understanding of the subject in which he is interested.

The author might have gone farther in stating that many publications supposedly written in a popular manner—at least designed for distribution among the agricultural population—are so filled with technical terms as to render them unintelligible to the average reader. Many of the writers who publish in this manner fail to furnish summary accounts of what has been given in detail, and thus the reader is obliged to peruse many pages which have no interest to him in order to secure the object desired, which is usually an approximate knowledge of the appearance of the insect, the nature of its ravages, life-history, and, above all, the means for its reduction.

It might have been added that every year brings new pests to our shores, which in time become disseminated by flight and commerce through our country, and that this necessitates the publication of new popular works or of new editions of the old in order to consider these foreign pests and bring the works up to date.

In estimating the money value of the injury done by insects the author states that when we include that done to fruits, truck crops, domestic animals and timber, $300,000,000 is a conservative estimate of the price these apparently insignificant creatures annually cost this country.

One good feature of the author's treatment of his subjects consists in the space given to the consideration of general farm practices that may be used in combating insect pests. In the treatment of this chapter he points out that few farmers in planning the management of their land for crops for the season consider the effect which any given procedure will have upon injurious insects with which they may have to contend. Farmers too frequently fail to look far ahead, and rotation of crops when practiced is more for the sake of soil improvement than for the reduction of insect attack, and yet crop rotation is the only remedy for many species of insects when they occur in injurious numbers over large areas, *e. g.*, in fields of grain. Among other methods of tillage, clean farming, the destruction of weeds that might harbor injurious species, the burning over of fields after the crops have been made, fall plowing, drainage, the judicious use of fertilizers, the employment of trap crops, and the selection of the proper time for planting, are considered. Due attention is also given to the structure and development of insects, to beneficial insects, the value which accrues from the use of poultry as insect exterminators, and to insecticides, and the means for preparing and applying them.

Professor Sanderson's work is well fitted for the class of persons whom it is designed to reach, and it should have a large sale.

F. H. CHITTENDEN.

SCIENTIFIC JOURNALS AND ARTICLES.

THE *Journal of Comparative Neurology* for March contains two papers by J. E. Johnston on 'The Brain of *Petromyzon*,' and the 'Primitive Functional Divisions of the Nervous System.' The structure and connections of the nuclei of the cranial nerves in *Petromyzon* are closely similar to those of *Acipenser* previously described by the same author. Especially noteworthy is the presence of a large post-auditory lateral line root and a lobus lineæ lateralis corresponding to that of selachians and *Acipenser*. The fasciculus communis root of the facialis and the central relations of the sensory IX. and X. nerves are recognized and described for the first time. The cerebellum is in a very primitive condition histologically, the Purkinje cells being represented by simple large cells similar to those of the acusticum. In the forebrain the illusion of a well-developed cortex is due to the crowding and telescoping of the parts by pressure from the upper lip. The nuclei and fiber tracts are shown to be strictly comparable to those of the brain of other fishes. There is no cortex. The olfactory lobe contains a large number of slightly differentiated cells which serve as the end-nucleus of the olfactory nerve. In the second paper the author defines the longitudinal zones of the spinal cord and brain and the peripheral components and end-organs related to each.

The American Naturalist for March commences with observations on 'A Remarkable Occurrence of the Fly, *Bibio fraternus* Loen' by James G. Needham, the writer noting that several counts showed an average, on the ground, of 15 to a square foot, and that there were forty acres of *Bibio* territory. Even more remarkable was 'An Unusual Occurrence of *Dinoflagellata* on the California Coast' described by H. B. Torrey. The organism was a species of *Gonyaulax* and it caused the death of large numbers of fishes, holothurians and crustaceans, probably the putrefactive changes produced by the death of vast numbers of *Gonyaulax* itself. Annah Putnam Hazen describes 'Regeneration in *Hydractinia* and *Podocoryne*,' and James A. G. Rheen discusses 'The Standing of *Pteropus Haldemani* Hallowell' which he considers as a synonym of *Epomophorus gambianus* Ogilby. Finally there is a long and valuable article by John H. Lovell on 'The Colors of Northern Polypetalous Flowers' considered not only in their relation to insects but to the origin of the colors themselves.

The Popular Science Monthly for April opens with a discussion of the question 'Is this a Degenerate Age?' by J. J. Stevenson, who evidently considers that it is not. Frank H. Bigelow describes 'The Formation and Motions of Clouds,' showing the necessity for a study of the higher regions of the atmosphere in order to enhance the accuracy of weather forecasts, while under the title 'Contributions to Biology from Investigations on the Breeding Salmon' Yandell Henderson reviews the work of Miescher and gives some of the more important results of his observations. Frank Thilly discusses the question 'What is Philosophy?' and Edwin Grant Dexter presents 'A Study of Calms,' showing their apparent effect upon life phenomena. 'Our Foreign Commerce in 1901' is considered by Frederic Emory, showing what advances have been made in foreign trade and what may still be done in that direction, and Frank K. Cameron treats of 'The Soil as an Economic and Social Factor,' making a plea for more serious consideration of the subject. J. H. Gore tells of the proposed 'Draining of the Zuider Zee' and David Starr Jordan of 'The Evolution of Fishes.' Finally we have some notes on Scientific Literature and the Progress of Science, the whole making an extremely good number.

SOCIETIES AND ACADEMIES.

THE SCIENCE CLUB OF THE UNIVERSITY OF WISCONSIN.

At the January meeting of the Club Dr. Victor Lenher described some curious results of an investigation of the telluride minerals. He has observed that when metallic tellurium and a gold solution are brought together, the gold is completely precipitated, while the replaced tellurium passes into solution. The natural tellurides of gold, when brought in contact with chloride of gold, precipitate gold from solution, and when only a little gold solution is used they completely bleach the yellow solution. Not only does this reaction show why gold is not infrequently found as a pseudomorph in the telluride localities, but it also casts considerable doubt on the true chemical character of the tellurides. As the fusion of gold with tellurium gives an alloy which precipitates gold from solution, this method of preparing an artificial telluride has been unsuccessful. Hydrogen telluride introduced into a gold solution was found to act as a reducing agent, precipitating pure gold containing no trace of tellurium. As sulphur chloride and nitric acid extract tellurium from these minerals, leaving noble metal as a residue, grave doubt seems to be cast as to these minerals being true chemical compounds.

On February 27 Professor Louis Kahlenberg lectured before the Club on the subject, 'Chemical Action and the Theory of Electrolytic Dissociation.' After a brief explanation of the theory of electrolytic dissociation, the lecturer stated that adherents of the theory have claimed that instantaneous chemical action, and even all chemical action, is due to the presence of free, charged ions, in other words, that instantaneous chemical changes take place only in conducting solutions. This claim is based on the fact that