2 days previous to inoculation. The inoculated leaves of many of the sugar beet plants showed large numbers of very small brown or purple lesions about three weeks after inoculation, and some of these plants later became systemically infected. Some sugar beet breeding lines were more susceptible to systemic infection than others.

The virus strains isolated in this way from field plants infected with strain complexes were tested for virulence on *Chenopodium capitatum* Aschers, and this showed that many strains of differing virulence had been obtained. Some of these have since passed through several aphid transfers from sugar beet to sugar beet without apparently changing in virulence and they therefore appear reasonably stable *in vivo*.

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Spread of Yellows Virus by *Myzus persicae* in Sugar Beet Crops

Wingless *Myzus persicae* were reared on sugar beet plants (provided by Dr. G. E. Russell, Plant Breeding Institute, Cambridge) infected with sugar beet yellows virus (SBYV), sugar beet mild yellows virus (SBMYV)[1], or both viruses. Eight widely separated plants in a 7½-acre field of sugar beet each received three adult and six young aphids from these cultures on May 31, 1962, and nearby plants were examined for aphids and virus symptoms at weekly intervals thereafter.

In this exceptional season study of the spread of the wingless aphids was not impaired by the arrival of winged aphids from elsewhere. The apteræ moved readily from plant to plant, even across rows 21 in. apart when the plants were less than 9 in. diameter. During June they spread over patches of the crop more than 10 ft. in diameter, and infected them with virus. Although heavily attacked by adult ladybirds which sometimes outnumbered them, dispersal enabled the aphids to maintain their populations. These populations (less than one aphid per plant) produced eight- to sixteen-fold increases per month in the incidence of yellows virus.

In late June 1961 populations of *M. persicae* in sugar beet seed crops averaged 600,000 per acre (15–50 aphids per plant[2]). With such populations the rate of spread of yellows virus should be much greater than the increases now found in the root crop. With such rapid spread, as yellows symptoms are not visible until three weeks after infection[3], nearly all the seed crop could be infected and infective although only 2·9–10 per cent of the sugar beet seed crop and from 7–31 per cent of the mangold seed crop shows symptoms of yellows virus in June[4]. Thus, although the measures taken in 1950[5] reduced heavy visible infection in the seed crop to these much lower levels, they may not have reduced their efficiency as sources of the disease for the root crop. This would explain why the incidence of the disease in the root crop has not decreased (mean August incidence, 1946–50 = 18·9 per cent; 1957–61 = 21·8 per cent), although there is much evidence that the seed crop is the principal source of the disease[6]. Effective control would be obtained if the seed crops were only grown in alternate years[6].

Experimentally infected plants received SBYV only, SBMYV only, or both viruses. SBMYV spread to more than twice as many plants as SBYV. The least rapid spread was from plants which received both viruses; analysis shows that either virus spread to twice as many plants when it was introduced alone as when the two viruses were introduced together. Also, there is some evidence that when both viruses were present the two infections were usually introduced into a plant at different times.

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ANTHROPOLOGY

Pigmy Tools from the Andaman Islands

Relatively little is known about the archæological work in Andaman Islands except for the work of Stoliczka[1], Holland[2], Cipriani[3], and Dutta[4], and practically no information is available about any stone industry. Some small stone artefacts were recovered by excavation from a kitchen-midden site situated at the Beehive Island (between lat. 12° 24′–26′ N. and long. 92° 55′–56′ E.) in Middle Andaman. The kitchen-middens are numerous in these islands and can be found whenever the elevated ridges are near to the coast or the creek.

The aborigines of the land are considered to be the survivors of the primitive negrito race, subsisting chiefly on hunting and collecting.

The collection comprises a large number of small stone artefacts fabricated out of the siliceous rocky material. They are well preserved. The collection represents a flake and blade industry belonging to the mesolithic stage of culture (the term 'mesolithic' is used here only to indicate the cultural mode of life, and does not imply dating). The industry is primarily based on the utilization of small flakes and blades and the preponderance of primary flakes is worthy of notice. When classifying the material, it emerges that the major types that contributed towards the formation of this industry are blades, points, scrapers, flakes and numerous waste products. The blades, however, are in the majority. Besides these there are some true microliths showing steep retouching. The artefacts are rather primitive, exhibiting a crude technology. The industry is of less antiquity and of recent origin. The artefacts indicate a society based on hunting and collecting economy. From a preliminary scrutiny of the artefacts, it seems that this industry had broad similarities in character with the Toalean and allied flake and blade industries developed in the Far East Islands and South-East Asia.

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MISCELLANEOUS

Possible Role of Meteorites in the Origin of Life

It has been postulated by Oparin[1] that life originated in the seas of the primitive Earth, at a time when the atmosphere was reducing. The dominant sources of free energy for biopoesis are presumed to have been lightning discharges in the atmosphere and ultra-violet radiation from the Sun[2]. However, both agents tend to deposit organic compounds relatively high in the atmosphere, rather than in the seas. Advection, convection, and diffusion must be invoked as the mechanisms depositing the reaction products in the hydrosphere. The purpose of this communication is to suggest a physical process capable of yielding organic compounds of high complexity in the primitive atmosphere and providing a relatively high efficiency of transfer to the hydrosphere.