While this must for centuries be the standard work on our native trees, its bulk and cost preclude its use elsewhere than in the herbarium, museum or library, and it was imperative that the same author should prepare a handy field (or rather, forest) manual which should give to a much larger number of people the opportunity of studying our forest trees. This has now been done in an admirable manner in the Manual which made its appearance some time in March of the present year.

The book opens with a synopsis of the sixty-one families of plants included, the sequence being that of Engler and Prantl's 'Die Natürlichen Pflanzenfamilien,' and this is followed by an analytical key to the families, based on the characters of the leaves. Then follows the descriptive manual proper, in which after a clear and pretty full characterization of each family there is given a conspectus or analytical key to the North American genera. The characters of each genus are set forth much more fully than they are in the usual botanical manuals, and a paragraph is usually appended giving geographical, numerical and economic data. A convenient key enables the student to readily find the particular species in which he is interested.

The specific descriptions leave nothing to be desired, usually including full descriptions of the leaves, flowers, fruits, seeds, the tree as a whole, its winter buds, bark and wood, and are followed by concise accounts of their natural geographical distribution, and the extent of their cultivation for ornamental and other purposes. With each species is a figure of the characteristic features of the species, usually the foliage, flowers and fruit. By means of these figures alone one can identify nearly every species.

The book is thus thoroughly satisfactory, and must at once become a standard among systematic manuals. It will appeal to the general botanist as a distinct and notable contribution to the literature of systematic botany, and at the same time it will be recognized by students of forestry as an indispensable handbook. For the latter, in this day of forestry schools and forestry courses of study in the colleges and universities, it is indeed fortunate that this manual has made its appearance. Without it North American dendrology was a most difficult subject for both professor and student, on account of the scattered and uncoordinated descriptions in the botanical manuals—the 'Silva' being quite too expensive a work for every-day use by students. This difficulty is now wholly removed by the publication of the manual.

Looking over the families which include North American trees, one finds that the conifers number 90 species and varieties; the palms, 10; *Liliaceae,* 9; the *Juglandaceae,* 15; *Salicaceae,* 32; *Fagaceae,* 52; *Rosaceae,* 169 (of which 132 are species of *Crataegus*); *Leguminosae,* 34; *Aceraceae,* 17; *Cornaceae,* 8; *Ericaceae,* 9; *Oleaceae,* 19. The generic and specific nomenclature is modern, so that one finds *Tumion* (instead of *Torreya*), *Hicoria* (instead of *Carya*), *Toxylon* (instead of *Maclura*), *Malus* (instead of *Pyrus*), *Sassafras sassafras* (instead of *Sassafras officinale*), and *Catalpa catalpa* (instead of *Catalpa bignonioides*). No attempt is made to cite synonyms, the author evidently assuming that the student might well trust him in the selection of the oldest available name. The author has added a handy glossary of technical terms, and the volume closes with a very full index in which English and Latin names are arranged in a single alphabetical series, thus avoiding the nuisance of two indexes, one for the common and another for the scientific names.

This book suggests to one that Professor Sargent is the man to give us a similar book devoted to the exotic trees (and probably shrubs also) of which so many are now given in this country.

CHARLES E. BESSEY.
THE UNIVERSITY OF NEBRASKA.

SCIENTIFIC JOURNALS AND ARTICLES.

The Journal of Comparative Neurology and Psychology for May contains an article of 100 pages, entitled 'The Morphology of the Vertebrate Head from the Viewpoint of the Functional Divisions of the Nervous System,' by J. B. Johnston, of West Virginia University. The 'head problems' have recently re-

ceived renewed study from the standpoints of comparative anatomy and comparative embryology by some of our ablest morphologists, but none of these researches appears to give adequate attention to the recent phases of the doctrines of nerve components and the functional subdivision of the nervous system. Professor Johnston reviews this literature exhaustively from the new point of view and in the light of his own researches (partly not before published), discussing the problems of head morphology and segmentation with illustrative diagrams and tabular summaries. The phylogeny of the organs of special sense is discussed fully with reference to their primitive segmentation and their derivation from more primitive types of sensory mechanisms.

Bird-Lore for May–June contains the following leading articles: 'The Motmots of our Mexican Camp,' C. William Beebe; 'Some Early American Ornithologists, II., William Bartram,' Witmer Stone; 'The American Bittern at Home,' E. G. Tabor; tenth paper on 'The Migration of Warblers,' W. W. Cooke; Notes and Book News and Reviews. The section devoted to 'The Audubon Societies' contains much encouraging information in regard to bird protection, but shows that continued effort is still necessary, particularly in the case of game birds. The final paper is a 'leaflet' devoted to the Barn Owl and showing his good qualities as a mouser.

The Popular Science Monthly for June contains papers by the following contributors:

William A. Locy: 'Von Baer and the Rise of Embryology.'

Edward S. Holden: 'Galileo.'

Arthur H. Daniels: 'The Teaching of Logic.'

Charles A. White: 'The Mutations of Lycopersicum.'

Henry S. Williams: 'What is Research?'

W. J. Beal: 'Plants that Hide from Animals.'

SOCIETIES AND ACADEMIES.

THE GEOLOGICAL SOCIETY OF WASHINGTON.

The 168th meeting of the Geological Society of Washington was held on April 26 at the Cosmos Club.

As informal communications, Mr. L. C. Graton exhibited photographs of Taughannock Falls, New York, and Dr. F. E. Wright explained a new method of determining the optical character of minerals. The regular program included the following papers:

The Ore Deposits of the Ouray Quadrangle, Colo.: Dr. J. D. Irving.

The ore-deposits are located in a small area of about three and one half miles square in the precipitous country in the near vicinity of Ouray, Colo.

The rocks of the region comprise a series of sedimentaries ranging in age from Algonkian to Cretaceous, with included porphyries, while the higher hills are capped by thick beds of volcanic tuff.

The ores are classified as silver-bearing fissure veins, gold-bearing fissure veins, replacement deposits in quartzite, replacement deposits in limestone.

The silver-bearing fissure veins penetrate the sedimentaries and pass occasionally upward into the volcanic tuff. They carry galena, tetrahedrite and some other sulphide in a gangue of barite and quartz. Replacements of limestone occur where beds of this rock are penetrated by the fissures. The silver values are present in the tetrahedrite.

The gold-bearing fissure veins are associated with intrusive dikes of monzonite-porphyry, and contain chiefly auriferous pyrite with some chalcopyrite in a gangue of quartz and crushed country rock.

The replacement deposits in quartzite are flat shoots of gold-bearing pyrite with a little galena and other sulphides which have been deposited in quartzite. It is thought that they owe their origin to alkaline waters that have ascended to the quartzite through minute fissures. The quartzite is fully replaced only in the neighborhood of the fissures and is surrounded by empty solution cavities in the quartzite resembling those usually encountered in the limestone beds. The ores range from $30 to $600 in value.

The replacement deposits in limestone are of three kinds. One is in the limestone beds along the courses of the normal fissure veins