ΑΝΑΚΟΙΝΩΣΕΙΣ ΜΗ ΜΕΛΩΝ

ΣΕΙΣΜΟΛΟΓΙΑ.— **The Seismic Activity in the Cyprus Area,** by ***A. G. Galanopoulos*** and ***N. D. Delibasis****. Ἀνεκοινώθη ὑπὸ τοῦ Ἀκαδημαϊκοῦ κ. Μ. Κ. Μητσοπούλου.

INTRODUCTION

Cyprus is a relatively small island situated in the northeast corner of the Mediterranean, between the 34° and 36° Parallels and the 32° and 35° Meridians. The maximum dimensions of the island are 225 km east-west and 95 km north-south. The island is very close to Turkey, about 70 km at the nearest point. Syria is about 100 km to the west and Egypt some 400 km to the south of the island.

SURFACE GEOLOGY

The topography of the island is dominated by two ranges — the Kyrenia range to the north and the Troodos mountains in the south — separated by the central plain of Mesaoria.

The Kyrenia range — a part of the southernmost arc of the Tauric-Dinaric Alps — consists of slices of limestones of mainly Jurassic age, serpentines, Triassic red shales and basic igneous rocks. On the flanks of this narrow mountainous belt are calcareous flysch deposits of Oligocene to Middle Miocene age.

The southern Troodos range is an igneous massif of pre-Triassic age composed of basic and ultrabasic rocks of plutonic and extrusive character. The Troodos massif is partly surrounded by hills composed of calcareous sediments of Upper Cretaceous to Middle Miocene age. In the northwest of the island there are large exposures of rocks of Triassic to Lower Cretaceous age of the Trypa group.

The broad plain of Mesaoria, which separates the two upland areas, is formed by low-lying Pliocene, Pleistocene and recent sediments. Seismic work in the Mesaoria indicates thicknesses of sediments of the order of 3.000 meters. These sediments are horizontally disposed and completely mask the

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contact between the tectonically deformed sediments of northern Cyprus and the undeformed contemporaneous chalks on the flanks of the Troodos massif. Sediments of the same age form a narrow strip running along almost the whole coast of the island (see Fig. 1).

GEOLOGICAL STRUCTURE

From the north-south orientation of the intrusives it is thought that an east-west tensional stress was dominant throughout the evolution of the

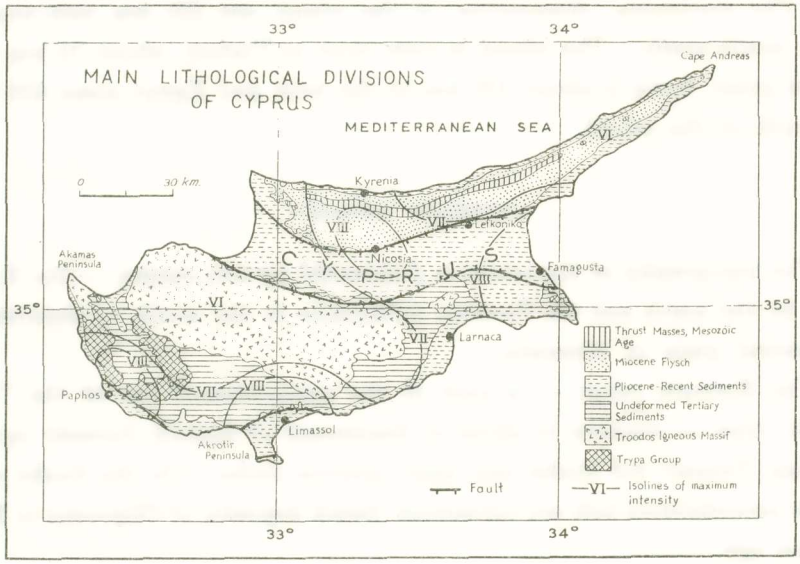

Fig. 1. — The seismotectonic map of Cyprus. Fault lines and seismic zones after A. Sieberg, 1931, 1932, and W. v. Seidlitz, 1931; Lithological divisions after I. G. Gass and D. Masson-Smith, 1963.

massif. There is no evidence that the Troodos massif has been deformed since it evolved.

Regarding the general structural picture of Cyprus, it is believed that the rocks of northern Cyprus were strongly compressed by southernly alpine movements against the Troodos Igneous Massif which acted as a rigid block. The horizontally disposed Pliocene-Recent sediments of the Mesaoria plain and the undeformed extensive erosion surface formed during the Upper Miocene marine regression indicate that the latest orogenic movement in Cyprus was during the Lower and Middle Miocene.

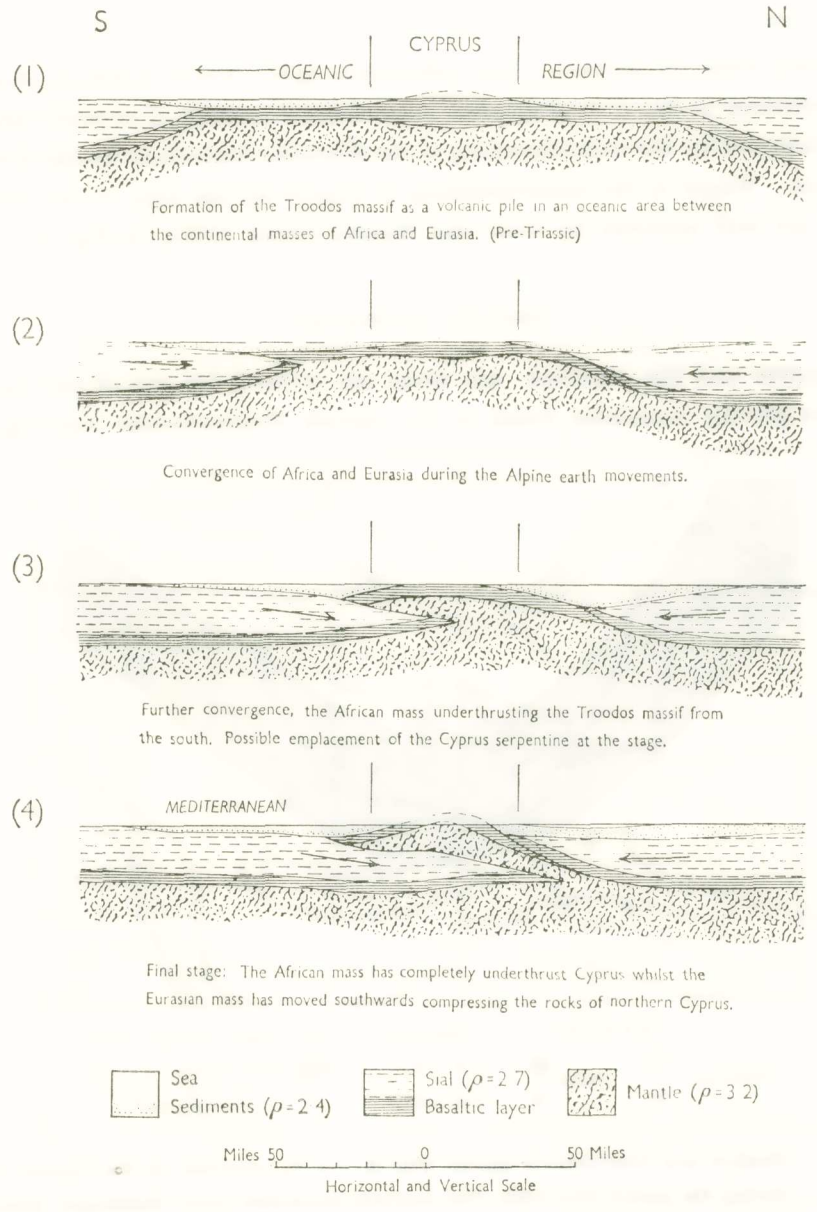

Fig. 2. — Diagrammatic representation of stages in the underthrusting of Cyprus by the African shield, after I.G. Gass and D. Masson-Smith, 1963.

There is evidence that the summit of Troodos has been elevated by more than 3.000 meters since Cretaceous times whilst the rest of the island has risen only some 700 meters. This differential uplift, which is still in progress and dominant in the area of Cyprus, is considered a result of isostatic adjustment initiated by the underthrusting of the Eurasian hinterland by the African foreland. Stages in the underthrusting of Cyprus by the edge of the African shield are well depicted by Gass and Masson-Smith (1963) in Fig. 2.

GRAVITY ANOMALIES

Cyprus and the adjacent sea areas are covered by one of the largest positive gravity anomalies found in the eastern Mediterranean (see Fig. 3).

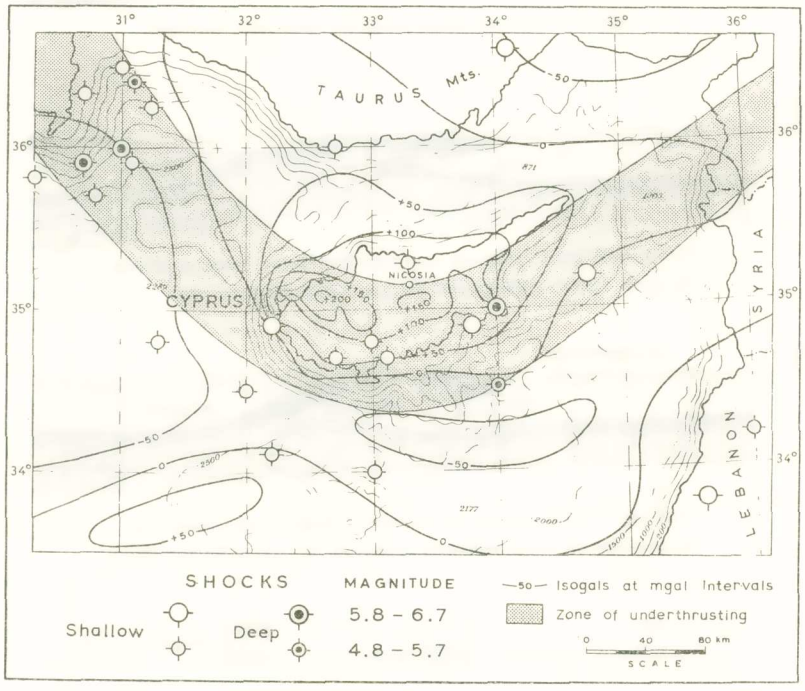

Fig. 3. — Shallow and intermediate shocks with M $\geq$ 4 $^1/_4$ occurred in the Cyprus area during the period 1911-1963. The Isostatic anomalies (Airy–Heiskanen System, T = 30 km) and the zone of underthrusting after I.G. Gass and D. Masson-Smith, 1963; the depth contours after P. Goncharof and B. Michailof, 1963.

The main positive anomaly which occupies the whole island is superimposed on a regional negative anomaly. Upon the main anomaly are superimposed

six smaller local anomalies. The over +200 mgal maximum Bouguer anomaly occurring in this area is confined over the northwestern part of the Troodos massif.

After a thorough investigation of the Geology and Gravity Anomalies of Cyprus Island, I. G. Gass and D. Masson-Smith (1963) were led to the conclusion that this strong anomaly is due «to an extensive slab of high-density rock, at least 7 miles thick, which underlies the Cyprus area at shallow depth». There is evidence that «this slab was once part of the upper mantle underlying an oceanic area between the African and Eurasian continents». According to I. G. Gass and D. Masson-Smith «When the continental shields approached each other during the Alpine orogeny this slab of mantle was underthrusted by the edge of the African shield and thereby raised to its present level in the upper part of the crust».

The 50 mgal negative isostatic anomaly to the west of Cyprus is considered the eastern margin of a more extensive arcuate zone of negative gravity anomaly in the eastern Mediterranean. This regional anomaly is well explained by a crustal thickening in the zone of underthrusting.

For further information concerning the Geology and Gravity Anomalies of Cyprus the reader is referred to Gass and Masson-Smith (1963); for further referrences he should consult the publication of the above mentioned authors.

EARTHQUAKE HISTORY

The earthquake history of Cyprus compared to that of Greece is very poor. It begins with a disastrous earthquake in 26 B.C. Since 26 B.C. to 1900 there are only 15 records of severe earthquakes with damaging or destructive effects on the island. The maximum intensity allowed to be assigned to the earthquake effects observed on Cyprus since 26 B.C. hardly exceeds the IX degree of the Mercalli-Sieberg scale. The highest intensity of X degree may have been reached only twice, in 76 A.D. and in 342. In all the other cases the highest intensity remained close to, or well below the IX degree.

Two of the severe earthquakes observed during the 26 B.C. to 1900 interval have been accompanied by tsunamis strong enough to cause damages on the southern coast of the island. It seems that one of them in 26 B.C. had a focus close to the southwestern coast of the island ($34\,^3/_4{}^\circ$ N, $32\,^1/_4{}^\circ$ E), or very probably the same focus with the earthquake of 10 September 1953

(34.9° N, 32.2° E). The same source released another earthquake in 15 B.C. The shock in 342 A.D. had the same focus; there is allusion to a sea wave triggered by this shock. Another shock on the southwestern coast of the island in 1183 (34 3/4° N, 32 1/2° E) had probably the same focus with the shock of 26 June 1937 (34.7° N, 32.7° E).

The second tsunami on May 1222 has been emanated from a source situated close to the southern coast of the island (34 1/2° N, 33° E). The same source released twice swarms of earthquakes (1567, April 25, and 1577, January 28); some of them were strong enough to cause damage to Limassol and to other localities of the island. There is reference that the A.D. 76 earthquake on the southeastern coast of the island (35° N, 34° E) has been accompanied by a tsunami, but this is open to question. The 332 or 333 earthquake had the same origin. The same holds for the earthquake destruction in 1735. The intermediate shock of 20 January, 1941, had the same focus. The source of the shock of 29 June, 1896, probably situated off the southern coast of Cyprus (34 1/4° N, 33° E). Three shocks in 1491, 1718 and 1900 had their focus in Mesaoria plain close to the sourthern flanck of the Kyrenia mountains (35 1/4° N, 33 1/4° E).

The data for the 367 A.D. earthquake do not allow any estimation, even a gross one, of the location of the earthquake source. The large area over which the shock was felt points out that probably the depth of the focus was greater than normal. The same holds for the shock of June 29, 1896.

The existing data for the above mentioned shocks are given below in a tabular form. The individual parameters of the shocks are given in accordance with the principles applied in cataloguing the earthquakes of Greece (Galanopoulos, 1963).

During the period 1911-1963 there are records of 18 earthquakes with epicenters instrumentally located within a distance of 100 km from the nearest coast of Cyprus. Six of the earthquakes occured in the 1911-1963 interval had a magnitude 5.8 - 6.5; all the others were smaller with a magnitude 4 3/4 to 5 3/4. Six of the 18 instrumentally located foci were twice active and two had a focal depth greater than normal. It is worthy to note that 17 of the above foci are close to, or below the 35° parallel and only one is north of Cyprus, but far from the north coast of the island, in the southern flank of the Taurus

T A B L E 1

A Catalogue of Shocks Occurred in the Area of Cyprus with $I_o \geq$ VII or M $\geq 4\,^3/_4$

Date	Origin Time h. m. s.	Location	Depth in km.	Intensity, I_o	Magnitude, M	REMARKS
26 B.C.	—	$34\,^3/_4{}^o$ N, $32\,^1/_4{}^o$ E	(i)	VII - VIII	—	Disastrous earthquake on Cyprus Island, particularly in Paphos (Sieberg, 1932). There is reference that probably this shock was felt in Egypt ,,and was responsible for setting off a seismic sea-wave as a result of which Polusium in Egypt was flooded to a great depth" (Ambraseys, 1963).
15 B.C. (in the Spring)	—	$34\,^3/_4{}^o$ N, $32\,^1/_4{}^o$ E	n	VIII - IX	—	Paphos was laid in ruins and many other towns in the island were damaged by a swarm of earthquakes (Schmidt, 1879; Oberhummer, 1903; Sieberg, 1932; Ambraseys, 1963).
76 A.D.	—	35° N, 34° E	n	VIII - X	—	Complete destruction of Famagusta (Salamis), Larnaca (Kition) and Paphos. There is reference that Episcopi (Kurion) experienced severe damages by a sea wave set up by the earthquake, but this is questionable (Ambraseys, 1963). The shock was felt on the coast of Phoenicia and further in the interior of Syria (Oberhummer, 1903; Sieberg, 1932).
332 or 333	—	35° N, 34° E	n	VII - VIII	—	Destruction of Famagusta (Salamis); many casualties. The shock was strongly felt in Antakya (Antioch) of Turkey (Schmidt, 1879; Sieberg, 1932).

(continued)

Table 1 (continued)

Date	Origin Time h. m. s.	Location	Depth in km.	Intensity, I_o	Magnitude, M	REMARKS
342	—	$34^3/_4^o$ N, $32^1/_4^o$ E	n	VIII - X	—	Paphos was totally ruined. It is said that „the part of the city around the fort was shaken down, while the port area with all its buildings slumped and sunk in to the sea." There is allusion to a seismic sea-wave, that might be a fact in view of the extensive landslides or of fault movement referred to (Oberhummer, 1903; Ambraseys, 1963).
About 367	—		i	VII - IX	—	A series of severe earthquakes, among them one with a very large area of perceptibility, affected seriously Cyprus, particularly Paphos and the area of Akrotiri. The larger earthquake, very probably of intermediate focal depth, was reported from Turkey (Antioch), Palestine, Libya and apparently was felt as far as Sicily (Oberhummer, 1903; Sieberg, 1932; Ambraseys, 1963).
1183	—	$34^3/_4^o$ N, $32^1/_2^o$ E	n	VIII - IX	—	Severe earthquake destroyed 15 churches in the region of Paphos including one in the fortress of Paphos. Many rockfalls near Tsada about six miles from Paphos (Ambraseys, 1963).
1222, May	—	$34^1/_2^o$ N, 33° E	n	VIII - IX	—	Severe earthquake on Cyprus particularly on the southern coast of the island. The area of destruction included Limassol and Paphos. Paphos and its castle were completely

(continued)

Table 1 (continued)

Date	Origin Time h. m. s.	Location	Depth in km.	Intensity, I_o	Magnitude, M	REMARKS
						ruined and its inhabitants were „wiped out." A damaging tsunami accompanied the shock. Paphos and Limassol were flooded. There is reference that Nicosia was damaged (Oberhummer, 1903; Sieberg, 1932; Ambraseys, 1963).
1491, April 25	—	$35^1/_4^o$ N, $33^1/_4^o$ E	n	VIII - IX	—	Severe destruction in the Mesaoria plain particularly in Nicosia, where a number of buildings were destroyed together with a part of the church of Santa Sophia. The area of destruction reached Limassol, where the bishopric and part of the castle collapsed. Damages were reported from Paphos and Famagusta. One of the two towers on the sea-shore of Paphos fell. Additional damage in Nicosia on 1st May. There is reference that the main shock was felt in Egypt (Oberhummer, 1903; Sieberg, 1932; Ambraseys, 1963).
1567, April 25	—	$34^1/_2^o$ N, 33° E	n	VI - VII	—	A swarm of earthquakes felt throughout Cyprus „lasted for 53 days and went on for two years." Some of the shocks „were so severe that caused some damage at Limassol including the total ruin of a number of buildings situated by the sea" (Ambraseys, 1963).
1577, Jan. 28	—	$34^1/_2^o$ N, 33° E	n	VII - VIII	—	A swarm of 140 earthquakes felt within a fortnight caused heavy

(continued)

Table 1 (continued)

Date	Origin Time h. m. s.	Location	Depth in km.	Intensity, I_o	Magnitude, M	REMARKS
						damage to Limassol. Damages were reported also from Kurion, Aidutusa, Salamis and Nicosia. Numerous fore- and aftershocks. The main shock was felt in the basin of Adana (Turkey), in Syria and Palestine (Oberhummer, 1903; Sieberg, 1932; Ambraseys, 1963).
1718, Dec. 10	—	$35^1/_4^o$ N, $33^1/_4^o$ E	n	VIII - IX	—	Nicosia experienced a disastrous earthquake; „many houses collapsed and many persons lost their lives in the ruins". (Oberhummer, 1903; Sieberg, 1932; Ambraseys, 1963).
1735, Dec.	—	35° N, 34° E	n	VIII - IX	—	Destruction of Famagusta. "Part of the cathedral of Santa Sophia, which was converted into a mosque, fell and buried under its ruins over 200 people. Also the church of Saint George together with a great part of the town was thrown down." Much damage over the island (Oberhummer, 1903; Sieberg, 1932; Ambraseys, 1963).
1896, Jun. 29	20:43±1	$34^1/_4^o$ N, 33° E	i	VIII - IX	6.8*	Severe destruction in the southern part of the Island, particularly in Acrotiri, Limassol and Episkopi. In Acrotiri 20 houses collapsed and several were cracked. Many fissures in the ground and several slides and rockfalls along the southern coast. In Limassol only 2 or 3 houses were seriously cracked. The 6 - degree

(continued)

Table 1 (wntinued)

Date	Origin Time h. m. s.	Location	Depth in km.	Intensity, I_o	Magnitude, M	REMARKS
						isoseismal surpassed Kyrenia and reached Lefkoniko. The shock was felt in Asia Minor, Lebano, Syria and Palestine and southwards, at least, as far as Cairo. Foreschocks started one week before; aftershocks lasted at least untill October 11 (Ann. Obs. Nat., 2, 1899; Agamennone, 1903; Sieberg, 1932).
1900, Jan. 5	—	$35^1/_4{}^o$ N, $33^1/_4{}^o$ E	n	VII - VIII	—	Nicosia experienced severe damages by a destructive earthquake in the Mesaoria plain. On the greater part of the island the earthquake effects were mild (Sieberg, 1932).
1918, Sept. 29	12:07:05	35.2° N, 34.7° E	n	—	$6^1/_2$	M = $6^1/_2$ (At). — Recorded up to 129°; No. of Stations 50. – I.S.S.
1919, Aug. 19	20:17:20	35.2° N, 34.7° E	n	—	$5^1/4 - 5^1/_2$	M = 5.9 (At). — Recorded up to 33°; No. of Stations 14. — I.S.S.
1921, Apr. 20	16:04:20	34° N, 33° E	n	—	$5 - 5^1/_4$	M = d (GR). — Recorded up to 32°; No. of Stations 16; 35.2° N, 33.3° E. — I.S.S.
1924, Febr. 18	17:03:56	$34^1/_2{}^o$ N, 34° E	n	—	6	M = 6 (GR); 5.9 (At). — Recorded up to 129°; No. of Staions 53; 35.2° N, 34.7° E. — I.S.S.
1924, June 9	21:34:35	35.2° N, 33.3° E	n	—	5	Recorded up to 32°; No. of Stations 8.— I.S.S.
1930, May 9	07:07:22	$34^1/_2{}^o$ N, 32° E	n	—	$5^1/_2$	M = d (GR); $5^1/_2$ (At). — Recorded up to 90°; No. of Stations 63; 34.1° N, 32.2° E. — I.S.S.

(continued)

Table 1 continued)

Date	Origin Time h. m. s.	Location	Depth in km.	Intensity, I_o	Magnitude, M	REMARKS
1930, July 25	19:46:33	34.1° N, 32.2° E	n	—	$5^1/_4$ - $5^1/_2$	Recorded up to 46°; No. of Stations 30. — I.S.S.
1930, Nov. 16	20:46:30	34.1° N, 32.2° E	n	—	$4^3/_4$	Recorded up to 26°; No. of Stations 10. — I.S.S.
1936, Jan. 20	02:29:14	34.8° N, 31.3° E	n	—	$4^3/_4$	M = 4.7 (At). — Recorded up to 30°; No. of Stations 14. — I.S.S.
1937, June 26	19:19:31	34.7° N, 32.7° E	n	—	$4^3/_4$ - 5	Slight damage at Platres; felt IV at Limassol and Paphos. — Recorded up to 29°; No. of Stations 17. — I.S.S.
1940, July 24	22:15:27	$34^1/_2$° N, 34° E	80	—	$5^3/_4$	M = $5^3/_4$ (GR). — Recorded up to 93°; No. of Stations 31; 34.5° N, 34.5° E. — I.S.S.
1941, Jan. 20	03:37:07	35° N, 34° E	100	IX	$6^1/_2$	Desastrous earthquake on Cyprus reached IX degree intensity in Paralimni. The shock was felt in Palestine, at Beirut, Ksara and as far as Smyrna. M = $6^1/_2$ (GR); 6.6 (K). — Recorded up to 112°; No. of Stations 83; 35.2° N, 33°.6 E. — I.S.S.
1952, Oct. 15	17:50:44	34.7° N, 33.1° E	n	—	5.8	M = 5.8 (At). — Recorded up to

(continued)

Table 1 (continued)

Date	Origin Time h. m. s.	Location	Depth in km.	Intensity, I_0	Magnitude, M	REMARKS
						95°; No. of Stations 30. — I.S.S.
1953, Sept. 10	04:06:00	34.9° N, 32.2° E	n	VIII - IX	$6^1/_2$	Severe earthquake on Cyprus destroyed Stroumbi, Lapithos, Kithasi, Phousoula and Axylon; much damage at Ktima and in many villages to the north-east of it. About 40 persons killed and more than 200 injured. The shock was felt in Egypt. Macroseismic epicenter: 34.8° N, 32.5° E. — M = $6^1/_2$ (Pa., At). — Recorded up to 150°; No. of Stations 229°. — I.S.S.
1959, June 13	12:01:50	34.9° N, 32.4° E	n	—	$5^1/_2$ - $5^3/_4$	M = $5^1/_2$ (Matsushiro). — Recorded up to 150°; No. of Stations 72. I.S.S.
1959, July 10	20:27:20	34.8° N, 33.0° E	n	V - VI	$4^3/_4$ - 5	Slight damage to Limassol (BCIS).
1961, Sept. 15	01:46:10	34.9° N, 33.8° E	36	V - VI	6	Slight damage on Cyprus (BCIS). Felt in Turkey (Mersin), Syria, Lebanon (Beirut) and Israel. — M = $6^1/_4$ (Matsushiro), 6 (Kiruna, Uppsala), 5.8 (Athens), 5.7 (Rome).
1963, Sept. 12	08:18:58	34.9° N, 32.2° E	55	—	5	Felt at Paphos and Nicosia. — M = 5, SD 0.3 (CGS).

mountains.* The location of nearly all the earthquake foci in the zone of underthrusting (see Fig. 3) suggests that the earthquake activity in the area of Cyprus is closely related to the evolution and the deep-seated structure of this zone.

EARTHQUAKE RISK

The earthquake history of Cyprus asserts a fact already well established (Sieberg, 1932), that the plain of Mesaoria as well as the south, southwest parts of the island are exposed to the risk of being damaged by severe earth-

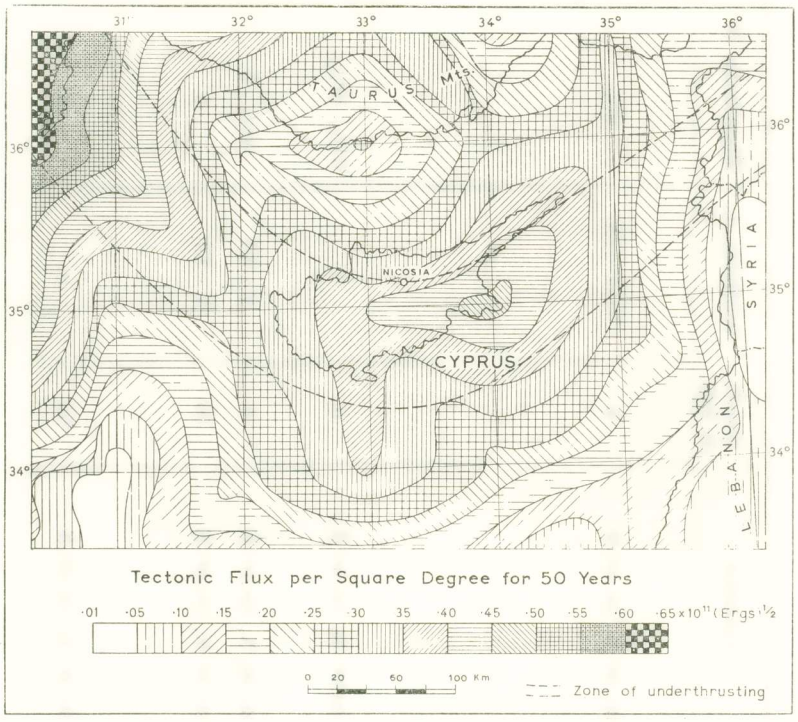

Fig. 4. — Strain release pattern in the Cyprus area derived from earthquake data over the period 1911-1960.

* The epicenter of June 13, 1959, earthquake is mapped in Fig. 3 according to BCIS (36.0° N, 32.7° E). A relocation of the epicenter made by I.S.S.after the mapping invalidated the exception mentioned above. Thus all the active foci of Cyprus are situated in the underthrusting zone. However, owing to the small magnitude of the relocated earthquake a remapping of the strain energy release should not show a noticeable change in the pattern of the strain release density map.

quakes. It was stated that damages of VIII to IX degree of the Mercalli-Sieberg scale have been repeatedly reported from these parts — particularly from the regions of Paphos-Ktima, Limassol-Episkopi, Larnaca-Famagusta and Nicosia — in the past (see Fig. 1).

The tectonic flux observed in the area of Cyprus over the period 1911-1960 (see Fig. 4) culminates in the southeastern part of the island with one earthquake of magnitude 6.8 per square degree per 100 years and falls gradually to the west in one earthquake of magnitude 6.8 per square degree per 150 years. Thus, the earthquake expectancy in the region of Cyprus is very low compared to the earthquake efficiency of the Ionian Islands Cephallenia-Zante and the region of Kos-Rhodos (11-12 earthquakes of magnitude 6.8 per square degree per 100 years) and almost equals to that found for the central part of the northern Aegean Sea.

The seismic energy distribution map for the area of Cyprus over the period 1822-1963 given by N. Ambraseys (1965) shows a different pattern. This might be due to the heterogeneity of data used. It is worth noting that both maps do not favour the extension of Mesaoria graben to that of Marasch in Syria assumed by A. Sieberg (1932) on the grounds of delineation of foci in Fig. 26.

CONCLUDING REMARKS

Surface and intermediate earthquake activity seem to contribute almost equally to the development of the centre of higher strain energy release that appears in the southeastern part of Cyprus. The rugged relief of the sea bottom off the southeastern coast might be indicative of the tectonic readjustment going on in this area. The earthquake energy released in the southern and southwestern parts comes from normal sources situated in the fault line indicated by the steep slope of the sea-bottom close to the southwestern coast of the island. The graben of the Mesaoria plain is the seat of a very active focus and the energy radiated from it affects seriously Nicosia and the localities situated at the borders of the plain.

The over +100 mgal isostatic anomaly which covers nearly the whole island makes Cyprus a unique area in the world. It is worth noting that there is a fairly good correlation between the positive isostatic anomaly which occupies the island with the surrounding shelf, and the strain energy release

occuring in the area (see Fig. 5, 6). Outside the Cyprus area the trend of the strain energy release looks like mirage of the regional negative anomaly. Considering the differential uplift which is still in progress and dominant in the

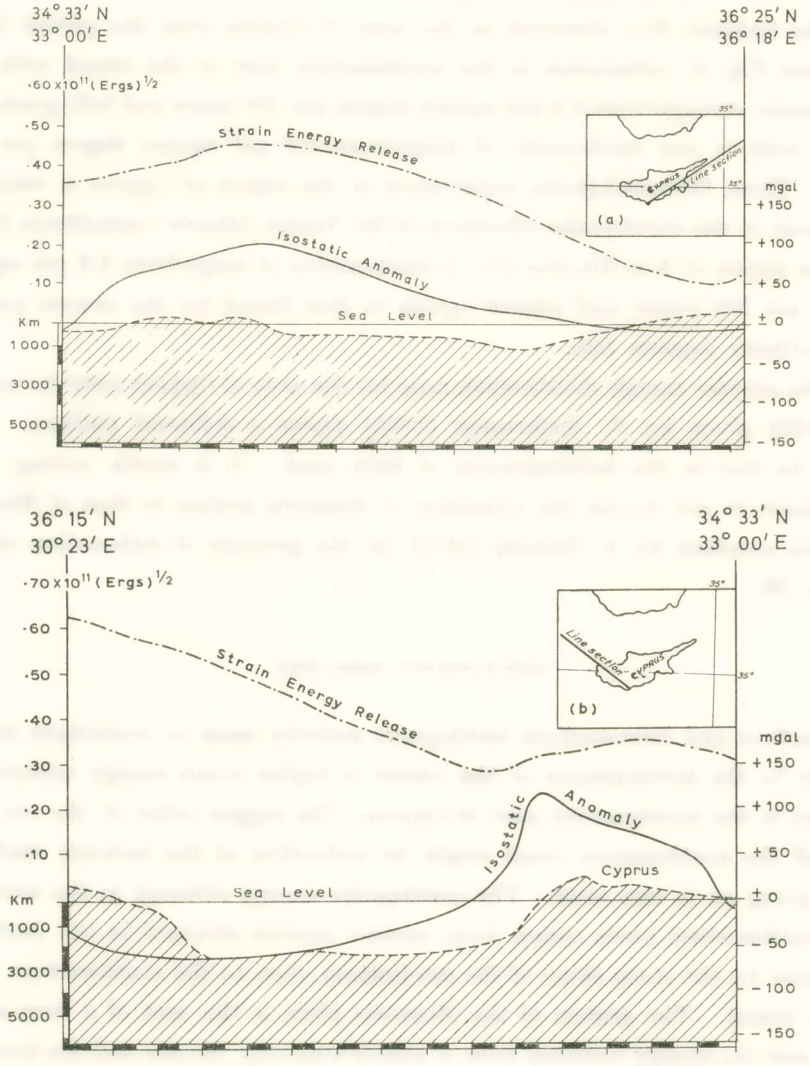

Fig.5a & 5b. — Anomaly and Strain release profile. Insert shows line section.

area of Cyprus and the concentration of the earthquake foci in the zone of underthrusting, we may be allowed to say that the seismic activity in the area is a result of isostatic adjustment initiated by the underthrusting of the Eurasian hinterland by the African foreland.

In view of the peculiar geological structure of Cyprus, the installation of a seismic station on the island is strongly recommended for a seismic study

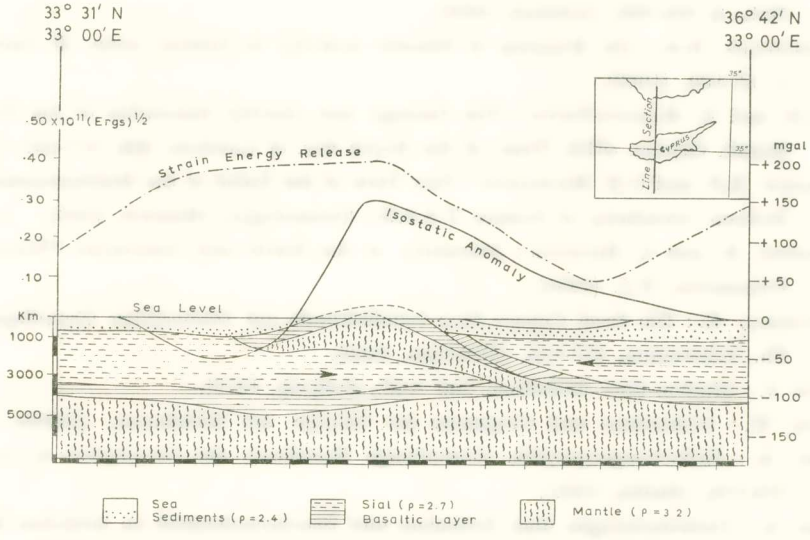

Fig. 6. — Anomaly and Strain release profile. Geological cross-section after I. G. Gass and D. Masson-Smith, 1963. Insert shows line section.

of the Earth's crust and Upper mantle structure in this matter of fact unique area.

ACKNOWLEDGMENTS

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ΠΕΡΙΛΗΨΙΣ

Μετὰ σύντομον ἔκθεσιν τῆς γεωλογικῆς καὶ τεκτονικῆς κατασκευῆς τῆς νήσου Κύπρου, ὡς καὶ τῶν εἰς τὴν περιοχὴν ταύτης ἐμφανιζομένων ἀνωμαλιῶν βαρύτητος μικρᾶς καὶ μεγάλης κλίμακος, περιγράφεται ἡ σεισμικὴ ἱστορία τῆς νήσου, καὶ καθορίζεται ἡ σεισμικὴ ἐπικινδυνότης ταύτης. Ὡς φαίνεται ἐκ τῶν παρατιθεμένων χαρτῶν, εἰς τὸ νοτιοανατολικὸν τμῆμα τῆς νήσου φιλοξενεῖται ἐν κέντρον ἐντονωτέρας σεισμικῆς δράσεως, ὀφειλόμενον τόσον εἰς σεισμοὺς ἐπιφανείας, ὅσον καὶ εἰς σεισμοὺς ἐνδιαμέσου βάθους. Τὸ ἀνώμαλον ἀνάγλυφον τοῦ θαλασσίου πυθμένος ἔξωθεν τῆς νοτιοανατολικῆς ἀκτῆς ὑποδεικνύει ὅτι πιθανῶς συνεχίζεται ἀκόμη ἡ τεκτονικὴ ἀναδιάρθρωσις εἰς τὴν περιοχὴν ταύτην. Ἡ σεισμικὴ ἐνέργεια ποὺ ἐλευθεροῦται εἰς τὸ νότιον καὶ νοτιοδυτικὸν τμῆμα τῆς νήσου προέρχεται ἀπὸ ἐπιφανειακὰς ἑστίας, αἱ ὁποῖαι ἐδράζονται ἐπὶ τῆς ρηξιγε-

νοῦς γραμμῆς ποὺ ὑποδηλοῦται ἀπὸ τὴν ἀπότομον κλίσιν τοῦ θαλασσίου πυθμένος ἐγγὺς τῆς νοτιοδυτικῆς ἀκτῆς τῆς νήσου. Ἡ λίαν ἐνεργὸς ἑστία, ἡ ὁποία φιλοξενεῖται εἰς τὴν τεκτονικὴν τάφρον τῆς πεδιάδος τῆς Μεσσαρίας, ἀκτινοβολεῖ συχνὰ σημαντικὴν ἐνέργειαν, ἡ ὁποία προσβάλλει σοβαρῶς τὴν Λευκωσίαν καὶ τοὺς οἰκισμοὺς ποὺ κεῖνται εἰς τὰ κράσπεδα τῆς πεδιάδος.

Ἡ ἄνω τῶν +100 mgals ἰσοστατικὴ ἀνωμαλία ποὺ καλύπτει σχεδὸν ὁλόκληρον τὴν νῆσον καθιστᾷ τὴν Κύπρον μοναδικὴν περιοχὴν εἰς ὅλον τὸν κόσμον. Ὡς φαίνεται ἐκ τῶν παρατιθεμένων τομῶν, ὑφίσταται ἀρκούντως καλὴ συσχέτισις μεταξὺ τῆς θετικῆς ἰσοστατικῆς ἀνωμαλίας ποὺ ἐμφανίζεται ἄνωθεν τῆς νήσου καὶ τῆς ἠπειρωτικῆς κρηπῖδος ταύτης, καὶ τῆς ἀπελευθερουμένης σεισμικῆς ἐνεργείας εἰς τὴν περιοχὴν τῆς νήσου. Ἔξωθεν τῆς περιοχῆς τῆς Κύπρου τὸ σχέδιον διανομῆς τῆς ἐκλυομένης σεισμικῆς ἐνεργείας φαίνεται ὡς κατοπτρικὴ εἰκὼν τῆς ἀρνητικῆς ἀνωμαλίας μεγάλης κλίμακος. Λαμβανομένου ὑπ' ὄψιν ὅτι ἡ νῆσος ἀπὸ τοὺς χρόνους τοῦ Κρητιδικοῦ ἔχει ὑποστῆ ἤδη ἰσχυρὰν διαφορικὴν ἔξαρσιν, ἡ ὁποία συνεχίζεται ἀκόμη, καὶ ὅτι ὅλαι αἱ ἐν ἐνεργείᾳ σεισμικαὶ ἑστίαι τῆς Κύπρου εὑρίσκονται εἰς τὴν ζώνην ἐπωθήσεως, ἐπιτρέπεται νὰ λεχθῇ ὅτι ἡ σεισμικὴ δρᾶσις εἰς τὴν περιοχὴν τῆς Κύπρου εἶναι ἀποτέλεσμα τῆς ἰσοστατικῆς ἰσοσταθμίσεως, ἡ ὁποία ἤρχισε μὲ τὴν ἐπώθησιν —κατὰ τὴν ἀλπικὴν ὀρογένεσιν— τῆς Εὐρασιατικῆς ὀπισθίας χώρας ἐπὶ τῆς ἐμπροσθίας χώρας τῆς Ἀφρικῆς.

Ἐν ὄψει τῆς ἰδιαζούσης γεωλογικῆς κατασκευῆς τῆς Κύπρου συνιστᾶται ἡ ἐγκατάστασις ἐπὶ τῆς νήσου πλήρους σεισμολογικοῦ σταθμοῦ διὰ τὴν μελέτην τῆς δομῆς τοῦ γηΐνου φλοιοῦ καὶ τοῦ ἀνωτέρου μανδύου εἰς τὴν ἀπὸ γεωλογικῆς πλευρᾶς μοναδικὴν ταύτην περιοχὴν τοῦ Κόσμου.