

capricious decision of the mass. He contended that it was a scientific problem, and suggested that if science could establish that a normal man could work up to a given standard without detriment to his physical condition and without injury to his health or chance of longevity, the number of hours of a working day could be standardized. In the discussion on the bill in committee he contended that there ought to be a scientific department, working in relation with the Ministry of Health, to decide various matters of a physiological nature in relation to capital and labor, including suitable hours of work. We may point out that a large amount of scientific work had been done in this direction, some of which is summarized in the reports of the Health of Munition Workers Committee, but the subject is complex and physiology is far from having found a complete solution. It is comparatively easy to estimate the amount of energy given out in various kinds of work at various paces, but muscle fatigue is only one and probably the least important element in fatigue. There is in addition the mental element, which can not be measured, and the nervous element, which it will be possible to measure with difficulty if at all. Nervous fatigue occurs in the initiating and distributing nervous mechanisms of the brain and spinal cord, which are more quickly fatigued than the contracting muscles; consequently in the animal body the impulses to activity, springing from the brain, can not bring the muscles far towards complete fatigue before their sources are themselves fatigued and impotent. Though a tired man may refer his tiredness to the muscles, in reality the most severe bodily activity does not produce any close approach to complete fatigue of the muscles. The fatigue is of the nervous system, though its effects may be referred to the muscles. The conclusion of the committee was that the problems of industrial fatigue were primarily, and probably almost wholly, problems of fatigue in the nervous system and of its direct and indirect effects. Another complicating matter is that the human body seems to be adapted to withstand short spells

of severe labor, broken by longer spells of rest; the point is illustrated by the story of a wager between two officers at the front as to the time to be taken in making equal lengths of a trench, each with an equal squad of men. One officer let his men work as they pleased, but as hard as possible. The other divided his men into three sets, to work in rotation, each set digging their hardest for five minutes and then resting for ten. The second team won easily. Another conclusion—this time in a report by Dr. H. M. Vernon to the same committee—was that the hours of labor ought to be varied between wide limits according to the character of the work performed. This seems the most promising line of inquiry.—*British Medical Journal*.

SCIENTIFIC BOOKS

Injurious Insects and Useful Birds. By F. L. WASHBURN, M.A. Philadelphia, J. B. Lippincott Co. Pp. xviii + 453. Price \$1.75.

This little book is one of a series called "Lippincott's Farm Manuals" edited by Dr. K. C. Davis, and now containing about a dozen hand-books on as many phases of agricultural practise. The author of this volume, Professor Washburn, has for many years held the positions of state entomologist of Minnesota, professor of entomology, University of Minnesota and entomologist of the Agricultural Experiment Station, consequently as an investigator and teacher he is in possession of some first-hand knowledge and is posted regarding the work of others. A list of questions at the end of each chapter shows the custom of the teacher.

The book is divided into twenty-one chapters, with headings as follows: Loss to Agriculture Due to Insects and Rodents; Farm Practises to Lessen Insect and Rodent Injuries; External Structure of Insects, Orders. Metamorphosis; Collecting and Preserving Insects; Insecticides and Spraying; Fumigation; Insects Injurious to the Apple; Insects Affecting the Pear and Quince; Plum, Peach and Cherry Insects; Insect Pests of Berries and Grapes; Principal Insects affecting Citrus

Fruits; Insects affecting Field Crops and Pasturage; Insects affecting Truck Crops and the Vegetable Garden; Insect Enemies of Greenhouse and House Plants and of the Flower Garden; Insects affecting Shade Trees; Insects affecting Man and the Household; Insects and Insect-like Animals attacking Stock and Poultry; Mill and Elevator Insects and Mill Fumigation; Our Insect Friends; The Relations of Birds to Agriculture; Some four-footed pests of the Farm.

There are four colored plates, and 414 illustrations in the text, many of the figures are from original photographs and drawings, and the others are borrowed from various sources, due credit being given.

This little volume differs from most other manuals of injurious insects in that considerable information regarding common birds and rodents may be found in the same book. Of course where so many species are treated within the limits of a small-sized volume, the account of each must necessarily be very brief. Probably the value of the work would have been enhanced by giving after each one or two references where the reader could obtain more complete information.

Nevertheless the author has condensed a large amount of information in this small volume which is well printed and supplied with index. It will prove a convenient manual for all growers of plants and keepers of live stock.

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ANTHROPOLOGICAL RESEARCH¹

At the meeting of the American Anthropological Association held in Baltimore, December 27, Professor J. C. Merriam, representing the National Research Council, made a formal statement of the plans of the council in regard to the organization of science, and requested an expression of opinion on the

¹ Report of the Committee of the American Anthropological Association to Professor G. E. Hale, chairman of the National Research Council, Washington, D. C.

part of the American Anthropological Association in regard to the position of anthropology in the work of the National Research Council.

In consequence of this request and the discussion following it, the undersigned committee was appointed for the purpose of giving to the National Research Council information in regard to the work actually done by American anthropologists. A statement has been added pointing out the causes for the slow development of certain branches of anthropology.

The committee has submitted a number of questions to American anthropologists and attached to this are a number of replies to our circular letter.

The general tendency of the scientific work of American anthropologists may briefly be summarized as follows: It is but natural that in a country like our own, which contains the remains of a considerable number of primitive people, the historical interest in the aborigines, combined with the ease of accessibility of the remainder of the ancient tribes, should bring it about that inquiries relating to their customs, languages and physical types should dominate American anthropological research, and that theoretical work should be based very largely upon the results obtained from a study of American tribes. The methods which give the easiest results in regard to these problems are archeological, ethnographical and linguistic, and for this reason these three lines of inquiry have hitherto predominated in the research work of American anthropologists.

At the same time the necessity for a broader outlook is keenly felt. The Field Museum of Natural History has included in the scope of its work Eastern Asia, Malaysia and Melanesia. Harvard University has expanded its work over Africa. The University of Pennsylvania has undertaken research work in South America, the American Museum of Natural History and the United States National Museum, in Asia, and a few other attempts of similar kind for obtaining a wider basis for research in cultural history may be noted.