specimens need to be cleared of acetate by immersion in water for about a week; running water does not seem necessary provided that changes are made at daily intervals. After this immersion specimens are dried and examined for acetate growths, any showing these requiring further soaking. Once cleared satisfactorily, the material is ready for study or storage. If desired, examples which appear fragile can be strengthened by spraying with dissolved plastic, e.g. Lustrex in benzene.

This technique has been developed mainly for dealing with material from the Chalk Rock and Glauconitic Chalk. It has proved specially valuable in the case of the latter formation, which is often difficult to treat mechanically because of hardness and a considerable content of mineral grains. The same technique is, of course, equally applicable to other phosphatic fossils, such as e.g. the ammonites which occur in this condition in some Cenomanian deposits.

REFERENCE

ZITTEL, K. A. VON, 1877. Studien ueber fossile Spongien, Abt. 1, Hexactinellidae. *Abh. k. bayer. Akad., Math.-Phys., Cl. xiii, Abt. 1, pp. 1–63, pls. i–iv.*

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ON SOME TURKISH SEDIMENTS

SIR,—I recently spent a month in Turkey, and through the kindness of various Turkish geologists was able to see a little of the local geology. Without pretending to be an authority on either country, I would like to draw attention to the remarkable similarity of certain geological features in Turkey to those I described recently in a report of an excursion in Italy (Ager, 1956). Particularly notable is the presence in Turkey of large areas of confused mixed sediments comparable to the Italian *Argille scagliose*. These Turkish formations have received various names, e.g. the "exotic block series", the "série mixte", the "complexe à facies tectonique brouillé", and so on; Blumenthal has called them the "Türlü Güveç" (a Turkish version of Lancashire hot-pot). Exotic blocks found in this mixture include serpentines and pillow-lavas and are recorded as yielding fossils ranging in age from Permian to Cretaceous. Very thick Oligocene and Miocene sedimentation in Turkey is another feature reminiscent of the north Apennine area.

A great deal of work in Turkey has been done by nappe-minded geologists. A non-tectonician may be allowed to wonder if much of the confused geology of Turkey might be explained in terms of tectonic ridges and submarine land-slipping, as in Italy. At Şile on the Black Sea coast, north-east of Istanbul, I saw a fine section of brecciated Upper Cretaceous limestone resting on Eocene nummulitic marls. This has been described by Baykal (1943) as a thrust, with the very coarse breccia as a mylonite. This interpretation has been disputed by other workers, and the section appeared to me to show all the characters of a gravity collapse structure. I made these suggestions to various Turkish geologists and my attention was drawn to a paper by McCallien and Tokay (1951). In this, exotic Carboniferous blocks in the Cretaceous, on the Black Sea coast between Zonguldak and Ereğli, are explained by submarine slumping due to earthquakes. In the discussion of this paper the late Professor C. I. Migliorini commented on the close resemblance of the Turkish photographs to the *Argille scagliose* of the Apennines.

Another point worth recording is that just west of Şile is a small promontory of completely typical white chalk with flints and fossils such as *Micraster*, *Echinocorys*, and *Porosphaera*. This has simply been described as Maestrichtian " calcaires blancs . . . à nodules de silex " (Baykal, op. cit., p. 201), but is virtually the same as the familiar Upper Chalk of north-west Europe. This facies appears to have only reached Turkey late in Maestrichtian times. Lower down there are whitish sandy limestones, marly limestones, and some pink limestone reminiscent of the Hunstanton " Red rock ". Palaeogeographical maps show the Chalk sea reaching no farther than the Crimea and the Caucasus in a south-easterly direction (e.g. Wills, 1951, Pl. XVIII).

REFERENCES

AGER, D. V., 1956. Summer field meeting in Italy. *Proc. Geol. Ass.*, lxvi, 329–352.

BAYKAL, A. F., 1943. La géologie de la région de Şile (Bithynie-Anatolie). *Istanbul Univ., Inst. Géol.*, Pub. no. 12, 166–234.

MCCALLIEN, W. J., and M. TOKAY, 1951. Sedimentation phenomena of the Cretaceous of the Black Sea region between Zonguldak and Ereğli, Asia Minor. *Congr. Géol. Internat.*, Rept. Sess. XIII (1948), London, 154–164.

WILLS, L. J., 1951. *A palaeogeographical atlas of the British Isles and adjacent parts of Europe*. London and Glasgow.

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RECENT MARINE DEPOSITS NEAR BASRAH

SIR,—I have read with unusual interest the paper by Hudson *et al.* (1). Their conclusions support the contentions of Lees and Falcon (2) regarding recent movements within the lower Mesopotamian Plains, and I likewise have reasons for accepting these views (3).

The above authors mention that so far the only evidence for the Hammar Formation north of Basrah is that given by Macfadyen (quoted by Lees and Falcon), who reported marine foraminifera in " alluvium " at Amara, 95 miles N.N.W. of Basrah, occurring at depths of 3 to 35 feet. It is pertinent to refer to recent studies in the vicinity of Najaf, some 220 miles north-east of Basrah and 160 miles due west of Amara.

Beside the Wadi Ruhaimawi, approximately 15 miles W.S.W. of Najaf, a bore-hole was sunk to a total depth of 26 feet. At depths between 23 feet and 25 feet an interesting fauna was found in some brownish silty clays, including *Turritella terebra* Lamarck (juv.), *Retusa inconspicua*, *Natica sp.*, *Minolia sp.*, *Dentalium sp.*, *Corbula sulculosa*, *Ostrea sp.*, and some echinoid plates. On faunistic grounds, therefore, these silty clays correlate well with the Hammar Formation.

The Basrah specimens were found at depths of 13·4 to 34·4 feet below present mean sea level ; the Amara foraminifera from 7 feet above sea level to 28 feet below sea level ; the Najaf fauna occurred at elevations of 133·5 of 135·5 feet above present mean sea level. This vertical range of some 170 feet between the southern and northern fossil occurrences is scarcely due solely to vertical land movements, and regional change in sea level doubtless played its role.

Underlying these Recent deposits—and also extensively developed as surface exposures west of Najaf—are gravel beds comprising quartz, flint, and limestone fragments of gravel and pebble size, usually partially embedded in a sandy, clayey, or gypsiferous matrix. These lie on an eroded surface of U. Fars (U. Miocene), and therefore are younger. The gravel beds in places bear a strong lithological and physical similarity to some Dibdibba exposures

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