the removal of restraints to trade and travel between the British and the United States Virgin Islands. It has given full support to the work of the Federal Works Agency in Puerto Rico and the Virgin Islands, as well as to the programme of works projects drawn up by the Development and Welfare Organization for the British West Indies. At a conference in Washington in July 1943, it was decided that the Commission offered an effective medium for co-ordinating sanitation and health problems in the area, and a consultative committee was eventually formed for this purpose. Quarantine matters have received special attention, including the drafting of model quarantine legislation. This received detailed consideration at a Quarantine Conference in November 1943 under the auspices of the British West Indies Development and Welfare Organization in co-operation with the Commission. The primary objective of this Conference was to consider the adoption of uniform quarantine procedure throughout the British Caribbean Colonies in regard to maritime traffic, air navigation, and the adoption of model quarantine legislation.

Scientific workers will find particular interest in the detailed programme of research required on soil, water and forest conservation appended to the report on nutrition, agriculture, fisheries and agriculture which led to the formation of the Caribbean Research Council. In addition, the report itself includes detailed proposals for investigations on diet and health, food supply and nutrition, nutrition and public health, on animal husbandry, for which a long-range research programme is formulated, on fisheries, food processing, storage and marketing. Special stress is laid on research in animal husbandry, which has been wholly inadequate in the Caribbean; it is believed that no other investment would yield greater returns in terms of nutritional well-being than measures to increase the proportion of animal proteins in the diet, through improved and adapted animal husbandry and a stable and more efficient agriculture.

ROYAL COLLEGE OF SURGEONS SCIENTIFIC REPORT

THE Scientific Report of the Royal College of Surgeons of England for the year 1942-43 gives the welcome news that no further specimens, Hunterian or College, were destroyed or suffered major damage during that year. The general condition of the specimens is satisfactory, but the task of looking after a large collection which is dispersed among various centres, some of which do not provide adequate or suitable accommodation, must be an arduous one, especially when so many of the staff are serving with the Forces. The need for better and more convenient accommodation for the specimens, with working room and technical facilities, is still urgent.

The report gives a list, covering six pages, of additions to the Museum, and an account of the research going on in the Bernhard Baron Research Laboratories under the direction of Prof. J. Beattie. During 1941-42 it was shown that plasma proteins can be removed rapidly from the blood-stream and can also enter the blood-stream very rapidly in considerable quantities. It was found that the rate of entry was so rapid that it could not be due to the synthesis of protein from amino-acids in the liver,

and that plasma protein could be mobilized from tissues other than the liver. Since the end of 1942, the problem of increasing the rate of protein synthesis by the liver has been studied. Casein digests suitable for intravenous or subcutaneous administration are now being tried, with the object of increasing the rate of protein synthesis in the body. It is considered that such digests might be valuable for the treatment of burns, severe infections and fractures, in all of which conditions the loss of plasma proteins is considerable. The use of digests and pure amino-acids for the prevention of severe liver damage is also being studied.

In 1943 a study of toxic hepatitis was begun with the co-operation of the British and American Army authorities. It has been found possible to prevent the liver damage which occurs in syphilitic patients receiving arsenical treatment, and to reduce the period spent in hospital from 27 to 11 days and the convalescent period from three months to ten days.

Nerve injuries are being studied by a Leverhulme Research Scholar at Oxford and, at the suggestion of the Ministry of Health, a study was undertaken of raw materials which might take the place of absorbable catgut for sutures. A suitable raw material has been found, and this has passed laboratory and clinical trials. All the staff of the Buckston Browne Research Farm joined the Forces at the outbreak of the War, and the main laboratories there were taken over by the Emergency Public Health Service.

CLASSIFICATION OF ANTS

THE naming of the different species of ants and their classification into genera, tribes, sub-families, etc., is but an artifice, a mere convenience, although an all-important one if we are to dispose of our knowledge of myrmecology to the best advantage. In fact, to-day, a knowledge of formicid nomenclature is essential to anyone wishing to make a reasonable acquaintance with myrmecology.

It is perhaps strange, then, that although some five thousand species of ants have been described and given names since the time of Linnaeus, and these five thousand species distributed among approximately four hundred genera and four-score tribes belonging to eight sub-families, no myrmecologist has during the last thirty years published even a complete list of the ant genera, let alone any more comprehensive guide to formicid nomenclature. It is true that Emery in the "Genera Insectorum" (1910-25) covered the whole family, but although he provides the skeleton for the future taxonomic treatment of the group, it is sadly incomplete and in many cases out of date and inaccurate.

Emery lists only two hundred and sixty genera and fifty-three tribes, which he places in five sub-families (*Dorylinae* Leach, *Ponerinae* Mayr, *Myrmicinae* Lepeltier, *Dolichoderinae* Forel and *Formicinae* Forel) as against the modern eight; the three new subfamilies being the *Cerapachyinae* Wheeler (previously a tribe *Cerapachii* Forel and later a section *Prodorylinae* Emery of the *Ponerinae* Mayr.), the *Leptanillinae* (Emery) Wheeler, containing the solitary genus *Leptanilla* Emery earlier attributed to the *Dorylinae* Leach, and the *Pseudomyrmicinae* (Emery) Wheeler, previously considered as a tribe of the *Myrmicinae* Lepeltier. Furthermore, the "Genera Insectorum" is scarce and difficult to obtain except at universities

and large institutions, where, of course, it may only be borrowed.

Wheeler's lists of the genera and their types (1911 and 1913) were therefore of great value, although incomplete and even more inaccurate than Emery's in the "Genera Insectorum".

The recent publication of Donisthorpe's "List of the Type species of the Genera and Subgenera of the Formicidae" (*Ann. and Mag. Nat. Hist.*, ii, 10, 617, 649, 721; 1943) is therefore an event of considerable importance. For the first time there is an authoritative, complete (so far as is known) and easily obtainable list of the genera and subgenera of ants. Furthermore the tribe, subfamily and also, where it occurs, synonymy of each of the genera listed are given. The type species are listed in each case, together with the type locality.

It is difficult to review such a list without entering into detail which would be out of place here, but which I hope to discuss elsewhere. A few points may, however, be mentioned. The use of the generic name *Lasius* Fabr., a synonym for *Acanthomyops* Mayr (five species of which are found in Great Britain), perpetuated by Wheeler and Emery, should now cease for good and all. Fabricius's name sinks on account of Jurine's earlier one. Ruzsby's subgenus *Lasius* (s.g. of *Lasius* Fabr. *Acanthomyops* Mayr.) also sinks to Morrice and Durrant's *Donisthorpea*. It is nice to see *Crematogaster* Lund for once spelt correctly and not as in Wheeler's "Ants" (1910) and Forel's "Social World of the Ants" (London, 1927) with an 's', namely, *Cremastogaster*, which is meaningless. Emery's mis-spelling of *Chtonolasius* Ruzsby (copied by Donisthorpe in his "British Ants", 1927) has also been corrected.

The function of nomenclature is to aid and simplify the work of the zoologist, not to confuse him and make his task more complex. It is a mechanism for handling the data appertaining to, and not a fundamental part of, biology, and as such the taxonomy of a group should be well-ordered, comprehensible and easily accessible. Donisthorpe is therefore to be congratulated on this attempt to produce order out of chaos and to make accessible that which has been beyond the reach of all but the experienced myrmecologist—in fact, Donisthorpe himself and less than half a dozen others in the world.

B. D. WRAGGE MORLEY.

PELAGIC FORAMINIFERA

WE owe much of our recent knowledge of the biology of the Foraminifera to Dr. E. H. Myers. His new publication* is a peculiarly beautiful example of his work, embracing the complete life-cycle of *Tretomphalus* and its activities observed both in Nature and in cultures. The life-cycle includes an orderly succession of sexual and asexual generations in which two distinct types of individuals and three types of tests are involved. Typically benthonic microspheric (asexual) and megaspheric (sexual) individuals are produced, the latter becoming pelagic prior to the discharge of the gametes. The test of the pelagic phase has a globular terminal chamber, perforated by large pores, and contains a gas-filled float, the gametes passing out of the pores. The zygotes are formed by the fusion of gametes from

different parents, the latter approaching one another and their amoeboid pseudopodia anastomosing—an unusual occurrence in the Foraminifera. This association ensures the fertilization of a maximum number of gametes, which settle on the bottom and produce microspheric tests. So the life-cycle proceeds.

Tretomphalus is shown to be significant only as a convenient category in which to place the pelagic stage of species which are now included in either the genus *Discorbis*, family *Rotaliidae*, or the genus *Cymbaloporella*, family *Cymbaloporidae*. Much confusion in nomenclature has been caused by the polymorphic nature of these tests, and this work should contribute largely to a more natural classification.

Observations on feeding show that swiftly moving organisms, such as nauplii, ciliates and veligers, are not captured, although these can be utilized as food when crushed and placed in the vicinity of the test. On the other hand, grazing on diatoms and other unicellular algae on the walls of the dish is usual, and inclusions of these can be seen in sections. Similar sections of material from the sea show that the natural food is the microflora both from the water or on the substratum fixed on the surface where the animals live.

Interesting accounts are given of the formation and growth of the tests. Under optimum conditions in cultures maintained at 20° C., about forty-two days are required for an asexually produced individual to form a test consisting of 13–17 chambers.

The illustrations which accompany this paper, both photographs and drawings, are of great beauty and clarity, and special mention should be made of the photograph of dispersal of the juveniles and the disintegration of the empty test of the microspheric individual which produced them: also the figure of the life-cycle of *Tretomphalus bulloides*.

RECENT AMERICAN ARCHAEOLOGY

EUROPEAN archaeologists are too often apt to forget that the prehistoric period continued in many parts of the world, America included, until about the day before yesterday. Moreover, just because the later time limit of the study is so recent, much more evidence can frequently be collected than in the case of the very remote cultures, and thus a picture in greater detail constructed. The fact, then, that Waldo R. Wedel's recent archaeological investigations in Platte and Clay counties, Missouri (United States National Museum, Bull. 183), deal with finds which in western Europe would be classed as post-medieval in date, does not make them any less interesting or less important. The interest and importance of the ruins at Zimbabwe in Southern Rhodesia were not lessened when it was shown that their date was anything but prehistoric in our sense of the word.

Mr. Wedel is concerned with village sites and two kinds of burial mound. He suggests the presence in the area of two different cultures. One (the Renner village site is the type site) shows definite relationships with certain "Northern Elemental Hopewellian Manifestations" such as those found in the Illinois valley and south-western Wisconsin, the other (the Steed-Kisker site is the type station) recalls the Nebraska culture, characteristic of the Missouri River bluffs in eastern Nebraska and south-

* Biology, Ecology and Morphogenesis of a Pelagic Foraminifer. By Earl H. Myers. Stanford University Publications. University Series. Volume IX, Number 1. Biological Sciences. Stanford University Press, 1943.