE 45,48 and 49). However, in July, a further arrest of two Greek boats intervened (MAE 50) and then, in the commencement of the First World War, the matter was forgotten by the Ministry in Paris, as it turned to matters of greater moment.

201. Behind these incidents lay the problem of delimitation of the maritime frontier. The issue had never been resolved with the Ottoman Porte or the Pasha in Tripoli, nor did it prove possible for France to resolve the matter with Libya's new ruler, Italy.

C. Sovereignty and Territorial Waters

202. France's representatives in Tunisia found themselves confronted by two important problems that had never been resolved by the Government of the Bey of Tunis. The first of these related to the extent of Tunisia's territorial waters and the second to the actual delimitation of maritime borders, both with Algeria in the north and Tripolitania in the east. Despite the many fishing agreements and treaties made during the 19th Century by the Bey's Government with foreign powers, there never seems to have been an explicit statement of the extent of Tunisia's territorial waters.

203. In a note to his colleague at the Quai d'Orsay, the Minister of Colonies and the Marine pointed out in 1887 that, as far as the 1832 treaty was concerned, there was no statement of territorial limits "... mais il me paraît évident que le Bey de Tunis, par le traité de 24 octobre 1832, a entendu nous céder l'exploitation de tous les bancs situés en vue des côtes sans tenir compte de la distance, c'est-à-dire la limite de trois milles assignée conventionnellement dans certain cas aux eaux territoriales."

204. The issue of boundary delimitation had raised its head the previous year in the *Linois* incident. At the start of 1886, it was decided to carry out hydrographic work around the Ras Ajdir area. The relevant ministries in Paris clearly expected that this would upset the Ottoman authorities in Tripoli and, on 27 March, the Ministère des Affaires Etrangères asked the Ministère de la Marine to request the Porte in Istanbul to ensure that its local representatives should not interfere with the work (MAE 51 and 52). The Porte refused to help (MAE 54). However, the French authorities did not hesitate to profit from the incident, since they forced the Ottoman authorities in Tripoli to back down after their initial threatening moves against the survey vessel. The final

report on the incident in October 1886 notes with satisfaction: "Comme vous le verrez, ces faits ont amené la fixation définitive de la frontière Tunisienne au Mokta" (MAE 54).

205. In the same year, the issue of territorial waters came up again, as a footnote to the disturbances in the Balkans, where the Ottoman Empire and Greece were at war. The French feared that Greek boats seeking safety in Tunisian territorial waters from pursuit by Ottoman warships would not be accorded the normal privileges of safety. The reason was that the Ottoman Government did not recognize the Treaty of Bardo and thus rejected the idea that Tunisian waters were sovereign to Tunisia, rather than to the Ottoman province of Tunisia. The French authorities decided that, should such incidents occur, they would remain neutral—hardly a defence of sovereignty! Luckily, it does not appear that the issue was ever put to the test (MAE 55).

206. The issue of territorial limits, raised by the 1832 treaty, continued to exercise the ministerial minds in Paris, and advice was sought from the authorities on the spot in Algiers and Tunis. A series of reports from the French navy in the Mediterranean and from officials in Algeria and Tunisia argued that a three-mile limit would be inadequate (MAE 56 to 620). By November 1888, the Tunisian authorities had begun to plan out regulations to cover navigation in Tunisian waters. In fact, it took a further nine years before the relevant decrees were actually issued. Right up to the last minute the Paris authorities were agonizing whether or not they should mention specific territorial limits to Tunisia's territorial waters (MAE 63). Should they "... indiquer à l'art. 1, dans un premier paragraphe, la zone d'eaux territoriales à laquelle s'applique la réglementation ..."?

207. The Résident Général in Tunis had no doubts. In July 1897, he wrote:

"Il serait particulièrement dangereux de parler dans le décret sur la pêche de la délimitation des eaux territoriales. Ce serait remettre en discussion la question des bancs tunisiens où s'exerce la pêche des éponges et qui s'étendent à une trentaine de milles au large de la côte, c'est-à-dire bien au-delà de tout ce qu'on pourrait indiquer comme limite des eaux territoriales. Il est en effet admis généralement qu'elles finissent à trois milles au large de la basse mer. Dans toutes les instructions données aux garde-pêche, on a toujours soigneusement évité de parler de la limite des eaux territoriales et il convient de ne pas départir de cette prudente réserve."

208. The remaining problem was the actual location of the maritime border off Ras Ajdir. The dispute here was very simple. In the "Instructions" that the French authorities adopted in December 1904, the border was to be considered to be a line running northeast from the shore at Ras Ajdir to the 50 metre isobath. The Italians, in the 1913 court case at Zouara, clearly considered it to be a line running north/northeast from Ras Ajdir. The Ministère des Affaires Étrangères commented on the

implications of this in a letter to the Résident-Général in Tunis on 2 February 1914. Although the Ministry officials accepted that they could not complain about Italian practice of controlling sponge banks beyond the three-mile limit (as formally laid down in the Instructions for Surveillance of Maritime Fishing in 1919 by the Government of Tripolitania and Cyrenaica), since this merely repeated French practice, they were not so sure about the Italian practice on the location of the border (MAE 64).

209. The officials pointed out that there was a difference of 23° between the two lines and that this meant that French vessels could no longer take advantage of the sheltered anchorage at Ras Ajdir in times of bad weather. However, they went on to state that, although it was desirable that Italy should accept the French claim over the border delimitation, it was not vital. Tunis, in reply, pointed out that Tunisia had never had to make a formal claim over the border before and that it had first appeared on an official map, issued to French fishery protection vessels, on 22 June 1903. The matter had only been mentioned once to Italy officially, it appeared, in connection with the French arrest of Italian and Greek fishing vessels on 8 November 1910. At that time, Italy had not reacted (MAE 65).

210. The interesting point is that, in their 1919 regulations, the Italian authorities in Tripoli clearly wanted to avoid friction over the border issue, since they decreed a zone between Ras Ajdir and Ras Makabez and running north/northeast from these two points where, although all rights were reserved, seizures of offending vessels would not occur. It seems therefore that both European governments were anxious not to come to a confrontation over the issue and it was never clearly resolved. In fact, each government maintained up to 1940 its own particular vision of what the maritime border should be and neither was prepared to be ruled by the unilateral actions of the other. Little that has occurred since seems to have altered that situation.

D. The Italian Blockade in 1912

211. The Tunisian Memoire states that the Tunisian-Libyan maritime frontier is:

“...déjà internationalement établie et consacrée par la législation tunisienne sur la pêche, de façon continue depuis 1904. La ligne qui la représente, dite ZV-45°, part de la frontière terrestre tuniso-libyenne à Ras Ajdir et s'oriente suivant une direction nord-est à 45 degrés pour rejoindre l'isobathe de 50 mètres.”

However, this boundary was not recognized by the Italian navy during the invasion of Tripolitania in 1912. An order was transmitted to vessels operating in waters off the Tunisian/Libyan frontier area not to impinge on Tunisian territorial waters, which meant that “boats must not go west

of the boundaries established at Cape Ajadir" (AMDM. 1). This implies a directly north/south boundary. Similar information is contained in the British Records (PRO 14).

E. Fishing¹

212. Of course, behind all these obscure disputes over precise locations of maritime boundaries and limits of territorial waters lay very real considerations. The seas of the southern Mediterranean are very rich in edible fish and, off the Tunisian and Libyan coasts, are large sponge banks. Indeed, the Tunisian Memoire makes the economic importance of those maritime resources a central point of its argument. As has been shown earlier (Section 3) its claims are not founded on historical fact, for fishing has generally had a far less important role to play in the local economy than it suggests. This was also the case in classical times.

213. Classical references to fishing seem to be limited to just four examples. An early Greek mariner's manual mentions a site called *Tarichiae* ("the Saltings"), one day's sailing east of Djerba and which probably refers to the salting of fish at El Biban, also mentioned by the First Century AD geographer, Strabo (Muller 1885: I, 87). Strabo tells how the inhabitants of Gabes used to rush out to catch the fish on the tide. The Roman natural historian, Pliny, records the catching of purple shell fish at Djerba and sponge fishing in the Lesser Syrtis (Pliny: IX 127, XXXI 149). Finally Strabo describes Ras Kapoudia as a look-out point for the arrival of tunny fish off the Sahel coast (Strabo XVII: 3, 17).

214. There is no justification for the assertion that all the settlements along the Gulf of Gabes—erroneously described as Phoenician "comptoirs"—either practiced fishing or depended upon it for their main source of wealth. As we have seen, the reputation which Emporia had for prosperity was based upon its land. The very term Emporia, meaning "trading posts" in Greek, proves that the sites depended partly upon their trading activity, much of it generated from the desert hinterland in the shape of precious stones (e.g., carbuncles, etc.), animals and animal skins, etc., though doubtless fish was included.

215. The administrative centre of the fishing and trading activity of the Emporia was located in Tripolitania, especially at Leptis Magna. The purple dye manufacture of Djerba in the later Roman Empire, for instance, was listed under the heading of the Provincia Tripolitana. Nor is this all; ancient cities, which are today in modern Libya, practised fishing on their own account. Thus, for instance, sailing manuals record a site on the Tripolitanian coast which was also called "The Saltings" (Greek *Tarichiae*), probably on the Sabkhat Tawargha. Leptis manufactured a salted fish sauce (*garum*), a staple product of the Roman world, which was highly thought of, and she exported salted fish. Amphorae from Leptis, which are thought to have contained this fish sauce, have been found all over the Roman world. The existence of purple fishing from

¹ See Figure No. 10.

Leptis is proved by the considerable quantities of shells of *murex trunculus* found in the cement filling of a Byzantine building on the east side of the harbour. Pliny also mentions sponge fishing in the Greater Syrtis.

216. Even in the modern period, once France's Protectorate had been created, fishing does not seem to have played a major role. Indeed, most of the fishing was carried on, not by Tunisian fishermen, but by foreigners, mainly Greeks, Italians and Maltese. France was anxious to develop Tunisia's potential for fishing, both as a means of feeding the domestic population and for satisfying the European market. One recurrent plan designed to counterbalance foreign fishers and to encourage Tunisian fisherman by example, was the idea of introducing Breton and other French fishermen into Tunisia, either on a permanent or seasonal basis. In 1892 the Tabarca sardine fisheries were exploited in this fashion. However, the idea never really caught on (MAE 66). The problem was simply that foreign fishermen provided too strong a competition and the prospect of life in Tunisia does not seem to have been very attractive to the French fishermen.

217. In the 1890s, it was quite clear that foreign fishermen were to predominate in the fishing patterns of Tunisia, particularly over the question of sponge fishing. An 1892 report, dealing with the 1887-1891 period, showed how sponge fishing had begun in 1887 by accident when major new banks were discovered (MAE 67). Within two years there were 19 Italian and 58 Greek boats involved and by 1890 the numbers had risen to 49 Italian, 115 Greek, 13 "Ottoman", three Tunisian and three boats of varied origin—a total of 182 boats which landed 74,236 kilograms of sponges, 59,901 kilograms of them at Lampedusa and the balance at Sfax—hardly a recognition of Tunisian sovereignty or immemorial rights.

218. In the same year, it was pointed out that in the Gulf of Gabes although the state was supposed to benefit to the extent of one-third of the catch of uncleaned sponges and a quarter of cleaned sponges as dues, the reality was that most of the catch was smuggled out by Sicilian and Greek boats to Lampedusa (MAE 68). In fact, there was no effective legislation to control the sponge fishing dominated by foreigners or even by native Tunisians. The foreign predominance is emphasized by the frequency with which foreign boats found themselves in conflict with the authorities in the 1890s. The first major incident occurred on 11 December 1892, when seven Greek fishing boats raided sponge beds off the Kerkennah Islands. This was not the first time that such raids had occurred, but it was one of the most serious, because the fishermen compounded their offence by firing rifles at local fishermen who tried to intervene (MAE 69 and 70).

219. On 29 December, the boats in question called in at Sfax for provisions. They were recognized and arrested, particularly as, after the first incidents, French officials, accompanied by the local Greek consul, had tried to board vessels, but the consul had refused to agree (MAE 71 and 72). High-level messages passed between Paris and Athens and

eventually the affair was hushed up, with sentences against two of the Greek captains being reduced and another two being released (MAE 74-76).

220. The most striking aspect of the incident was not that eventually the matter was hushed up at ministerial level, but that France was so ill-equipped to deal with the situation. There was no recognized code of marine practice in Tunisia that she could apply, nor was one to be developed for several years. In fact, the files of the Ministère des Affaires Étrangères bulge with complaints from Tunis on this score, particularly over the lack of any regulations dating from the pre-Protectorate period (MAE: Tunisia NS 275 contains much correspondence on this subject). By 1896 the general volume of complaints from local officials and from marine surveillance vessels about the lack of organization of off-shore fishing was considerable (MAE 77). The villains of the piece were, as usual, Greeks and Italians and at Sfax local Tunisian and Maltese fishermen complained to the Contrôleur Civil over Italian poaching. There were 34 boats from Italy and Sicily, using narrow mesh lines that were destroying eggs and small fish. Once again, the lack of proper regulations made it very difficult to act against such boats (MAE 78 and 79).

221. The problem lay in the treaties drawn up between Italy and France over fishing in Tunisian and Italian waters. The main treaty was that drawn up in 1868 which gave Italians rights of free access to Tunisian waters, a right repeated by the 1896 treaty—which remained in force until 1940. Both treaties were based on the earlier 1832 Tunisian-French treaty and France had used earlier treaties dating back to 1770 in drawing up her agreements with Italy (MAE 80 and 81). The existence of these treaty obligations made the French concentrate much more on Italian misbehaviour than on incidents of Greek exploitation, although there were generally more Greek boats involved in sponge fishing (MAE 82). The French authorities feared that the Italian quasi-monopoly in fishing would extend from Tunisia into Algeria, unless it was checked in time.

222. Eventually, regulations for off-shore fishing were published on 28 September 1897 in the Official Tunisian Journal. The arrest of an Italian boat, the "Letizia", was to become a test case under them. She was seized outside territorial limits for not having the correct licences. The captain protested and the case was passed to the Italian Ministry of Foreign Affairs (MAE 83 and 84). France rejected the Italian complaint for two basic reasons. First, there were no sponges inside territorial waters in the Gulf of Gabes (where the incident had occurred). Hence, if France could legislate over matters pertaining to sponge fishing clearly such legislation would apply outside territorial limits. Second, such legislation was valid because in the 1870 Agreement between Tunisia and France, Italy and Great Britain, over the Tunisian debt, the income from sponge fishing was included in Tunisia's assets. Hence Tunisia—and by implication France—could and did control the sponge banks off the Gulf of Gabes, even though they lay outside the territorial waters of Tunisia (MAE 83).

223. The affair rumbled on from 1900 to 1903, with repeated French justifications of its claim to control the sponge beds outside Tunisia's territorial waters (MAE 84 to 91). Italy, strangely anxious to appease her irate neighbour, but perhaps more concerned to establish her claims to the beds on a better international footing, suggested that a delimitation commission should be set up but the French were reluctant.

224. For several years, the issue was left undisturbed. Italian boats apparently obtained the necessary licences, or smuggled surreptitiously to Lampedusa, and the French seemed to have made no real effort to extend their control. The new regulations had certainly reduced the annoyance caused to Tunisian fisherman and there were no more protests from the Maltese and Sfaxi, as in 1896.

225. In 1910, the problem erupted again. On 3 September 1910, 50 fishing boats off the Kerkennah Isles were inspected and two were found to have no licences for sponge fishing. They were taken to Sfax, where the captains protested that they had been fishing in international waters, recognized as such since 1891. The two boats, the *Unione* and the *Torino*, had been seized 38 nautical miles off Kerkennah and came from Lampedusa. They were fishing in waters about 37 to 50 metres in depth and were 25 kilometres northeast of "buoys 2 and 3" (MAE 95).

226. The Italian embassy in Paris became involved and, in an aide-mémoire in 1911, strongly attacked the French action—it pointed out that Italy had never signed any fishing agreement and, "... qu'aussi les droits de propriété de la Régence de Tunis sur cette partie de mer ne peuvent trouver un appui quelconque sur un traité international signé par le Gouvernement du Roi." All documents involved were unilateral decrees by the Tunisian administration: "... actes unilatéraux d'administration intérieure n'engageant que la partie qui les a émis, et ne pouvant même pas, par reconnaissance tacite, constituer un rapport juridique d'obligation internationale." (MAE 96).

227. Throughout May 1911 the accusations and justifications multiplied. There were anti-French demonstrations in Lampedusa. The French Government claimed it was only acting as in the past and as the Bey's Government had acted from 1832. Further, Italy had not protested, during the *Letizia* case in 1899, or on 8 November 1910, when two Italian and two Greek boats were seized 18 nautical miles off Ras Ajdir, on a line N 20° E from Ras Ajdir. Furthermore, the 1896 treaty had now expired and France might not renew it if the protests continued, particularly over an area where even the Beys of Tunis had had recognized rights over sponges found off the Kerkennah Islands and the Gulf of Gabes within the 50 metre isobath. Italy had suggested some time before that the limit should be set at the 30 metre isobath—a proposal that France had rejected outright (MAE 97 and 98). The Tunisian Government pointed out that in 1875 even the French consul had accepted the rejection of the "high

seas" argument. There was an "... usage immémorial reconnu solennellement par les puissances européennes" which "... a attribué à la Tunisie l'exploitation des bancs situés sur son littoral," even when they extended up to 22 kilometres from the coast (MAE 100 and 101).

228. The matter was finally settled by a further attempt at creating an arbitration commission. The commission never met, although in 1913 the Tunisian Government wanted to limit discussion to technical matters only, so that the basic question of whether or not Tunisia had rights to control the sponge banks was never to be raised (MAE 102 and 103). The Italo/Libyan war prevented the matter from being taken any further, particularly after the Italian Government in Tripolitania began to take unilateral action against Tunisian fishermen (MAE 104).

F. Conclusion

229. France was anxious to bring offshore fishing off the Tunisian coast, under her control, despite the limitations imposed on her freedom of action by the 1896 convention with Italy. As a result once fishing regulations were issued in 1897, they were enforced, despite Italian objections, and proposals for arbitration between the two countries over the contentious matter of sponge beds were never acted upon.

230. Before the Italian occupation, there were no real disputes between Tripolitania and Tunisia, mainly because sea-borne commerce between the two countries was very limited and because there was little complementary fishing in each others waters. There were, however, raids on Biban and the sponge beds by fishermen from Zouara. It was only with the start of Italian control in Libya that disputes began. To the extent that the Italians imitated French practice over control of sponge fishing beyond the accepted limit of territorial waters, the French were unable to protest without calling their own practices into question.

231. The arrival of the Italians in Tripoli also brought up the question of the location of the maritime boundary between Tripolitania and Tunisia. The French northeast line was opposed by the Italians who proposed a north/northeast line instead. In fact, the matter was never resolved, both sides maintaining their positions, but avoiding situations that would precipitate the issue.

232. In fact, the claims made by Tunisia in her Memoire over the importance of fishing to the economy of the Gulf of Gabes region even in classical times, do not find support in the historical record. Although fishing was always a complementary resource, it was dominated by foreigners. In fact, until the French occupation in 1881, the fishing and sponge banks were open to anybody, for the concept of territorial waters was ill-defined and largely irrelevant. As a result, disputes over the control of fishing were exclusively a European concern and came to dominate Tunisia's foreign relations only after the Protectorate was installed.

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Annex 7

DESCRIPTION OF PROJECTIONS AND BASE MAPS USED IN THE COUNTER-MEMORIAL

by

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SELECTION OF PROJECTIONS USED IN THE COUNTER-MEMORIAL

Whenever cartographers set out to project the surface of the earth onto a flat surface, there is always some degree of stretching or tearing of the spherical surface. With this stretching, distortions in direction, distance, area, and shape will occur. Any projection will usually maintain one or two of these properties with some degree of accuracy, but it will sacrifice other properties. The selection of projections is generally based on the properties of the earth that are most important to maintain. No projection can accurately maintain all of these properties.

Often the availability of projections showing the desired area at the correct scale presents a problem. Today, the most accurate projections available are obtained from the Cartographic Automatic Mapping Program ("CAM")¹, utilizing World Data Bank II ("WDB II")² information. This program provides cartographers with a variety of useful projections at scales ranging from approximately 1:3,000,000 to 1:10,000,000. The coastlines and political boundaries of the world were digitized onto magnetic tapes at a scale of approximately 1:3,000,000 and can be retrieved at a desired scale and on a number of different projections. The computer automatically alters the coastlines and political boundaries to fit the projection. With this source of data available we need only define the coordinates of the study area and select the property of the earth which is most important to maintain.

In terms of plotting bearings or direction at sea, the projection best suited to perform this function is the mercator projection. On this projection rhumb lines or lines of constant compass direction are plotted as straight lines. The mercator projection is a mathematical derivative of the cylindrical stereographic projection. All lines of longitude are shown as evenly spaced parallel lines and at right angles to the lines of latitude, which are also parallel but increase in spacing towards the poles. The only area on a mercator projection which accurately illustrates distances (correct scale) is along the equator or where the cylinder was tangent to the globe. Since the study area lies between 30°N and 38°N there is a slight amount of north-south stretching, thus creating some distortion in distances or scale (see next page). The distortion in scale, when put in quantitative terms, is called scale factor. The scale factor can be calculated at any line of latitude by using the following formula:

$$SF = \frac{\text{denominator of the principal scale}}{\text{denominator of the actual scale}}$$

¹ See Appendix 1.

² See Appendix 2.

A scale factor of 3 would mean that the actual scale is 3 times larger than the principal scale or the stated scale of the map. The scale factor of a mercator projection at the equator is 1.0 representing unity between the actual and the principal scales, at 30°N it is 1.15 and at 38°N it is 1.27. If the principal scale of a map was 1:11,000,000 at the equator then the scale of the map at 30°N would be

$$\frac{11,000,000}{1.15} = 1:9,565,217 \text{ and at } 38^\circ\text{N}$$

$$\text{it would be } \frac{11,000,000}{1.27} = 1:8,661,417.$$

A scale of 1:9,565,217 is a larger scale than 1:11,000,000 which means that areas distant from the line of tangency are shown larger than their actual relative size on the earth. Hence, this projection is ill suited to show areas and distances accurately.

Another projection, similar to the mercator, is the equirectangular. On a equirectangular projection the increasingly rectangular shape of the grid cells of the mercator projection is shown as squares (see Appendix 1). With the equirectangular projection there are negligible amounts of distortion in area and direction.

The mercator and the equirectangular projections are both conformal projections meaning lines of latitude cross lines of longitude at right angles as on a globe. The property of conformality means that even though the relative sizes of the landmasses may be distorted the shape of the landmasses is maintained.

The following projections were received from the CAM program:

1. Mercator Projection

Scale accurate at 34°N	1:7,028,600
Coverage: North 45°N	East 40°E
South 23°N	West 30°W
Image size: 13.5" X 36"	
2. Mercator Projection

Scale accurate at 34°N	1:3,006,000
Coverage: North 40°N	East 17°E
South 28°N	West 7°W
Image size: 17.5" X 29"	
3. Equirectangular Projection

Scale accurate at 34°N	1:4,149,000
Coverage: North 40°N	East 27°E
South 18°N	West 10°W

From these projections the following maps have been drafted and appear in the Counter-Memorial¹:

- A. *North Africa*, equirectangular projection.
- B. *Libya/Tunisia*, equirectangular projection.
- C. *Basic map of study area*, mercator projection.

¹ The southern political boundary of Libya on *Maps 1, 2, 3 and 16* of the Counter-Memorial has been taken from the *National Atlas of the Socialist People's Libyan Arab Jamahiriya*, first edition, Tripoli, 1978. In accordance with art. 50, para. 2 of the Rules of Court, a copy of that atlas was perviously deposited with the Registrar.

APPENDIX I

CAM

CARTOGRAPHIC AUTOMATIC MAPPING PROGRAM DOCUMENTATION - 5TH EDITION

GC 77-10126

JUNE 1977

PREFACE

The Cartographic Automatic Mapping (CAM) Program is the output portion of AUTOMAP, an automatic mapping system developed by the Central Intelligence Agency. CAM is an IBM System/360 Fortran H or G and Assembly Language Code (four subroutines) program which performs a variety of cartographic functions. The program can plot these functions on any one of eighteen map projections and is set-up to generate plot commands for Calcomp 1136, Gould electrostatic, Versatec electrostatic, Gerber drum and Gerber flatbed plotters. The structure of the program is modular so that additional map projections, subroutines to read line or symbol data in various formats, subroutines for other features and different plotter software can be added. The system operates under the IBM System/360 and 370 Operating Systems and utilizes approximately 300k bytes of core storage. An 8,200 point World coastline is included on the CAM tape. World Data Bank I (input scale 1:12,000,000) and World Data Bank II (average input scale 1:3,000,000) are available separately from the National Technical Information Service, U.S. Department of Commerce. Corrections and suggestions are welcome and should be sent to the CIA, Office of Geographic and Cartographic Research, Washington, D.C. 20505.

A. AZIMUTHAL PROJECTIONS

The Azimuthal family is a versatile class of map projections. By varying the scale along the great circles radiating from the map center, useful characteristics can be achieved, such as equal distance from the center (Azimuthal Equidistant), equivalence (Azimuthal Equal-Area), conformality (Stereographic), appearance of viewing from space (Orthographic and Perspective), and great circles anywhere on the map represented by straight lines (Gnomonic). Common features of azimuthal projections are correct azimuths to and from the center (which can be located anywhere) and symmetrical deformation.

AZIMUTHAL EQUAL-AREA

This projection, invented by Lambert, is best suited to small-scale maps of continental areas or hemispheres. The equivalent property is especially valuable for depicting distributions or measuring defined areas. Figure 7 is centered on Kinshasa, 4°28'S., 15°16'E., to illustrate the value of this projection in mapping areas that extend considerable distances in all directions. The azimuths from the center point show two characteristics common to all azimuthal projections—all azimuths are correct from the center and straight lines through the center point are great circles.

```

PLOTTER 14,2,01,10,1,8,4.
AZEQAREA 8400.
CETPOT -4,25,16,25.
MAPBOUND -90,90,-180,180.
MAPSAL 2.81
XYLIM 5.5,7.
SAVE
XYLIM 4.25,5.5
SAVE
2 11:14 ONE PLATE COMPOSITE
EOF
1 AZIMUTHAL EQUAL AREA
-2.81 -3.25
2 GRID
LGRID 20,20,25,25,80,80,-180,180.
2 CIRCLE
PLOTTER 14,3,01,10,1,8,4.
SAVE
CIRCLE -4,25,16,25,2.81,1.
2 COAST
PLOTTER 14,3,01,10,1,8,4.
SAVE
LINEPT 8,2
2 BOUNDS
PLOTTER 14,3,01,10,1,8,4.
SAVE
LINEPT 11,2
2 AZIMUTHS
PLOTTER 14,4,01,10,1,8,4.
SAVE
BODE -4,25,16,25,20,8400,20,80,0,90,0,90,0,90,45,315.
2 CORNER TICKS
PLOTTER 14,1,01,10,1,8,4.
SAVE
SPLATE

```

C. CYLINDRICAL PROJECTIONS

In theory, this class of projections is obtained by wrapping a cylinder around a sphere. Deformation increases away from the lines of tangency or intersection. In CAM there are two conformal projections, the Mercator and Transverse Mercator, and two compromise projections, the Equirectangular and the Miller. The UTM is not a projection but a grid system and is included here because of its wide usage.

EQUIRECTANGULAR

The Equirectangular Projection, often referred to as the plane chart, is produced by spacing the meridians and parallels at various ratios. It is most used for large-scale maps, such as city plans, although recent applications have included small-scale overlays on spatially ordered computer printout. In Figure 18, the meridians and parallels are equally spaced, one inch equalling ten degrees. Hand plotting over this type of map is very easy.

```

PLOTTER 14,2,01,10,1,8,4.
RECTAN 3,25
CETPOT 45,,-85.
MAPBOUND 20,,-70,,-125,,-85.
XYLIM 5,5,7.
SAVE
XYLIM 4,25,5,5
SAVE
2 11 x 14 ONE PLATE COMPOSITE
EOF
1 EQUIRECTANGULAR
-3. -2.75
2 GRID, BOX, AND COAST
LGRID 10,10,25,25,20,70,,-125,,-85.
PLOTTER 14,8,01,10,1,8,6.
SAVE
BOX 45,,-85,,-3,25
PLOTTER 14,3,01,10,1,8,4.
SAVE
LINEPT 8,2
2 BOUNDS
PLOTTER 14,6,01,10,1,8,4.
SAVE
LINEPT 11,2
1 CENTER AND CORNER TICKS
PLOTTER 14,2,01,10,1,8,4.
SAVE
CENTERTK
SPLATE

```

MERCATOR

The spacing of parallels on the Mercator Projection increases progressively poleward from the equator in a way that makes the projection conformal, i.e., by increasing the North-South scale to exactly match the East-West scale at every latitude. This conformality means that any straight line on the Mercator Projection describes a compass course or rhumb line. Since its conception in 1569, this useful projection has been employed in many scales for navigation charts and equatorial areas. The user should be aware that distances and areas are seriously exaggerated at latitudes greater than 40°. Figure 10, centered on Washington, D.C., has a partial range ring and azimuth overlay plus a rhumb line between the center and Reykjavik, Iceland. Note the difference between the curved azimuth, which is the shortest distance between two points (great circle), and the straight rhumb line, which is a compass bearing that crosses successive meridians at a constant angle.

```

PLOTTER 14.2,01,10,1.8,4.
MERCAT 0.
MAPBOUND -15,80,,-180,0.
CETPOT 38,56,,-77,2.
MAPSAL 10000000.
XYLIM 8.5,7.
SAVE
XYLIM 3.18,2.5
SAVE
2 11 : 14 ONE PLATE COMPOSITE
EOF
1 MERCATOR
-3.18 -2.5
2 GRID, BOX AND COAST
LCRID 15,15,25,25,-15,80,,-180,0.
PLOTTER 14.8,01,10,1.8,4.
SAVE
BOX 38,56,,-77,2,3.18,2.5
PLOTTER 14.3,01,10,1.8,4.
SAVE
LINEPT 8,2
SPLATE
2 BOUNDS
PLOTTER 14.6,01,10,1.8,4.
SAVE
LINEPT 11,2
SPLATE
2 AZIMUTHS, RANGE RINGS AND RHUMB LINE
PLOTTER 14.4,01,10,1.8,8.
SAVE
BODE 38,56,,-77,2,500,3000,30,1,.....330,30.
RRANGE 38,56,,-77,2,330,30,1,50,3000,500.
LINEPT 7,5.
2222222
2222222
0
0
SPLATE
2 CENTER TICK
PLOTTER 14.2,01,10,1.8,4.
SAVE
CENTERTK
SPLATE
/°

```

```

640900N0215100W
385600N0770302W

```

TRANSVERSE MERCATOR

This projection, an adaption of the Mercator, uses a meridian rather than the Equator for the line of true scale. All of the conformal relationships of the Mercator, except the rhumb line property, are retained in the Transverse Mercator. It is a superior projection for a 15 to 20 degree band centered on its central meridian but, except for its adaption in the Universal Transverse Mercator grid system, it has rarely been used.

The coordinates of the center point of the central meridian in this version of CAM are 0°N. and 0°E. By including the equations found on pages 6 and 7 of *Conformal Projections in Geodesy and Cartography* by Paul D. Thomas, the Transverse Mercator Projection can be converted into an Oblique Mercator Projection centered on any great circle other than the Equator or a meridian. In the past, such maps were employed for air navigation. The figure opposite employs the Transverse Mercator Projection to illustrate the relationship of North America to Asia via the South Pole.

```
PLOTTER 14.2.01.10.1.7.4.
TMERCT 0.
CETPOT 0...90.
MAPSAL 240000000.
MAPBOUND -99.0...99.8...180...0.
XYLIM 85.7.
SAVE
2 PLOT ON 11 BY 14
2 2 PLATES
XYLIM 95.185
SAVE
PLOTTER 14.8.01.10.1.8.4.
SAVE
BOX 0...90...95.185
PLOTTER 14.2.01.10.1.7.4.
SAVE
LGRID 15.15.2.2.-99.8...99.0...180...0.
LINEPT 8.2
SPLATE
CETPOT 0...90.
MAPBOUND -99.0...99.8...0...180.
SAVE
PLOTTER 14.8.01.10.1.7.4.
SAVE
BOX 0...90...95.185
PLOTTER 14.2.01.10.1.7.4.
SAVE
LGRID 15.15.2.2.-99.8...99.0...0...180.
LINEPT 8.2
SPLATE
```

APPENDIX 2

WDBII GENERAL USERS GUIDE

World Data Bank II is divided into 5 individual areas.

Tape 1 - North America

- File 1. CIL (coastline, islands, and lakes)
- 2. RIV (rivers)
- 3. BDY (international boundaries)
- 4. PBY (internal boundaries)

Tape 2 - South America

- File 1. CIL
- 2. RIV
- 3. BDY

Tape 3 - Europe

- File 1. CIL
- 2. RIV
- 3. BDY

Tape 4 - Africa

- File 1. CIL
- 2. RIV
- 3. BDY

Tape 5 - Asia

- File 1. CIL
- 2. RIV
- 3. BDY

CLASSIFICATION/RANK Guide. The data bank has a rank associated with each line. CAM, for example, has options for plotting any or all ranks and the rank can be symbolized.

Features and Subordinate Classifications/Ranks in WDBII

- I. International boundaries or limits of sovereignty
 - 01 Demarcated or delimited
 - 02 Indefinite or in dispute
 - 03 Other line of separation or sovereignty on land

- II. Coast, islands, and lakes
 - 01 Coast, islands, and lakes that appear on all maps
 - 02 Additional major islands and lakes
 - 03 Intermediate islands and lakes
 - 04 Minor islands and lakes
 - 06 Intermittent major lakes
 - 07 Intermittent minor lakes
 - 08 Reefs
 - 09 Salt pans—major
 - 10 Salt pans—minor
 - 13 Ice shelves—major
 - 14 Ice shelves—minor
 - 15 Glaciers

- III. Rivers
 - 01 Permanent major rivers
 - 02 Additional major rivers
 - 03 Additional rivers
 - 04 Minor rivers
 - 05 Double-lined rivers
 - 06 Intermittent rivers—major
 - 07 Intermittent rivers—additional
 - 08 Intermittent rivers—minor
 - 10 Major canals
 - 11 Canals of lesser importance
 - 12 Canals—irrigation type

- IV. Internal boundaries
 - 01 First order admin

NTIS numbers for CAM, CAM Documentation, and WDBII areas 1 through 5

WDB II

Tape 1, North America	CIA/DF-77/001
Tape 2, South America	CIA/DF-77/002
Tape 3, Europe	CIA/DF-77/003
Tape 4, Africa	CIA/DF-77/004
Tape 5, Asia	CIA/DF-77/005
CAM Program, 5th Edition	CIA/DF-77/006
CAM Documentation, 5th Edition	CIA/DF-77/006A

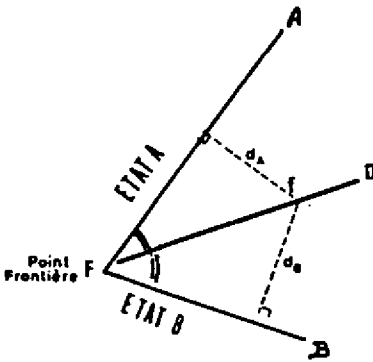
World Data Bank II (WDBII) was digitized and stored in a manner that fulfills the mapping requirements of the Central Intelligence Agency. These methods may not necessarily satisfy the needs of other users.

CIA does not have resources to provide special programming or changes to satisfy the special needs of other users.

Annex 8

COMMENTARY ON THE TWO
GEOMETRICAL METHODS PROPOSED BY TUNISIA

1st Geometrical Method



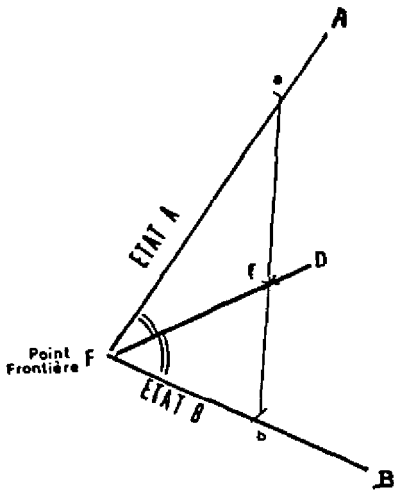
Quel que soit le point f appartenant à la bissectrice de l'angle AFB, ses distances d_A et d_B aux deux côtes (c'est à dire les longueurs des perpendiculaires menées de f à FA et FB) sont égales.

Cette propriété peut s'exprimer autrement : lorsque l'on va vers le large en suivant la bissectrice, à partir du point-frontière F, on s'éloigne de la même distance par rapport à chacune des deux côtes qui se trouvent en vis-à-vis.

FIGURE 9.03

COMMENTARY (Figure 9.03)

This is unexceptionable as a proposition. It makes the point outlined in Part III, Chapter II of the Libyan Counter-Memorial that, with a right-angled coast, the coasts to either side of the angle must share the area of those coasts. They cannot each have their full "natural prolongation".



Quels que soient les points :

a appartenant à la façade A
b appartenant à la façade B,

on peut démontrer que la bissectrice
de l'angle AFB découpe le segment ab
en deux longueurs proportionnelles
aux longueurs des côtes Fa et Fb :

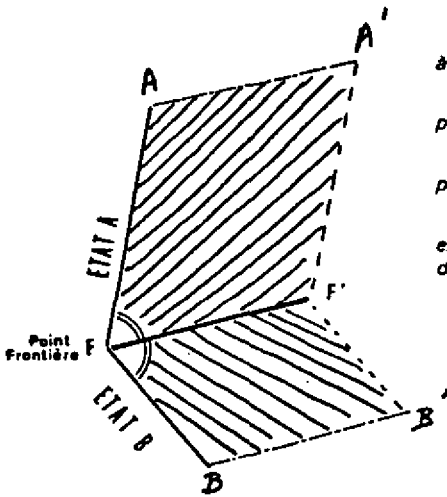
$$\frac{fa}{fb} = \frac{Fa}{Fb} = \frac{\text{Côte Etat A depuis la frontière jusqu'au point a}}{\text{Côte Etat B depuis la frontière jusqu'au point b}}$$

FIGURE 9.04

COMMENTARY (Figure 9.04)

This application immediately raises the questions:

1. On what basis are points a and b chosen? These are the coastal frontages and their choice cannot be arbitrary.
2. For purposes of equitable comparison it is the *areas* of the two triangles Faf and Fbf that are relevant, for delimitation is concerned with shelf *areas*. These areas are determined by the coastal frontages Fa and Fb. This is because the area of any triangle equals 1/2 base x height. Therefore, since Faf and Fbf have the *same* height, their areas are in the ratio of these bases (fa, fb) and these, in turn, are exactly in the ratio of the coastal frontages Fa, Fb. Thus, the selection of the coastal frontages controls the whole exercise.



On se déplace à partir des côtes, parallèlement à la bissectrice FF'

La surface revenant à l'Etat A est déterminée par le parallélogramme FAA'F'.

La surface revenant à l'Etat B est déterminée par le parallélogramme FBB'F'.

On peut démontrer que ces deux surfaces sont exactement proportionnelles aux longueurs de côtes des deux Etats A et B :

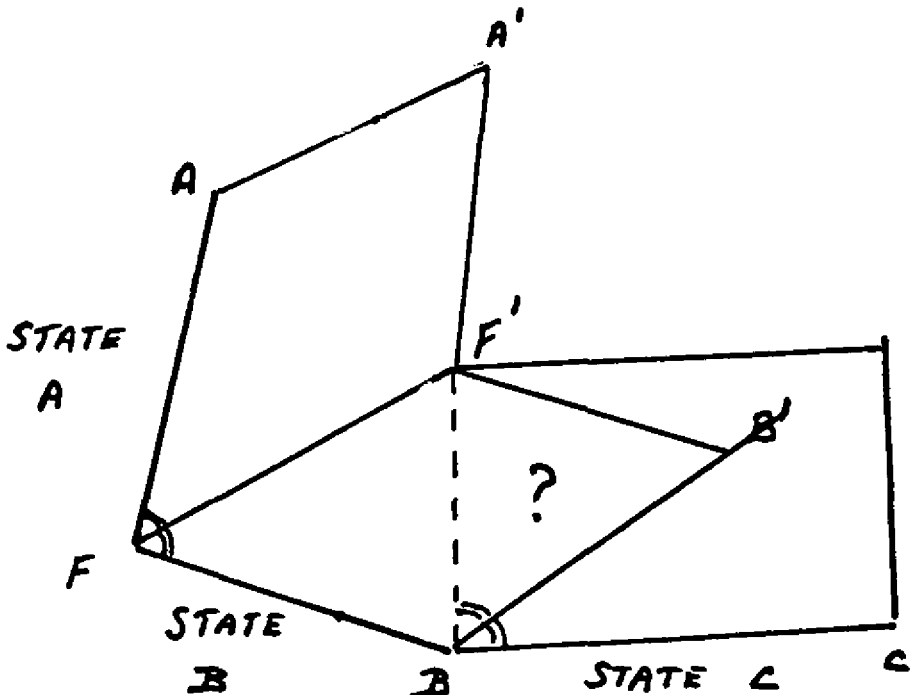
$$\frac{\text{Surface revenant à Etat A}}{\text{Surface revenant à Etat B}} = \frac{FA}{FB}$$

FIGURE 9.05

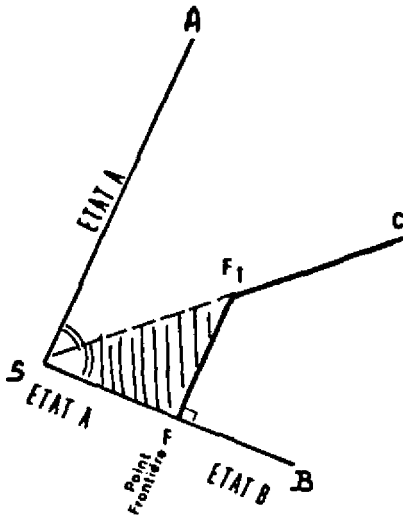
COMMENTARY (Figure 9.05)

This has the merit of being concerned with *areas* but its defects are:

1. The basis for selection of Points A and B is unclear.
2. The outer-limits of the areas are set as lines parallel to the coasts, which may not in practice be the correct method of delimiting the relevant area.
3. Its invalidity as a general method becomes clear when one assumes a third State, C, adjacent to B, for it attaches to the coast of State B an area which might more justifiably be regarded as belonging to a coast beyond point B. See below:



4. In short, the error stems from trying to give the two coasts on either side of the sharp angle (i.e., the Tunisian coasts north and east of Gabes) two separate prolongations, instead of accepting that they must share the same shelf area (as in Figure 9.03 above). The only way this can be done is by swinging the prolongation of the coast FB across the front of the next stretch of coast, BC, i.e., by "encroachment".



F est le point-frontière entre les deux États A et B, et FF_1C représente ce que serait la ligne d'équidistance dans ce cas de figure. En effet :

1. Jusqu'à F_1 qui est sur la bissectrice de l'angle, tous les points de la ligne de délimitation sont plus proches des points sur la côte SF que des points sur la côte SA.

La côte SFB étant rectiligne, la ligne d'équidistance est la perpendiculaire en F à SB.

2. Après F_1 la ligne d'équidistance se confond avec la bissectrice de l'angle ASB.

On peut alors constater que la surface revenant à l'Etat A pour la longueur de côte SF (égale dans l'hypothèse choisie à FB) est représentée par le triangle SF_1F : on voit qu'elle est notablement inférieure à celle revenant, pour la même longueur de côte (FB), à l'Etat B (effet d'amputation).

FIGURE 9.06

COMMENTARY (Figure 9.06)

This purports to show that, treating the coastal lengths SA and SF separately, strict equidistance from S (the bisector of the angle ASF) would allocate a quite inequitable area— SF_1F —to the coast SF. But this ignores the inescapable fact that, as in Figure 9.03, the coastal frontages SF and SA have the same area of prolongation: it must necessarily be shared. Moreover, if the parallelogram method of Figure 9.05 is applied, it shows the overall result is inevitably to favor State A. (See below.) Thus, the basis for the next proposition 9.07, is invalid.

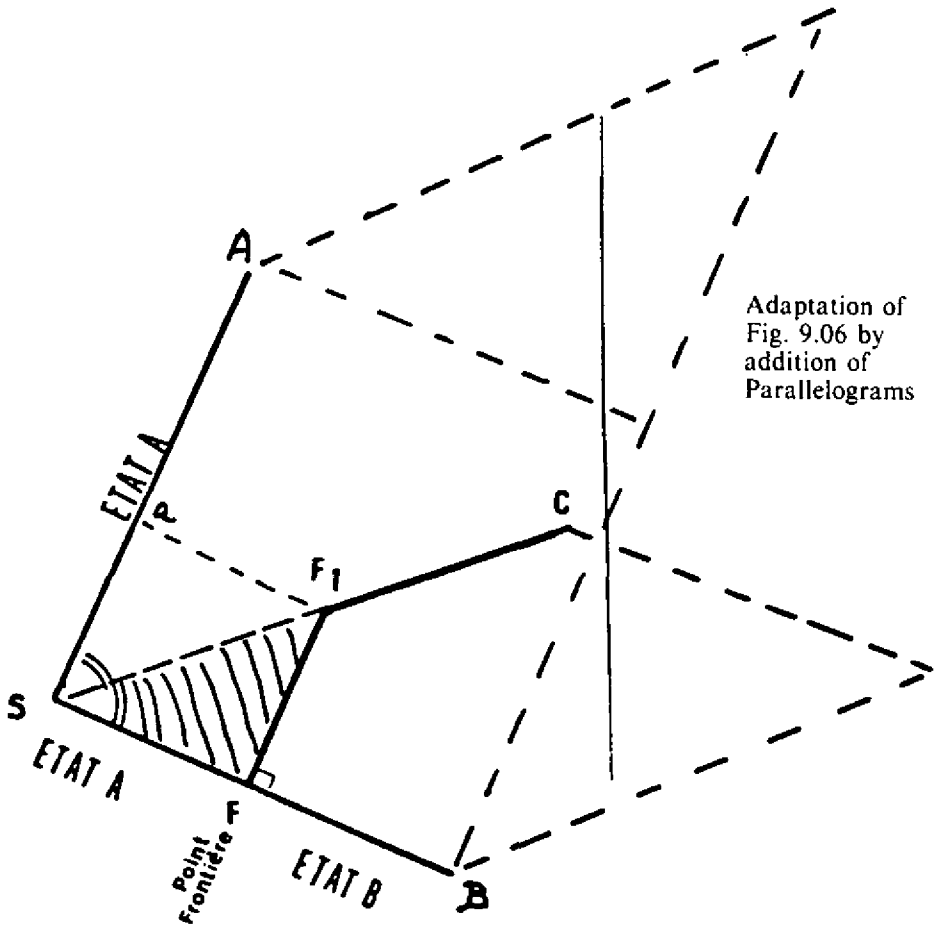


FIGURE 9.06

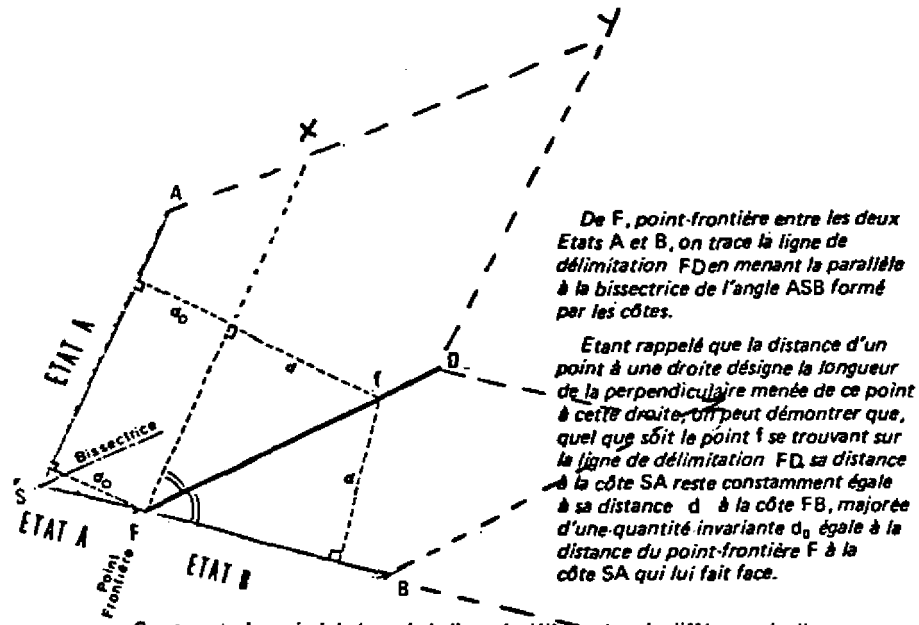
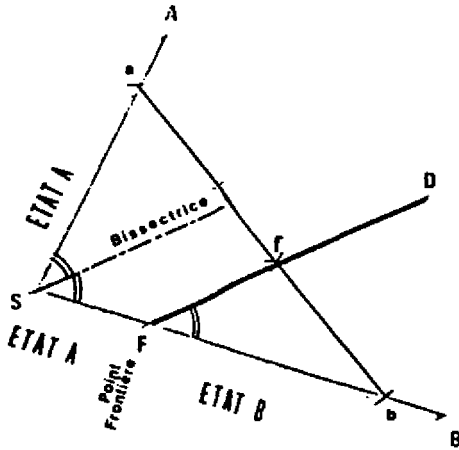


FIGURE 9.07

COMMENTARY (Figure 9.07)

This proposition has returned to *distances* from the coasts. We are concerned in equity, with *areas*. If one continues with the method of parallelograms, so as to produce comparisons of areas (this has been done by adding the lines AXY , YD , DZ , ZB and BC to the original figure), the following conclusions emerge:

1. By reference to the areas of the parallelograms, this method favors State A.
2. This method in effect shifts the coast of State A to the line FX , for by reference to Figure 9.05 the parallelogram becomes $FXDY$. Thus, the area $SAXF$ goes to State A without being counted.
3. State B's parallelogram $FDZB$ includes a large area which really pertains to the coast BC . Thus, since the prolongation of coast SF has been pushed across, so as to encroach on the area in front of coast FB , this coast is "compensated" by having its prolongation pushed across the front of coast BC .



F est le point-frontière entre les deux Etats A et B.

Quels que soient les points :
a appartenant à la façade SA
b appartenant à la façade FB,

on peut démontrer que la ligne de délimitation FD (parallèle à la bissectrice de l'angle ASB) découpe le segment ab en deux longueurs proportionnelles aux longueurs de côtes des Etats A et B :

$$\frac{fa}{fb} = \frac{FS + Sa}{Fb} = \frac{\text{Côte Etat A depuis la frontière jusqu'au point a}}{\text{Côte Etat B depuis la frontière jusqu'au point b.}}$$

FIGURE 9.08

COMMENTARY (Figure 9.08)

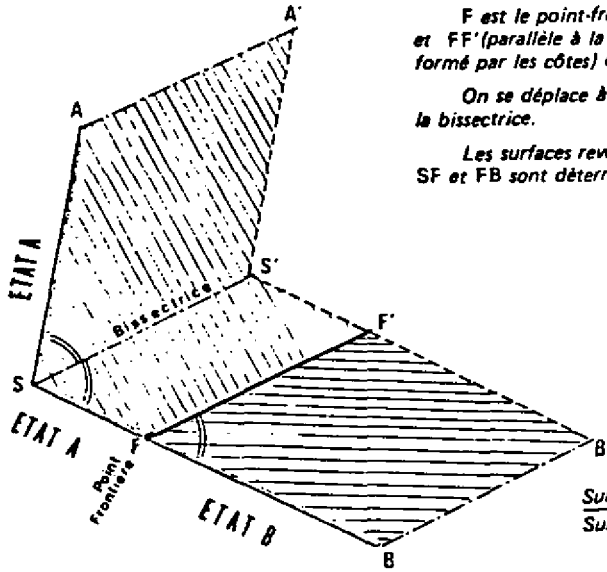
As with Figure 9.04, this diagram is concerned with the ratio of the lengths fa and fb.

In terms of areas, this demonstrates that State A is favored, whether the relevant areas are closed by the line afb or, more consistently with the premise of Figure 9.05, with a parallelogram.

The error lies in the fact that, although FD cuts the line ab in the ratio of the coastlines, it does not follow that the line FD cuts the area Sab into the ratio of the coasts, i.e.,

$$\frac{\text{area } faSF}{\text{area } fbF} \text{ does not equal } \frac{\text{coastline of State A}}{\text{coastline of State B}}$$

And, in any event, the method assumes that the line afb correctly limits the area to be divided.



F est le point-frontière entre les deux Etats A et B et FF' (parallèle à la bissectrice SS' de l'angle ASB formé par les côtes) est la ligne de délimitation.

On se déplace à partir des côtes, parallèlement à la bissectrice.

Les surfaces revenant aux tronçons de côtes SA, SF et FB sont déterminées par les parallélogrammes :

SAA'S' + SFF'S' pour l'Etat A
et FBB'F' pour l'Etat B

On peut démontrer que ces deux surfaces sont exactement proportionnelles aux longueurs de côtes des deux Etats A et B :

$$\frac{\text{Surface revenant à Etat A}}{\text{Surface revenant à Etat B}} = \frac{SA + SF}{FB}$$

La condition nécessaire et suffisante pour qu'il en soit ainsi est que la ligne de délimitation FF' soit précisément parallèle à la bissectrice SS' de l'angle ASB formé par les côtes.

FIGURE 9.09

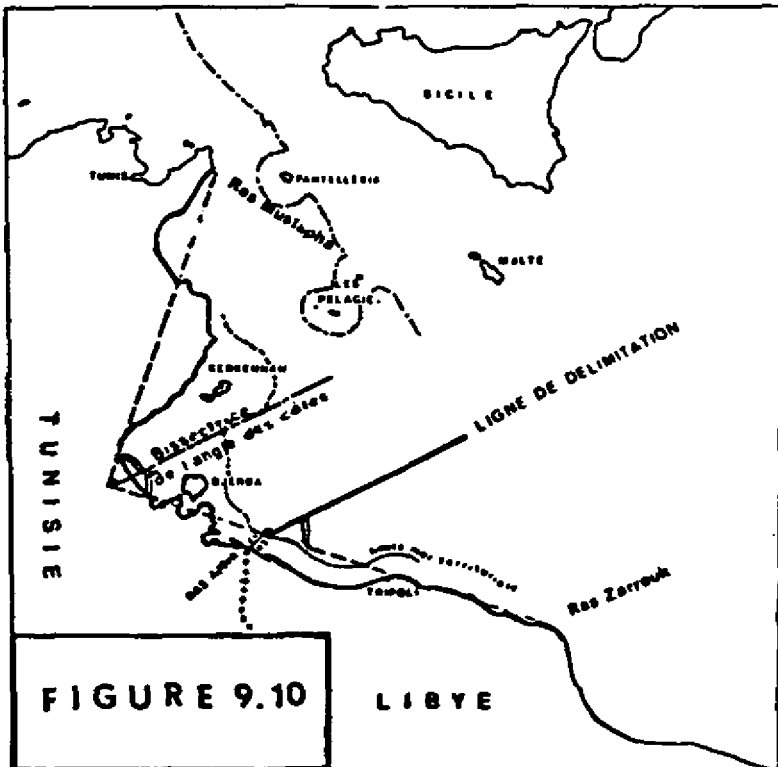
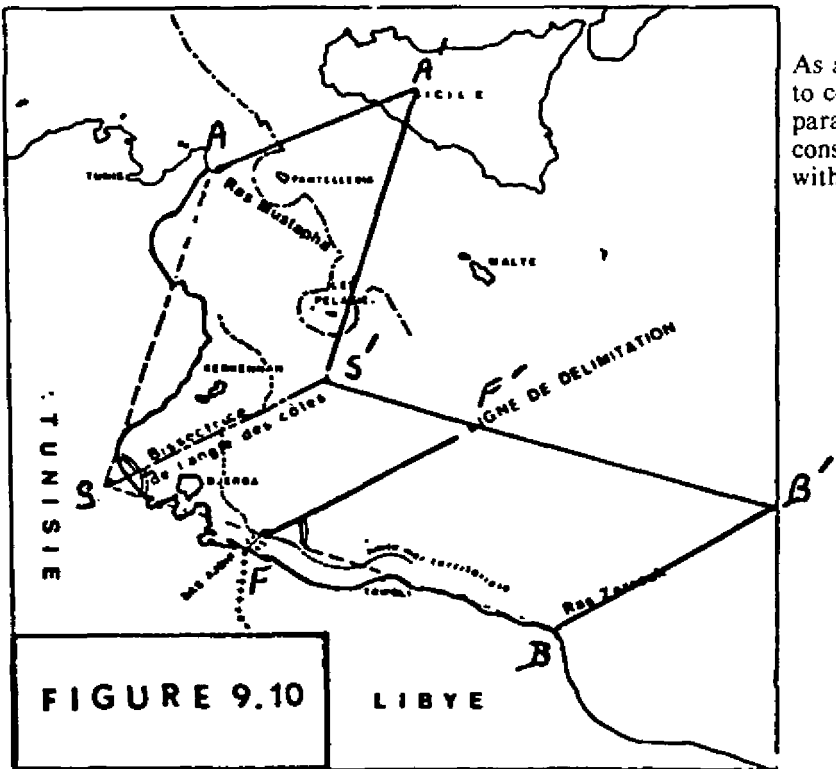


FIGURE 9.10

COMMENTARY (Figures 9.09 and 9.10)

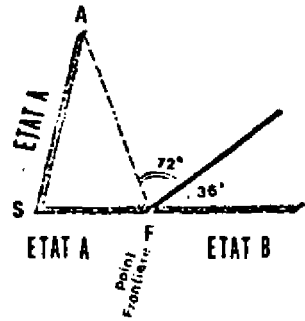
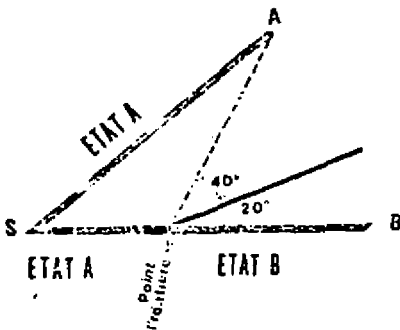
These two Figures represent the culmination of the geometrical exercise, and Figure 9.10 shows its application to the actual area. Its defects, consistent with the whole evolution of the exercise, are the following:

1. The arbitrariness of the selection of the coast frontages to Ras Mustapha in the north and to Ras Zarrouk in the east.
2. The arbitrariness of defining the shelf area by parallelograms from the coasts.
3. The notional transfer of the Tunisian coast running north from Gabes to Ras Ajdir, as if it ran north from Ras Ajdir.
4. The angling of the prolongation of the coast SF (Gabes - Ras Ajdir) to swing across the coastal frontage FB (Libya), compensating FB by swinging its prolongation across the front of the coast further east.
5. When Figure 9.10 is completed (see below) with the parallelograms, consistently with Figure 9.09, the results can be seen on the attached Map. They include:
 - shelf area SAA'S' which not only depends on Tunisian coast already counted for delimitation with Italy, but includes as shelf areas parts of the Tunisian mainland, Italian shelf, and even Sicilian mainland.
 - shelf area for Libya (FF'B'B) is almost entirely an area for delimitation between Libya and Malta.



As adapted to complete parallelograms consistent with Fig. 9.09

2nd Geometrical Method



F est le point-frontière entre les deux Etats A et B.

AFB constitue l'angle d'ouverture de la côte à hauteur de la frontière.

La côte ASF de l'Etat A a une longueur double de la côte FB de l'Etat B :

$$AS + SF = FB \times 2$$

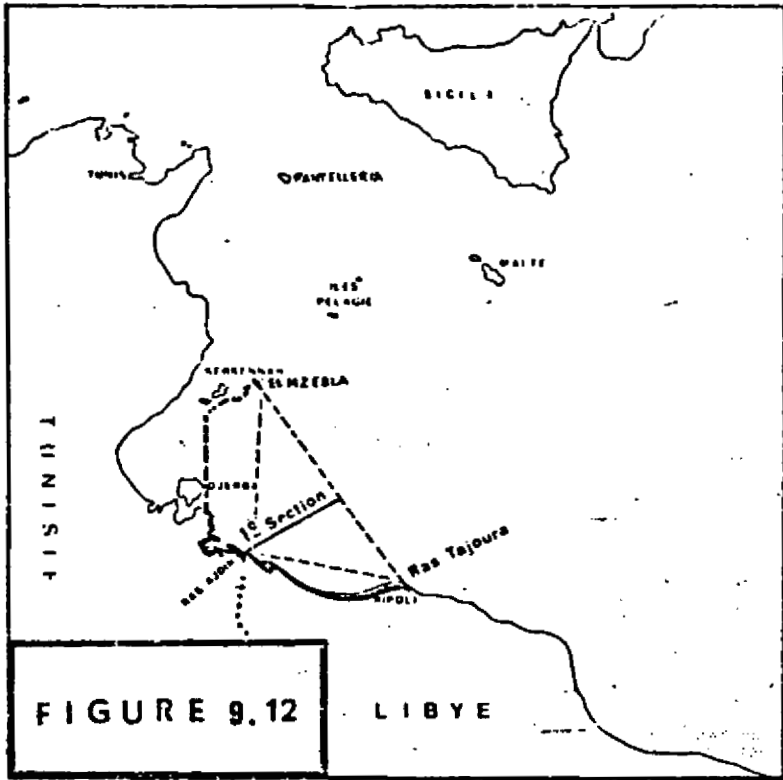
La ligne de délimitation est obtenue en appliquant cette même proportion 2/1 à l'angle d'ouverture AFB.

COMMENTARY (Figure 9.11)

1. What is the basis for selection of points A and B? This is crucial since it determines the lengths of the coastal frontages.
2. To take the actual lengths ASF is to ignore the Court's insistence that one measures a coast by reference to a "coastal front", a line of general direction. To make the point another way, to take the actual length ASF is to ignore the fact that the coasts north and east of S (Gabes) must share the same prolongation or shelf area.
3. This ignores comparisons of *areas*. The line of delimitation depends entirely on two factors:
 - (i) actual coastal lengths, and
 - (ii) the angle of the coast of State B and a line joining the frontier with the arbitrary point A—i.e., not even the angle of the two actual coasts.
4. No real justification is given for this second method, and none is apparent.

SECONDE METHODE GEOMETRIQUE :

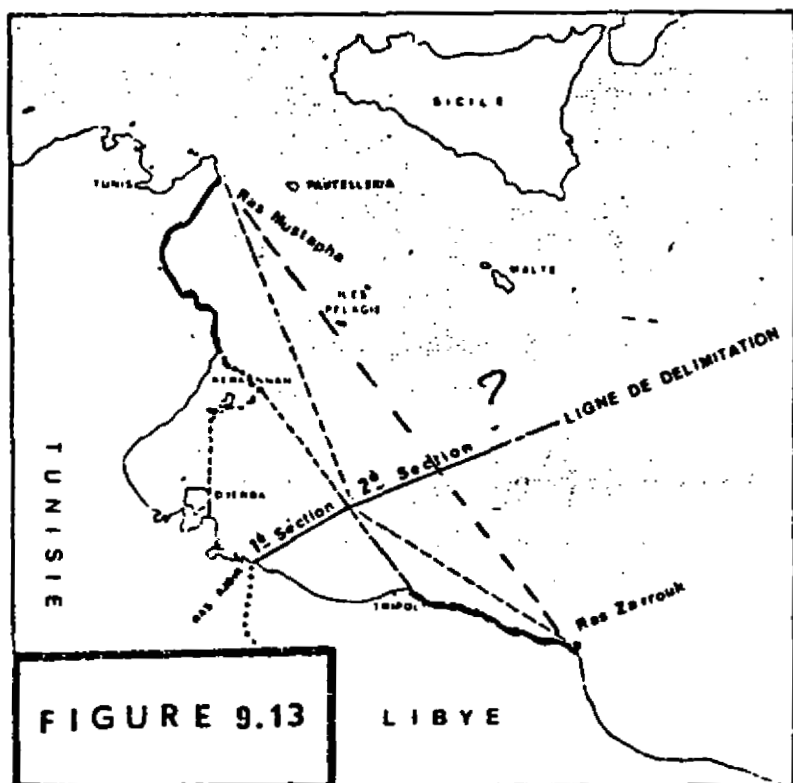
1ere Section (Fig. 9. 12)
2eme Section (Fig. 9. 13)



COMMENTARY (Figure 9.12)

1. This is tantamount to treating the Tunisian coast as if it ran from El Mzebla to Ras Ajdir -- or, in other words, ignoring the entire area to the west of that line in the comparison of areas.

2. What justification is there for using El Mzebla? The effect of so doing is to notionally shift the Tunisian coast running north to the line Ras Ajdir - El Mzebla.



COMMENTARY (Figure 9.13)

This second section is defective in that:

1. It embraces areas off the Tunisian coast already covered by the Italian/Tunisian delimitation agreement of 1971, and areas off the Libyan coast which are properly the subject of a future delimitation between Libya and Malta.

2. The terminal point of the line of delimitation flouts the method; i.e., the "triangle" for the second section should be closed by a straight line from Ras Mustapha to Ras Zarrouk, and no justification is given for extending it beyond that line.

Annex 9

CHRONOLOGICAL REVIEW OF OFFSHORE LICENCES IN TUNISIA
(PETROCONSULTANTS, S.A., INTERNATIONAL ENERGY SERVICES)

Pre-1965 Petroleum Exploration

Petroleum exploration in Tunisia started in 1894 when the first exploration permit was awarded. Exploration activity was limited to geological mapping in the northern part of the country and some shallow wells drilled in the Mio-Pliocene area of Medjerba (1919). The first deep test was drilled by the old Standard Oil Co. on the Abd el Rahmane anticline in 1926. This well was abandoned as dry above the formation which proved as gas bearing 23 years later (Cap Bon field).

From 1931 to 1948, activity was mainly conducted by the French and Tunisian Governments. Interrupted during the Second World War, activity resumed in 1945 and the general mapping and geophysical surveys conducted over the central part of the country were extended further to the south into the Sahara.

From 1949 to 1964, geological and geophysical investigations were also conducted in the southern Chotts area and extended to the most southern part of the Sahara.

In 1949, Serept (Société de Recherches et d'Exploitation des Pétroles en Tunisie) formed by Elf, CFP, Repfrance, Cofirep and the Tunisian Government started drilling in the Cap Bon Peninsula and discovered the Cap Bon gas field in the Lower Cretaceous. Gas produced is still used in the city of Tunis. From 1951 to 1964, about 65 wells were drilled mainly by Serept alone or with foreign partners. Of these 65 wells, several found oil and/or gas shows (Bahloul, Kütir, Mansour, Chorbane, Ktifa, Kebir, Bir Ben Tartar, etc. . . .) but the first commercial discovery was only reported in 1964 when Sitep (Société Italo-Tunisienne d'Exploration Pétrolière) held by Eni and the Tunisian Government found oil at El Borma in the Lower Triassic sandstones.

In the same year Serept in association with the French SNPA started seismic exploration over the offshore Gulf of Gabès area. Following the El Borma success, increased activity was recorded during the subsequent years as indicated below for offshore :

1965

Rights – Offshore, four permits were held respectively by :

Petropar (Société de Participations Pétrolières) a company controlled by the French Government which received the 8,812 sq km Golfe d'Hammamet permit in 1964.

SNPA/RAP – A joint venture between the two French Société Nationale des Pétroles d'Aquitaine and Régie Autonome des Pétroles which received the *Golfe de Gabès permit* (8,852 sq km) also in 1964.

Husky Group formed by Tunisian Husky and several other companies (Signal, Helis, United Overseas and Colorado Oil) which was the rightholder over a 14,252 sq km block in the Gulf of Gabès.

Rimrock – which was the rightholder for the Cap Bon Extrême (awarded in 1958) and Iles Kerkennah permits (324 sq km).

Exploration – Offshore seismic activity was conducted by SNPA and Signal (Husky group) in the Golfe of Gabès area.

Exploratory Drilling – First offshore drilling was started in May when Signal spudded the Barani well (abandoned as dry); the well was followed by Ras Zira I and Kerkennah I which were also both abandoned as dry.

1966

Rights – In July, Husky and its four American partners released their Golfe de Gabès permit. Rimrock also released its offshore rights. SNPA received additional acreage to their large offshore permit (Golfe de Gabès).

Several American, French and German companies showed interest in acquiring exploration rights over the area released by Husky et al. and Rimrock.

Exploration – Seismic activity was conducted by Serept (in joint venture with Petropar and/or SNPA and Erap) in the Golfe d'Hammamet and Golfe de Gabès areas. No offshore drilling was conducted during the year.

1967

Rights – No new awards were reported but Shell announced an application for two blocks in the Golfe de Gabès area.

Exploration – No offshore seismic activity was reported.

Drilling – The Serept/SNPA/Erap venture drilled the Gabès I well and abandoned it after encountering important gas shows in the Mesozoic. Further to the north off the Cap Bon, Petropar drilled the Hammamet West I well to the Upper Cretaceous without positive results.

1968

Rights – In November 1968, the French CFP received the 14,864 sq km Sfax-Kerkennah permit while Aquitaine Tunisie was awarded the on- and offshore Kairouan permit.

Exploration – Sofratep ran 170 km of seismic lines in the Golfe de Gabès.

Drilling – After an interruption of several months, the French companies (Sofratep) drilled two wells using the Neptune Gascogne in the Gulf of Gabès. Both wells, Tanit I and Echnoun I were abandoned as dry.

1969

Rights – Sofratep was granted an extension to the Golfe de Gabès permit.

Exploration – Sofratep, Sorek and CFTP conducted offshore seismic surveys (using CGG vessels) in respectively Golfe de Gabès, Kairouan and Sfax-Kerkennah offshore permits.

Exploratory Drilling – No offshore drilling was conducted during the year.

1970

Rights – CFP received an additional area to its Sfax-Kerkennah permit. The Austrian State Oil Company (OMV) acquired 49% in the Petropar's Golfe d'Hammamet permit.

Exploration – Petropar/OMV conducted a 5-day offshore seismic survey in the Golfe d'Hammamet permit.

CFTP recorded shallow water seismic lines in the Sfax-Kerkennah permit.

Exploratory Drilling – No offshore drilling was conducted.

1971

Rights – Four offshore permits were awarded during the year as follows :

- Murphy/Cigo : Gulf of Tunis (2,924 sq km)
Gulf of Gabès (6,564 sq km)
- Transworld : Tunis/Bizerte (5,160 sq km)
- Buttes et al. : Tabarka-Bizerte (4,128 sq km)
Cap Bon Golfe d'Hammamet (5,148 sq km)

On 20 August, Italy and Tunisia agreed on their common boundary in the Mediterranean sea. However, the accord was ratified by both Governments in 1978.

Exploration – Petropar/OMV shot seismic lines in the Golfe de Gabès permit. Aquitaine/Elf recorded 2,300 km of seismic lines in the Golfe de Gabès permit.

Buttes/SIR ran a seismic survey in the Tabarka-Bizerte permit. CFTP conducted shallow water seismic operations in the Sfax-Kerkennah permit.

Murphy/Cigo completed about half a crew-month of marine seismic survey in the Gulf of Tunis.

Exploratory Drilling – Aquitaine Tunisie/Erap spudded the Ashtart 1 well at some 80 km SE of Sfax and completed it as an oil discovery after reaching 3,018 metres. The reservoir is the Nummulite limestone of Ypresian age (Eocene).

1972

Rights – Three offshore permits were granted during the year :

- Sepeg was awarded the Golfe de Gabès Oriental permit
- CFP/Agip/Amoco received the Permit Marin Centre Oriental
- Sunningdale/Bow Valley/Pan Ocean received the small Kuriate permit.

Exploration – Buttes, CFTP, Murphy, Sofratep and Sunningdale recorded seismic lines in the Mediterranean for a total of about 3 party months.

Exploratory Drilling – Three offshore wells were spudded during the year and two of them were completed, both of them abandoned as dry (Aquitaine/Erap's Meiquart 1 and Erap/OMV's Teboulba 1). The Sofratep's Salambo 1 was drilling at the end of the year.

An outpost well to the Ashtart 1 discovery was drilled 6 km N of the Ashtart 1 well and abandoned as dry.

1973

Rights – The offshore exploitation concession covering the Ashtart field was awarded to the Aquitaine/Erap group for a 50-year period.

Sunningdale, Total, and Shell were granted the Golfe d'Hammamet, Marin Centre Oriental and Hammamet Grands Fonds permits respectively.

Exploration – Buttes, CFTP, Murphy, Sunningdale, Erap, Aquitaine and Total recorded seismic lines for about 3.5 crew-months.

Exploratory Drilling – Five offshore wells were completed during the year but no discovery was reported. In the Gulf of Gabès, Salambo 1, Hamon 1, and Reshef 1 were drilled by respectively Sofratep, Aquitaine and Erap. In the Gulf of Tunis, Murphy abandoned the MGT 1. Buttes was still active in the Gulf of Hammamet 1 well at the end of the year.

Field Drilling – Aquitaine/Erap started development of the Ashtart field spudding four new wells and completing three.

1974

Rights – The Cigol group received an extension to the Golfe de Gabès Djerba Ben Gardane permit.

Exploration – A total of 5.9 crew-months of marine seismic surveying was conducted by Aquitaine/Erap, Buttes, CFTP, Cigol, Erap/OMV, Murphy, Sepeg, Shell, Socept, Sunningdale and Total.

Exploratory Drilling – Offshore drilling activity again increased with six wells completed and one drilling at the end of the year.

In the Marin Centre Oriental permit, Total completed the Isis 1 well as an oil discovery after testing about 2,700 BOPD from the Lower Cretaceous Zebbag dolomite.

Aquitaine/Erap found oil in the Athirat 1 well (Ashtart concession) from the same Eocene nummulites limestones producing in the nearby Ashtart field.

The Sofratep's Elyssa 1 tested wet-gas from Lower Eocene (Golfe de Gabès Complémentaire).

Wells abandoned as dry were Aquitaine/Erap's Miskar 1, Buttes' Golfe d'Hammamet 1 and Erap/OMC's Mahdia 1.

Field Drilling – In the Ashtart field, development drilling continued and five wells were completed during the year. In the Isis discovery, Total drilled 2 development wells.

Production – First commercial production was reported from the Ashtart field in March. Production for that year averaged 24,094 BOPD.

1975

Rights – No offshore awards were reported during the year.

Exploration – Six different operators (Aquitaine, CFTP, Murphy, Sepeg, Sunningdale and Total) recorded seismic lines (8.1 crew-months). An Aeromag survey was flown in the Golfe de Gabès.

Exploratory Drilling – Five wells were drilled during the year. The Total's Jarrafa 1 (Marin Centre Oriental permit) was abandoned as dry. Aquitaine/Erap plugged Hasdrubal 1 (Golfe de Gabès Complémentaire) after testing wet gas in the Lower Eocene (Tertiary). The same group tested gas in the Miskar 2 well (Golfe de Gabès) and tested up to 3,000 BOPD in the Didon 1 well (Golfe de Gabès Complémentaire) from Cretaceous formation.

Field Drilling – Drilling of producing and injector wells in the Ashtart field continued.

Production – Production from the Ashtart field increased to 45,028 BOPD as compared to 24,094 BOPD during the previous year.

1976

Rights – Etap, the State-owned company was awarded the Permis Sud Oriental du Golfe de Gabès southeast of the Ashtart oil field.

Exploration – A total of 1.1 crew-month of marine seismic lines was recorded by Elf Aquitaine, Buttes, CFTP and Marathon.

Exploratory Drilling – No less than ten offshore wells were spudded during the year resulting in one new discovery (Butte's et al.'s Golfe d'Hammamet 2 which tested 1,790 BOPD of 39° API crude) and one confirmation test (Elf-Aquitaine's Miskar 3).

Field Drilling – Three new wells were drilled in the Ashtart field.

Production – Production from the Ashtart field decreased to 35,607 BOPD (45,028 in 1975).

1977

Rights – No offshore permits were awarded during the year.

Exploration – Marine seismic recording totalled 4,700 kilometres in the Sfax-Kerkennah, Golfe d'Hammamet and Marin Centre Oriental permits where CFTP, SNEA and Total were active.

Exploratory Drilling – Nine different operators were active during the year drilling 10 wells. Of this total, three were new discoveries and one was a successful appraisal. In the Cap Bon Golfe d'Hammamet permit, Buttes tested 23° API oil drilling the Yasmin 2 deeper pool test. Flow was from the Sabri sandstone of Miocene age but also from sandy limestone in the Lower Tertiary Ain Grab formation.

Marathon's Bregat 1 well in the Golfe de Gabès-Djerba Ben Gardane permit flowed dry gas at a rate exceeding 30,000 MCFD most probably from the Cretaceous.

The SNEA's Halk el Menzel 1 well (Golfe d'Hammamet permit) found oil in the Miocene. In the Miskar 4 appraisal, SNEA struck wet gas in the Abiod formation (carbonate rocks) of Campanian-Maestrichtian age.

Field Drilling – SNEA continued field drilling in the Ashtart field drilling two new wells during the year.

Total Exploration and the Tunisian Government announced their intention to develop the Isis oil discovery.

Production – Production from the Ashtart field averaged 43,089 BOPD, a 21% increase versus the 1976 output.

1978

Rights – The Buttes/Etap group was granted the Enfida permit which covers both on and offshore areas in the Gulf of Hammamet. Houston Oil and Minerals along with Etap were awarded the Kerkennah West permit (also both on and offshore). Sorek was granted extension to its Kairouan permit.

Exploration – Buttes, CFTP, Elf Aquitaine, Shell and Total recorded a total of almost 10,000 km of marine seismic lines.

Exploratory Drilling – Five different groups drilled a total of 9 offshore wells during the year. Of this total, Buttes' Mimosa 1 and Shell's Oudna 1 confirmed the interest of the Miocene prospects in the Gulf of Hammamet.

Sofratep's Salambo 2 also in the Gulf of Gabès found gas shows probably in the Lower Eocene Metlaoui formation (carbonate).

Field Drilling – No offshore field development drilling was conducted during the year.

Production – Production of oil from the Ashtart field averaged 45,183 BOPD.

1979

Rights – Marathon/Etap was granted the offshore Gabès Septentrional Ouest permit while the Cities/Etap group received the Gabès Septentrional Est permit.

Exploration – CFTP, Houston Oil, Marathon, Shell and Elf recorded a total of 6,580 km of offshore seismic lines during the year.

Exploratory Drilling – Buttes, Shell, SNEA and Total were drilling offshore during the year. Eight wells were drilled. Of this total, three wells struck oil. Shell's Birsa 3 tested oil in the Ain Grab Miocene formation and Shell's Tazerka 3 and Oudna N 1 yielded oil probably from Upper Cretaceous limestones.

Field Drilling – Extension and development drilling started in the Shell's Birsa discovery and in the SNEA's Miskar and Halk el Menzel discoveries.

Production – Ashtart production increased to 47,768 BOPD.

1980

Rights – Total et al. was awarded exploitation concession over the Isis field and Elf Aquitaine received similar rights over the Halk el Menzel field.

Exploration – Cities, BP, Shell and Elf Aquitaine reported offshore seismic recording during the first months of the year.

Exploratory Drilling – During the first eight months of the year, offshore drilling was conducted by Buttes, BP, Shell, SNEA and CFPT. Six wells were drilled during that period while a well was under testing operations early in September.

Field Drilling – No field drilling was reported from January to September 1980. Etap is planning to re-enter the Didon 1 discovery well. Shell and SNEA will develop respectively Birsa and Halk el Menzel.

Production – During the first half of 1980, Ashtart field production averaged about 41,000 BOPD.

Petroleum Legislation

The following summary is only the general controlling legislation. Each exploration/exploitation permit granted and presently in force has been the subject of a special contract. This means that some terms (mainly duration) are very often different from the basic legislation.

1. *Main outlines of the Petroleum Law.* The basic controlling law is contained in the Decree on Mines of 1 January 1953. An earlier decree of 13 December 1948 provides special disposition to encourage exploration and exploitation of hydrocarbons.

Exploration Permit. Initial terms of an Exploration Permit are :

- Duration five years, with four three-year, extension periods. If a discovery is made within 14 years, four additional extensions of three years each may be granted.
- Renewal of Permit is subject to reduction in successive stages :
 - First renewal to 80% of original area.
 - Second renewal to 64% of original area.
 - Third renewal to 50% of original area.
 - Fourth renewal to 25% of original area.
- No rental fees on exploration permit known.
- Fees on every renewal application of approximately 1,300 dinars (US\$ 1.4) per hectare.
- Minimum work obligations are fixed in each contract separately.
- No limitation on the number of Permits to be held by company.

Exploitation Concession. Terms are as follows :

- To qualify for an exploitation concession the discovery must be capable of producing at least the following quantities based on barrels and feet of depth.

about 63 b/d at 1,625 feet to
504 b/d at 9,750 feet ; further added
50 b/d for each 325 feet additional depth.

Offshore requirements for a discovery vary and are subject to negotiations considering water depth, etc.

- Duration, 99 years with one or more extensions of 15 years each.
- Size of exploitation concession limited to 1,000 sq km.
Royalty 15% minimum (law of 15 March 1958) on crude oil, pay in cash or kind.
- Annual rental about US\$ 15/ha.
- Tax rate is 50% of net income.
- Internal petroleum consumption, the producer may be required to supply up to 20% of his total production to domestic consumption over and above the royalty payments in kind.

OFFSHORE WELLS, TUNISIA

NAME	WELLNO	GNP	STAT	TD	EW	DEC EW	MIN EW	SEC EW	NS	DEC NS	MIN NS	SEC NS	COMP YEAR
AYRANI	001	SIGNAL	dry hole	12,959	E	011	35	-	N	34	58	-	65
AYRANI	001	SIGNAL	dry hole	10,011	E	011	06	-	N	34	41	26.0	63
BALENA	001	ERAP/AQ	oil/gas shows	11,548	E	011	19	45.0	N	33	57	57.0	67
BALENA	001	ERAP/AQ	dry hole	10,160	E	010	59	56.0	N	36	28	37.0	67
BARBANE WEST	001	PEINOPAR	dry hole	11,235	E	021	40	41.0	N	33	26	1.0	88
BEHIT	001	SOFRATEP	dry hole	9,088	E	011	35	35.0	N	33	17	35.0	68
BEHIT	001	SOFRATEP	dry hole	9,000	E	011	23	56.0	N	34	27	24.0	71
BENTART	001	AQ 2	oil well	10,575	E	011	18	16.0	N	34	20	17.0	72
BENTART	001	ERAP/UMV	dry hole	11,188	E	021	38	6.0	N	34	13	9.0	72
BENTART N	001	AQ 2	dry hole	10,223	E	011	38	42.0	N	33	55	56.0	73
BENTART N	001	AQ 2	dry hole	11,378	E	011	31	15.0	N	34	01	37.0	73
BENTART N	001	AQ 2	dry hole	11,522	E	011	59	17.0	N	34	44	47.0	73
BENTART N	001	AQ 2	dry hole	10,312	E	011	36	7.0	N	34	10	22.0	73
BENTART N	001	MURPHY	dry hole	7,598	E	010	30	25.0	N	36	58	22.0	73
BENTART N	001	BUTES	dry hole	15,200	E	011	25	7.0	N	36	03	30.0	74
BENTART N	001	TOTAL 1	oil well	11,066	E	012	33	27.1	N	34	35	59.4	74
BENTART N	001	AQ 2	oil well	10,085	E	011	26	57.1	N	34	16	40.7	74
BENTART N	001	ERAP/UMV	dry hole	10,489	E	011	20	30.0	N	35	25	35.0	74
BENTART N	001	AQ 2	dry hole	13,924	E	011	53	40.0	N	34	23	8.0	74
BENTART N	001	SOFRATEP	gas well	10,260	E	011	48	38.0	N	33	48	38.0	74
BENTART N	001	AQ 2	oil well	9,252	E	012	29	11.2	N	34	33	12.4	75
BENTART N	001	TOTAL 1	oil well	9,378	E	012	31	14.0	N	34	33	33.9	75
BENTART N	001	TOTAL 1	oil well	16,102	E	011	36	7.0	N	34	08	34.0	75
BENTART N	001	SOFRATEP	gas well	10,489	E	013	04	23.6	N	34	31	28.8	75
BENTART N	001	TOTAL 1	dry hole	11,596	E	011	51	20.0	N	34	18	48.0	75
BENTART N	001	AQ 2	dry hole	13,067	E	011	53	21.0	N	33	47	36.0	75
BENTART N	001	SOFRATEP	oil well	13,067	E	011	53	21.0	N	33	47	36.0	75
BENTART N	001	MARA 1	dry hole	11,750	E	010	19	20.8	N	33	50	23.7	76
BENTART N	001	BUTES	oil well	10,434	E	011	24	4.0	N	34	18	1.9	76
BENTART N	001	CFTP 1	dry hole	5,346	E	010	47	36.7	N	34	18	1.9	76
BENTART N	001	SOFRATEP	gas well	13,123	E	011	52	23.0	N	34	25	30.0	76
BENTART N	001	CFTP 1	dry hole	8,199	E	010	46	45.0	N	34	22	12.4	76
BENTART N	001	CFTP 1	dry hole	10,663	E	010	58	38.0	N	34	23	35.0	76
BENTART N	001	SNEA 5	dry hole	10,282	E	011	15	52.0	N	35	20	5.0	76
BENTART N	001	ERAP/AQ	dry hole	10,486	E	011	20	31.0	N	34	28	52.0	76
BENTART N	001	SEPEC	dry hole	11,178	E	012	35	24.0	N	34	28	52.0	77
BENTART N	001	SHELL 3	dry hole	5,144	E	011	44	20.6	N	36	26	23.5	77
BENTART N	001	MURPHY	dry hole	7,445	E	010	25	45.0	N	33	04	43.0	77
BENTART N	001	SNEA 5	dry hole	11,355	E	010	57	-	N	36	04	56.0	77
BENTART N	001	ELF-AOUT	gas well	10,919	E	011	51	54.0	N	34	22	29.0	77
BENTART N	001	SOFRATEP	dry hole	11,598	E	011	54	16.0	N	33	59	10.0	77
BENTART N	001	SNEA 5	oil well	4,290	E	011	33	.8	N	35	55	50.6	77
BENTART N	001	MARA TUI	gas well	9,361	E	011	34	25.6	N	33	34	18.3	77
BENTART N	001	BUTES	oil well	9,006	E	011	25	6.2	N	36	25	11.0	77
BENTART N	001	SNEA 5	dry hole	7,123	E	011	02	38.6	N	36	08	51.4	77
BENTART N	001	BUTES	gas shows	11,618	E	011	22	35.2	N	36	23	4.8	78
BENTART N	001	SOFRATEP	gas shows	11,340	E	011	41	59.6	N	33	56	26.8	78
BENTART N	001	SHELL 3	dry hole	5,524	E	011	44	50.0	N	36	25	32.3	78
BENTART N	001	TOTAL 1	dry hole	10,191	E	012	30	56.0	N	34	51	31.0	78
BENTART N	001	SHELL 1	oil/gas shows	6,160	E	011	44	51.8	N	36	25	32.8	78
BENTART N	001	TOTAL 1	dry hole	9,587	E	012	15	51.8	N	33	18	38.6	78
BENTART N	001	SHELL 1	dry hole	7,265	E	011	39	57.7	N	36	16	39.8	78
BENTART N	001	SNEA 5	dry hole	5,927	E	011	34	36.0	N	35	55	4.0	78
BENTART N	001	SNEA 5	dry hole	3,608	E	011	38	15.0	N	33	55	8.0	78
BENTART N	001	TOTAL 1	dry hole	11,972	E	012	28	44.4	N	35	53	59.2	79
BENTART N	001	SHELL 1	dry hole	3,704	E	011	43	37.7	N	36	26	30.0	79
BENTART N	001	SNEA 4	dry hole	10,754	E	011	29	20.2	N	34	14	1.9	79
BENTART N	001	SHELL 1	oil/gas shows	7,416	E	011	47	39.0	N	35	14	33.2	79
BENTART N	001	TOTAL 1	dry hole	7,347	E	011	44	36.9	N	36	27	16.5	79
BENTART N	001	SHELL 1	dry hole	1,736	E	011	44	36.9	N	36	20	25.0	79
BENTART N	001	SNEA 4	dry hole	7,682	E	011	35	32.8	N	34	17	38.2	79
BENTART N	001	SNEA 4	dry hole	13,897	E	011	27	11.6	N	36	33	27.4	79
BENTART N	001	SHELL 1	dry hole	8,892	E	011	37	59.9	N	36	33	27.4	79
BENTART N	001	SHELL 1	dry hole	5,497	E	011	41	27.0	N	36	36	23.0	79
BENTART N	001	BUTES 1	dry hole	4,368	E	011	07	4.2	N	36	33	7.9	81
BENTART N	001	SNEA 6	dry hole	4,651	E	010	30	36.0	N	36	56	24.0	81
BENTART N	001	SHELL 1	dry hole	7,380	E	011	40	51.8	N	36	36	36.7	81
BENTART N	001	SNEA 5	dry hole	9,138	E	011	10	6.0	N	35	54	41.5	81
BENTART N	001	BP 1	dry hole	10,434	E	010	20	41.8	N	36	13	19.0	81
BENTART N	001	CFP	oil shows	11,457	E	010	59	58.5	N	34	23	40.4	81

Annex 10

**HYDROCARBON PRODUCTIVE TRENDS IN AND
ADJACENT TO THE PELAGIAN BASIN**

by

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I - INTRODUCTION

At present, commercial hydrocarbon production in the entire region of northwest Africa comes only from the onshore oil fields of Libya, Algeria and Tunisia. Libyan hydrocarbon production comes entirely from the Sirt Basin. Minor discoveries have been made in the Ghadamis Basin and recently offshore discoveries have been made in the Pelagian Basin. Neither of these, however, has yet produced oil or gas commercially. By world standards, the Sirt Basin is in a mature stage of exploration.

The purpose of this Report is to give a brief account of the different parameters controlling hydrocarbon occurrences in and adjacent to the Pelagian Basin in an attempt to reveal the relationships between the various hydrocarbon occurrences and to define hydrocarbon trends in the area.

The geology of the study area as well as the parameters controlling the various hydrocarbon occurrences, especially onshore, are documented fairly well. This paper is entirely derived from this literature.

II - MAJOR HYDROCARBON SYSTEMS

The major hydrocarbon systems in and adjacent to the Pelagian Basin are shown on Plate 1, according to their geographic location and age of major reservoirs. These hydrocarbon systems can be classified into two provinces:

1. *Erg Oriental, Ghadamis Basins Province*, with major reservoirs ranging in age from Early Paleozoic to Early Mesozoic and consisting of the following systems:

- A. Cambro-Ordovician System
- B. Devonian-Silurian and Carboniferous System
- C. Triassic System.

2. *Sirt - Pelagian Basins Province*, with major reservoirs ranging in age from Late Mesozoic to Early Tertiary and consisting of the following systems:

- A. Lower Cretaceous System
- B. Upper Cretaceous System
- C. Paleocene-Eocene System.

Detailed descriptions of these systems comprising the two provinces have been given by Green, *et al.* (1977), Bishop (1975), Fischer (1976) and Parsons, *et al.* (1978). Only a brief description of each system will be given here.

III - EARLY PALEOZOIC

Cambro-Ordovician System

It is an important system only in Algeria. The giant Hassi Messaoud oil field has produced from this interval at a rate of about 375,000 b/d or about 40 per cent. of Algeria's production in the late 1960s (Green, *et al.* (1977)).

¹ "System" is used in this Report specially to denote a hydrocarbon system.

The oil is produced from Cambrian sand. Hercynian folding formed the structure, and unconformity at the base of the Triassic forms a combination trap. Other Algerian fields producing from this interval are Gassi Agreb and Rhourde El-Boquel, but they cannot be compared with Hassi Messaoud in terms of production.

In Libya and Tunisia the Cambro-Ordovician system is of no significance. No oil shows in Tunisia at all, and only minor oil shows in a number of oil wells within the Cambro-Ordovician system are reported in Libya.

IV - MIDDLE PALEOZOIC

Devonian-Silurian and Carboniferous System

Again, this system has no great significance in Libya or Tunisia; it is more important in Algeria.

The late Paleozoic (Hercynian) orogeny that affected northwest Africa resulted in moderate deformation of the Paleozoic basins and differential erosion of Middle Paleozoic sediments. As a result, the Middle Paleozoic has an erratic distribution, especially in Libya. Only a few wells in northwest Libya have penetrated this section and encountered oil shows, but no production has been established.

V - EARLY MESOZOIC

Triassic System

The extremely varied facies composed of sandstones, evaporites and shallow-water carbonates relating to the continental breakup are widespread throughout the area of Erg Oriental Ghadamis basins.

In Algeria, Lower Triassic sandstones sourced by Silurian shale and sealed by Middle and Upper Triassic evaporites constitute a major producing interval in Hassi R'mil gas field, Rhourde Nouss gas field and Gassi Touil oil and gas field. The Hassi R'mil gas field is another giant as it produces from Triassic sand on top of a structure that has an aerial extent of 1,000 square miles.

In Tunisia, Lower Triassic sandstones sourced by Middle and Upper Triassic evaporites have produced at the El-Borma oil field. The Triassic sand reservoirs at the El Borma field form a faulted anticline with the following average statistics: depth to top of pay 2,400m; net pay 15m; porosity 18%; permeability 200md; gravity 40°; cumulative production to 1973 was 175,094,000 bbl. from the Tunisian side and 27,674,000 bbl. from the Algerian side; recent daily averages were 75,600 and 25,000 bbl. respectively (Bishop (1975)).

In Libya the same section has been penetrated but production is negligible.

As shown in Plate 2, generation of gas rather than oil is prevalent in this system.

VI - LATE MESOZOIC

Lower Cretaceous System

In Tunisia, Aptian-Albian sandstones produced in the Djebel Abderhaman Cape Bon gas field. Shelf carbonates of the same age produced in

a number of small oil fields, mainly Douleb and Semmama (average daily production of 4,344 b/d) as well as in Djebel Onk oil field in Algeria. These shelf carbonates are mostly bioclastic. Detailed information is not available but these hydrocarbon accumulations and shows are in shoreline facies which are structurally controlled. They are associated with the series of northeast trending anticlines of a foothills belt which is less disturbed than the main Atlas ranges.

In Libya the Sarir oil field of the Sirt Basin produces from the subunconformity (Nubian) sands in a horst block. The reservoir sands are sourced and sealed by younger overlying socna shale and fine-grained clastics in the adjacent grabens. No lower Cretaceous oil shows have been reported in the Pelagian Basin.

Upper Cretaceous System

Upper Cretaceous wedge-base Bahi and Waha sandstones produce in a number of Sirt Basin fields, namely the Ruguba, Jebel, Lahib, Zelten Waha, Defa, Hateiba (gas) Amal, Nafora Augila, Haram and Dahra. These sands occur near the top of horst blocks and probably represent reworking of older sand units.

In the offshore area of the Pelagian Basin, Upper Cretaceous carbonate section produces at Isis (averaging 2,700 bbl. daily), Miskar, Elyssia and KI wells (Plate 1).

VII - EARLY TERTIARY

Paleocene-Eocene System

Paleocene-Eocene shelf and reef nummulitic carbonates sourced and sealed by Maastrichtian to Paleocene shales and marls, make up the major portion of the production in the Sirt Basin, namely in Zelten, Intisar, Defa, Zaggut, Dhara, Mabruk, Hufra, Ora, Bahi and Gialo oil fields (Plate 1).

The same Maastrichtian to Paleocene shales and marls are potential source and seal beds in the Pelagian Basin. Also the same nummulitic facies producing in the Sirt Basin are the reservoir for most oil discovered in the offshore area of the Pelagian Basin, namely in Ashtart oil field (with production potential of 40,000 b/d and estimated reserve of 292 million bbl.), and AI 137, BIa 137, Didon 1, JI, HI, GI, FI, F2, Gabes and Hastrubal oil and gas wells (See Plate 1).

Sidi El Itayem onshore Tunisia flowing at a rate of 9,000 b/d is another significant discovery in this system.

VIII - HYDROCARBON PRODUCTIVE TRENDS

As previously discussed, we may conclude that the major hydrocarbon systems comprising the two hydrocarbon provinces contain sand and carbonate reservoirs varying in age from Early Paleozoic to Early Tertiary. The sand reservoirs consist of tight Cambro-Ordovician sandstones, high quality Lower Cretaceous sand and thin Middle Cretaceous transgressive sands ranging in age from Early Paleozoic to Early Mesozoic or Triassic time. The carbonate reservoirs are of varied facies ranging in age from Late Mesozoic to Early Tertiary or from Upper Cretaceous to Lower Eocene.

Without including the hydrocarbon systems of the Sirt Basin, Bishop (1975) recognized three hydrocarbon trends in the onshore/offshore of northwest Libya and onshore/offshore of Tunisia and onshore Algeria. These are designated by Bishop (1975) as:

1. Ypresian Carbonate in offshore area of the Pelagian Basin;
2. Cambrian-Ordovician and Triassic sandstones, in the Erg Oriental Ghadamis basins (Libya, Tunisia and Algeria); and
3. Cretaceous shore lines in onshore Tunisia. Although Bishop's study did not include the Sirt Basin, the close similarity between the offshore discoveries (Ypresian Carbonate trend) and the Sirt Basin major oil fields is very striking.

In the Sirt Basin as well as in the offshore area of the Pelagian Basin hydrocarbons have been trapped in structural highs or in stratigraphic wedgedowns against structural highs and in carbonate buildups. Two of the three common oil systems in the Sirt Basin are present in the Pelagian Basin and can be identified by the same parameters, i.e., the age of the reservoir rocks and the type of source and seal beds. These are Upper Cretaceous and Paleocene-Eocene systems. In brief, hydrocarbon generation in both the Sirt and Pelagian Basins is characterized by the combined effect of abundant structural relief and reservoir development in the same hydrocarbon systems of the same age. They provide an excellent example of hydrocarbon traps in sedimentary basins that have undergone extensive tensional fracturing in a shallow marine environment, with adequate generation and pooling of oil from all source systems, *with Paleocene-Eocene probably the richest in the Pelagian Basin and Upper Cretaceous in the Sirt Basin.*

Potential play maps of three major hydrocarbon systems of the Sirt Basin extending to the offshore area of the Pelagian Basin were prepared by Green, *et al.* (1977). These maps, with only minor modification, are reproduced and included in this Report (Plates 3 to 5).

63

These plates clearly demonstrate the similarity between the two basins. *By showing the extension of the major hydrocarbon systems of the Sirt Basin into the Pelagian Basin, they suggest a definite relationship between the two basins and a close affinity of the offshore discoveries to the major hydrocarbon systems of the Sirt Basin.*

Plate 3 (Lower Cretaceous play map) indicates that the same high quality reservoir sand (green) of the Sarir oil field in the Sirt Basin (Plate 1) extends into the Pelagian Basin. These sand and shale beds are good potential targets in the offshore area. The Bahi type sand (blue), which is a reservoir for many oil fields in the Sirt Basin (Plate 1), also constitutes another possible target offshore.

The Upper Cretaceous play map (Plate 4) shows that the Upper Cretaceous shallow-marine carbonates and sandstones (blue), reservoir for many oil fields in the Sirt Basin, is continuing into the Pelagian Basin. These carbonates and sands are adjacent to thicker shale zones (orange) and constitute a major offshore target.

The Eocene nummulitic carbonates trend shown in Plate 5 is the reservoir for many oil fields in the Sirt Basin as well as for most oil discovered in the offshore area of the Pelagian Basin (Plate 1).

Following moderate Late Cretaceous tectonic activity, widespread Paleocene and Eocene carbonates and shales were deposited in a stable but subsiding complex of sub-basins and banks. These sediments are prospective only where the shallow water nummulitic facies has developed adjacent to deeper marine shales and marls, similar to their development in the Sirt Basin where they form a major hydrocarbon system (Plates 1 and 5).

63 The development of such section is controlled by the proximity of the early Eocene shore lines.

63 As shown in Plate 5, this trend is of good potential only in the Sirt Basin and in the offshore area. To the northwest in onshore Tunisia beyond Sidi El Itayem oil field, this trend has been deformed and strongly affected by the Atlas Mountain folding. Also lack of shale development, burial and maturation, as well as the flood of clastic material derived from the Atlas uplifting to the north which interrupted the pure carbonate decomposition, prevents this trend from being a major target in this area, i.e., in its northwest section in onshore Tunisia.

Finally, considering heat flow in the Pelagian Basin, Erickson, *et al.* (1977) observed a regional difference between the heat flow through the floor of the Eastern Mediterranean and the Western Mediterranean. They attributed this difference to the presence of hotter mantle material at shallower depths beneath the Western Mediterranean than beneath the Eastern Mediterranean. As indicated by the prevalence of gas discoveries in the areas of Cape Bon and the Gulf of Hammamet as well as the northwest end of the Gabes-Sabratha Basin, it seems that the Pelagian Basin is being affected by the high heat flow characterizing the Western Mediterranean.

This fact again presents a major problem in the northern and northwestern parts of the Pelagian Basin and makes the southern and southeastern parts more attractive.

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Annex 11

**GEOLOGY AND GEOMORPHOLOGY
OF THE PELAGIAN SEA
CENTRAL MEDITERRANEAN SEA**

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MUNICH, 1980

I. INTRODUCTION

1. Aims of the Investigation

The scope of this Scientific Report is to examine the connection between the submarine area covered by the Pelagian Sea and its surrounding land mass, the North African continent.

To scrutinize this connection it is necessary to know

—the *geology* of the Pelagian Block¹ and of the adjacent African mainland;

—The *morphology* of the area under consideration and its surroundings on land as well as under the sea.

The geological part of this Report is mainly devoted to the conclusions set forth in modern scientific publications relating to the geological evolution of the central Mediterranean area.

This Report is to be regarded as the personal opinion of the author based on the literature as well as on his own investigations in the Mediterranean area on land and under the sea².

2. Outlines of the Area under Consideration

The Mediterranean Sea is subdivided into two parts, the Eastern Mediterranean and the Western Mediterranean. The natural limits between these two sets of oceanographic basins are the Strait of Sicily and the Strait of Messina. Within the Eastern Mediterranean Sea the *Mediterranean Pilot* and other handbooks for sailors distinguish the following subdivisions (from west to east): The Ionian Sea with the Sirt Embayment to the south, the Adriatic Sea situated to the northwest of the Strait of Otranto, the Levantine Sea and the Aegean Sea to the north of Crete. The limit between the Ionian Sea and the Levantine Sea is not very obvious; it is based mainly on underwater topography.

The Ionian Sea as an oceanographic unit is very complex in its sea bottom topography and geological history. It consists of several sub-basins, of ridges, rises, escarpments, platforms, trenches, troughs, and seamounts. Each of these features has been given a name (or even several ones by different authors). These names, used by oceanographers, geographers, geologists and geomorphologists, are sometimes conflicting.

To avoid unnecessary complications, the term "Central Mediterranean Sea" is generally used in this report³ in lieu of the "Ionian Sea". Some authors have used "Central Mediterranean Sea" in a more restricted sense for the area covering the sea above the platform lying to the west of a line connecting the southeast corner of Sicily and Misratah, generally known as the Pelagian Sea. It is the Pelagian Sea which is the main focus of this Report.

¹ The terms "Pelagian Block" and "Pelagian Basin" are used here interchangeably.

² Although in certain areas of this Report there may exist differences of opinion among scientists, no effort has been made here to discuss these differences in detail.

³ Official charts and handbooks do not distinguish a "Central Mediterranean Sea".

There are many underwater features which bear more than one name. Being mainly of scientific interest these names are not recognized internationally. Some of them by implying a certain geographical connection may influence one's mind: e.g., the slight doming east off the Kerkennah Islands is named by some authors the "Kerkennah uplift", while, as will be shown later, the structures of the Kerkennah Islands run more in a north-east direction. Hence, through the use of names certain connections may be suggested which may, in fact, not exist.

3. Previous Work

In connection with oil explorations there have been many modern geological investigations dealing with this part of the Mediterranean area.

Besides many unpublished and classified reports, some recent published papers give excellent and comprehensive descriptions of the Pelagian Sea and its surrounding land:

The most modern and comprehensive one is edited by BUROLLET, CLAIREFOND and WINNOCK, 1979: *La Mer Pélagienne*. Other sources worth mentioning are: The "Second Symposium on the Geology of Libya" (1978); and the *Guidebook to the Geology and History of Tunisia*, edited by L. MARTIN (1967).

In addition, perhaps the best introduction to the geology and geophysics of the Mediterranean Sea in general, with valuable information on the Central Mediterranean region, is the work of MORELLI (1975)¹.

4. Acknowledgement

The author is indebted to his colleagues Dr. W. Hieke, Dipl. Geol. W. Kretzler, Dr. J. Müller, Dipl. Ing. Reiss, Dipl. Geol. J. Schmolin and Dipl. Geol. U. Zeh for discussing scientific questions relating to this Report, as well as helping with the construction of bathymetric maps, seismic profiles, block diagrams, digitization, and processing of data². The author's discussions with Prof. Dr. Missallati from Al Fateh University, Tripoli, and Prof. Dr. R. Nicolich from O.G.S., Trieste, on questions of the geology of Libya and the geophysics of the Pelagian Block and Sicily, respectively, were most stimulating and informative. Their ideas are acknowledged most gratefully. The responsibility of this Report is, nevertheless, exclusively that of the author.

¹ For other bibliographic sources, see Chap. V below, containing a short bibliography.

² This material has been specially prepared for Libya in connection with the case before the International Court of Justice concerning delimitation of the continental shelf between Libya and Tunisia.

II. OUTLINES OF GEOLOGY OF THE PELAGIAN/NORTH AFRICAN AREA

1. Introduction to the Geology of the Central Mediterranean Area

For an understanding of the geological history of the Central Mediterranean Sea and adjacent areas, including all the movements of the earth's crust in this region during geological times (known as "geodynamics"), a brief look must be taken at the broad outlines of the geology of the entire Mediterranean area. Furthermore, such a broad perspective is necessary for an understanding of the complex status of the geomorphology of the sea-bed of the Central Mediterranean Sea in general and its southwesterly part in particular.

Tethys Ocean and the Mediterranean Area

The area between the Eurasian Continent on the one side and the African Continent on the other has been called *Mediterraneum*. During a geologically long time, this area was covered by an ocean named Tethys, which was much larger than the present Mediterranean Sea and had a size perhaps comparable to the present Atlantic Ocean.

The main feature of the Tethys Ocean was its long east/west extension. There are traces today of this oceanic belt in Central America. The mountain ranges of the Mediterranean area between Gibraltar and Turkey and from Sicily to the Alps were formed by rocks which were deposited within this former ocean. To the east, this Ocean extended to the Himalaya area and southeastward to Timor. By studying the rocks, we know fairly well the outlines of the Tethys Ocean, its paleoceanography, from its beginning more than 200 million years ago (Triassic time) until its end between 60 and 20 million years ago (Tertiary time).

During Tertiary time, the Tethys Ocean underwent a series of severe transformations into a geographic feature which is now the Mediterranean Sea. This transformation is far from over today, as can be shown from the many earthquakes within this area and its surrounding land.

One major reason for the restlessness of this part of the world is the conflicting situation of two large continental masses, namely, Eurasia and Africa. Each of them is floating separately on a mobile layer below the earth crust, like two gigantic icebergs which are colliding in some areas, drifting apart in others. Although this is a simplified picture of a complex situation, it is obvious that such a situation is highly unstable.

Results of this instability have been, on the one hand, the piling up of mountain ranges by compressional forces (Atlas mountain ranges, Bethic cordilleras, the Apennines, the Alps, the Balkan ranges, mountain belts in Anatolia)¹. On the other hand, deep depressions have been formed by tensional forces.

The Mediterranean Revolution

During the bulk of the Mesozoic Era (about 230 to about 100 million years before present) the northern limit of the African landmass was

¹ See Fig. 2.

situated generally more to the south of the present Libyan coastline. The general trend of this former coast was east/west. The area of the Atlas Mountains was open sea. This general situation lasted until the Lower Tertiary (Paleocene). During Eocene time (53 to 38 million years before present), the sea off North Africa began to shallow. Later on, until about 15 to 10 million years before present (Fig. 3), we find within the Mediterranean area a complicated situation of land and sea, probably much different from the situation before and from the present. The coastal line had shifted into the present offshore area of Libya, and in the Maghreb area the Atlas Mountains had been formed.

The Tethys Ocean had degenerated into a sea of minor importance, at times restricting its connections to some of the world oceans. This situation culminated during the Upper Miocene (11 to 5 million years before present) when the Mediterranean area turned into a set of salt lakes (sabkhas) and newly emerged islands. The coastal line was, perhaps some hundreds of meters below the present sea-level.

Although the connections to the oceans outside of the Mediterranean area were never completely cut off, the influx of sea water was restricted to such a degree that it could not keep up with the evaporation of water within this area. The result was the formation of thick layers of salt and gypsum and other related minerals. Off Libya and Tunisia the Pelagian Block was an area barely covered with water and only in the north-west/southeast running graben lineaments could gypsum accumulate in elongated strips. The Malta-Misurata Escarpment had not been developed morphologically at that time and the area to the north of the present Gulf of Sirt was as flat and shallow as the present Pelagian Block around Malta. This, most probably, was true for the entire area of the present Ionian Sea. This situation within the Mediterranean area, only outlined here in general, was very different from that of the Tethys Ocean before and, of course, from that of the present Mediterranean Sea, which immediately began to develop after this "Salinity Crisis".

The Formation of the Mediterranean Sea

At about 5 million years ago (the beginning of the Pliocene Epoch), the Strait of Gibraltar opened allowing water from the Atlantic to flow into the now established Mediterranean Sea. Nevertheless, the dynamic process of formation of such features as the Ionian Basin, the Sirt Basin and the Malta Escarpment continued, increased or started, respectively.

The Pelagian Block¹—Relict of Pre-Mediterranean Time

The only lasting feature which remained almost unchanged was the Pelagian Block. The coastal areas of Libya and the area to the east of the "north/south dorsale" (Fig. 4) in Tunisia, i.e., the extensions of the Pelagian Block on the land, were exposed to the changing sea-level during the last 5 million years. Therefore, onshore we find deposits of the sea as well as of the land environment intercalated with each other (c.f. Figure 12).

¹ The term Pelagian Basin is used in the *Libyan Memorial* to cover the same area.

The shore line between the African continent and the Mediterranean Sea was shifted by oscillations of the level of the world oceans (eustatic changes), or more local tectonic events, e.g., regional uplifts of coastal areas.

Eustatic changes are well known during the Quaternary time, when about 14,000 years before present the last drop of the sea-level (at least 120, perhaps 150, metres below present sea-level) occurred.

At that time, the area to the north of northwest Libya was dry land and most likely occupied by settlements of Late Paleolithic men.

2. Recent Sedimentation within the Pelagian Area

Compared to many areas of the present Mediterranean Sea, sedimentology of the present Pelagian area is unusual by virtue of its high content in carbonate¹. Similar sediments can be found only along the Libyan and Egyptian coasts. In most other shallow water areas of the Mediterranean, detritic constituents, derived from the land via rivers, are more typical than carbonates. Starting at the shore line and proceeding into deeper water we find the following general succession of sediments:

- (1) *Shore line*: a mixture of terrigenous quartz sand (derived from the deserts in the hinterland) and marine calcareous sand grains (derived from small organisms or fragments of shells, all of them living in the marine near-shore environment).
- (2) *Shallow water deposits*: as above, but in general with a higher percentage of fragments of marine organisms. In areas with quiet water (embayments, shelter of islands, etc.) the seafloor is rather muddy and frequently stabilized by meadows of sea grass.
- (3) *Mud flats*: At a water depth of about 10 to 25 metres down to about 100 metres the seafloor is mainly muddy. The percentage of calcareous constituents is still high.
- (4) *Troughs and on the slopes*: The usual sediment is a marly mud (clay with varying amounts of lime). Shallow water material, too, may be transported into deeper water by density flows.

Ooid sands

Most remarkable is the occurrence of so-called "ooids" in the Gulf of Gabes and near the Libyan and Egyptian shore. Ooids are calcareous sand grains of an origin typical for warm water comparable to the Persian Gulf or the Bahama Banks.

Mud Flats and Sabkhas

Areas of coastal subsidence do not expose the pure shore-sand mentioned above but typically show sandy and muddy salt marshes, e.g., in the Kneiss region, or in protected areas near the Kerkennah Islands or the Island of Djerba. In near-shore areas off the Gulf of Gabes and to the east as far as Zuara, the accumulation of sand is important. This sand, to a large part derived from the African deserts, forms dune-covered spits and

¹ See Fig. 5.

underwater sand bars. These features slowly are cutting off embayments from the sea, thus initiating the formation of inland sabkhas. In these areas the land is prograding into the sea.

From the foregoing, the following may be concluded:

1. In contrast to other areas of the Mediterranean, the recent sediments from the Gulf of Gabes along the Libyan coast as far as Alexandria are of a typical North African (warm climate) appearance.

2. The sediments which can be found northeast off Djerba Island (e.g., ooids) can be related better to other ooid-bearing sediments off the Libyan and Egyptian coast than to any recent sediments of the northeast Tunisian coast.

3. Tectonic Features

Western Limits of the Pelagian Block

①①⑤ On Figures 4, 6 and 7 the structural settings of the Pelagian Block and the Atlas Mountains are illustrated, each by a different author. Figure 6 particularly emphasizes the differences in the tectonic style between the areas.

①①⑤ The so-called "N/S Dorsale" (Figure 4) seems to be the important barrier between the alpine tectonics to the west and the block tectonics to the east. Nevertheless, there are several features typical to one side, which also appear on the other, but are of minor importance and, in general, are near to this tectonic lineament; for instance, fold structures (see Figure 7, symbols 5 and 6, i.e., anticlines and synclines) on the western Pelagian Block and faults running in a northeast/southwest direction. In the Atlas Mountain range, grabens and other fault structures appear which are oriented in the northwest/southeast direction, typical for the Pelagian Block (Figures 4 and 6).

①①⑤

From these observations, we conclude:

a) To the west and the east of the N/S Dorsale we find two different tectonic styles as dominant structural features, thus underlining the geological individuality of both the Atlas area and the Pelagian Block.

b) Nevertheless, in the vicinity of the N/S Dorsale there is some tectonic influence crossing this line in both directions.

The tectonics of the Pelagian Block have a more "cratonic" style, i.e., structures typical for a stable and massive continental block ("craton") like the African plate; while most of the Tunisian mainland (with the exception of the East Tunisian coastal plain which is part of the Pelagian Block) reveals typical alpine tectonics.

Tectonic Features of the Jeffara Plain

The investigation by GHELLALI (1977) established the existence of a series of block movements with fault planes running mainly east/west, i.e., more or less parallel to the Libyan coast (see cross-sections, Figure 12).

Generally speaking, the top of the mosaic of dissected blocks is higher in the south and deeper (near or even below sea-level) in the north of the Jeffara Plain.

Although there is a gap in information between the drilling-controlled land sections and the start of the seismic profile MS-20 offshore, it is safe to assume that the tectonic style of the Jeffara Plain continues offshore.

Tectonic Features off the Libyan Coast

There are several hints and/or evidence of the existence of east/west trending faults within the Libyan offshore area:

- interpretation of LANDSAT photographs;
- steps in bathymetry;
- tectonic features shown by seismic profiles;
- the existence of the so-called "Salt Wall".

LANDSAT Photographs

On the LANDSAT photographs (ERIM Report, chapter 4.3, Fig. 4-1) a linear feature extending some 20 kilometres in length at a maximum distance of about 3 kilometres offshore east of Zuwarah was discovered by ROGERS et al. (1979). Their interpretation—"possibly caused by the growth of vegetation along a linear geological feature"—leaves open whether it is a tectonic or sedimentary feature.

From the illustration given in the above-mentioned report, the nature of this feature cannot be determined. The three following explanations seem to be the most likely ones:

- (1) a fault scarp
- (2) a linear ridge of outcropping rocks
- (3) a submerged sand spit.

(1) and (2) may be identical, although not necessarily. A fault scarp may be covered by a thin veneer of sand, thus producing only a more or less accentuated morphological step.

On rocks outcropping in shallow water (due to a harder sequence of sedimentary banks with or without any tectonical imprint), underwater vegetation may form a more dense cover of the sea bottom than on mobile sand.

The third possibility, a submerged sand spit, cannot be excluded either. Nevertheless, the very straight coastal line near Zuara is not the typical place for such features; sand spits generally develop at the point where a straight coast is interrupted or ends by an embayment.

In other words, the spits are an extension of the coast produced by sand-transporting currents.

Continuous Seismic Profiles

The following seismic profiles, recorded by the OSSERVATORIO GEOFISICA SEPERIMENTALE (OGS) at Trieste, were examined for their structural and geological but also geomorphological bearing (see *Figure 8*):

Plate No.	Profile No.	Investigated part between the shot points (S.P.) No. (= total distance in km)		general direction of profile
III	MS-15	3780-1	(=379 km.)	NW/SE
IV	MS-17	7070-1	(=708 km.)	WNW-ESE/NW-SE
V	MS-19	2060-1	(=207 km.)	SW/NE
VI	MS-20	6150-2530	(=363 km.)	SW/NE
VII	MS-21	4800-16660	(=315 km.)	SW/NE
VIII	MS-22	3360-1	(=336 km.)	SW/NE

For location of profiles see *Figure 8*.

(a) *Profiles Parallel to the Libyan Coast (MS-17 and MS-15)*

Profile *MS-17* extends from about latitude 13° E (off Zuara) to the southern part of the Gulf of Sirt (latitude 19° E). From the western end of this profile to the change in direction (west/northwest-east/southeast changing to northwest/southeast) the profile crosses the southern part of the Pelagian Block. There are only a few faults in this area (from west to east: at about S.P. 6540, 6460 and 4100) all dipping eastward. The most eastern fault, probably, can be related to the Malta-Misurata fault line.

The subsurface (Tertiary and pre-Tertiary sediments) is rather irregular. Horizon "A", probably the base below the Pliocene sequence, shows some relief.

Entering the Gulf of Sirt (at about S.P. 4300) the profile is rather uniform; only at its southeast end the subsurface appears to be similar to the west end of the profile. Profile *MS-15* runs almost parallel to *MS-17*, extending from Lampedusa Island in a southeast direction. It shows faults, horst and graben structures, and it crosses (near S.P. 1000) the Malta-Misurata fault line, which here is more pronounced than in *MS-17*.

Some of the faults of the subsurface end near the base of the Pliocene, others reach to the surface of the sea bottom. These latter features frequently cause a step-like relief, thus indicating that they are still active.

The general character of the subsurface record is the same as shown in the western part of profile *MS-17*.

(b) *Profiles Running About Southwest/Northeast (MS-19, MS-20, MS-21, M-22)*

Starting with the most eastern profile MS-22 which ends at about latitude 17° E, some 60 nautical miles off the Libyan coast, and extends into the Ionian Basin, it shows only one fault plane (S.P. 980). The sea bottom gently slopes down into the deep Sirtis/Ionian Basin.

This profile illustrates very well the gentle down-warping of the African plate, almost without any tectonic disturbance.

MS-21, situated parallel to the west of profile *MS-22*, shows more tectonization. At its southwest end, the base of the Pliocene/top of the Upper Miocene/evaporites seems to be sculptured. At its northeast end the profile reaches the foot of a submarine ridge.

MS-20 crosses the Pelagian platform, an almost horizontal area which, nevertheless, is intersected by many faults forming, in part, horst and

graben features. At its northeast end (S.P. 2800-2530) the series drop down some 4,000 metres to the depth of the Ionian Basin, thus forming the Malta Escarpment, the more pronounced northern part of the Malta-Misurata fault line. Here the features clearly show very young to recent movements.

Profile MS-19 starts southeast off Lampedusa Island on the Lampedusa High, crosses the vigorously tectonized zone of the Malta Graben-Horst system and reaches at its northeast end almost to Sicily. (The interpretations indicated on Plate V are by FINETTI and MORELLI.) This profile clearly proves the general distensional movements which pull apart the Pelagian platform from the Malta-Sicily unit, a motion which is rather young and still active today.

4. Geophysics

Although it is not the aim of this Report to discuss geophysical data in detail, some information can be gained from the gravimetric and magnetic anomalies of the Central Mediterranean Area.

Gravity Anomalies of the Pelagian Block

Figure 9 clearly shows the limit between the Pelagian Block and the areas to the west (Atlas Mountains) and to the south (Sahara plate): The Pelagian Block shows positive values (white) which indicate a slight tendency to sink. The areas to the west and south show negative anomalies (hatched pattern) indicating a tendency of uplifting.

Magnetic Anomalies in the Central Mediterranean Area

Figure 10 shows the total magnetic field. The anomalies in it are characterized by an irregular pattern produced by the specific magnetic character of some rocks and sediments in the underground.

The entire Central Mediterranean Area contrasts with the area of the Ionian Sea (and the continuation into the Eastern Mediterranean basin) by its irregularities, namely high positive values (probably due to volcanic rocks) and only a few negative ones (probably salt diapirs).

Two important features are underlined by the magnetic anomalies:

—The Malta-Misurata fault line (roughly between the 14° and 15° E meridians); and

—the volcanic rocks of the Pantelleria area between Sicily and the Tunisian main land.

Both features are related to faulting of the cratonic north extension of the North African block.

These geophysical observations, the gravimetric as well as the magnetic ones, clearly indicate, too, that the Pelagian Block is

(a) a part of the cratonic block of North Africa, and

(b) in a stage of subsidence, faster in the east, slower in the west.

III. GEOMORPHOLOGY

1. Accuracy of the Bathymetric Charts

Any geomorphological analysis of submarine areas has to be based either on original bathymetric data or on a bathymetric chart.

The sources of bathymetric data are:

- (a) Isolated soundings printed on nautical charts or in other nautical publications. While reliability is good in near-shore areas, the accuracy of this data is still rather poor in areas without positioning by means of visibility or radar.
- (b) Original echographs (sounding records, fathographs, etc.). Original echographs give a perfect (but linear) and continuous picture of the sea bottom topography. Nevertheless, the reliability of the positioning plays an important role in the accuracy of its incorporation into a bathymetric chart.
- (c) Modern research vessels equipped with electronic devices for high accuracy positioning by radio waves or satellites. They yield the most reliable base data. At present, the spacing between sounding tracks is still insufficient in certain areas or the data are unpublished or not yet transformed into detailed bathymetric charts.

For the Pelagian Sea, our sources of information are¹:

- (1) Carte Bathymetrique de la mer Méditerranée, by the late M. PFANNENSTIEL, G. GIERMANN, and co-worker which appeared in the early 1960s in Monaco. These charts, printed as manuscript maps, are based only on those data described above under (a).
- (2) Bathymetric Chart 1:75,000 by C. MORELLI, G. GANTAR and M. PISANI (1975). Based on the means described above under (b) and (c), the accuracy must be considered as optimum. However, for the Pelagian Sea the density of information and the intervals of the isobath contours (100 metres) are insufficient for a detailed morphological study, especially for the shallow water areas off the Tunisian and Libyan coasts. Nevertheless, in remote deep water areas this is still one of the best sources of data. Therefore, it was used in completing the northeast corner of the SOGREAH chart.
- (3) Bathymetric Chart 1:500,000 by SOGREAH Consulting Engineers, 1975 (under contract with the Libyan Government). These data were provided to the author in the form of blueprints and a photocopy at reduced scale. As mentioned above this chart does not cover the entire area: at its northeast corner it shows no data. The methods used are those described above under (a) and (b).

¹ See Fig. 13 for a graphic example of how different bathymetric charts may vary.

The accuracy is described by the authors of this chart as reliable in near-shore waters (within a zone of land control by radar), but rather poor in remote areas. Nevertheless, this chart, being based on continuous echo sounding, gives a dense spacing of isobaths and appears to be homogeneous in itself. In fact, it is the most homogeneous and detailed of the more recent charts and is likely to show the most detailed morphology. The topographic features are reported to be rather realistic. Its accuracy is sufficient to about 15 nautical miles off the land or islands; it is less precise in more remote areas.

For the construction of a block diagram this map seems to be more appropriate than the PFANNENSTIEL-GIERMANN issue. The lack of information in the northeast corner was dealt with by using the Italian map (see (2) above).

- (4) From some concession areas off the Libyan coast other bathymetric maps were also studied. As these maps do not cover the entire area under consideration, it would have been necessary to combine this source of information with other data coming from other sources. The result would have been homogeneity which might have produced artificial features, and was hence inappropriate for morphological interpretations.

It cannot be denied that for the areas covered by these other maps the bathymetric information is likely to be the most precise and most valuable for geomorphological interpretations.

- (5) International Bathymetric Chart of the Mediterranean Sea ("IBCM")¹: The most modern data on bathymetry and high precision positioning methods (cf. (c)) are used in the IBCM. The present author (member of the Editorial Board of IBCM and responsible for some of the sheets of the Ionian Sea) is rather familiar with this issue. As the aims of IBCM are of a more general nature, and hence the spacing of isobaths is inappropriate for the present investigation, these data, still unpublished, were only consulted for comparison.

2. Comparison of Selected Bathymetric Charts

The existing problem on the accuracy of bathymetric charts can be demonstrated by a compilation of the five following charts (cf. *Figure 13*):

- (1) PFANNENSTIEL and GIERMANN (Monaco 1961)
- (2) MORELLI, GANTAR and PISANI (Trieste 1975)
- (3) WINNOCK and BEA (Paris 1979)
- (4) SOGREA CONSULTING ENGINEERS, unpublished report, (S.P.L.A.J. 1975)

¹Not yet published.

(5) INTERNATIONAL BATHYMETRIC CHART OF THE MEDITERRANEAN 1:100,000 (in print)

After reduction to a uniform scale of 1:100,000 (Mercator projection) the 100 metre and 200 metre isobaths were selected for comparing the relief of an area between Tripolis and Linosa.

The divergencies of both sets of isobaths (100 metre=red; 200 metre=blue) are obvious. They correlate fairly well near the land, i.e., off Tripolis and near Lampedusa but show rather a large area of scattering between the latitudes 34° to 35° N.

As a result it may be stated that only the general trend can be regarded as being correct. Especially in the middle area, minor details cannot be approved by the narrowness of each set of lines. Nevertheless, such details probably do exist but we cannot be sure of their exact location.

Also it is not possible to discard any of these charts either on the base of the methods used in constructing them, or by the year of publication. In some regions the oldest chart (PFANNENSTIEL et al. 1961) fits rather perfect with younger ones, or the most modern IBCM chart less well to the rest.

For the purpose of a geomorphological interpretation, the confirmed existence of a given feature and its outlines are more important than its exact location. Therefore, each of these maps may serve as a base map, provided the isobaths are narrow enough (10 metres to 20 metres distance of water depth) to show any relief being within this order of magnitude.

A combination of two or more maps does not yield better results.

3. The Pelagian Block and its Surrounding Areas

Forces Forming the Relief of the Land and Under the Sea

The forces forming the morphology of the sea-bed differ to a certain degree from those which form the landscape. In both realms, the type of rock that crops out at the surface, as a result of the tectonic deformation of the strata, dictates the topographic forms. This relief has been sculptured largely by erosion, a force which works principally under subaerial conditions, but also at the shore line, and, to a minor degree, under water. The latter case is especially true in areas of strong tidal and other currents.

As stated above, the present shelf area under consideration has been dry land several times at the various low sea-level stages during the last one million years. Hence, much of the morphology lying in this offshore zone is land-derived.

In contrast to this, accumulation or sedimentation has mainly an equalizing effect to the landscape or sea bottom. Especially in an offshore environment without steep relief any preexisting sculpture is levelled by recent sedimentation. Therefore, in an area geologically comparable above and below sea-level, small scale features are generally more pronounced on land than under the sea. Tectonic features of major extent can be detected under the sea mainly by constructing a bathymetric map,

similar to an air photograph of the land. Yet one has to keep in mind that, even today, the accuracy of bathymetric charts is still much lower than that of a topographic map on land, at comparable scales.

Large Scale Morphology of the Sirt Embayment

Off Libya we can distinguish two large areas of different morphology. The dividing line is formed by the Malta-Misurata Escarpment. To the east of this line, i.e., the Gulf of Sirt, the sea bottom slopes down rather continuously into the Sirt Basin. The shelf area down to about 200 metres does not extend very far to the north. A distinct shelf break does not exist. Therefore, merely from this situation, one is tempted to postulate a very recent subsidence of an extended former shelf. In fact, the Malta-Misurata Escarpment is interpreted by most investigators as a very young feature, probably less than 5 million years old.

The Pelagian Block

To the west of the Malta-Misurata Escarpment the area is conspicuously less deep, forming the so-called Pelagian Block. It extends to Sicily in the north. The only feature of importance is the Pantelleria-Malta Trench system dissecting the Pelagian Block into two shelf areas, the smaller Sicily-Malta platform to the northeast and the larger Libyan-Tunisian shelf sea.

The southern and western limit of the Pelagian Block extends somewhat into the land areas of Libya and Tunisia, respectively. The Jeffara Plain to the south as well as its continuation to the north (i.e., the east Tunisian plain to the east of the Atlas Mountains) is an integral part of the Pelagian Block, hence a part of the Saharan platform, which is due to the African plate.

The Atlas ranges extending to the west and northwest of the mentioned Plain, belong to a different unit by their geology and morphology, namely, to the Alpine Mountain range of Tethyan origin.

By morphological reasoning one can interpret the depression (below the sea-level) west of Gabes as the natural continuation of the Tripolitanian coast line to the west.

This understanding coincides with the general geological trends of North Africa during Mesozoic time. Furthermore, the Atlas Mountain ranges are, as a matter of fact, an accretion pushed from the north (Tethys area) on to the African continent.

The morphology of the Pelagian Sea shows the following major features (from south towards north):

- (a) An east/west running depression (forming the Gulf of Gabes) which slopes very gently towards east to east/southeast (Gabes-Sabratha Basin; Tripoli Basin; etc.).

Off the coastal sector between Zuara and Tripoli the sea bottom slopes almost invisibly in a north to northeast direction (merely

0.08-0.3°). The slope of the talweg at the center of the depression is 0.03° at the west end of the Gulf; it increases more to the east (north of Tripoli) to values of about a tenth of a degree (0.1°). (See Figure 11.)

This morphology is so gentle that it is very difficult to demonstrate without any vertical exaggeration. Hence, all graphics have to exaggerate it more or less, a fact which must be kept in mind.

- (b) The Pelagian Platform situated east of the Kerkennah Islands slopes gently to the east, reaching a water depth of only 100 metres at an east/west distance from the coast of about 160 kilometres (i.e., at an angle of only 0.036°). To the north the Pelagian Platform drops rather steeply (3°) off Lampedusa Island into the Pantelleria-Linosa graben system.

The morphology of both features, the Tripoli Basin as well as the Pelagian Platform, is so extremely gentle that, morphologically speaking, both areas can be considered as almost perfect plains. Therefore, to demonstrate these features graphically one has to exaggerate the vertical scale considerably.

- (c) *Graben-like Depressions Within the Platform*

There are several large notches or indentations on the platform running in a northwest/southeast direction. They have been called by French Geologists "Fosse de Zohre" and "Fosse de Jarrafa." In general they start at a water depth between 100 and 150 metres. They are rather straight, dipping with an angle of about 0.1° to 0.3° toward the southeast. They are filled by a thick sequence of unconsolidated and consolidated sediments. These feeble structures have been termed "submarine canyons". This term seems inappropriate because of their unanimously accepted tectonic nature, thus contrasting to submarine canyons which are considered to be mainly of erosional origin. As a matter of fact, these grabens cannot be compared with such submarine canyons as those off the Ligurian coast of France and Italy.

- (d) *The System of the Large Southeast/Northwest Grabens*

Between the Pelagian Platform in the southwest and the shelf of the Malta-Sicily-Adventurebank platform the sea bottom is cut by a system of grabens produced by faults running parallel in a southeast/northwest direction. They belong to the large graben-horst system which extends far into Africa via the Sirt basin.

The entire system is a tectonic feature of major importance. Its tectonic style is typical of a fracturing continental block, thus underlining the extension of the African plate to the north, at least as far as Sicily.

The geological reason for this tectonic feature is thought to be a drifting apart of both sides: the Sicilian-Malta fragment of this formerly united

block moves in a northeast direction, while the Libyan/Tunisian southwest part stays with Africa. This (lateral) distension causes the breaking down of the grabens, a movement which in detail is very complicated.

4. Geomorphological Studies

The geomorphological studies are based on:

- Bathymetric charts of various sources, in part especially constructed for the present study after nautical charts.
- So-called block diagrams (based on the information on the SOGREA bathymetric chart).

(a) *The Kerkennah Region*

Kerkennah Islands

The most striking feature of the Kerkennah Islands is their straight southeast coast running in an approximate southwest/northeast direction. This direction is almost paralleled by the isobaths lying to the southeast off Kerkennah.

The smaller island of Kerkennah has a southwest coast which trends rather straight running from southeast to northwest. But here, the isobaths do not follow this direction. Nevertheless, this southeast/northwest direction is repeated by several embayments and promontories.

In contrast to these straight coastal lines, all other coasts of Kerkennah are deeply indented, showing promontories and other irregularities, probably due to a less uniform resistance against erosional attacks.

The *Kerkennah Channel*, lying between Sfax and Kerkennah, is a linear depression (formed by several small depressions) slightly curved to the east at its north end. These "holes", frequently 10 to 20 metres below the general surface of this shoal area, are very conspicuous. Their formation must be due to a tectonic line of some importance. The "holes" themselves are, perhaps, a sort of doline formation, thus implying a soluble rock (limestone or even evaporites) in the subsurface. This hypothesis also implies a young age with some activity of dissolution still going on.

The so-called *Kerkennah High or Kerkennah Uplift* is a very ambiguous name. Some authors use it for the large updoming feature to the east of the Kerkennah Islands (cf. BUROLLET, 1967; see Fig. 4). Others, MIS-SALLATI *et al.* (1979) as well as WINNOCK and BEA (1979), considering mainly the isobath contours, extend it in a northeast direction more or less parallel to the direction of the Kerkennah southeast coast.

From this point of view it is possible to combine both the Kerkennah channel depression and this northeast extending Kerkennah uplift, as related tectonic features. The indented valley-like features running more or less normal to the isobaths at the southeast to northeast side of the Kerkennah uplift probably are submerged valleys formed subaerially, when this part of the shelf was dry land during the stages of low water level during Quaternary time.

The age of the separation of the Kerkennah Islands from the main land is not clear. It is possible that the feature of the Kerkennah channel is an old one. On the block diagrams, even at a vertical exaggeration of 50, the morphology is not conspicuous. Here, the dominant feature is the gentle doming to the east of Kerkennah, a feature which is called by WINNOCK and BEA (1979) the "Plateau Tunisien".

(b) *The Djerba Region*

While the region of Kerkennah seems to pose few problems, the situation of Djerba appears more complicated.

To the east/southeast off Djerba, i.e., north of Zuara, we find the so-called "Salt Walls", diapiric structures running more or less in an east/west direction. In its prolongation to the west (southeast off Zarzis) we find some contours which protrude into this general direction (see also tectonic lines on *Figure 6*, crossing the peninsula of Zarzis and the adjacent promontory to the northwest).

As drilling on Djerba did not prove Triassic salt, a direct connection with salt-diapirism cannot be substantiated. On the other hand, the existence of the "Salt Walls" in east/west prolongation of Djerba prove important tectonic features (which are used by the salt to migrate upwards).

Therefore, the morpho-tectonical situation around Djerba and the adjacent mainland seems to be influenced by structural factors.

It is safe to state that

- Djerba is an erosional relict of the African mainland; a sinking of the sea level of merely 10 metres would transform the entire area into a peninsula;
- the general direction of the coast line between Tripoli and Gabes is interrupted by the Djerba complex.

(c) *Salt Features*

Near the Tripolitanian coast, there are some local features with a relief still very gentle but nevertheless somewhat more accentuated than described above. These features are due to salt-tectonics which result from existing salt layers in the underground and fault systems crossing this salt.

IV. RESULTS AND CONCLUSIONS

1. *Nature of the Pelagian Shelf*

As regards geology and geomorphology, the area under consideration covered by the Pelagian Sea is one single shelf area which reaches

- to the east to the Malta-Misurata fault line;
- to the northeast to the depressions formed by the rift system (Malta trough, Linosa trough, Pantelleria trough, etc.) running in a southeast/northwest direction.

On this shelf area, there are no morphological features of major importance (i.e., of large extension *and* of pronounced and steep relief) which could form natural boundaries. Hence, there are no morphological reasons to connect this shelf area exclusively to the western (i.e., Tunisian) coast.

This statement is not only true for the present time, but has to be considered correct for the geological past, at least about 5 million years ago (end of Miocene time), when the uniformity extended even farther to the north and the east.

2. The shelf area to the north of the Libyan mainland is the *natural prolongation* of the Libyan mainland (i.e., of North Africa). This can be proved by the

- (a) patterns of sedimentation (cf. Chapter II, 2);
- (b) patterns and style of faults identical to those on the Jeffara Plain (cf. Chapter II, 3) and the North African plate in general;
- (c) uniformity of morphology of the shelf area to the north of the Libyan coast.

On the other hand, it cannot be denied that geological relations between the Tunisian coastal plain (Sahel) and the Pelagian shelf area exist. They are in respect to (b) and (c) of similar nature as the relations between the Jeffara Plain and the Pelagian shelf.

Nevertheless, if the influence by (weak) tectonism coming from the Atlas Mountains could be called a typical "Tunisian" feature, one can safely argue that most parts of the Pelagian area—being not tectonized in this way—have a more "Libyan" or typical North African style.

3. The important influence of the southeast/northwest trending *North African rift system*, coming from the central Libyan mainland via the Sirt Basin and extending into the Pelagian Block, is another strong argument for the connection of geology and structural patterns between Libya and the Pelagian Block. Reasons for the Sirt rift system being a typical North African tectonic feature are:

- This rift system, composed of grabens and horsts with its associated faults, is the result of a cratonic (i.e., continental) block being split up into two neighbouring units. It is not the style of either an oceanic crust *rifting* apart, or of a mountain range of Alpine tectonic style, as is the Atlas.

—This rift system originates in the central areas of Africa and extends to the end of this plate, somewhere in the vicinity of the Strait of Sicily.

—Geologically seen, this effect is not a "Mediterranean" rifting system originating in the north and influencing the African plate.

4. In respect to *bathymetry and morphology*, the sea bottom of this part of the Pelagian Sea has to be considered more as a vast plain than a sculptured submarine "landscape". As a matter of fact, in this area, even for very large distances, the vertical differences are so small that they can only be demonstrated by important vertical exaggerations.

5. On the Pelagian platform there are, nevertheless, areas which show some extended but *feeble updomings, depressions and linear notches*. They are known as banks or shoals, as basins or troughs, and as valleys, respectively. The origin of these features is mainly due to tectonic movements of the subsurface, and only to a lesser degree also to sedimentation or erosion.

In areas where sedimentation is slower than subsidence a depression of the sea bottom will develop; in areas of uplifting only erosional forces could prevent the formation of a positive relief.

6. The *relation between the shelf area and the Libyan landmass* immediately to the south (Jeffara Plain) is substantiated by tectonic and sedimentological facts:

- (a) in both areas the tectonization is identical (block faulting with a predominant east/west extension and a general sinking, faster in the north and slower in the south);
- (b) at certain periods, the sea covered the coastal land area as well as the sea, and at other times withdrew from the present near shore area into regions now covered by more than 100 metres of water.

At each episode of sea level fluctuation the coast line of the African continent changed to some extent due to its morphology. Nevertheless, considering the geological history as a whole, the shelf of North Africa was mainly exposed to the north of the African plate.

7. During geological history the present *East Tunisian coast* did not always exist (cf. *Figure 3*). Tunisia as a whole is much influenced by the rather young formation of the Atlas Mountains and with it the east coast is regarded as a rather young formation, too.

It is safe to say:

—The east-southeast/west-northwest direction of the western Libyan coast is older than the north/south trend of the Tunisian coast; and

—a continuation of an east-southeast/west-northwest running coast into the Tunisian land has not been merely an unusual local and/or temporary feature.

8. The *gentle sloping to the East of the Pelagian Block* is also a young feature. As indicated by geophysical data, the present Gulf of Sirt must

have been a shallow sea some 5 million years ago, a situation comparable to that of the present Pelagian Sea. At that time the deep basin of the Ionian Sea subsided, dragging down the Sirt basin and the eastern margin of the Pelagian Platform. The latter could not keep pace with the subsidence of the Ionian Sea and reacted by fracturing, thus forming the Malta-Misurata fault line.

9. The *reaction of the adjacent main lands to the subsidence* of large basins was different in different places: In the Sirt area, the Gulf of Sirt sloped down forming now a ramp between the Ionian basin and the African continent. To the west and south of the Pelagian Block (i.e., Libya and Tunisia) there was (and still is) a tendency for an uplifting of the continental area at the fringe of this block, thus compensating the masses subsiding within the marine realm.
10. Concerning the *connection between the Tunisian landmass and the Pelagian Block* the following relations exist:

- (a) The Sahel plain is, like the Jeffara Plain, a part of the Pelagian Block. To this extent, there are close connections between the eastern Tunisian landmass and the Pelagian area.
- (b) The landmass to the west of the Pelagian Block, i.e., the Atlas Mountains of the central Tunisian territory and their foot hills (to the west of the north/south running fault line "N/S dorsale"), are geologically different. Both show different tectonic styles connected with the origin of the mountain ranges which have been pushed from the north to their present situation. Before the formation of this alpine belt, the area to the west of the Pelagian Block was—at least most of the time—a shelf area to the north of the African plate, too. There was no north/south trending coast of the main land in the Tunisian area.

In contrast to this, the area to the south of the Pelagian Block (i.e., the Saharan platform) has always played the role of the south continent in respect to its adjacent north shelf, now the Pelagian Sea area.

- (c) The north/south fault axis ("N/S dorsale") dividing Tunisia into two geologically different regions is a feature which had already played an important role before the formation of the Atlas Mountains. This feature crossed the east/west running African shelf in about a north/south direction, forming an area of low subsidence and small accumulation of sediments.

All these facts underline, on the one hand, a loose link between the Pelagian Block and the Tunisian central main land and, on the other hand, a close connection between the Pelagian Block and the Saharan platform to the south.

11. The Pelagian Block was a *shallow water area* at least for about 7 to 10 million years. Before this time it was also flooded by the sea most of the time, but even then, it never was a deep sea in total.

At the present time we can distinguish on the Pelagian Block areas of slower and of faster subsidence, the heights or banks and the depressions, basins and valleys, respectively. The Islands of Djerba and Kerkennah are part of tectonic features with no or only very slow subsidence. Low sedimentation due to tidal currents (important in the area of the Gulf of Gabes) and coastal abrasion, on the one hand, and silting up in protected areas, on the other hand, are responsible for the actual form of those islands and shoals.

12. *Djerba and the Kerkennah Islands* are both unique features in regard to the entire North African coast, which elsewhere is lacking any near-shore islands. Their existence can be attributed to the coincidence and superimposition of several geological features favourable to the formation of promontories and near-shore islands: in the Djerba area for instance, the combination of fault lines and salt deposits in the underground form regional rising areas; the Kerkennah Islands are situated at the cross point of the northeast/southwest oriented "Kerkennah Uplift" and the more west/east trending gentle uplift between the area to the north of Sfax and the Medina Bank.

13. The *Gabes-Sabratha basin* is a gentle depression to the north of the Tripolitanian coast. At the western end this basin forms the actual Gulf of Gabes. West of Gabes the depression of the *chotts* separates the Saharan platform from the Atlas Mountains. Although near Gabes the geological situation does not directly form a connection between both depressions, both features are similar or analogous in respect to their situation to the Saharan platform and their tectonic style as shallow but extended basins with altitudes below sea level.

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Annex 12A

**A REPORT ON STRUCTURAL AND SEDIMENTOLOGICAL
TRENDS IN THE PELAGIAN BASIN AND RELATED
ONSHORE AREAS**

by

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1. Introduction

The validity of Tunisian claims that an east/west geological trend, as defined by structural and sedimentological phenomena within Tunisia, may be projected far out into the Pelagian Basin is examined. The geological data as presented in the Tunisian Memorial are assessed as such and then compared with data of a similar nature from other parts of the geological column. The results of this study are then evaluated on a regional basis with particular emphasis being placed on the tectono/sedimentological evolution of the relevant area of North Africa since Triassic times.

2. GEOLOGICAL TRENDS AS INDICATED BY FACIES AND ISOPACH MAPS AND STRATIGRAPHIC SECTIONS

A. Facies Maps, Isopach Maps and Stratigraphic Sections - Tunisian Memorial

(i) Tunisian Aims

The purpose of the Tunisian Memoire is to establish that the offshore geology of the Pelagian Basin is a "natural prolongation" of the geological situation pertaining onshore. Particular stress is placed on the existence onshore of east/west trending zones which, it is maintained, are characterized and easily recognized by a combination of both structural and sedimentological phenomena. The zones are:

1. Northern Tunisia, extending from the western Mediterranean to around latitude 36°N , characterized by sedimentary deposits of "extraordinary thickness".

2. Central and eastern Tunisia, lying roughly between the latitudes of 36° and $34^{\circ} 15'\text{N}$, characterized by a series of "moles" or uplifts. These uplifts are considered to have an east/west alignment and are typically areas of reduced or non-sedimentation.

3. Southern Tunisia, lying roughly between the latitudes of $34^{\circ} 15'$ and 33°N , characterized by a series of depressions or basins which are again considered to trend to east/west and to be sites of thick sedimentary deposits.

4. Saharan Tunisia, which lies to the south of the 33rd parallel and which is characterized by thinner and "quasi-horizontal" sedimentary deposits.

In addition to the east/west trending zones, the presence of a north/south trending axis of uplift is also recorded but, in contrast to the stress laid on the aforementioned structures, this axis is apparently considered to have only a minimal effect in controlling either the tectonic styles or sedimentation patterns in the area.

The whole approach of the Tunisian Memorial is, therefore, one which strongly advocates the overwhelming importance of the east/west trend and the "ease" with which it can be traced offshore far into the Pelagian Basin. In addition, it is stated that this trend is recognizable, not only at the present time, but that it has played an important role in the geological development of the region even since "remote times".

It should be made clear that the present author does not dispute that an "east/west" trend exists. What is in dispute is that the importance of the trend in terms of the tectonic and sedimentary history of the region, both past and present, appears to the present author to have been overstressed. It will be shown that the "east/west" trend occurs only locally on mainland Tunisia and changes direction markedly when followed westward and offshore. As such, the following paragraphs analyse the Tunisian thesis on the significance of the "east/west" zonation, not only in terms of on-shore interpretations but also in terms of presumed projections off-shore. It will be shown that there are other trends of equal and often greater importance, trends which are clear from the data as presented in the Tunisian Memorial. Recognition of these can be substantiated from examination of additional data from other parts of the stratigraphic column in Tunisia and northwest Libya.

(ii) *Presentation of Data*

The data which the Tunisian authors maintain strongly indicate the east/west "natural prolongation" of Tunisia into and onto the Pelagian Basin area are presented in the form of:

Isopach or equal thickness maps: Cartes 4, 5, 6;

25 Geological/structural/cross-sections: Carte 7 and Figure 5.21;

Facies maps: Cartes 8 and 9.

With the exception of the cross-sections which, as presented in the Tunisian Memorial, are almost incapable of interpretation (see below for comments), the present author has re-drawn Cartes 4, 5, and 6 (see *Figures 2, 3, and 4*) as an aid to illustration of alternative interpretations.

Before proceeding to a structural and sedimentological analysis of the Tunisian maps in the sense of what they are meant to represent in terms of the Tunisian interpretation, some general points on the presentation of these diagrams are worthy of comment.

(a) *Contouring of diagrams*

With regard to Cartes 4, 5, and 6 which make use of contouring to illustrate variations in thickness of the sediments, several points are apparent:

(i) The contour interval is not noted in the legend.

(ii) Although most of the contours are given a value, some are not, e.g., Carte 5. Here, although it is likely that the unnumbered contours have values which are progressive, this is not necessarily the case.

(iii) In Cartes 4 and 6 the contour intervals are not constant, e.g., Carte 4 - contours are spaced 0, 50, 100, and 200, and in Carte 6 - 0.100 through to 600 from where the intervals increase in the order of 200.

The sum effect of these points is to make the maps difficult to read and, in respect of point (iii), to minimize the significance of some features. The density of contouring serves to bring out the importance of thick and thin deposits as is illustrated by a simple if extreme example such as *Figure 1*, which shows the same area contoured at varying intervals. In A,

the thick area X is not so apparent to the eye as it is in B, where constant contour intervals are used. This effect is even more obvious when Cartes 4, 5, and 6 are re-contoured as shown in *Figures 2, 3, and 4*.

(b) Locations of boreholes

- 25) In respect of Tunisian Carte 7 and Figure 5.21, which purport to represent the same section of the offshore area, the following points should be considered: In the offshore section, the borehole KSAR 1 as shown in the cross-section is not recorded on the locality map. The position of this borehole is important since it is placed on the peak of the "moles", a major point in the Tunisian argument. The position of the borehole can of course be "estimated" and examination of Cartes 4, 5, 6, and 7 shows that there is a borehole at or near the estimated locality; however, here it is labelled XSAR 1. While this may be a cartographical error—a possibility, considering that in the series of boreholes shown in "detail" in Carte 7, KSAR 1 would appear to be synonymous with XSAR 1 as shown on the locality map—care should be taken in accepting it as such. For example, in an area which has been affected by block faulting of the horst-graben type such as the Pelagian Basin has been (Winnock *et al.* (1979), Bellaiche *et al.* (1979)), a few tens of metres variation in the siting of a borehole can make the difference between passing through vastly different thicknesses of sediment, thus affecting the geological interpretation of the area.

- 25) It is also worthy of note that, although all other boreholes are recorded on the locality map in Figure 5.21, the positions of *neither* borehole SEMI, which locates the position of the "mole" axis in the onshore section, or borehole ALY1, which locates the deepest point of the "zone des dépressions" in the offshore section, is recorded in Cartes 4, 5, 6, or 8. (No borehole locations appear at all on Carte 9.) It would seem that the "confusion" in location and naming of boreholes might be significant, particularly when it is considered that those in question are of prime importance in defining the "axes" of the highs and lows so critical to the Tunisian argument of east/west trending structures. Indeed, the significance of the locations is even more clearly brought out in the *Nota* to Figure 5.21 where the boreholes mentioned above are specifically recorded as central to the establishment of the structural pattern.

(c) Depiction of stratigraphical and structural relationships

- 25) A second point involving Figure 5.21 is the fact that the manner in which it is drawn makes it difficult to read, even to the degree that at first appraisal it is in many senses misleading. This is due to the following reasons:

(1) The two cross-sections, one onshore and one offshore, are presented as a means to show that the overall situation of alternating structural "highs" and "lows" is closely comparable. (It has already been noted above that the positions of the boreholes which delineate the positions of both "highs" and "lows" are not recorded on the location maps.)

In the diagrams the authors have selected the top of particular geological formations as a basis on which to establish the structures. These formations are:

- | | | |
|-----------------------------------|-------------------|-----|
| a. Top of the Ain Grab Formation. | Miocene. | (1) |
| b. Top of the Abiod Formation. | Upper Cretaceous. | (2) |
| c. Top of the Zebbag Formation. | Lower Cretaceous. | (3) |
| d. Top of the Serdj Formation. | Lower Cretaceous. | (4) |

They also record the *base* of the Serdj Formation as horizon 5.

The problems involved in interpreting the diagrams are as follows:

In the onshore section as shown in Figure 5.21, the shading pattern used below horizon 5, i.e., the base of the Serdj Formation, is the same as that used to indicate the interval to the top of the Serdj Formation in the offshore section. As such, the pattern as used in the offshore section obviously includes the Serdj Formation. The point which comes to mind is, why leave out the Serdj Formation boundaries in the offshore section when it can be seen from Carte 7 that both the top and the base of the formation have been recorded in offshore wells? Although the development is thin and therefore not easy to depict on the scale of Figure 5.21, there would appear to be no good reason to confuse the reader in terms of interpretation of the diagram by not indicating this fact, if only by use of an explanatory note to Figure 5.21.

A comparable problem involved in interpretation of these diagrams is the fact that, whereas the top of the Zebbag Formation is clearly delineated in Figure 5.21, the formation is not denoted in the detailed borehole sections, Riccio 1 to ALY 1, in Carte 7.

While it is accepted that recognition of particular formations can be difficult in boreholes, due to paucity of data and problems of identification inherent in facies changes, sedimentary breaks, etc., it is strange that the line shown with such authority in the "sketch" section of Figure 5.21, i.e., top of the Zebbag Formation, is not easily determined in the detailed sections of Carte 7, and that the top and base of the Serdj Formation, clearly depicted in Carte 7, should not be shown in Figure 5.21.

(2) It should be made clear at this point that the confining horizons 1-5, used in the construction of Figure 5.21, involve the grouping of geological formations. Horizons 1 and 2 enclose a *number* of formations, or equivalents of those formations, which have been recognized in various areas of onshore Tunisia (Bishop 1975). As such it should be realized that the attitudes of the defining horizons as selected for the construction of Figure 5.21 display the structural relationships of those horizons one to the other only. There is no information as to the complex interplay which could occur in the relationships between each of these horizons and intervening ones, related to other formations, in response to variations in the intensity of structural movement and sedimentation rates.

(iii) *Facies Maps*

The *facies* maps, Cartes 8 and 9, do show a general east/west trend in the *facies* patterns. This is to be expected, since it is this trend which the

Tunisian Memorial seeks to establish. It is, however, possible to show that the *facies* patterns are more sophisticated than proposed. First of all, it is quite clear that the patterns in both maps are the result of at least two major controls. *The general east/west trend is really one in which an east/northeast to west/southwest orientation "swings" into an east/southeast to west/northwest trend across a line which is equivalent to the trend of the "north/south axis"*. The presence of this axis of uplift has also had a profound effect in causing the northerly progression of shallow water *facies*. This is an important feature in that it causes the *facies* boundaries to assume an *arcuate* pattern. While it is admitted that Carte 9 shows that the axis has played only a minor role in controlling *facies* patterns (in contrast to Carte 8 where the effects are more obvious), it will be shown below that the *facies* patterns as presented in the Tunisian Memorial are not typical of the Mesozoic succession in Tunisia as a whole. It would seem to the present author that these two maps were carefully selected as examples which would best display "the east/west trend".

An additional point involving the presentation of the data in Cartes 8 and 9 is that there are no details on Carte 9 as to the criteria on which the various sub-divisions of the sediments have been based. In contrast, Carte 8 involves the use of the "*facies* triangle" and shows clearly the relationships between the end members of that particular triangle. Here can be seen a pattern in which there is an overall increase in clay content and a concomitant decrease in carbonate and evaporite in a northerly direction. The overall pattern is interrupted by repetition of carbonate rich sediment along a line roughly equivalent to the southern edge of the "zone des Moles". In effect, although one can read here the effects of structural control on sedimentation, the data are valid only in a compositional sense and in fact tell the reader little beyond this. A meaningful analysis of such a diagram would only be possible if one could assess the *type* of carbonate, clay, etc., in terms of environments of deposition. Nevertheless, the repetition of carbonate rich sediments across the area does suggest a return to shallow water environments, a reversal which may well be structurally significant.

(iv) *Isopach Maps*

(a) Northern Tunisia

It is stated in the Tunisian Memorial that northern Tunisia is the site of sedimentary deposits "characterized by their extraordinary thickness, which lends them an affinity with sedimentary basins of the deep-sea or geosynclinal type" (paragraph 5.65).

Several points are at question in this statement, namely:

- Deep sea deposits are not necessarily thick.
- Geosynclinal deposits are not necessarily thick.
- Thick sedimentary deposits can occur in depositional regimes which are not necessarily "geosynclinal" in origin.

The statement is very much oversimplified and a detailed refutation of it would demand a lengthy report. Nevertheless, a few examples should amply indicate the simplicity of the statement.

The term "geosyncline" is a matter of some dispute in terms of modern theories on plate tectonics; however, the concept of "rapidly" subsiding *linear* basins which may act as sediment traps is a valid approach. What must be taken into consideration, however, is that rapid subsidence must be viewed in relation to the rate of supply of sediment into the sedimentary basin. A rapidly subsiding basin which has little supply of sediment can develop very deep water but only a very thin sediment veneer. In contrast, a rapidly subsiding basin which has an ample supply of sediment may accumulate a thick sedimentary prism under only a shallow water depth.

On the other hand, a deep hollow, such as may occur in inter-montane basins or ocean basin lows, provides already existing sediment traps which depend little, if any, on active structural down-warp. These "hollows" can fill up with sediment to form thick sedimentary prisms and in the case of inter-montane basins, particularly so if associated with faulting.

The concept of faulting in association with thick sedimentary deposits illustrates a point not elaborated on in the Tunisian Memorial. This is the fact that the term "geosyncline" is often used with prefixes to distinguish between various types in which the facility to allow thick sedimentary accumulation is due to different structural processes, proceeding at different rates and in varying tectonic settings. There is extensive literature on this subject, e.g., Kay (1951), Aubouin (1965), Krumbein *et al.* (1963).

In addition, the recognition of any sediment as geosynclinal, fluvial, etc., demands a concerted approach involving many geological disciplines, the whole coming together to arrive at "*Basin Analyses*" in terms of *sedimentary models*, e.g., Potter *et al.* (1963), Selley (1970).

Thus, in order to substantiate the authors' claim to deep sea and geosynclinal environs with regard to the northern Tunisian sediments, the authors should have presented precise detail of such geological phenomena as thickness, the tectonic regime, the sedimentary facies, dispersal patterns, etc.—all points which would allow a sedimentary model and a valid interpretation to be established.

The absence of such data in the Tunisian Memorial, even in the form of isopach and facies maps, is "unusual". There is evidence from Cartes 4, 5, and 6 that ample borehole data are available for analysis - data which are temptingly referred to in paragraph 5.64 as having been analysed and kept in Tunisian Government archives.

If such data are "available" then why have they not been used to substantiate the Tunisian interpretation? The answer to this possibly lies in the fact that publications such as that of Burollet (1978) display clearly that the structural trends in northern Tunisia are markedly different from those proposed in the Tunisian Memorial.

In addition to this, it is stated that the "thick sedimentary series" meet along an axis "broadly" oriented west/east and this situation is compared with "the sedimentary trenches of 'northern Tunisia' on Carte

6...". In respect of this statement, not only can it be shown that the east/west orientation of the "northern trenches" on Carte 6 is, in reality, slightly suspect, but:

- a. According to the authors' own definition of northern Tunisia, this zone lies north of the 36th parallel. As such, the greater part of the "northern" basin in Carte 6 falls outside the zone as it is so defined.
- b. Trenches are linear structures. The basins in the northern part of central Tunisia are "equant" in shape and not linear. The stress on linearity is interesting since it can impose on the reader a concept which is then expanded into an acceptance of a "linear" east/west trend.

(b) Central, Eastern and Southern Tunisia - Zones 2 and 3

Both these zones are considered together since this approach allows a concerted analysis of the interpretation of the isopach maps as presented by the authors of the Tunisian Memorial. As already noted above, Cartes 4, 5, and 6 have been re-drawn following both the contouring of the authors and their interpretation of the major structural and *facies* trends, i.e., *Figures 2, 3, and 4*. These figures include the present author's interpretation of the data. In Carte 6 the north/south axis of uplift and two east/west trending axes, the *Axe des Moles* and the *Axe des Dépressions*, are delineated, although the latter is not named nor indeed well defined. The pattern of "lows" versus "highs" is well brought out in the diagram but not in the manner which is so strongly stressed by the Tunisian authors. Even without the addition of the relevant contour lines in the subsiding basins, there would most certainly appear to be a strongly developed orthogonal pattern in the region with a series of roughly equant "lows" dispersed between "highs" in a rough grid pattern. When low and high axes are drawn to correspond with the orientations of the lowest and highest elements of each geological structure such as is shown in *Figure 2*, it is immediately apparent that to say the isopach patterns define a predominant east to west trend is inadmissible. The pattern is best described as having developed from the inter-digitation of a north/northeast to south/southwest trend of uplifts and depressions with an east/southeast to west/northwest trending set. *It is significant that the east/northeast to west/southwest trend is best developed west of the major line of the "north/south axis" and that the trends east of this axis are typified by a marked west/northwest to east/southeast trend.* This, in the more easterly areas covered by the map, swings gradually into a marked northwest to southeast trend.

Cartes 4 and 5, analyzed in *Figures 3 and 4*, show a distinct change in pattern. It is to the Tunisian authors' credit that they did not attempt to draw east to west trending axes on these maps such as they did on Carte 6, even though they do maintain in the text that an east to west trend is recognizable.

Both maps show very well the role of the "moles" as areas of uplift resulting in reduced and non-deposition; however, they do not display an east/west trend. The pattern is made up from a combination of three major trends:

- (i) The east/west trend of the Sillon sédimentaire de Gafsa, an important feature of southern Tunisia.
- (ii) A distinct northeast to southwest trend and a distinct northwest to southeast trend which meet and intermingle along a zone which runs northeast to southwest from the region of Monastir to and beyond the region between Oreata and Gabes. This zone possibly corresponds to the trend of the north/south axis.

There is no doubt in the author's mind, given this data, that despite the difficulty in evaluating the data as given in the Tunisian Memorial in the first instance, there is certainly an east to west trend in the south as is shown by the Gafsa Trough but this trend is much less obvious in the north, if indeed it exists at all. Here, the dominant pattern is one of northeast to southwest and northwest to southeast trends which develop to the west and east of the north/south axis respectively.

All in all, it would appear that to maintain that Cartes 4 and 5 display definite evidence of a predominant east/west trend from the data on thickness variation as given is not tenable. To say that there is an east/west trend in Carte 6 is certainly feasible, but it should certainly be tempered by the recognition of the *marked* north/south trend due to the presence of the "north/south axis" and, in the region east of Sfax, a swing from the "east/west" trend to a marked west/northwest trend.

(v) *Summary*

As already stated, the aim of the Tunisian Memorial is to establish in the reader's mind the validity of an east/west trend to the geological phenomena of on-shore Tunisia and to propel these into the Pelagian Basin. It is the opinion of the author that the data used to support such a thesis are inadequate. In addition, the thesis is certainly given little support in "errors" of representation such as lack of data and omissions in denoting the siting of boreholes. Furthermore it would seem that selection of data has played an important part in the Memorial. An attempt seems to have been made to select only those data which "best" support the "east/west" thesis. Examination of data of similar types from other parts of the geological succession in Tunisia would appear to show that this is so. These additional data also illustrate that interpretation of the Tunisian data in terms of interplay between various structural trends has a firm basis.

B. *Facies Maps and Isopach Maps of Jurassic, Cretaceous and Tertiary Sediments of Tunisia and Northwest Libya*

(i) *Facies Maps*

The maps discussed in this section are based on the *facies* studies of Bonnefous (1967); and Salaj (1978). The work of Bonnefous on the Jurassic is shown in *Figures 5A-E*, and that of Salaj on Cretaceous and Tertiary deposits is shown in *Figures 6A-K*.

A detailed analysis of maps demands time far beyond that available for preparation of this report; however, even a brief study of data indicates that the structural and *facies* trends have varied throughout the major part of the Mesozoic and that one or other trend has, by dint of periods of reactivation or quiescence, played a part in the development of the changing pattern.

It is clear from *Figures 5A-E* that during Jurassic times, the north/south axis played a major part in controlling the sedimentation pattern. In addition, it should be noted that there are distinct *northeast to southwest* trends in northwestern Tunisia and a strong *west/northwest to east/southeast* trend in the area of southern Tunisia and Libya east of the axis and an *east/northeast to west/southwest* trend west of the axis.

A change takes place in the lower and middle Cretaceous (*Figures 6A-F*). Here, although there is again a well developed east/west trend in the southern part of Tunisia, the areas to the north show a marked north-east to southwest trending pattern; nevertheless, the influence of the north/south axis is still recognizable. The only time that the influence of the north/south axis is minimal is in the Albian *Figure 6E*, where a *facies* pattern very similar to that shown in Carte 9 is developed, i.e., dominant east/west trend over the whole region. It is perhaps significant that Carte 9 is based on the previous stage of the Cretaceous period, i.e., the Aptian. However, the *facies* map for the Aptian, *Figure 6D*, based on the work of Salaj (1978), displays *quite different patterns*. It shows that the north/south axis appears to have played a major role in controlling the *facies* distribution, a "fact" which is not obvious in the Tunisian presentation. The role of the north/south axis is even more pronounced in those maps which illustrate the *facies* patterns for the late Cretaceous and into the Tertiary period (*Figures 6G-K*). In these it is clear that the axis has been important in delineating two distinct areas. To the west of the axis it is possible to clearly recognize the east/west trending Gafsa Basin but to the north, from the region of Thala, the *facies* trends are markedly north-east to southwest. To the east of the north/south axis, the *facies* trends swing rapidly into a *northwest to southeast* trend, albeit occasionally interrupted by local *northeast to southwest* trending structures.

The changes in *facies* patterns are important, and may be summarized as follows:

—During Jurassic times the pattern of sedimentation in southern Tunisia and northwest Libya was undoubtedly disposed in an arcuate pattern with east/northeast trends west of the north/south axis, and west/northwest trends to the east. True east/west trends are developed

only across the axis. At the same time well developed northeast to southwest trends are common in the north of the country to the west of the north/south axis.

- This situation is also evident in the earlier part of the Cretaceous period.
- In the middle Cretaceous east/west trends tend to dominate throughout the area although control by the north/south axis is obvious in the Cenomanian-Turonian.
- In the late Cretaceous and the Tertiary period, the "east/west" and northeast to southwest trends are developed to a marked degree and they are joined by a strong northwest to southeast trend to the east of the north/south axis in areas to the north.

(ii) *Isopach Maps*

The isopach maps are based on the work of Bishop (1975) (see *Figures 7A-I*). The maps for the Cretaceous and the Tertiary indicate that the Tunisian approach is vastly over-simplified, and analysis shows clearly that:

- in the lower Cretaceous, northwest to southeast and northeast to southwest trends are dominant;
- in the middle Cretaceous, "east/west" trends become apparent;
- in the late middle Cretaceous and into the Tertiary period northeast to southwest trends are very obvious, particularly in the north and north-eastern parts of Tunisia.

(iii) *Summary*

It can be seen from the study of *facies* and isopach maps that throughout late Mesozoic and Tertiary times, a "true" east/west trend occurs only in the region of the Gafsa rough, which lies to the west of the north/south structural axis. Elsewhere in Tunisia the "east/west" trend is only locally developed across the line of the north/south axis as part of a regional swing in *facies* and structural trends from approximately west/northwest alignments east of the north/south axis to east/southeast alignments west of the north/south axis.

At the same time, it is clear that the role of the north/south axis in controlling *facies* versus isopach patterns is variable. While it would certainly seem to be the line across which the swing in *facies* trends takes place, structural trends as suggested by isopach maps cross the axis, particularly in the Tertiary (see *Figure 8*).

The origin of the various trends is obviously of importance, since both the *facies* and the isopach patterns have developed in response to tectonic and environmental controls. In order to relate these patterns to such controls, it is necessary to study the structure of the area and to identify features which display similar or related trends to those outlined above and to examine the processes which led to their formation.

3. Regional Geological Trends and Possible Interpretations

A. Regional Structural Patterns

(i) Structural Styles

85 Figure 9 shows the structural features of the Pelagian Basin region. Three major types of structures can be recognized:

1. Broad anticlinal and synclinal warps.

Two trends are obvious:

- A "north/south" trend, e.g., the north/south anticlinal axis of Tunisia and, the Garian "high" which is offset from the Jeffara-Malta high across the line of the Jeffara fault system.
- An "east/west" trend, e.g., the Nafusa "uplift" which overall describes an arcuate pattern with north/northeast facing concavity in the Jeffara area. The Gargaf "uplift" which trends east/northeast to west/southwest. These uplifts intersect to form basinal areas such as the Homra Basin.

2. Tight folds

These occur mainly in Tunisia and Sicily north and northwestward of a line which trends southeastward across southern Tunisia to the coast at Gabes. From here the line swings northeastward to cross Sicily in the southwest corner. The folds display a marked over-all northeast to southwest trend although in the vicinity of the north/south axis the fold trends swing into more east/northeast to west/southwest alignments. In addition, it can be seen that east/west trends occur both in the straits of Sicily and onshore in western Sicily following the trend of the Miocene foredeep.

3. Faults

Faults are of several types and trends.

1. *Strike slip faults.* These are mainly associated with the areas of tight folding and display similar northeast to southwest trends. They display both sinistral and dextral senses of movement. A major strike slip fault displaying an arcuate pattern corresponds to the line delineating the area of tight folds noted above (Caire (1970, 1975)).

2. *Dip slip faults.* These exhibit four trends:

- West/northwest to east/southeast trends. This is a major trend, well developed in horst-graben systems in both the Sirt and the Pelagian Basins. In these two areas the systems display very similar patterns as is shown by Figure 10. The area of greatest downthrow is seen to lie towards the north/northeast margins of the fault zones - the Augila trough in the Sirt Basin and the Malta-Pantelleria trough in the Pelagian Basin. They would thus appear to be geometrically and probably genetically very closely related.
- Northeast to southwest trend. Faults of this trend are rarely recorded in the offshore area of the Basin; however, they are commonly developed onshore in southwest Sicily and particularly in Malta where they define a horst-graben system with an overall downthrow towards the northwest (Pedley *et al.* (1978)).

- An arcuate north/south trend. This pattern is typical of the eastern edge of the Pelagian Basin and of faults in the Ionian Basin further to the east. The major direction of downthrow is to the east.
- An arcuate east/southeast to west/northwest trending system, concave to the north/northeast, parallel to the Nefusa uplift and developed along its northern margin. This, the Jeffara fault system, runs west/northwestward into the "Gafsa Accident" (Castany (1955)). Major downthrow is to the north and north/northeast.

(ii) *Age relationships*

- Klitsch (1971) shows that the north/south trending uplifts are of Caledonian age and that the east/west trending uplifts are of Hercynian age.
- The northeast to southwest trending tight folds and strike slip faults are middle to late Tertiary in age and related to Alpine orogenic movements.
- The east/southeast to west/southwest horst-graben system of the Sirt Basin is known to have been initiated in the late Cretaceous times (Klitsch (1971)), while the system of the same trend and pattern in the Pelagian Basin was initiated in the late Tertiary (Burolet (1978)).
- The arcuate north/south system was active in the Plio Quaternary, probably as recently as 4 million years ago (Burolet (1978)). It may, however, have a more ancient history.
- The east/west trending Jeffara fault system, certainly active in late Tertiary times, may also have a much more complex history. It is probable that this system, related to an Hercynian uplift, was active in the middle Mesozoic.

(iii) *Summary*

The structural features of the area display a set of trends comparable to those apparent from the study of *facies* and isopach maps. These are:

- north/south;
- east/west;
- northeast to southwest and east/northeast to west/southwest;
- southeast to northwest and east/southeast to west/northwest.

As such it would appear that the *facies* and thickness patterns are closely related to the regional structural patterns.

B. Interpretation of the Facies and Structural Patterns in the Pelagian Basin on the Basis of Plate Tectonic Studies

(i) *Structural Patterns in the Mediterranean Area*

A convenient starting point is the situation which prevailed in Triassic times 200 million years ago. *Figure 11* shows the distribution of the continental masses at this time. Africa, the Americas and Europe were linked together to form the western margin of a wedge shaped ocean, *Tethys*. The structural history of the Mediterranean region since Triassic times is intimately related to the processes involved in the eventual closure of this ancient ocean. Movements of the African plate relative to the European plate, and of both relative to the North and South American

plates, have resulted in the structural pattern of the Mediterranean area as it is seen today¹ (Biju-Duval *et al.* (1977)). Plate 1 shows how complex these patterns are. The structure of the Alpine orogenic zone, as indicated by major suture zones, follows an east/west trending path from the Maghrebins of North Africa, northwestward into Sicily from where it sweeps around into the northwest to southeast trend of the Apennines. From the Apennines, this suture then swings to follow a northeast trend into the curve of the Carpathians and Balkans. The Maghrebins-Apennines curve effectively divides the Mediterranean into an eastern and a western basin across the straits of Sicily. The western Mediterranean basin is also characterized by an active subduction zone which trends roughly east/west to continue on land to the south of Taurides and the Caucasus Mountain chains. This subduction zone connects with the major Maghrebins-Apennine suture zone to the southwest of Calabria. These Alpine folded zones are bounded to the north and south by the staple platforms of the European and African plates.

(ii) *The African Plate*

(a) *Shape of margin*

Of particular note in Plate 1 is the broad area of epicontinental sea which forms a distinctive feature of the northern margin of the African plate between Sicily and the African coast. This makes up the Pelagian Basin and the southern part of the Ionian Basin. The margin of this sea trends northeastward from Tunis to Sicily. From the southeast of Sicily it trends south/southeastward in a straight line following the Malta escarpment to the area of the Medina Banks. From here it swings sharply eastward to Cyrenaica where it defines a narrow strip parallel to the coast. West of Tunis the orogenic zone of the Tell drops rapidly into the western Mediterranean and no epicontinental sea exists. The wedge shape of the margin along the Tunis-Sicily-Medina Bank line is a very characteristic feature of the area and would appear to have its origins in the Mesozoic period. It is suggested by Biju Duval *et al.* (1977) that the North African epicontinental sea in this area has more or less maintained the same shape since Triassic times to the present day (see Plates 2-8). The only major changes are those related to the coastline due to transgression and regression of the sea in response to epeirogenic movements.

(b) "Relict" structures

Although the present structure of the North African plate has its origins in the early Mesozoic, older structural trends related to previous tectonic phases can be recognized. These structures have played a part in controlling subsequent sedimentation patterns and structural styles. The relict structures are of Caledonian and Armorican age. In the Tunisian-Libyan region they are typically epeirogenic in nature taking the form of gentle uplifts and depressions. It can be seen from Figure 11 that the Pan African trend of early Palaeozoic age is aligned essentially north to south with regard to the present North African coastline, but south it swings into a more northeast to southwest trend into the Gulf of Guinea. On the other

¹All plate numbers refer to Biju-Duval, J. *et al.* (1977).

hand, the Armorican trend is essentially east/northeast to west/southwest relative to the North African margin. Klitsch (1971, *Figure 3*) documented both sets of structures in Libya showing that intersection of the two resulted in basins such as the Homra and Kufra. Thus, in the area under discussion it can be seen that the north/south axis and the north/south trending Garian high would appear to have been initiated in Caledonian times. The former may be the northward extension of the Tihemboka uplift, the latter comprises the continuation of the Tripoli-Tibesti uplift. This structure, although slightly offset to the east, finds its further continuation in the Jeffara-Malta axis. Armorican structures in the area are the Gargaf uplift and the Nefusa uplift. These define the Homra basin (see *Figure 9*). The Nefusa uplift is of particular importance. Trending parallel to the coast of northwest Libya, its continuation to the west is found in the Algerian anticlinorium (Bishop (1975)). The uplift formed an effective barrier to marine incursions in Permian and early Mesozoic times so that sediments to the south tend to be continental in nature. It also had a major effect on the distribution of earlier formed sediments due to erosion following uplift, a fact which is clearly illustrated by isopach maps for the Devonian and Carboniferous systems (see *Figures 12 and 13*). There would seem little doubt that the Nefusa uplift, trending as it does parallel to the coast, is one of the most important features in the area. The control it exerted on sedimentation in Mesozoic times was further enhanced by the development of a major fracture system parallel to its northern margin. This, the Jeffara fault system, downthrows to the north and should be considered as forming the southern margin of the Pelagian Basin. The age of the system is difficult to determine but it was possibly initiated in the middle Mesozoic.

(iii) *Structural Development of the Area*

(a) Plate 2 shows the Mediterranean region during Triassic times in more detail. The area of continental crust to the west of Tethys was made up from a number of microplates defined by fractures which were later to become the zones along which movements took place. Two fracture zones are of particular importance. These can be seen on Plate 2 (Biju Duval, J. *et al.* (1977)). The first, henceforth called A-A', trends approximately east/west separating the African plate from the European plate. This zone terminates to the east against a major fracture zone which curves southeastward, and then swings northeastward into Tethys. This zone will henceforth be referred to as B-B'. The two zones largely define the northern margin of the African plate (see *Figure 11*). The area of crust to the north of zone B-B' was later to play a major part in the structural development of the Mediterranean region. Known as the African promontory, this portion of the crust migrated northward to eventually form the floor of the Adriatic epicontinental sea (see Plate 1).

The period from lower Jurassic to early Cretaceous was the period when break up of the western blocks occurred with the opening of the south Atlantic, the formation of Mesogea and the gradual closure of Tethys (see Plates 3 and 4). During the lower Jurassic the African promontory

separated from the north African-Iberian area, moving east and north (see Plate 3). At the same time a narrow seaway developed between the African and Iberian plates along the line of a fault with sinistral movement. These movements continued during the late Jurassic and early Cretaceous with the south Atlantic increasing in size (see Plate 4). Tethys was gradually consumed and the gap between the Iberian and North African blocks widened. At the same time a subduction zone, heralding the movement of the Arabian plate northward developed south of the African promontory in the extreme east of the region. The late Cretaceous was a period which saw major changes. At this time the north Atlantic opened with the separation of North America from Europe while the south Atlantic increased greatly in width (see Plate 5). In the Mediterranean region, as the African promontory moved northwestward toward the Alpine region, the subduction of the Tethyan Ocean floor continued. Folding was initiated along the northern margin of the African promontory with a pattern very similar to that seen at the present time. In the western region the gap between the Iberian block and North Africa began to close. At the same time the Iberian plate moved dextrally relative to Africa, a process largely responsible for the S-shape of the subduction zone. Although the late Cretaceous, throughout the greater part of the region, was a time of compressional tectonism, *tensional* forces were operative in the African plate. The horst-graben fault system of the Sirt Basin developed at this time following closely the trend of the Pan African folds. It is suggested that the fault system had a more northerly trend than that seen at the present day and that its continuation can be found along the well-defined north/northwest trending edge of the Pelagian Basin southwest of Sicily. Although the present-day observable trend of the faults in the Sirt Basin tends to be west/northwest to east/southeast it can be seen that the faults of the western part of the Sirt Basin have more northerly trends than those in the east. An example is the Hun Graben system, which, although ending "abruptly" near the Jeffara fault system, has a trend closely comparable to the northern part of the scarp bounding the eastern edge of the Pelagian Basin. The subsequent history of the area is one of progressive closure of Mesogea and Tethys (see Plates 6-8). During Paleocene, Eocene, Oligocene and Miocene times the western part of Mesogea continued closing along a northeast to southwest trending subduction zone with the formation of the Taurides and Hellenides. The African promontory continued to move northwestward into a position occupied by the Adriatic Sea today. Closure of the western part of Mesogea was more complex and is a matter of much discussion. It is, however, generally agreed that movement of the African plate relative to the European plate was accompanied by fragmentation of the eastern margins of the Iberian plate. Migration of these fragments, eastward and southeastward in concert with sediments associated with the subduction zone, formed the islands of Corsica and Sardinia, parts of Sicily, Italy, and the North African Tell (Caire (1978), Boccaletti *et al.* (1978)).

Ocean basins, such as the Balearic and Tyrhennian Basins, were formed at this time, and the characteristic fold patterns of the Apennines, and those of the North African ranges, were also initiated. A final stage of movement across suture A-A' took place in the middle Miocene with the formation of the Miocene foredeeps of the Algero-Tunisian Tell and northern Sicily. While compressional forces were active in the Mediterranean region, important movements were taking place in the African plate, particularly in Eocene times. There is evidence to show that a phase of sinistral strike slip faulting recurred in the Sirt Basin at the end of middle Eocene times (Anketell and Kumati (1977)). This movement took place along faults formed during the late Cretaceous event noted above. It can be seen from Plates 6 to 8 that the closure of Tethys and the opening of the south Atlantic Ocean demanded that the entire African plate rotate in a dextral sense with respect to the European plate. Much of this movement would have been taken up along the suture A-A' and by subduction along B-B'. However, it would seem from the work of Duval *et al.* (1975) (see 94 *Figure 14*) that the African plate should be considered to have consisted of at least three blocks:

- West Africa or a Saharan nucleus bounded by the Atlantic margin and the western edge of the Pan African zone;
- The zone of the Pan African fold system;
- An east Africa block.

It is suggested that, although the whole plate was in rotation, C moved more rapidly than A by virtue of subduction in the western Mediterranean, and that the movement was taken up by, and concentrated in, zone B. Thus, whereas the total movement of the plate was in a dextral sense relative to Europe, the variation in speed of movement of zones B and C around A, resulted in a sinistral sense of movement of the three zones relative to each other (see *Figure 14*). 94

It is possible that such a situation may well have allowed the re-orientation of the eastern part of the Sirt Basin fault system, originally characterized by a north/northwest fault alignment, into a more west/northwest to east/southeast trend. Reactivation of these faults in Miocene times could thus have imposed the characteristic pattern of the Sirt Basin fault system onto the northern Pelagian Basin. It is further suggested that, not only was the dextral movement relative to Europe taken up along the suture A-A', but that a similar sense of movement took place along the structural zone represented by the Jeffara fault system which would almost certainly have been a line of weakness. Such a movement, parallel to that of the main suture zone, would help explain the "displacement" in trend of the north/south trending Garian high from the Jeffara-Malta axis. In addition, the major fault system represented by the Hun Graben, which apparently does not continue north of the Jeffara fault system, would find its continuation in these faults which mark the edge of the Jeffara-Malta scarp. Although the faults along this margin are known to have been active in Plio-Quaternary times, causing the easterly downthrow of the epicontinental margin to form the Ionian basin, it is suggested firstly, that

the fault phase is due to reactivation along an older fault system of late Cretaceous age and secondly, that downthrow is greater to the north, i.e., a scissor movement. This would explain the present day bathymetry of the Sirt Gulf where the water deepens rapidly away from the coast.

In summary, it is proposed that during the Alpine orogeny, the epicontinental area suffered two types of tectonism. In the western area, bounded to the north by suture A-A', compression tectonics producing east/northeast to west/southwest trending folds were active. These folds cross the north/south axis of Tunisia to give the patterns seen in eastern Tunisia and such features as the Kerkennah axis (see Figure 9). The western area underwent, at least twice during its post-Paleozoic history, two phases of block faulting, one in late Cretaceous and, following a period of complex rotation of the African plate in late Eocene times, reactivation of the Sirt Basin fault system in the Miocene to form the horst-graben system of the Pelagian Basin. These Miocene faults are also found in the folded areas west of the north/south axis of Tunisia. The north/south axis would thus appear to have played only a minor role in delineating folded from non-folded or faulted areas—an "Alpine fold-African plate margin". Instead, it will be shown below that a line running from Gabes northeastward to the Ibleo Platform area of southwest Sicily probably represents the "true" margin, one which has its origins in the processes involved in the Alpine orogenic movements.

(iv) *Facies Trends in Relation to the Plate Margin*

Facies trends and, to a lesser extent, recognizable coastlines show a marked relationship to the shape of the epicontinental margin and to structures existing or developed on the crustal area. The major pattern is again one which allows sub-division into a western area and an eastern area. In the western area trends run east/northeast to west/southwest parallel to suture zone A-A' with deeper water *facies* to the north/northwest, while in the eastern area trends are west/northwest to east/southeast with deeper water *facies* to the north/northeast (see Plates 2-8). The zone where the swing from one trend to the other occurs coincides closely with the position of the north/south axis. The effect of the north/south axis is particularly marked in the Trias where it appears to have formed a barrier between open marine limestone *facies* to the east and restricted marine to continental *facies* in the west (see Plate 2). Throughout the remainder of the Mesozoic and Tertiary, however, the effects of the axis on *facies* type, while important, are essentially local (see Plates 3-8). Structural elements other than the north/south axis have also caused local variation in *facies*. In the eastern area, while there is an overall north/northeastward deepening, local highs, possibly related to incipient horst-graben systems, allow repetition of shallow water *facies* at some distance from shore. The pattern of Eocene sedimentation in the Pelagian Basin is one such example (Hammuda & Missallati (1980) Plate 4). Other examples are seen in the Sirt Basin in late Cretaceous and Paleocene times. Whereas shales were deposited in graben zones, reefs

and shallow water limestones developed on the horsts. A similar relationship in the western area during Jurassic and late Cretaceous times occurred in association with east/northeast to west/southwest trending inter-cratonic basins (see Plates 3-5). The change in *facies* trends from the western to the eastern areas is fundamental and easily explains the east/west trend so strongly put forward in the Tunisian Memorial.

As far as the region as a whole is concerned, it is *only in southern and central Tunisia that an east/west trend can develop* since it is here, across the north/south axis, that the swing from regional east/northeast to west/southwest trends occurs (see *Figures 5 and 6*). In addition, the east/west trend will be best developed in this area during periods when the effect of the north/south axis, either passive or active, was at a minimum. Such an example would seem to have occurred in the Albian (see *Figure 6E*). In contrast, during periods of activity the east/west trend would have been greatly minimized. This is clearly the case in late Tertiary (see *Figures 6J-K*) where a swing from northeast to southwest and northwest to southeast trends across the axis from west to east is very marked.

In summary, it would appear obvious that *facies* trends in the Pelagian Basin area were parallel to the line of the present Jeffara coast during the Mesozoic and Tertiary and that the east/west trend while "true" of southern Tunisia is simply part of a major regional westerly sweep from an east/southeast to west/northwest area across the line of the north/south axis.

C. *Postulated Offshore Alignment of the South Atlantic Lineament*

This line, which, on land, separates the folded sediments of the Atlas Mountains from the quasi-horizontal strata of Saharan Tunisia is postulated by Caire (1970; 1978) to trend northeastward from the coast in the vicinity of Gabes to southwest Sicily where it forms the junction between the essentially flat-lying sediments of the Ragusa Plateau-Ibleo Platform area from the folded successions of the Alpine belt to the northwest. It is thus considered to represent the junction between the "Africano-Raguso" foreland of the African plate characterized by tectonism of epeirogenic type, and the Atlas-Apennine chains characterized by folding of Alpine orogenic type (Caire (1978)). Caire further interprets the line as a fault which has a dextral-slip component and relates this movement to the processes involved in the development of the Tyrrhenian Basin and western Mediterranean during the Alpine orogeny. Support for the existence of such a line across the Pelagian Basin is as follows:

1. As noted in Section 2A, the line does separate an area characterized by strong folding and minor faulting from one characterized only by faulting.
2. Although faults of northeast to southwest trend are rarely recorded in the Pelagian sea floor, faults of this trend occur on the Ragusa platform and more importantly in Malta, where horst-graben structures with an east/northeast to west/southwest alignment constitute a major structural feature of the island (Pedley *et al.* (1978)). These faults have a net downthrow to the northwest.

3. Strike slip faults of similar trend are recorded in Tunisia (see **85** Figure 9). The Zaghouan fault is a major example.

4. While there is undoubtedly thickening of the Mesozoic and Tertiary successions north/northeastward across the Jeffara fault zone in the Jeffara coastal area (Hammuda and Missallati (1980)), it has been shown that there is also a very rapid increase in thickness across an east/northeast to west/southwest trending line in the Gabes region (Busson (1967)). This rapid increase in thickness, accompanied by a change in fold styles across the line from gently warped in the south to tightly folded in the north, is expressed as a sharp drop in the Mesozoic basement **85** over a very short lateral distance from -500 to 2500 (see Figure 9 and Busson (1967) Figure 13). There seems little doubt that, given the rapidity of the drop in such a short distance, the feature is best explained by a fault with an east/northeast to west/southwest trend.

5. Further evidence of an east/northeast to west/southwest structural alignment is found in the Djebel Tebaga region of Medenine in southern Tunisia where the Sidi Stout unconformity is developed over an uplift of this trend (Busson (1967); see Figure 12). Activity on this uplift has a history ranging from middle Triassic to early Cretaceous.

6. Indirect evidence for the trend is found in the work of Boccaletti *et al.* (1975) (see Figure 3) and Boccaletti *et al.* (1978) (see Figure 26), on studies of the origin of the western Mediterranean in terms of plate tectonics. The sequence of events proposed in Figure 3 and Figure 26 is summarized in Figure 15. In contrast to Biju Duval *et al.* (1977), the authors suggest that the development of the western Mediterranean involved reversal of polarity of the subduction zone, a much more complex concept. This need not be discussed here. The point of immediate importance is that they suggest the initial subduction process involved tensional fracturing of the African plate margin in late Cretaceous times. This resulted in the development of a stable platform area, i.e., an African foreland and an unstable platform comprised of fragments of the hitherto stable plate which were separated from each other by shallow intracratonic basins characterized by pelagic sedimentation. It can be seen from Figure 15 that the authors postulate the stable platform edge to run southwestward from the Ragusa plateau area. This "feature" corresponds closely with the trend of the fault line proposed by Caire (1978).

It is proposed that the points outlined above provide evidence for the existence of a major structural feature trending northeast to southwest between southwest Sicily and the Gabes region and, that in the Pelagian Basin, it represents the junction between two major tectonic zones of the North African continental crust.

D. Conclusions

Study of facies maps for Mesozoic and Tertiary sediments in Tunisia and adjacent parts of Libya show that the *credo* of an east/west geological trend is true but *only with respect to those areas in the immediate vicinity of the north/south axis of uplift in Tunisia*. The trend is, in fact, the local expression of a regional North African trend which east of the axis has an

east/southeast alignment and west of the axis has a west/southwest alignment. These alignments can be related to the trends of the margin of the North African plate.

Structural considerations based on the study of isopach and tectonic maps show that a comparable sub-division exists. Here, however, structural patterns and styles, related to Alpine orogenesis, intermingle across the north/south axis so that, in the Pelagian Basin, a more realistic boundary between a "typically faulted tectonic style of Libya" and "a typically folded tectonic style of Tunisia" is a line trending northeastward from Gabes to southeast Sicily. This line is proposed to represent the junction between the African foreland and the Alpine "mobile" belt, and to be a "Mediterranean" continuation of the south Atlasic Lineament of the Sahara. If the Pelagian Basin were to be subdivided purely on a basis of structural phenomena then it is the Gabes-Raguso line which is the most important feature.

Older structural patterns, both Caledonian and Armorican in age, underline the identity of the Pelagian Basin with Libya and southeast Tunisia. This is particularly true of the Nefusa uplift initiated in Armorician times.

As far as the Libyan-Tunisian coastline from the Gulf of Sirt to Gabes is concerned, there is a consistent conformity between the present east/southeast to west/northwest coastal trend and geological features developed since early Triassic times. The projection of an east/west trend from "Tunisia" far out onto the Pelagian Basin has no firm basis in geological fact. To project a west/northwest to east/southeast trend parallel to the existing coastline of the Jeffara Plain most certainly has.

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Annex 12B

ADDENDUM TO
REPORT ON STRUCTURAL AND SEDIMENTOLOGICAL
TRENDS IN THE PELAGIAN BASIN AND RELATED
ONSHORE AEAS

by

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INTRODUCTION:

The following report is divided into three sections:

1. Structural patterns
2. Shoreline trends
3. Salt walls

Analysis of *structural patterns* lays a basis for interpretation of *shoreline trends*, particularly in the sense that it goes some way towards showing that *salt walls*, which throughout Mesozoic and Tertiary times affected shoreline trends, can be related closely to the tectonic events which were involved in producing those structural patterns and styles at present seen in the area. It is the author's opinion that these various geological features display a much closer affinity to geologic events initiated within the African platform than with any initiated by Alpine-Atlasian style tectonism.

SECTION I

Structural Patterns

My report of 4 October 1980, "A Report on Structural and Sedimentological Trends in the Pelagian Basin and Related Onshore Areas", dealt, in part, with the regional structural pattern of the Pelagian Basin area on the basis of data then available. It was suggested that the region could usefully be divided into two major areas, one characterised mainly by faulting and one characterised mainly by folding, and that a line running from the Gabes region northeastward to southeast Sicily, the Gabes-Ragusa line, could serve as a boundary between the two regions. It was also suggested that, while the overall pattern of faulting in the area is a continuation of the Sirt Basin fault system and while it displays both a comparable trend and horst-graben style of faulting, some of the fault patterns could well be explained in terms of lateral shear, largely as a result of older dip-slip faults. The Jeffara Fault system in particular was interpreted in this way. It was proposed that the system displays a right-lateral shear component and that this resulted in the displacement of the Tripoli-Tibesti high from the Malta-Medina axis and possibly also of the Hun Graben system from the faults bordering the eastern edge of the Pelagian platform. Lateral shear movements, first postulated to explain fault patterns in the western Sirt Basin by Anketell *et al.* (1978), were interpreted in terms of rotation of the African plate relative to the European plate. As an extension of this concept it was suggested that the shape of the north African coast from the Gulf of Gabes to Cyrenaica and beyond, across the Sirt Gulf, is explicable in terms of varying rates of rotation of segments of the African plate. In simple, it was proposed that development of this shape involved the more rapid movement of an "East African section" around a "Saharan nucleus" along a zone of weakness which the author proposed as corresponding to an arcuate fault zone stretching from the Sirt Basin to the Gulf of Guinea. In addition, the author employed the concept of variable rates of rotation within the African plate to explain an apparent discrepancy in age of the faults in the Pelagian Basin as compared with those of the Sirt Basin. While it is

¹ See *Annex 12A*, Vol. III.

generally accepted that the Sirt Basin faults were initiated in mid to late Cretaceous times, Burrollet (1978, p. 352) implies a much later age for the Pelagian Basin faults in the statement. "In late Miocene or post-Miocene times impressive graben subsidence occurred (in the Pelagian Platform) with the development of a thick Plio-Quaternary sequence which in places reaches as much as 1000 m."

This present section serves both to amplify and in part to modify the conclusions reached in that study, and is based on additional data supplied by Professor Missallati. The most important piece of work is that of Ziegler (1978) which provides the most detailed tectonic maps of the region so far available to the author. This data is amplified in part by the tectonic maps of Mazzone (1976) and Choignard (1979).

Ziegler subdivides the Central Mediterranean area into six principal elements:

- The Eastern Mediterranean Basin
- The Cyrenaica platform
- The Sirt Basin to Hun Graben Rifted Complex
- The Djefarra - Sirtica Platform
- The Libyan Trough and Gulf of Gabes Basins
- The Malta-Medina (Central Mediterranean) Platform

The latter four of these elements are shown in *Figure 1*. The structural pattern of the Sirt Basin is well displayed by Goudarzi and Smith (1977), Mikbel (1979), Missallati and Hammuda (1980, Plate 5) and Anketell (1980, Figure 9). Ziegler interprets the region as having been formed by a phase of extensional rifting which was initiated in Neocomian times with further phases of faulting and subsidence in Mid-Cretaceous and Tertiary times. An important feature of Ziegler's work is recognition of the right-lateral shear system trending west/northwest to east/southeast parallel to the Libyan coast, also discussed by Anketell (1980). This, the "Djefarra" fault system, "tails out" in the Sarir trough of the Sirt Basin and Ziegler considers the complex tectonics of the region to result from the interaction of this system with the Sirt fault system.

The right-lateral shear zone forms the northern boundary of the "Djefarra-Sirtica" or African platform, an area affected mainly by "eustatic tectonic" events.

North of the dextral shear zone lies the Libyan Trough - Gulf of Gabes Basin characterised by "numerous subparallel, anastomosing fault segments" (Ziegler, 1978, p. 3 and Plate 1). The shear zone underlies a deep narrow basinal area with a west/northwest to east/southeast trend. This basinal area, bounded on the north by the Malta-Medina platform, is clearly shown in Ziegler's cross sections (Plates 10 and 11). The basin dates from late Palaeozoic times with a major phase of subsidence in Mid-Cenomanian times corresponding to the main rift-fault phase of the Sirt Basin. Minor phases of subsidence occurred in the late Cretaceous and Tertiary. Ziegler maintains that the area is still subsiding and that this shows up as a "marked sea-floor depression" (Ziegler, 1978, p. 3). Between the Gabes-Tripoli Basin and the Malta-Medina platform lies a

narrow area comprised of tilted fault blocks which, as will be seen, corresponds to a zone within which "islands" were developed at various times during the Mesozoic and Tertiary. (Figure 1.) This zone follows a west/northwest to east/southeast trend parallel to the southern edge of the Malta-Medina platform, which is interpreted by Ziegler as an area which remained relatively "high" throughout its geological history. Borehole data appear to indicate that it was the site of shallow water carbonate sedimentation since Triassic times. The platform is strongly faulted and contains "young rifts". (Ziegler, 1978, Plate 1.)

In summary, Ziegler contrasts the platform areas with the basinal areas in terms of areas underlain by thick continental crust (platforms) as opposed to those underlain by faulted, thinned, and modified crust (basins).

The term "young rifts" used to describe the faults of the platform area is very reminiscent of Burolet's thesis of late Tertiary "impressive graben subsidence" and there would thus seem to be some basis for considering the faults of the Malta-Medina platform to be "young" relative to the Sirt Basin system. Neither Ziegler nor Burolet give any indication of this "young phase" of faulting being due to reactivation of existing older faults in the platform basement. What is clear, however, is that the faults of the Gabes-Tripoli Basin, as far out as the edge of the platform, do appear to have a history of Cretaceous to Tertiary rifting similar to the Sirt Basin, a feature which is particularly clear in the case of the Jeffara Fault system. Thus, it would seem that rift fault phases of the Pelagian Basin have affected different regions at different times, and that the present author's contention that the faults of the northern part of the Basin, i.e., the Malta-Medina platform, owe their origin to reactivation along the Sirt Basin trend following plate rotation is possible. Work in progress on analysis of the Sirt Basin fault patterns and the relative ages of the fault should lead to a better understanding of the relationships.

Of more immediate interest to the present study is, however, the Gabes-Tripoli Basin. Fig. 1A shows this basin sandwiched between the two major platform areas while Fig. 1B shows details of the fault patterns based on Choignard (1979). This synthesis of the fault trends appears to be the most detailed at present available and is more comprehensive than that shown either by Ziegler (1978, Plate 1) or by Mazzone (1976, Enclosure 1), although the overall patterns are closely comparable.

A major point of interest involves the relationship of the minor faults within the basin to the major faults which border the basinal area, i.e., the Jeffara fault system and fault zone at the edge of the Malta-Medina platform. The minor faults subtend an acute angle to the major Jeffara trend and are commonly arranged *en-echelon* in east/southeast to west/northwest trending zones, i.e., parallel to the major fault trend. It is the author's contention that this pattern can be interpreted in terms of *Riedel shear systems* and that the pattern is such as to conform to dextral strike-slip on the major faults (see Appendix for a brief discussion of Riedel shear formation). The east/northeast to west/southwest trending

faults, while not common, may well be conjugate Riedels (see Figure 2). The occurrence of Riedel shear systems associated with strike-slip reactivation on deep seated and major deep seated dip-slip faults in the Sirt Basin was discussed by Anketell *et al.* (1978).

A second point of interest is the structural relationship between the two fault systems which border the basin area. The northeast trending system at the edge of the Malta-Medina platform can, in the author's opinion, also be interpreted in terms of dextral strike-slip movement. As such, it is seen that the two major fault systems, diverging gently one from the other in the offshore region north of Misuratah, delimit a zone on either side of which the bordering platforms move dextrally relative one to the other. This structural relationship is very similar to those which commonly occur in the San Andreas fault system and which result in the production of "pull apart" basins (Crowell, 1974a, 1974b). It is proposed that the Gabes-Tripoli Basin is a basin of this type and that it owes its origin to rotation of the African plate relative to the European plate along dextral strike-slip zones. Much of the Sirt Basin fault system would appear to have a closely comparable origin.

There would appear to be little doubt that the tectonic styles of the Pelagian region immediately offshore from the African platform, and in particular the Gabes-Tripoli Basin, owe their origin to movements of the African plate. The "minor" faults within the basin are, in the main, Riedel shears resulting from dextral strike-slip reactivation of deep seated basement faults, while the basin itself is the result of interaction between those major faults, i.e., a "pull apart" basin. The establishment of the tectonic style of the offshore region as "African platform" in type and origin has important implications on the origin of *salt walls* which played a marked, if only local, role in controlling coastline trends during parts of the Mesozoic and Tertiary.

SECTION 2

Shoreline Trends

Analyses of the sediments in the Pelagian Basin region have been based largely on analyses of both lithostratigraphic and chrono-stratigraphic units. These analyses generally take the form of evaluation of thickness variation—illustrated by isopach maps, and studies of lithological variations—illustrated by lithofacies maps. Such studies allow the recognition and delineation of:

- a. Zero lines, i.e., lines delineating areas where a particular unit is present from areas where it is absent.
- b. Shorelines, i.e., lines delineating areas of marine deposits from continental deposits. This is essentially a facies line and it denotes average sea level at the time of deposition.

The two types of line may in some instances follow identical paths. For instance, the shoreline may also constitute a "feather edge" to a particular unit, i.e., it separates an area of marine depositional environments from an area of non-depositional environments, e.g., cliff coast. More commonly,

however, the two types of lines are independent one of the other and may describe very different trends. In such instances the zero line delineates areas where erosion has caused removal of the sediment unit under study from areas where it is still preserved. Erosion and preservation in this sense is, on the large scale, a function of tectonism with, in general, erosion occurring on areas of uplift and sediment preservation occurring in areas of downwarp. The interplay between sedimentation, erosion, preservation, and tectonism is complex, and useful summaries on the various interrelationships which can develop are found in Krumbein and Sloss (1963), Reading *et al.* (1978), and Selley (1970).

Of particular importance in the evaluation of sedimentary prisms in terms of tectonic processes is an appreciation of the timing of events relative to each other. It is accepted that the major controlling factor governing the preservation of sediments during deposition is tectonic downwarp, i.e., *syn-sedimentary tectonism*. Here, continuous or periodic subsidence due to downwarping allows a sediment "sink" or basin to develop. (In contrast, though less common, particularly on a large scale, is the pre-existence of a topographic hollow which can also allow accumulation of sediment.) Where syn-sedimentary downwarp is active, it is most common to find that the tectonic "grain", often expressed in terms of thickness variation, closely parallels the sedimentary grain, expressed in terms of facies trends. However, it should be noted that the *rate* of sedimentation relative to the *rate* of downwarp must also be taken into consideration in evaluation of syn-sedimentary tectonic patterns. The variety of relationships in these terms is very complex but a simple example may illustrate the care which should be taken in any study of sedimentary prisms. For instance, in situations where rates of sedimentation are very high and rates of subsidence low, it is quite possible that the *facies* trends are widely at variance with the tectonic trends and may entirely mask such trends. A concise summary of such effects is found in Krumbein & Sloss (1963).

So far, only syn-sedimentary tectonism has been discussed. Where post-sedimentary tectonism comes into play greater complexities may arise. Two extremes serve to illustrate these. In instances where post-sedimentary tectonics develop along the same trends as the syn-sedimentary grain either by re-activation or independently, lines of erosion/non-erosion may well trend closely parallel to the original *facies* trends. However, in instances where the post-sedimentary tectonic grain is developed at, for example, right angles to the original sedimentary trend, then the zero lines will tend to cut across the *facies* trends. Obviously a wide variety of relationships is possible depending on the relative orientations of the original *facies* trends and the superimposed tectonic trends. Criteria for recognition of original depositional feather edges, shorelines and erosional zero lines are noted by Krumbein and Sloss (1963). All types appear to occur in the Mesozoic and Tertiary sediments of the Pelagian Basin area as described in the various publications on the offshore region, although it is not always clear from the authors' reports which are present.

In the following discussion the sources used are: Ziegler (1978), Mazzone (1976), Mazzone (1977), Mazzone and Mazzola (1978), Mazzola (1977), Poggiagliolmi (1979), Salaj (1978), Bismuth *et al.* (1967), Choignard (1979), Bonnefous (1967) and Hammuda and Missallati (1980).

It is convenient to subdivide the region into three sections as a basis for the discussion on coastline trends:

- (a) Tripoli to the Sirt Basin Area;
- (b) Tripoli to the region of Zouara; and
- (c) Westward from Zouara to the Gulf of Gabes and across mainland Tunisia.

Ziegler (1978) shows, in his analysis, that shorelines and "zero" lines overall conform very closely to the present day shoreline trend, particularly in the region between the Gulf of Gabes and Misuratah (Figure 1A). (Shorelines as opposed to erosional zero lines are not distinguished one from the other in Figure 1A.) In the section east of Tripoli (a) he shows that all the shore/zero lines trend parallel to the present coast but also that all, when followed eastward, display an abrupt southward swing. It is notable that the point where the shore/zero line swings abruptly southward shifts with time so that, whereas in Neocomian-Aptian times the point of shift is near Tripoli, through the rest of the Cretaceous and into the Tertiary period, the point where the trends change occurs progressively further to the east, reaching the vicinity of Misuratah and beyond. Although the southward shift in trend of the shore/zero lines is almost undoubtedly related to the development of the Sirt Basin and follows the western margin of this fault controlled depression, it is clear that the distinctly arcuate trend of the shore/zero lines, when followed further southward, owes much to periodic movement on the Nefusa uplift (Figure 1A). (Indeed, Ziegler depicts most of the lines in this area as being erosional rather than depositional, with tectonism having caused modification of the original sediment distribution.)

Westward from Tripoli to Zouara (Zone b), the various shore/zero lines display, through time, a remarkably close conformity to the present day coastal trend although in almost all instances slightly northward from it. From Zouara westward (Zone c), shorelines diverge from the present day coast and trend across the present day gulf to cut the Tunisian coast in the Gabes region. With the exception of the Campanian-Maestrichtian and Neocomian-Aptian coastlines, Ziegler's data stops just inland of the present Tunisian coastline. The Campanian-Maestrichtian coastline is shown to arc around a narrow north/northwest to east/southeast trending promontory, whereas the Neocomian-Aptian coastline is seen to take a more westerly trend from the region of Djerba and also to define an "island" in the area dominated by the Matmata "high" during the Jurassic (Bonnefous, 1967). Data from Bonnefous and Salaj (1978) already discussed in Anketell (1980) indicates that during the Mesozoic, island

areas were periodically developed on this "high" and along the line of the north/south axis line due to reactivation of both the Nefusa and north/south uplifts.

Two other major points are apparent from Ziegler's synthesis of the Pelagian Basin. The first is one which shows local "islands" or land areas developed within a west/northwest to east/southeast trending zone bordering the Malta-Medina platform during Palaeocene-lower Eocene times (Figure 1). This would appear to be the zone identified by Mazzone (1976) as the Isis "platform" and it is also the zone of "tilted fault blocks" referred to in Section 1. The occurrence of "highs" such as this along the edges of "stable" blocks (in this instance the Malta-Medina platform) are well documented in studies of modern strikeslip tectonic systems. The processes which control the development of such structures are in some senses still not clearly understood, even in land based situations. Observations show, nevertheless, that in "pull apart" basins they do exist. Even so, analysis of the present situation in these terms must retain a sense of suggestion rather than of conclusion. In addition to the "island" areas, which must reflect periodic uplift of the marginal zone to the Malta-Medina platform or a fall in sea level, an "island" area was also developed during Oligocene times around Pantelleria. This, developed on the platform, is probably a reflection of vulcanicity in the area with the build-up of a volcanic island. The second major feature discernible from Ziegler's studies, even though it is not so obvious from his maps as it is in those of Mazzone and others (see below), is a "sharp" divergence from the general conformity of older coastal trends with the present coastal trend in the region of Zouara. In Ziegler's maps, see *Figure 1A*, during Albian and, to a lesser extent, Neocomian-Aptian times, the shorelines exhibit a distinct northeasterly trending bulge away from the overall west/northwesterly to east/southeasterly coastal trend. However, before further discussion of this particular feature, several other points arising from study of the shoreline trends deserve comment, points which have some bearing on the interpretation of the coastline bulge in the Zouara region.

As far as the present day sea area is concerned, i.e., east of the generally north trending part of the Tunisian coastline, the patterns shown in *Figure 1A* and particularly *Figures 3A* and *4A* are closely comparable to the present coastal trend. Addition, however, of the interpretations on coastal trends after Salaj (1978), Bonnefous (1967) and Bismuth *et al.* (1967), in respect of mainland Tunisia (*Figures 2* and *3*), brings out clearly the fact that a marked change in shoreline trends took place at the end of Cretaceous-early Tertiary time. Prior to this time, continuation of both Jurassic and Cretaceous seas westward from the Pelagian Sea area followed a coastline which swung gently from a predominantly east/southeast to west/northwest trend in the area between Tripoli and the Gulf of Gabes, into and through a gentle arc across southern Tunisia where it eventually attained an overall east/northeast to west/southwest trend. This gentle swing, more or less following the trend of the continental margins, took place across the line of the north/south axis along which

island areas periodically appeared (see above). This pattern is also expressed in the offshore marine *facies* and was discussed in some detail in a previous report (Anketell, 1980). In all, it can be seen that during the Jurassic and Cretaceous periods the area in question was covered by sea to the north of a line more or less parallel to the present Jeffara coast and continued across southern Tunisia. The greater part of the Tunisian mainland was, therefore, at this time a "westward" continuation of the marine Pelagian Basin bordering the northern margin of an African landmass.

During Campanian-Maestrichtian times, however, the coastline trend from the Gulf of Gabes region changed (*Figure 4*). Here, instead of trending parallel to the edge of the "stable" African platform, the coastlines followed a more northwesterly trend from the Gulf of Gabes across southern Tunisia, hugging the northeasterly facing shores of a "land area", the Kasserine "high", continuous from the Nefusa uplift. Only in the area of Gafsa on the southwestern flanks of the Kasserine "high" was the older shoreline trend preserved. Here the east/west trending Gafsa Trough apparently remained a site of marine sedimentation through the Tertiary up to Upper Eocene times (*Figure 4A*). Throughout the Tertiary, the northwest trend of the shorelines across eastern Tunisia continued up to the region of the north/south axis across which it is seen to swing abruptly into a predominantly northeast to southwest trend (*Figure 4*). (See also Anketell, 1980, *Figure 5* for comparable trends in *facies*).

In detail, the northwesterly trending sections of the shorelines across mainland Tunisia are complex in shape. It can be seen from *Figure 4A* that although the overall trend is to the northwest, there are many instances of local and very abrupt swings into narrow northeasterly trending bulges. This particular pattern is closely parallel to the fold trends which occur in the area and which are the result of the Alpine orogenic event. The question, however, is whether the northeasterly swings in coastal trends are:

- a. Due to syn-sedimentary uplift parallel to the Alpine structural grain, uplift which would have caused formation of local ridges and basins and, by virtue of shallowing or deepening the seas, have caused local migration of the shoreline *facies*; or
- b. Due to post-depositional uplift along the Alpine trend followed by erosion, in which case the northeasterly directed portions of the shorelines really resulted from erosional modification of the sedimentary prism and only those parts of the shoreline with a northwest trend would roughly delimit the original coastal trend.

The solution as to which situation has prevailed is difficult, and resolution of the problem from data to hand is rather inconclusive. It is of interest, however, to consider *Figure 8* (Anketell, 1980). Here it can be seen that the *facies* lines (after Bishop, W.F., 1975) trend sensibly north-westward, whereas the isopach contours trend very much at right angles to those. It would seem to the present author that such a relationship is best explained in terms of post-depositional folding allowing erosion, rather

than in terms of northeast trending sedimentary basins and highs since. Had such occurred, the *facies* patterns would have almost certainly reflected changing depths/ environments in the sedimentary basins and as such, partially if not wholly, mimicked the isopach patterns.

It should be remembered, however, as noted above, that in areas of higher rates of sedimentation, the downwarping zones might well have been masked by rapid supply of sediment keeping the sediment floor level even though the sedimentary basement was subsiding. Even so, consideration of the types of *facies* involved in this instance makes this unlikely. The author therefore suggests, but cannot easily prove, that many if not all of the abrupt *facies*/shoreline swings shown in *lithofacies* and shoreline maps of central and northern Tunisia may not be syn-sedimentary in origin but are in all probability superimposed, post-depositional structural-erosional trends.

However, no matter which of these situations prevailed, it is obvious that even with the change in shoreline trends in Tertiary times across Tunisia, much of the central and northern part of the country was still underneath the sea and it was not until the "final" phases of the Alpine orogeny were completed that it attained its present configuration.

Returning to the northeast trending "bulge" in the coastline in the Zouara area one is faced with a slightly more complex problem. *Figures 3A and 4A* show that this bulge is of importance at various times, particularly in Neocomian-Barremian, Aptian-Albian, Eocene and Palaeocene times. *Figures 4B and 4C* further illustrate that more detailed surveys of the area refine the bulges to narrow east/northeast to west/southwest trending zones. All authors concerned in the study of the region relate these swings to the presence of salt walls (see Section 3 below) and there is little doubt, when the detailed maps of Choignard (1979) and Poggiagliolmi (1979) are studied, that this is probably so. What is of immediate interest is that this "salt trend" cuts across the general east/southeast to west/northwest Sirtic structural trend, displaying a close affinity with the trends of folds in southern Tunisia. It is significant perhaps that Poggiagliolmi (1979) refers to it as a "Tunisian trend" although he does modify the term with a query. It is also important to note that salt walls do occur in northern Tunisia in close association with, and parallel to the trends of, Alpine style folds. It would seem to the author that any claim that the salt walls can be interpreted as typically "Tunisian style" structures should be examined in some detail.

The following section thus involves a brief discussion of the genesis of salt domes and salt walls and evaluates those of the Pelagian Basin in terms of regional tectonic events.

SECTION 3

Salt Walls

A. Genesis of salt domes and salt walls

Salt domes/plugs and salt walls are intrusive features resulting from the injection of evaporite deposits, mainly halite, into overlying sediments by

plastic flow. They are, respectively, columnar and sheet-like in shape and cut across the overlying sediment succession, often causing deformation of that succession by drag-folding and faulting. Such features as rim synclines and circular faults are common expressions of such salt tectonics.

The following conditions are necessary for the formation of salt domes and salt walls:

- i) The deposition of an evaporite layer;
- ii) Burial of this layer under other sediments such as sands, shales, limestones etc.; and
- iii) The eventual creation of a reversed density system, i.e., a situation where the salts have a lower density than the overlying sediment pile. In such an unstable situation the salt will tend to rise in order that equilibrium be established. Reversed density systems are common in geology and range in magnitude from major granitic intrusions many kilometres in extent, to small scale soft sediment deformation structures such as load casts where scale is measured in terms of centimetres. The processes involved are discussed in detail by Anketell *et al.* (1968 and 1970), Ramberg (1967), and Artyushkov (1965).

Formation of salt domes as opposed to salt walls is largely a function of *patterns of weakness* in the sedimentary overburden. If the sediments of the overburden and the salt layer are homogeneous, the pattern of deformation of the inter-face between them takes the form of regularly spaced diapirs (see Anketell *et al.*, 1968, 1968, 1970). The shape of the diapirs depends on the relative kinematic viscosities of the two layers. Where the system is heterogeneous, the regular pattern of the diapirs breaks down. Should the overburden display linear zones of weakness such as joints, faults, or axial planes of folds, particularly anticlines, the salt will tend to exploit these zones and thus display an "inherited" shape (Anketell *et al.*, 1968, 1970). It is also possible that, should either the overburden or the salt layer itself display any heterogeneity such as thickness variation, this too will be inherited by, and control the pattern of, the uprising salts. The variety of controls on "inherited" shape of the structures is numerous and the reader should refer to the above mentioned papers for more details.

Accepting that the basic requirement for salt diapirism is the production of a reverse density gradient two other points should be considered.

- (a) How is the reverse density gradient produced?
- (b) How is deformation initiated?

(a) A widely accepted view is discussed by Levorsen (1967). The sediments of the overburden, sands, silts, etc., are of lower density than salt and in the initial stages of formation the system of salt plus overburden thus displays a normal density gradient. However, temperature and pressure increases, consequent upon burial, cause the sediments of the overburden to increase in density whereas the density of the salt layer is little altered by such effects. A situation is eventually reached where the overburden attains a higher density than the salt and a reversed density system is generated.

(b) A reversed density system having been formed, the next step is initiation of movement. Anketell *et al.* (1970) chose to call the process which initiates deformation in such systems a "trigger mechanism" and showed that in soft sediment systems this mechanism can be any process which causes failure of the bearing capacity of the less dense layer. It was shown, in a series of experiments, that a wide variety of mechanisms may be operative but that once movement was initiated, deformation of the interface followed the same pattern (controlled by the various degrees of homogeneity of the system) no matter what the trigger mechanism happened to be. Literature on the initiation of salt diapirs shows, not surprisingly, that a similar situation pertains. A useful commentary on the problem of "trigger mechanisms" in this particular field is that of Christian (1969) who lists as possibilities:

1. Irregularities in the upper surface of the salt.
2. Variations in the density of the overburden.
3. Progressive plasticization of the salt by heat.
4. Initiation of one or more salt features by another (salt structure "families").
5. Tectonic (faulting and folding).
6. Regional dip.

It should be noted that here faulting and folding are invoked as initiating deformation, i.e., they play an *active role* in contrast to a *passive role* in which salt injections *exploit* fold and fault trends but are not *caused* by them, i.e., inherited patterns.

In addition to the above mechanisms, which were presented as a means to explain the pattern of salt walls in the southern British North Sea, Sorgenfrei in the Christian (1969) Discussion, suggested that the pattern displayed by the salt walls in the area, i.e., an en-echelon arrangement, might well be explained in terms of horizontal shear movements.

Once movement of the salt is initiated, no matter what the trigger mechanism, the structure grows spontaneously until equilibrium is re-established. This is often brought about by resistance due to weight of overburden or by an "evening-out" of bulk densities resulting from the injection of "low density" salt into the higher density levels. Further addition of overburden following continued sedimentation, may re-start the process so that salt plugs, walls, etc., can often be seen to have moved repeatedly (cf. Anketell *et al.*, 1970).

In summary, it would appear that salt injections demand the production of a reversed density system and that movement of the salt may be initiated in a variety of ways. Of importance is the fact that once deformation is initiated, the *pattern* of salt deformation is controlled by the homogeneity of the system. Inherent in this control is the possibility that the pattern of salt deformation may, in the case where folding or faulting comprise the trigger mechanism, mimic the pattern of the folds or faults. The resulting structures are in all probability indistinguishable from those salt structures which have made use of *existing* folds and faults as zones of weakness which allow passage of the salt through the overburden.

B. Salt walls in the Pelagian Basin Region

The brief discussion above on the genesis of salt domes and salt walls would appear to show that initiation of upward movement of the salt may arise from a variety of "trigger mechanisms". However, the response in homogeneous systems is essentially similar no matter which mechanism was operative in initiating the process. It is also clear that the production of salt walls as opposed to salt domes demands that the uprising salt should exploit linear zones of weakness in the overlying sedimentary pile and that common among such zones are joints, faults and the axial plane sections of folds. It would appear reasonable, considering the tectonics of the Pelagian Basin area, to assume that the salt walls in the region might be related to such structures particularly since there is ample evidence to show that the region is heavily faulted, jointed and also, as far as the Tunisian mainland is concerned, folded. It should be remembered that such structures may be produced in the sediment pile (i) before salt deformation is initiated and thus later exploited, (ii) be coincident with the salt deformation, (iii) be caused by the salt intrusion.

The following section examines briefly the possible relationships between salt wall formation in the area to the presence of:

- (a) Folds.
- (b) Faults and joints.

(a) Folds

It was noted above that the salt wall trend is closely parallel to the trend of folds in southern Tunisia and also that salt walls and diapirs do occur in association with folds in northern Tunisia where they display trends parallel to those of fold axis. In the Pelagian Basin area, however, there is no evidence in any of the geographical cross sections such as those of Ziegler (1978, plates 10 and 11) that the sediments associated with the salt walls have suffered folding *independently* of salt wall intrusion. Any folding which does occur would appear to be interpreted as having been caused by the intrusion process (iii), rather than having been the cause of, or having controlled the shape of the intrusion (i), (ii). Choignard (1979, plate 20) notes quite clearly that the folding associated with the salt walls should be interpreted as rim synclines. Any other dips in the stratigraphic succession are seen to be largely the result of syn-sedimentary downwarp of the basin coupled with faulting.

(b) Faults

There would, on the other hand, certainly appear to be a close relationship between salt wall trends and faulting within the area, while it can be seen from almost all structural maps related to the region that the west/northwest to east/southeast "Sirtic" trend is by far the most common (Ziegler, 1978, plate 1). Mazzone (1976, Enclosure 1) records several faults with a trend similar to that of the salt walls and in close association with them. (It should be noted here that the paucity of observable faults of salt wall trend may well be due to the salt walls as such masking evidence of the presence of such structures.)

While it is true that the salt walls display a marked east/northeast to west/southwest trend, a feature very strongly stressed by Poggiagliolmi (1979), see *Figure 3C*, it can be seen from Choignard (1979), see *Figure 3C*, and Mazzone (1976), see *Figure 3B*, that the pattern is less simple than that shown by Poggiagliolmi. Both Choignard and Mazzone show that the "major" salt walls have the form of an inverted *T*. In other words, the structures, while undoubtedly displaying an east/northeast to west/southwest trend also have a major west/northwest to east/southeast component, i.e., a Sirtic trend. (In general, this feature received little comment by either of the authors.) There would appear little doubt that such portions of the salt walls are controlled by faults of the Sirt Basin system such as are shown in the structural maps of Ziegler (1978, Plate 1), Mazzone (1976, Enclosure 1) and Choignard (1979), *Figure 3C*.

Thus, it is suggested that the salt walls in the Pelagian Basin are best related to faults in the area and that they were injected into the sedimentary overburden along these lines of weakness, taking up a predominant east/northeast to west/southwest trend but with a strong west/northwest to east/southeast component.

Accepting that the salt walls are best explained in relationship to the fault patterns and not to "Tunisian style" folding, it follows that they are intimately related to the tectonic events which led to the formation of the Gabes-Tripoli Basin. In Section 1 above it was proposed that these tectonic events involve rotation of the African plate in relation to the European plate. In this respect it is interesting to speculate again on the suggestion of Sorgenfrei (in Christian (1969) Discussion) with regard to the origin of salt walls in the North Sea Basin. He suggested that the *en-echelon* arrangement of these walls might indicate that their origin should be considered in terms of lateral shear. Since there appears little doubt that the fault patterns in the Gabes-Sabratha Basin can be interpreted in terms of major dextral shear movements on the Jeffara fault system and in the offshore area, it is interesting to speculate that, *not only have the salt walls of the area exploited the faults so formed, but movement of the salt may well have been initiated by the shear movements*. Substantiation of such an hypothesis would, however, demand careful dating of the various phases of fault generation in relationship to salt movement.

It appears to the author that the salt walls have a very close affinity with the structural style of the Gabes-Tripoli Basin and, since this structure style owes much more to movements generated within the African plate than to Alpine style tectonics, then the origin of the salt walls is best regarded as an integral part of "Libyan style" tectonics.

CONCLUSIONS

From the brief study of new data on the Pelagian Basin it would appear to the author that:

- a) Offshore structure trends,
- b) Shoreline trends,
- c) Salt wall trends,

in the region of the Gabes-Tripoli Basin area all owe their origin to tectonic events generated within the "stable" African plate and owe little or nothing to Alpine style tectonism. Also, study of shoreline trends indicates clearly that the greater part of mainland Tunisia is the result of Alpine/Atlasaic uplift and has in geological terms only "recently" arisen from the sea!

Appendix

Riedel Shear Patterns

It is generally accepted that shear zones of a particular scale are themselves made up of systems of shears of a lower scale. These patterns are known as shear zone structures. Investigation of such structures experimentally involves the use of various devices, one of which is the shear box, and one of the most frequently used experiments is the "Riedel experiment" (Riedel, 1929). Here, a slab of plastic material is laid horizontally on top of two adjoining boards which can be displaced horizontally one past the other. The shearing motion caused by horizontal displacement of the boards, to which the clay sticks, is propagated upward from the shear plane through the clay in a wedge shaped zone which widens toward the surface. This zone contains a number of shears which display a characteristic *en-echelon* arrangement on the top surface of the clay layer and which subtend angles of up to 12° to the direction of the shear plane. They are accompanied by conjugate shears or conjugate "Riedels" (Tchalenko, 1970), see *Figure 2*. Tchalenko has also shown that as deformation proceeds, a variety of patterns develops in relationship to peak shear strength.

(i) The first shears, Riedels and conjugate Riedels, develop just before *peak* shear strength inclined at approximately 12° for Riedels and 70° for conjugate Riedels. The latter are not always developed. Furthermore, due to the large angles they subtend to the main direction of shear, they become passive and distort into S shapes. They *do not* affect the major pattern of the Riedel shears.

(ii) Further deformation to and through *post peak* shear strength is accompanied by the two following phases:

- (a) rotation and extension of the Riedels into a more horizontal direction, together with development of new shears at angles of 8° to the main shear trend.
- (b) the rotation of the Riedel shears is accompanied in the later stages of post peak strength by the production of shears formed at an average inclination of -10° , i.e., approximately symmetrical to the Riedels around the shear direction. These form interconnections between the Riedels, thus forming "bull nose" structures (see Tchalenko, 1970, *Figure 10A-D*). Such shears are called P shears by Tchalenko, and he suggests that their production involves the following processes: "(1) A reduction of the shearing resistance along the Riedel shears toward the residual strength value and (2) a local increase and rotation of the principal stresses in the sense opposite to that of the general movement" (Tchalenko, 1970, P.1634).

(iii) *Pre-Residual* structures are developed by further shearing stress. Here, continuous shears begin to form, i.e., "principal displacement shears". These are isolate lenses of essentially passive material and trend at $0-4^\circ$ to the main shear line. This tendency to interconnect individual shears reaches a maximum in:

(iv) *Residual* shear structure where nearly all displacement takes place along a major single shear which is superimposed on the interface between the two boards, i.e., above the main fault line.

It is clear that the major characteristic of Riedel shears is their arrangement *en-echelon* with respect to the major controlling shear. For left-handed or sinistral movement of the shear the Riedels are also left-handed or anti-clockwise; the opposite is true for right-handed movement. A useful rule of thumb is that the acute angle subtended by the Riedel shear to the main shear direction points in the direction of movement for that side of the main fault at which it occurs. Note that the minor faults in the Pelagian Basin display just such a relationship to the major Jeffara fault system.

An important aspect of the work of Tchalenko is that he compares experimental studies with naturally occurring phenomena, drawing close parallels between shear box patterns and those fault patterns produced by earthquakes. He also stresses that major Riedel shear patterns in nature are made up of a number of minor Riedel shear patterns. Indeed, in shear box experiments he points out that "Riedels within Riedels" can be recognised down to microscopic scale. Others who have interpreted fault patterns in terms of Riedel shear structure are Lawrence (1976) and Webster (1980). Both authors interpret sets of shears along major fault zones on the basis of Riedel shear mechanics.

The present author considers that much of the fault pattern in the Sirt Basin and from the Pelagian Basin, can be explained in terms of Riedel Shear systems caused by strike-slip reactivation of deep-seated faults on which original movement was primarily dip-slip. Analysis of the Sirt Basin fault pattern on this basis is at present in progress.

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Annex 13

**COMPARISON OF THE LIBYAN AND
TUNISIAN ECONOMIES**

by

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1. There are deep differences between the Libyan and Tunisian economies arising from varying geography, population and resource endowment. In some ways it appears that Libya has clear advantages. Libyan national income is larger than that of Tunisia expressed in cash terms, and *per capita incomes follow the same trend*. Equally, Libya has an appreciable foreign exchange income that far exceeds that of Tunisia. But these factors are more than offset by elements such as the far greater maturity of the Tunisian economy vis-à-vis that of Libya. Tunisia, too, has none of the deep dependence on foreign trade as does Libya. Extremely important for the immediate future, Tunisia has returned a far more rapid rate of growth in personal incomes than Libya for some years. This review will set out to analyse the main economic indicators as a means of illustrating the relative status of the two countries.

2. In the range of basic economic and related indicators the causes of variations between the two states become apparent:

BASIC INDICATORS 1978

	<u>Population (mn)</u>	<u>GNP per capita (\$)</u>	<u>GNP per capita growth rate</u>	<u>Inflation (%) 1970-78</u>
LIBYA	2.7	6,910	6.2	20.7
TUNISIA	6.0	950	4.8	7.1
		<u>Adult literacy (%)</u>	<u>Life expect- tancy (yrs.)</u>	<u>Average index of food production per capita</u>
LIBYA		50	55	123
TUNISIA		55	57	128

SOURCE: The World Bank, *World Development Report 1980*, pp. 110-111.

From these basic economic factors produced by the World Bank it is demonstrated that Libya has an advantage over Tunisia in only two out of seven: the two factors concerning per capita income, each a reflection of oil revenues rather than of genuine productive enterprise. Tunisia has solid advantages in all the socio-economic variables: literacy, life expectancy and food production. In one out of three financial indicators, average annual inflation rates for domestic prices, Tunisia has a better record than Libya for the 1970-1978 period. It is particularly noteworthy that Libya's recent history through to the founding of the independent State of Libya in 1951 has left the country with severe and slowly cured problems affecting the very basic aspects of life. High oil income is only slight assistance in solving difficulties such as, illiteracy, poor health and short life span. Libya's rate of inflation has proved damaging in the sense that a combination of domestic inflation caused by high growth rates in the economy and imported inflation have persisted in parallel. In comparison, Tunisia has maintained a relatively steady domestic price system despite worldwide problems with inflation during the 1970-1978 period.

3. The economic strength of any state is determined by its ability to produce goods and services for which markets may be found. Growth in Gross Domestic Product and in industry is significantly greater in Tunisia than in Libya. Services have grown faster in Libya than in Tunisia though this has been a function of the government's receipts of oil revenues and the need of successive administrations there to diffuse benefits throughout the population by creating employment in the public sector. Most jobs in services in Libya are in government ministries and agencies, in the armed forces and police, and in personal services. On the contrary, in Tunisia the service industry also includes an important proportion of service workers in tourism, which is a high foreign exchange earner and is directly productive.

GROWTH OF PRODUCTION

	<u>GDP %</u> <u>1970-78</u>	<u>Agriculture</u> <u>% 1970-78</u>	<u>Industry</u> <u>% 1970-78</u>	<u>Manufacturing</u> <u>% 1970-78</u>	<u>Services</u> <u>% 1970-78</u>
LIBYA	0.9	12.7	-2.7	18.4	16.7
TUNISIA	7.9	5.6	8.1	11.0	8.7

SOURCE: The World Bank, *World Development Report 1980*, pp. 112-113.

4. Very high growth rates achieved in Libyan agriculture are largely an expression of the large investments undertaken by the Libyan Government in that sector since 1972. Libya started from a low base level also. The actual productivity of the Libyan investment has been low (see next table). There is a marked difference in the nature of growth in the manufacturing sectors of the two countries. In Libya, manufacturing is mainly a function of oil-related developments, especially in oil refining and petrochemicals. Manufacturing is, therefore, capital intensive and reinforcing of the dominant role of the hydrocarbons sector. It is to be noted that Libya, with a rapidly growing population, requires a more rapid rate of growth than Tunisia merely to keep pace with the extra people joining the society. This is amply illustrated by the poor rate of growth in GDP in the 1970-1978 period.

5. Both Libya and Tunisia are immature in comparison with the industrialized states of OECD. Libya, however, is by a large degree more immature than Tunisia as measured by the structure of national income. This is shown in the concentration of contribution to Gross Domestic Product in Libya from the industrial sector, comprising effectively the oil sector. In Tunisia there is some strength in the services sector, accounting for some 52 per cent. of goods and services within GDP, but there is also strength elsewhere, in agriculture, manufacturing and industry, which is almost totally absent in the case of Libya. Indeed, in Libya the joint contribution of agriculture and manufacturing is only 5 per cent.

STRUCTURE OF THE ECONOMY 1978

	Distribution of Gross Domestic Product - per cent.			
	Agriculture	Industry	Manufacturing	Services
LIBYA	2	71	3	27
TUNISIA ...	18	30	12	52

SOURCE: International Monetary Fund, *Yearbook of National Accounts Statistics*, 1978

6. Despite attempts to diversify the Libyan economy, the rate of growth in the oil sector has tended to dwarf developments elsewhere, especially since the rise in oil prices consistently felt since 1973. Even by the standards prevailing in other oil economies of the Middle East and North Africa, Libya has only slight production contributed by its agricultural and manufacturing sectors. The combined strength of these two items in Saudi Arabia in 1978 was 6 per cent., in Kuwait 7 per cent., and in Algeria 20 per cent. of Gross Domestic Product against the 5 per cent. in Libya. It is emphasized that the Libyan position occurs despite a 10.9 per cent. rate of growth in Gross Domestic Investment in the period 1970-1978, only marginally less than that achieved in Tunisia, where the comparable figure was 11.9 per cent.

7. As a result of the poor resource base in Libya outside the hydrocarbons sector, Libya has tended to increase its consumption at an extremely rapid rate:

GROWTH OF CONSUMPTION 1970-1978

	Average Annual Growth Rate in Consumption - per cent.	
	Public Consumption	Private Consumption
LIBYA	22.6	21.2
TUNISIA	8.8	8.8

SOURCE: International Monetary Fund, *Yearbook of National Accounts Statistics*, 1978.

Among the differentiating characteristics of the Libyan and Tunisian economies is ownership of resources as between state and private sectors. The structure of demand for the two States indicates this situation with some clarity. Public consumption in Tunisia in 1978 accounts for only 16 per cent. of Gross Domestic Product against 28 per cent. in Libya, where there have been appreciable extensions of state ownership since 1969, though there would be a tendency in an oil based economy such as Libya for the state to be more intimately concerned with consumption in any case, since the government, as previously explained, is a main disposer of funds as the recipient of oil revenues. Private sector consumption in Libya was a mere 28 per cent. of Gross Domestic Product in 1978 in contrast to 64 per cent. in Tunisia in the same year.

STRUCTURE OF DEMAND 1978 - per cent. GDP

	Consumption		Gross Domestic Investment	Gross Domestic Savings	Exports of Goods and Services	Balance of Resources
	Public	Private				
LIBYA	27	28	25	45	56	+20
TUNISIA	16	64	30	20	31	-10

SOURCE: The World Bank, *World Development Report 1980*.

8. Uninhibited by the problems associated with oil dependence within the economy, Tunisia has pushed up its proportion of Gross Domestic Product devoted to investment to 30 per cent. while Libya reported in 1978 that 25 per cent. of Gross Domestic Product was channelled to investment. At the same time, Libya was able to cover all domestic investment costs by savings and had a balance of financial resources of 20 per cent. at year end. In Tunisia domestic savings were unable to cover investment outlays and a deficit was incurred on the balance of resources of -10 per cent. Libya's exports of goods and services as expressed as a proportion of Gross Domestic Product was no less than 56 per cent. against 31 per cent. for Tunisia. While Libya's export orientation (deriving almost entirely from crude oil and natural gas exports) brought in foreign exchange, the balance in Tunisia between export and internal trade indicated greater economic integrity and domestic sophistication in market activity than was evident in Libya.

9. Libya's favourable financial situation bolstered the Libyan Dinar vis-à-vis other currencies while the Tunisian Dinar was less stable in response to the financial deficit developed in the economy.

10. Libya enjoys other important economic advantages over Tunisia. It recorded energy production per capita at 1,889 kilograms of coal equivalent in 1978, more than three times that experienced in Tunisia. Libya had negligible import costs for its energy, while Tunisia utilized 22 per cent. of its export earnings in paying for its energy import requirements. In the sphere of merchandise trade, Libya ran a considerable surplus, standing at \$4,900 million in 1978, when terms of trade had moved strongly in the country's favour (see following table). For Tunisia, the situation was far more adverse. There was a deficit of \$1,036 million on merchandise trade in 1978 and terms of trade were less favourable than those for Libya. Libya, too, was able to sustain its position of strength despite a decline in the value of its exports. Tunisia pushed its merchandise exports forward at a rate of 21.1 per cent. annually in the 1970-1978 period, but, with imports rising at 31 per cent. annually, its deficit hardened.

MERCHANDISE TRADE 1977

	Merchandise Trade		Terms of Trade per cent (1970=100)
	Exports	Imports (\$ mn)	
LIBYA	9,503	4,603	280
TUNISIA	1,126	2,162	133

SOURCE: The World Bank, *World Development Report 1980*, pp. 124-125.

11. The nature of Libyan performance in the trade sector is shown to be narrowly based when the structure of trade is examined in detail. One hundred per cent. of exports accrue in the fuels/ minerals area. Tunisia, on the other hand, exhibits more the characteristics of an early developing diversified economy, with emphasis on primary commodities but with some growth in manufactured goods exports across a broad spread.

STRUCTURE OF EXPORTS 1977

	Fuels & Minerals	Other Primary Commodities	Textiles & Clothing	Machinery, etc.	Other Manu- factures
LIBYA	100	0	0	0	0
TUNISIA	49	17	19	1	14

SOURCE: The World Bank, *World Development Report 1980*, pp. 126-127.

SUMMARY

12. From the preceding discussion of basic resources in Libya, it will be apparent that the country has an exceedingly narrow resource base and has problems affecting every sector of the economy. Tunisia has a far better position in virtually every economic dimension.

13. This is illustrated by recent trends in the economic sectors of the two countries. Statistics provided by the United Nations show that Tunisia's rate of growth of Gross Domestic Product per capita ran at 4.8 per cent. each year during the period 1960-1978 against 6.2 per cent. in Libya. However, growth in real terms in the period 1970-1977 was much higher (6.5 per cent.) in Tunisia than in Libya (-4.5 per cent.) as a result of rapid population growth in Libya and severe domestic and imported price inflation.

14. The structure of the Tunisian economy is vastly more mature than Libya's. Libya is entirely dependent on oil (69 per cent.) and services (27 per cent.) for its production. Tunisia gains 18 per cent. from a rich agricultural base and 12 per cent. from manufacturing industry. Tourism provides a further 20 per cent. Inherently, the Libyan economy remains dependent on a single commodity. Tunisia has a breadth of productive industries within its borders which give it an economic structure typical of

an intermediate developing country as a result of the existence of tourism, phosphate mining, oil and gas extraction and a widely based agricultural cropping pattern. While Tunisia's productive sectors grew at an annual average rate of 7.9 per cent. in the years 1970-1978, Libya managed only 0.9 per cent. The discrepancy between the two was tending in most sectors to increase over that period.

15. Libya's dependence on oil causes deep structural problems in the economy. Estimates of Libyan oil reserves vary from an optimistic maximum of 23,000 million barrels to 5,500 million barrels of recoverable crude oil. At most Libya's ability to produce and export oil will run until approximately the year 2000. Libya will have to conserve every barrel of oil as a national necessity and will need to increase its reserves by discovering new oil if it is not to slump back into great poverty in the comparatively near future.

16. Tunisia, meanwhile, with its rich agricultural and industrial manufacturing base has a continuing future in these fields based on self-renewing resources. It is so far unhampered by the economic legacy of a one product economy - inflation, urbanization, immigrant labour, high wages and a distorted economic structure.
