counts for both the origin and purpose of secondary sexual characters in the following way. Males are more conspicuous in nature than females: males are less valuable than females. Males and females are associated together during life, and especially during the breeding season when the difference in color is greatest, and when their difference in value is highest; therefore according to the theory, the conspicuous color of the male serves to control natural selection in such a way that the less valuable male will be killed in preference to the more valuable female."

It is assumed that if the male is taken, the female and young will *not* be taken. But the reader might reasonably inquire how the family would be benefited by the loss of its strongest member, and how the survivors would be protected after his demise. Is it to be supposed that the appetites of all enemies will be permanently appeased by a single meal, and that the father having been taken the family will not be further molested?

Not only conspicuousness due to color but also such as may arise from movement, sound or scent is interpreted in this same way. This puts a new meaning on courtship and other means of display and on song, which are all supposed to be protective to the family in which they occur by causing the destruction of those individuals which thus advertise themselves, which result is then supposed to give the others a better chance to survive.

For illustrations in support of his theory the author relies chiefly upon British birds, though reference is frequently made also to insects.

W. E. CASTLE

PUBLICATION OF THE AMERICAN EPHEMERIS AND NAUTICAL ALMANAC FOR 1916

THE *American Ephemeris and Nautical Almanac* for the year 1916, recently issued by the U. S. Naval Observatory, differs materially in construction and arrangement from previous numbers of this publication.

The preparation of this volume marks the inauguration of the scheme of cooperation adopted by the congress of representatives of the various national Ephemerides held at Paris in 1911. In accordance with this agreement a portion of the material contained in the volume for 1916, including the greater part of the Greenwich Ephemerides of the moon and planets and the apparent places of the stars, has been supplied by the foreign almanac offices, while the office of the American Ephemeris has in turn furnished to all foreign offices the data regarding eclipses, occultations, physical ephemerides of the sun, moon and planets, etc. This system of exchange reduces considerably the amount of duplication of work by different computers, and will, it is believed, prove mutually beneficial to the offices concerned.

Congress has, however, in the law authorizing this exchange, provided that any such arrangement shall be terminable on one year's notice and that the work of the Nautical Almanac Office during the continuance of any such arrangement shall be conducted so that in case of emergency the entire portion of the work intended for the use of navigators may be computed by the force employed by that office, and without any foreign cooperation whatsoever; and that employees whose services in part can be spared on this account may be employed in improving the tables of the planets, moon and stars, to be used in preparing for publication the annual volumes.

A rearrangement of the material contained in the first part of the Ephemeris has been made, with the view of giving it in better and more convenient form for the astronomer. Instead of giving portions of the ephemerides of the sun and moon alternately, month by month, there is now given for the entire year first the ephemeris of the sun complete, then the ephemeris of the moon complete, then the ephemeris of each of the seven major planets.

Other changes worthy of note are the following: Daily ephemerides are given for 35 circumpolar stars instead of 25, and they have been arranged in more convenient form. The apparent right ascensions of stars whose declination is less than 60° are given to $0.^{s}001$, and the apparent declinations of all stars are

given to 0."01. The data relative to eclipses, occultations, physical ephemerides and satellites, are given in Greenwich time instead of Washington time. The style of type adopted permits the publication of much of the material in a more condensed form without loss of legibility.

The preparation of the material for the *American Ephemeris and Nautical Almanac* for 1917, on the same general lines as the volume for 1916, is now well advanced.

J. A. Hoogewerff
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BOTANICAL NOTES

FOREST TREE DISEASES

A handy little field manual for the practical use of foresters has been prepared by E. P. Meinecke, forest pathologist, in the Bureau of Plant Industry of the United States Department of Agriculture, under the title "Forest Tree Diseases Common in California and Nevada." In less than 70 pages the author manages to call the attention of the reader to about twenty-five diseases of various parts of the tree, and to give some general notions as to the nature of disease in plants, and the structure of the fungi which cause most of the tree diseases. Twenty-four half-tone reproductions of photographs help to make it easier for the young forester to identify the particular trouble he may have in hand.

ANOTHER TREE BOOK

Appealing largely to foresters also, Professor J. H. Schaffner's "Field Manual of Trees," may well be noticed here. For the region covered (Virginia, Kentucky and Missouri northward, and westward "to the limits of the prairie") we do not know of a more useful little book than this. In about 150 pages the author makes it possible for the reader to determine the name and relationship of the native and more commonly cultivated trees of the northeastern United States. It should find a large use in the high schools of the country, and the young forester will find it a most handy book to have in his pocket when he goes into the woods.

A PHARMACEUTICAL BOTANY

In a little more than one hundred pages Professor H. W. Youngken and F. E. Stewart have condensed the principal morphological and taxonomic portions of botany that they deem should be known by the student before he enters the field of pharmacology. As a hand-book to accompany a course of lectures this little book should prove very helpful, and apparently this was the purpose the authors had in mind when they prepared the text. We imagine that this booklet or one something like it might prove useful in other applications of science, as in agriculture, horticulture, agronomy, medicine, etc.

FLORA OF SOUTHEASTERN WASHINGTON

More than a dozen years ago Professors Piper and Beattie, of the State College of Washington published a useful little book under the title "Flora of the Palouse Region," and now they bring out a revision and extension of that work as the "Flora of Southeastern Washington and Adjacent Idaho." In its present form it makes an octavo book of nearly three hundred pages of close, and rather small type. In all 1,139 species are described, and it should be understood that they are *described* and not merely indicated by keys, as is so commonly the case in recent local floras. In fact this is a genuine manual of the systematic botany of a particular region. There is a general key to the families at the beginning of the book, followed by descriptions of the families (with keys to the genera), descriptions of the genera (with keys to the species), and finally good descriptions of the species. The nomenclature is modern and all specific names are decapitalized. It is a most creditable piece of botanical work.

MORE FLORIDA MANUALS

Some time ago (February 27, 1914) we noticed the botanical activity of Dr. J. K. Small in the preparation of manuals of systematic botany, from the ponderous "Flora of the Southeastern United States," to his "Flora of Miami," "Florida Trees" and "Flora of