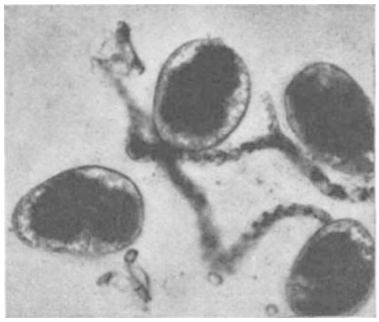

Fig. 1. Photomicrograph of spores and elaters of *Pellia* together with the remains of two mother cells from which the spores have escaped. (× 205)

cell wall is very thin, especially at the extremities of the lobes. Ultimately these thin parts of the wall rupture and dissolve, liberating the spores, which are enclosed within their own walls. The thickened regions of the spore mother cell walls form a lattice of six bands, probably mainly of cellulose, and remain for a time among the spores and elaters; they have a distinctive appearance (Fig. 1). Such structures[1] may be easily found in capsules between January and early March, but are not evident when the sporogonium is mature. The spores may begin to develop while still attached to the remains of the spore mother cells but soon become free from the latter, cell division continuing; by the time of dispersal from the capsule each ovoid spore consists usually of 6–9 cells[4]. In spring the seta elongates very rapidly and the characteristically thickened capsule wall splits into four valves exposing a mass of green spores, spirally thickened elaters and a basal elaterophore.

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[1] Hofmeister, W., trans. Currey, F., "Higher Cryptogamia" (Ray Soc., R. Hardwicke, London, 1862).
[2] Cf. Walton, J., *Nature*, **152**, 51 (1943).
[3] Farmer, J. B., *Ann. Bot.*, **9**, 469 (1895).
[4] Wolfson, A. M., *Amer. J. Bot.*, **15**, 179 (1928).

Sickle Cell Gene in Indonesia

More than four thousand samples of blood from different islands in Indonesia have been examined during a mass survey on pathological hæmoglobins. The method used was the paper electrophoretic method described by Smith and Conley[1] using veronal buffer *p*H 8·6 and ionic strength 0·05 or 0·06. Several types of pathological hæmoglobins have been found; among others, hæmoglobin *E* and hæmoglobin *S*. This communication describes the discovery of the sickling gene which has hitherto not been found in Indonesia.

Two sickle cell trait carriers were found during this survey. Both showed a positive test with 2 per cent sodium meta-bisulphite.

The first carrier was born in west Java. His father was also born in west Java and was of mixed Chinese–Indonesian blood. His mother was a pure west Javanese. So far as they knew, no mixing of blood with other races took place in their ancestry. The clinical and hæmatological findings of this case have been reported elsewhere[2].

The second carrier was an Indonesian soldier from Padang (Sumatra). So far as he knew, he was a pure Indonesian. He felt healthy.

Most research workers are of the opinion that the sickling gene is a sign of some linkage to the Negro population or to their ancestry. The finding of the sickling gene in Greeks, Italians and Arabs was associated with an admixture with African blood in older times. Lehmann and Cutbush[3], however, also found the sickling trait in South India together with a low incidence of the chromosome Rho. They are of the opinion that their findings lend support to the idea of an Indian migration to Africa in prehistoric times.

The finding of the sickle cell gene in Indonesia is difficult to evaluate. Of course, one can speculate on the significance of this finding. There is a possibility that these persons had a Negro or Arab ancestor although this was denied by the people concerned. Another possibility, which is more important, is that somewhere in Indonesia or in more localized areas in this country the sickling gene is not rare and that one or other ancestor of the above-mentioned sickle cell trait carriers had some connexion with such an area. Most anthropologists are of the opinion that the oldest population of Indonesia were the Negritos[4–6], who were related to the Negroes of Africa. It is generally believed that there are areas in Indonesia, mainly in the eastern parts of the country, where impure remains of the Negritos are still present. In these areas the sickle cell gene might be found more often. However, Lehmann and Ikin[7] did not find the sickling trait in Andamese Negritos on the Andaman Islands (India), but the number of persons examined was not large. Steps are therefore being taken to explore especially those areas where the Negrito elements are supposed to be present.

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[6] Mijsberg, W. A., "Feesthundel van het Gen. Tijdsch. van Ned-Indie" (Batavia, 1936).
[7] Lehmann, H., and Ikin, E. W., *Trans. Roy. Soc. Trop. Med. and Hyg.*, **48**, 12 (1953).

Learning and Daily Activity in a Sandhopper

In the case of the amphipod sandhopper *Talorchestia quoyana* (Milne-Edwards) it seems from some experiments that diurnal changes in light stimuli act as triggering and reinforcing factors; but there is also a conservative timing mechanism or 'memory' factor (the word is used in this sense) potent for up to a week which will maintain an impressed rhythm of activity in the absence of conflicting environmental change.

In his work on woodlice and millipedes Cloudsley-Thompson[1] observed that light and temperature were dominating factors governing diurnal rhythms of activity. Henkes[2], on the other hand, found that, while migratory pigment of the crustacean eye shows