Rothamsted Report for 1938
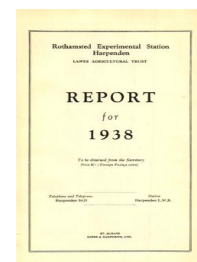
Microbiology

Rothamsted Research

MICROBIOLOGY
(Departments of Fermentation and General Microbiology)

XXXV.　E. H. RICHARDS. "*Note on the Effect of Temperature on a Mixed Culture of Two Organisms in Symbiotic Relation.*" Journal of Agricultural Science, 1939, Vol. XXIX, pp. 302-305.

A study was made of nitrogen-fixation by *Azotobacter chroococcum* alone in a medium containing dextrose (which it can utilize) and in mixture with a coliform organism on a medium containing no carbohydrate except starch, which *Azotobacter* cannot utilize unless it be hydrolysed by the coliform organism or some other agency.

The amount of nitrogen fixed in the mixed cultures was found to be maximal at two temperatures, and a discussion is given of the causes thought to be operative in producing the double maximum.

XXXVI.　A. DIXON. "*The Protozoa of some East Greenland Soils.*" Journal of Animal Ecology, 1939, Vol. VIII, pp. 162-167.

Soil samples from Kangerdlgussuak in East Greenland were examined. A large protozoan population was present even in those which were frozen for nine months of the year, the greatest number of species being found in the soils producing the richest vegetation. The testaceous Rhizopods in these soils were unusually numerous in some of the non-peaty samples.

THE PLANT IN DISEASE : CONTROL OF DISEASE
(Departments of Entomology, Insecticides and Fungicides, and Plant Pathology)

(a) INSECTS AND THEIR CONTROL

XXXVII.　C. B. WILLIAMS. "*The Migration of Butterflies in India.*" Journal of the Bombay Natural History Society, 1938, Vol. XL, pp. 439-457.

This account of the known migrations of butterflies of India was written at the request of the Bombay Natural History Society to stimulate interest in the subject in India. About eighty records relating to 52 species are discussed and tabulated. A map shows the localities where flights have been seen. The species migrating on the slopes of the Himalayas in North India are different from those migrating further south on the plains. The species migrating in South India are, however, very similar to those in Ceylon. There is some evidence of the flight seasons being related to the seasonal temperature changes in the north, and to the monsoon changes in the south.

XXXVIII.　C. B. WILLIAMS. "*Recent Progress in the Study of Some North American Migrant Butterflies.*" Annals of the Entomological Society of America, 1938, Vol. XXXI, pp. 211-239.

This is a summary and discussion of a number of new records of migration of butterflies in North America and particularly of the Monarch (*Danaus plexippus*), the Painted Lady (*Vanessa cardui*), and the Migratory Sulphur (*Phoebis eubule*). In the former southward autumn flights are found in the Eastern States down to Florida and in the Central Plains from the Great Lakes down to Texas. In the mountain areas there are no flights, but they are again found on the Pacific coast. In the Painted Lady invasions occur in the spring from the south apparently only from the arid portions of Western Mexico. Great immigrations occurred in 1924, 1926, 1931 and 1935 but none in the intervening years. For *Phoebis eubule* there is given a remarkable series of observations by Mr. P. Smyth lasting over eighteen consecutive years. Other species are also discussed.

XXXIX.　K. J. FISHER (K. J. GRANT). "*Migrations of the Silver-Y Moth* (Plusia gamma) *in Great Britain.*" Journal of Animal Ecology, 1938, Vol. VII, pp. 230-247.

An account of immigrations of the Silver-Y moth from 1932-1936. The flights in the last of these years was on a very extended scale and considerable