

and the great problem in the temperate zones is to explain how the arthropod-borne viruses are maintained during the colder months when active insect vectors are scarce or absent. Recent investigations have shown that the young forms of several species of ticks parasitize birds, and it is thus possible that an infected tick could be transported over long distances by migrating birds. The extent and distribution of infections of man with the arthropod

viruses can be determined by antibody survey work, and results of a study of residents of Athens provided evidence that the antibodies persist for at least 30 years following infection. Very valuable information has been obtained in extensive antibody surveys in the Caribbean region and a surprising finding of these immunity surveys is the wide distribution and high rate of infection with some of the recently discovered viruses.

BRITISH AGARICS AND BOLETI

A RECENT check-list of British agarics and boleti* is a logical development from the revised list (1948) of Pearson and Dennis, and embodies a number of suggestions that were put forward in that work. Many unjustified names have been dropped, and a number of new records for Britain have been added. The system used follows in the main that of Singer (1949), thus being narrower than that used in the earlier list. The work is not just the compilation that the title suggests; there are 536 pages in all, including the ancillary accounts, and the work has involved a critical study of actual material of almost three-quarters of the species listed.

Part 1A is a systematic list of genera that will be of assistance to foray secretaries and others who make lists of collections. Part 1B is the check-list proper—an alphabetical list of genera and species with synonyms, misdeterminations, authorities and references. Part 2 is a list of epithets of specific, varietal and formal rank that have been used in the past, and will be of value in translating old names in terms

of the present list. Two papers published in association with the list (Part 3 by P. D. Orton, and Part 4 by F. B. Hora; *Trans. Brit. Mycol. Soc.*, 43, Pt. 2) set out a discussion of taxonomic principles which justifies the treatment given. The view is put forward that genera and species must be accurately fixed as soon as possible, but that as yet we have insufficient information on which to erect varieties and forms. Much useful advice to collectors and taxonomists is given here. Comments on the genera used in the list are given; there is a summary of changes in genera and their subdivisions; validations of new combinations and descriptions of new species are found; and there are critical notes and keys to help understand and use the system.

The work is a massive and comprehensive undertaking, and the authors are to be congratulated on their foresight in visualizing it and on their energy in carrying it to completion. It would be strange if all mycologists were to agree with the decisions taken here: there will no doubt be those who will complain at the changes. But in the long run the sooner a stable and workable system is reached the better. This work is a major step in this direction. D. PARK

* New Check List of British Agarics and Boleti. By R. W. G. Dennis, P. D. Orton and F. B. Hora. Supplement (1960) to *Transactions of the British Mycological Society*.

ENDEMIC AND EPIDEMIC GOITRE IN ITALY

THE almost legendary disease of epidemic goitre re-appeared in 1940 in the Italian Alps and Piedmont, attacking thousands of soldiers in the Province of Cuneo, and in subsequent years spreading to the civil population of the other provinces of Piedmont. It died out in this part of Italy in 1945, but continued to flare up in small foci in Lombardy, Liguria, Emilia, Tuscany and Venetia up to 1948 (*World Health Org.*, 14, No. 8; 1960).

The epidemic appeared in an area where endemic goitre had existed for a long time, raged for several successive years from spring to autumn, affected groups or individuals coming from outside the epidemic areas, and spread to regions from which endemic goitre had disappeared decades before.

The Italian epidemic of 1945-48 affected not only man but also dogs and pigs in some localities. At Monferrato it was shown that goitre appeared both in individuals drinking water from the mains and in those drawing their water from wells and tanks. Most of the goitres disappeared after some months, but some persisted and a few were still visible after some years. Administration of iodine brought no improvement and had no prophylactic effect.

Most of the authors who have studied the Piedmont epidemic admit a relationship between epidemic and endemic goitre. This relationship, however, has been questioned in the case of Tuscany, where epidemics without endemic goitre have been known. An analysis of recent data and of the data available on successive epidemics from the year 1700 have led A. Costa and M. Mortara to the conclusion that the two forms of goitre are diagnostically identical. They emphasize, in particular, the cerebral symptomatology that is clinically manifest to a greater or lesser extent in the two forms, and are inclined to the view that the central nervous system is affected, with elective, but not exclusive, localization in the autonomic centres in the diencephalon. Costa and Mortara consider that the cerebral phenomena manifested in acute epidemic goitre might provide some clues to the cerebral changes that result in the cretinism and deaf-muteness of endemic goitre. An important fact is that endemic cretinism is still to be found in its old sites—the Alps and the southern Apennines, including several surrounding hill and plain areas—but does not appear in association with endemic goitre in the south of Italy. Cretins are rare in the

new generations, and among them myxœdema and dwarfism due to thyroid insufficiency are less frequent.

War difficulties and the comparative lack of knowledge about the symptoms of thyroid dysfunction impeded research at the time of the Piedmont epidemics. Most of the tests were normal. Neutropenia was observed with lymphocystosis, and the blood iodine level was high. No serum antibody to human thyroglobulin was found.

In the Piedmont the uptake of radioiodine is generally greater than normal in the mountain, hill and plains foci of endemic goitre, and the iodine taken up is organically fixed in the thyroid. The excretion curve of radioiodine is slow in comparison with that in hyper-thyroidism. Thyroid clearance of iodine is high, kidney clearance is normal. Body growth, bone maturation, and sexual development in children are the same in endemic and non-endemic areas.

During the epidemics of goitre in the endemic area, the environmental factors traditionally considered to influence the disease—water, malnutrition, deficiencies, consanguinity, and shortage of iodine—all received attention. But none of these factors seems to be responsible for endemic goitre or for the Piedmont epidemics. The epidemic spread gave rise to the hypothesis of an infectious origin, with transmission by an intermediate host favoured by hot weather

—for the epidemics occurred mainly in summer. In Umbria, the heavy consumption of *Brassicæ* containing goitrogenic factors, and in mountain areas a diet lacking in proteins and in some essential amino-acids were blamed. Endemic goitre is essentially rural in character, and Costa and Mortara consider that its frequent occurrence in localities where sheep are raised in stables may be more than a simple coincidence. The possible influence of radiation has not been ruled out, but radon has been sought in the atmosphere and in the water, and atmospheric radioactivity has been measured, without any relationship with endemic goitre being found. The iodine content of air and water and the excretion rate of iodine have shown no significant differences between endemic and non-endemic areas.

Goitre is not a static disease in Italy. It was widespread in the last century and the first decade of this century; then its prevalence decreased. It appears now that the descending curve has been arrested. Goitre has become more common in central and southern Italy, and has flared up in localities of northern Italy which had for some time appeared free from it. In certain areas the epidemics seem to have left endemic goitre in their train. The phenomenon of epidemic goitre in Italy has given rise to observations and research that are not paralleled in other countries; but so far its origin remains unexplained.

SOME CHARACTERISTICS OF GEOMAGNETIC MICROPULSATIONS (P_c)

By PROF. J. A. JACOBS and K. SINNO*

Geophysics Laboratory, University of British Columbia, Vancouver

A DETAILED investigation¹ has been carried out on geomagnetic micropulsations recorded by rapid-run magnetograms during the International Geophysical Year (1957–1958), from seventeen observatories as widely distributed geographically as possible (see Table 1). The results from these seventeen observatories were recorded photographically, not only on rapid-run magnetograms with a recording speed of 20 mm. per 5 min., but also on standard speed magnetograms with a recording speed of 20 mm. per hr.

Micropulsations (P_c) are defined as continuous pulsations usually appearing on the daylight side of the Earth, lasting for many hours with periods in the

range of 10–60 sec., and amplitudes of the order of a few tenths of a gamma in middle latitudes. However, if the evidence of all investigators over a wide area is considered, it becomes apparent that these micropulsations do not correspond to a single wave-band but to two wave-bands, the first a shorter-period micropulsation (about 15–30 sec.) and the second a longer-period micropulsation (about 30–90 sec.). Fig. 1 shows the spectrum of micropulsations which have been investigated by several workers from stations all over the world, and clearly illustrates the division into these two different wave-bands.

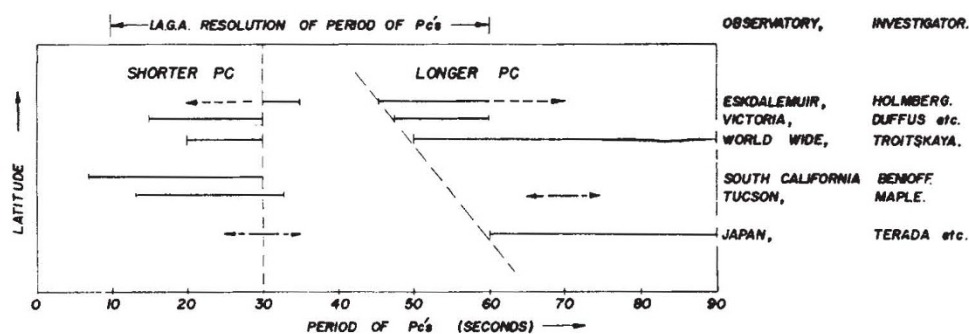


Fig. 1. Latitudinal distribution of spectrum of micropulsations (P_c) with periods greater than 10 sec. as reported by different investigators from data shown on the right-hand side