this country. From his address we gather that he would dissociate entirely the training in entomology from the general zoological training, doing it as a post-graduate course. The trend of the course, he pointed out, must not be that of the comparative anatomist, the evolutionist, the systematist, or the histologist. The difficulty in making economic zoologists in England, he thought, would be the preponderance of the academic view and the total absence of the economic view based on experience. English universities have a very long way to go before they can turn out entomologists of the practical stamp that America does.

Referring to the lack of knowledge of entomology of the medical men who apply themselves to entomological problems, he described it as very painful, but in England there are so few places where medical men can obtain their training, and even then it seems to lack much. The kind of training in our universities is too academic for men who are required to solve problems requiring practical solutions.

We are on the threshold of greater things, and whatever problem comes one must put one's hand on. Only so is the practical entomologist going to convince an unlearned public and sceptical governments that there is anything at all in it, and we are, in England certainly, beginners who must look to the future. England should be the source at least of the entomologists of her Empire, but she is not, and unless radical changes take place in the atmosphere of her teachers, she will not be. The training will have to be that of practical field entomologists if the demand has to be met from England, and the last thing it wants is the academic zoological training of the average English university.

A perhaps more important subject to economic biologists generally was Mr. H. Maxwell Lefroy's address on the standardisation of economic nomenclature. The almost hopeless muddle that at present reigns in the nomenclature in the literature bearing on economic biology is little short of appalling.

Mr. Lefroy proposes to meet this difficulty by having a standard catalogue of the important species with the name most in use in biological literature definitely decided on, so that the further changes in nomenclature need not affect the economic biologist. The guiding principles would be that it should be independent or unaffected by the rules of priority. It should be based on the name used in important biological literature. Genera in which there is a close uniformity of habit and life-history, or which form a distinct class of pest, shall, for this purpose, be retained whole and not subdivided, *e.g.* Lecanium, Dactylopius, Agrotis, Gryllotalpa. To make existing and future biological literature accessible by adopting and making permanent the name under which it was written, and not to perpetuate inviolate the author of a name or description in the systematic literature. Writing recently on this subject, Mr. Lefroy stated, "In this matter, teachers and practical entomologists alone are concerned; to the systematic entomologist, the mazes of synonym and priority are (apparently) the breath of life, and the pastime might be a quite harmless one; . . . but to practical men who wish to check the growing spread of insects from country to country, who wish to cooperate to deal with big problems, who see in agricultural education the chief solution of these big problems, the question is one of vital importance. I think all economic entomologists will agree that we are immensely adding to the difficulties of our work, if it is to be anything more than parochial, either by modifying our nomenclature in accordance with the priority discoveries of systematists or by arbitrarily using the nomenclature we think most suitable. It is impossible for an isolated worker in a far country to do more than offer suggestions; I feel assured it will be for the permanent ultimate good of our science if we can overcome this growing monster, and I think the Association of Economic Biologists might fitly take up the subject."

As the outcome of Mr. Lefroy's suggestion it was decided to form a committee to consider and report upon the matter. The committee appointed were Richard S. Bagnall, Prof. Geo. H. Carpenter, H. Maxwell Lefroy, Dr. R. Stewart MacDougall, Robert Newstead, and Walter E. Collinge (hon. sec.).

Such a scheme will greatly facilitate investigation and the reference to work done, and this desire to place matters upon a sound basis is perhaps one of the best auguries for the future prosperity of the association.

A further very interesting discussion was initiated by Dr. J. H. Priestley on the systematic recording of diseases of economic plants. The Biological Committee of the Agricultural Education Association have for some time past given consideration to the question of establishing at a convenient centre a record, as complete as possible, of the various fungus, insect, and other diseases of economic importance, reported in the British Isles from time to time. The main object of such a record would be to aid the scientific investigator who wished to get into touch as quickly as possible with the scattered literature and notes dealing with the distribution of, and other questions relating to, some disease or pest of which he was making a particular study. It had been decided to approach other bodies likely to be interested with a view to cooperation. It was decided to give the scheme approval and support.

All these activities indicate the growing importance of the subject, the possibilities of which we have yet but dimly realised; the multifarious lines of research are vast and the field is an ever widening one, and the need for work and workers pressing. That the workers of this country will bear their share in elucidating some of the hidden mysteries, and directing their application on the problems of our everyday life, is greatly to be hoped.

W. E. C.

ECOLOGICAL STUDIES.

A NOTE by Dr. C. C. Hosseus on the flora of Wang Djao, a station on the Meping River in middle Siam, appears in Engler's *Botanische Jahrbücher* (vol. xlv., part iii.). Trees of *Dipterocarpus laevis* and other species clothed with epiphytes, especially orchids, are prominent along the river banks. On the savannah lands in the vicinity *Cassia siamea* is the dominant tree, while *Andropogon brevifolius*, species of Scitamineæ, and *Hibiscus Abelmoschus* are conspicuous amongst the ground vegetation.

In the Bulletin of the Illinois State Laboratory of Natural History (vol. ix., art. 3), Dr. H. A. Gleason presents an instructive ecological study of the vegetation of the inland sand deposits of Illinois. He distinguishes prairie, blowout, swamp, and forest formations. The prairie formation consists largely of bunch grass associations, in which *Koeleria argentea*, *Leptoloma cognatum*, *Panicum pseudopubescens*, and *Andropogon scoparius* are dominant species, either alone or in combination. On the patches between the grass clumps there grow various perennials of the type of *Aster linariifolius*, or *Callirhoe triangulata*, some annuals, and *Selaginella rupestris*, which spreads in circular rings. The formation and different aspects of the sand dune are described. The most efficient dune-formers are *Panicum virgatum*, which possesses long tough roots and tufted stems densely covered with persistent leaves, and a local variety of *Rhus canadensis*, which continually grows above the sand that collects around its dense tangle of stems.

A phytogeographical sketch of the Andes in the south-east of Bolivia, communicated by Mr. K. Fiebrig to Engler's *Botanische Jahrbücher* (vol. xlv., part i.), provides a good biological account of the remarkable modifications developed on the wind-swept high plateaux, the Punas, at an altitude of 12,000 feet. Cushion plants of a much branched, closely compacted character are displayed by *Azorella madreporica* and *Pycnophyllum Pilgerianum*, while a less extreme type is developed by many of the Compositæ, an Ephedra, and the globular cacti. Acaulescent long-rooted plants are exemplified by species of Astragalus, a new species of Alyssum, and *Dalea callianthes*. The numerous dwarf shrubs include many species of Compositæ, a Fabiana (Solanaceæ), and the thorny rosaceous plant, *Tetraglochin strictum*. Several bulbous plants occur, notably an Alstrœmeria and a grass-like Sisyrinchium, and an evil grass, *Festuca orthophylla*, covers extensive patches with porcupine-like leaves. Other formations described are the Alpine, the valleys, and the lowland forests.