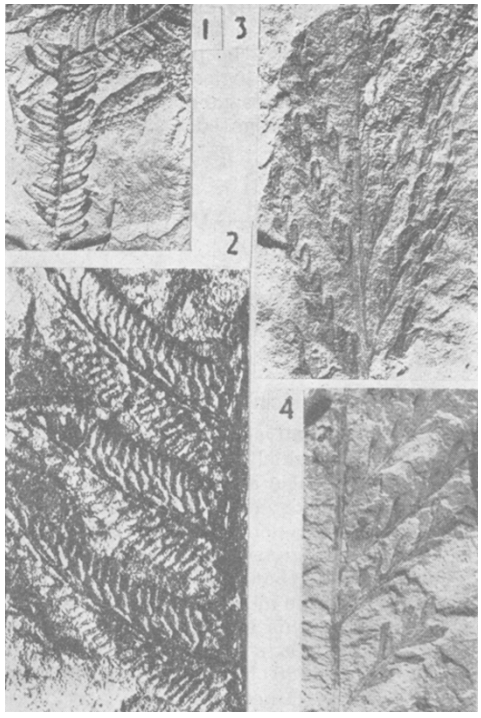

Fig. 1. *Weichselia* sp. (× 1). Fig. 2. Three pinnules of *Weichselia* (× 5). Figs. 3 and 4. *Onychiopsis* sp. (× 1). All the specimens are from Bansa, Madhya Pradesh

in dispute. Three views have been put forward: the first was expressed by Feistmantel[2], who considered them to be Middle Jurassic; the second is by Wadia[3], who regards these beds as Upper Jurassic; and the third is by Matley[4], according to which these are Lower Cretaceous.

On the evidence of the present findings, the age of the Jabalpur series cannot be fixed with absolute certainty. However, considering all the known records of *Weichselia* and *Onychiopsis*, which lie mostly in the Wealden, it is more apt to refer the Jabalpur exposed near Bansa and Sehora to the Lower Cretaceous.

M. N. Bose
Sukh Dev

Birbal Sahni Institute of Palæobotany,
Lucknow.

[1] Velenvosky, J., *Abh. K. bohm. Ges. Wiss.*, **7**, 10 (1888).
[2] Feistmantel, O., *Mem. Geol. Surv. India, Pal. Ind.*, **2**, 21 (1877).
[3] Wadia, D. N., "Geology of India", 181 (London, 1953).
[4] Matley, C. A., *Rec. Geol. Surv. India*, **58**, 162 (1921).

Resistance of *Anopheles aquasalis* Curry to Dieldrin in Trinidad

Work at the Ross Institute with *Anopheles gambiae* revealed that dieldrin resistance is due to an allele of a single gene. When tested with papers impregnated with a mineral oil solution of this insecticide, the heterozygotes for this allele can withstand 0·4 per cent dieldrin for 1 hr. and the homozygotes for this resistant allele can withstand 4·0 per cent dieldrin for 1 hr.

It does not necessarily follow that the same applies to *Anopheles aquasalis* Curry, which is now known to be resistant to dieldrin in Trinidad. However, the same technique was applied using freshly blooded females taken from Shannon dawn traps located in the Barataria area of Trinidad.

On October 10, 1958, using World Health Organization 0·4 per cent dieldrin-impregnated papers, 354 mosquitoes were exposed in 14 World Health Organization kit tubes for 1 hr. and then held 24 hr. At the end of this period there were 339 survivors, which were re-exposed to 0·4 per cent papers for 1 hr. and held for a second 24-hr. period. There were 290 survivors, that is, 81·9 per cent, all of which appeared to be unaffected by the insecticide. 56 mosquitoes in two tubes were used as control, 48 of which survived the same treatment as the test mosquitoes except that the control papers were impregnated only with risella oil.

On October 13, 1958, the test was repeated with World Health Organization 4·0 per cent papers using 377 mosquitoes from the same source. There were 182 survivors, that is, 48·3 per cent. 56 mosquitoes were used as control, of which there were 52 survivors.

It is possible, therefore, from these results that just over 40 per cent of the population tested were homozygous for resistance to dieldrin.

T. A. Omardeen

Malaria Division,
P.O. Box 556,
Port of Spain,
Trinidad.
Nov. 17.

METEOROLOGY

Drift of Toxic Chemicals released from a Low-flying Aircraft

When toxic chemicals, such as herbicides or insecticides, are applied under field conditions, there is a risk that damaging concentrations will occur at distances downwind from the source, and that harm will be done to crops, or to livestock and human beings. Of particular interest is the drift of chemicals released from a low-flying aircraft.

An Auster *J 5G*, a small high-wing monoplane, was fitted with a boom-and-nozzle system which produced a spray with a volume median diameter of approximately 200μ, using dyed Shell 'Diesoline', a liquid for which evaporation is slow at these droplet sizes. The aircraft was flown 10 ft. above the ground in open rolling grassland, and several long runs were made at right angles to the direction of the wind. Relevant meteorological records were kept. Deposits upon the ground were estimated colorimetrically after extraction of the dye from large filter papers, and airborne concentrations, in terms of the amounts passing a vertical area at right angles to the wind, were sampled at a height of 3 ft. by means of cascade impactors[1].

For two such experiments the wind speeds were about 8 ft./sec., and the turbulence factor[2] (F) was -3×10^{-3}. The ground deposits are recorded in Fig. 1, using log–log paper, while Fig. 2 gives comparable results for the airborne concentrations; for ease of presentation the results have been calculated for an emission of 100 c.c. per yard of flight. Despite the scatter of the points, and some shortcomings of technique, particularly in the use of cascade impactors to sample such relatively coarse sprays, reasonably reproducible results were obtained.

The cumulative effect of successive swathes in an area is of interest. With a small aircraft a swathe-width of 15 yd. would be representative of, for