[5] Jones, D. K., and Pearson, G. R., *Aust. Petrol. Explor. Ass. J.*, **12**, 17–22 (1972).
[6] Veevers, J. J., Heirtzler, J. R., *et al.*, *Geotimes*, **18** (4), 16–17 (1973).
[7] Francis, T. J. G., and Russell, W. R., *J. geophys. Res.*, **72** (12), 3015–3041 (1967).
[8] Veevers, J. J., Jones, J. G., and Talent, J. A., *Nature*, **229**, 383–388 (1971).
[9] Sproll, W. P., and Dietz, R. S., *Nature*, **222**, 345–348 (1969).
[10] American Geographical Society, *Geological Map of Antarctica*, 1:5 000 000 (1972).
[11] McKenzie, D., and Sclater, J. G., *Geophys. J. R. astr. Soc.*, **25**, 437–528 (1971).
[12] Mathur, S. P., *Tectonophysics* (in the press).

The contribution of palaeosoil to Egyptian lithostratigraphy

THOROUGH examination of the contact between the basement complex (mainly Precambrian) and the overlying Nubia Sandstone (Upper Cretaceous) in seven localities in the Eastern Desert of Egypt (Fig. 1) has revealed the existence of a well defined lateritic palaeosoil capping the former rocks. Previously, mention has only been made[1] of a local kaolinised surface of the basement rocks and the lateritic palaeosoil has been neglected in the lithostratigraphy[2–4]. The nature, thickness (4–10 m remaining after erosion) and the lateral extent of the soil over a wide variety of rock types necessitates, however, the introduction of a separate unit, which we suggest is called the 'I'byan Soil'. This palaeosoil may cover a large area of Egypt and we suggest that the same nomenclature is used at all localities where the soil has lateritic affinities.

At the type locality, about 1 km north of the 97-km post east of Idfu (longitude 33° 44′E and latitude 25° 2′ 30″N), the I'byan Soil is 10 m thick and caps the Barramiya Serpentinites (Fig. 2). In other localities it caps either old volcanics (Fig. 1, locality 2), arenites of the Hammamat Group (Fig. 1, locality 3), granodiorite (Fig. 1, locality 4) or metasediments and metavolcanics (Fig. 1, localities 5–7). The exact nature of the weathering of the basement rocks before the sandstone was deposited is now being studied through detailed geochemical and mineralogical analyses.

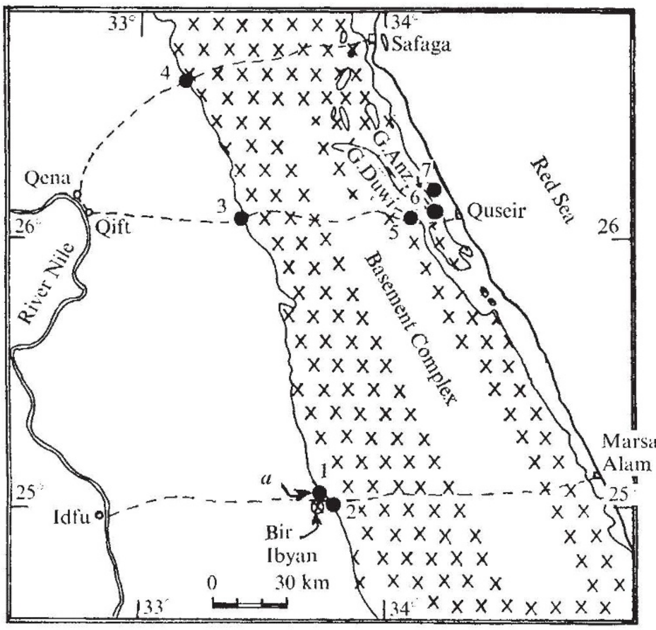

Fig. 1 Locality map showing the visited localities of the 'I'byan Soil'. Roads are shown as dashed lines. *a*, Type locality.

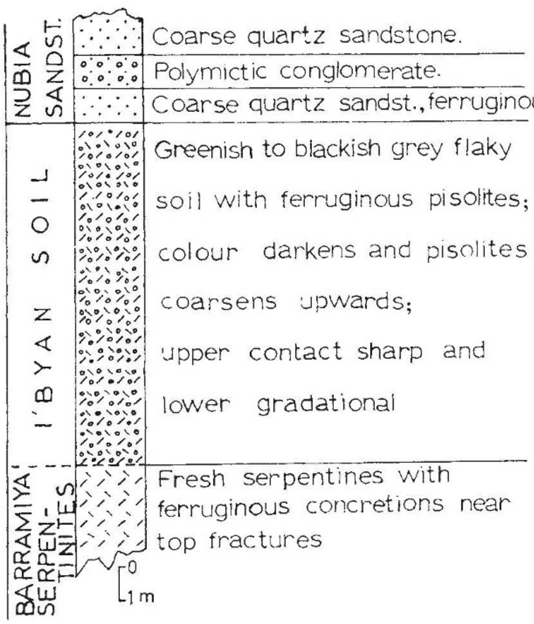

Fig. 2 The succession at the type locality.

E. RAMZY PHILOBBOS*
KAMAL EL-DIN K. HASSAN

Department of Geology,
Assiut University,
Assiut, Egypt

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* Present address: Royal School of Mines, Imperial College of Science and Technology, London SW7 2BP, UK.

[1] Hume, W. F., *Geol. Surv. Egypt*, **3**, PI (1965).
[2] Akaad, M. K., and Noweir, A. M., *Nature*, **223**, 284–285 (1969).
[3] Said, R., *Geol. Surv. Egypt*, Paper 56 (1971).
[4] Issawi, B., *Bull. Am. Ass. Petrol. Geol.*, **55**, 1448–1463 (1972).

Decreased global rainfall during the past Ice Age

WE have made a synthesis of atmospheric conditions for 20,000 yr BP based on fairly standard palaeoclimatological data and procedures. From mean zonal conditions at 20° latitude intervals from 80°N to 80°S we have computed radiative heating rates and the energy balance of atmospheric columns. We find that net cooling of the atmosphere by radiative processes was smaller at 20,000 yr BP than it is now. The total heating of the air, which sums to zero in the annual average except during periods of climatic change, is the sum of heating by latent heat liberation, heating by conduction and convection from the boundary layer, and radiative cooling (see for example Fig. 7 in ref. 1). Because the change in radiative cooling is comparable to boundary layer heating itself, we postulate that the decrease in cooling is accompanied primarily by a decrease in heating from rainfall and therefore that global rainfall was smaller at 20,000 yr BP than it is now. Examination of the magnitudes of the three components suggests that the decrease in rainfall was about 10%.