membership in the national scientific societies which require research work as a qualification.

The compilation of the new edition will of necessity involve much labor, but this will be materially lightened if men of science will reply promptly to this request.

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SCIENTIFIC BOOKS

The Biota of the San Bernardino Mountains. By Joseph Grinnell. University of California, Publications in Zoology, Vol. V., No. 1. Pp. 170, plates 24. December 31, 1908.

As a contribution to the zoology and botany of southern California, Mr. Grinnell has given us a paper based on three summers' field work in the San Bernardino Mountains. Its principal sections are: "Life Zones of the Region," with lists of characteristic species of plants of each zone; "Descriptions of Localities," with special reference to their zonal positions; "General Considerations relating to Bird Population; a List of the Important Plants," largely trees and shrubs, with notes on their distribution; "A List of 139 Species of Birds," with detailed notes on distribution, breeding, food and other habits; "A List of 35 Species of Mammals," with notes on distribution, abundance and habits; and "A List of 20 Reptiles," lizards, horned toads and snakes, with notes on range and habits.

It is a great satisfaction to find a fellow worker in the field of geographic distribution who, instead of discovering at once new laws and naming new distribution areas, accepts and follows with conscientious care the general principles of distribution governing the transcontinental life zones and their subdivisions, as worked out by the U. S. Biological Survey. Even the color scheme of the biological survey zone map is followed, with one exception, which is possibly accidental or the fault of the lithographer. This exception consists in using red, which is usually applied to Tropical zone, for Lower Sonoran, which should have been orange. The colors of the higher zones, yellow for Upper Sonoran, blue for Transition, and green for Boreal, are standards so long in use as to have become familiar to many. Uniformity in such details is helpful to all who use zone maps.

In reviewing a work of such general excellence, and with so few faults, it seems ungracious to attack the first word in the title, but to many of us, either of the long familiar expressions *fauna and flora,* or *plants and animals,* or for brevity just *life,* would have sounded as well and meant as much as *biota.* However, as this term has been used before, the author escapes the graver criticism of introducing an unnecessary Greek substitute for a good English expression.

The use of the name tamarack, or tamarack pine, for the lodge pole or Murray pine (*Pinus murrayana*), while often used locally where there are no tamaracks, grates on the nerves of those brought up among the real tamaracks (*Larix*), as well as those to whom the name lodge-pole pine recalls camps on the borders of beautiful mountain meadows or the sharp cones of slender tepee poles in the camps of Cheyenne, Arrapahoe, Blackfeet, Crow and Sioux. It may not be possible to correct local misuse of names, but why extend it?

An evident error in the zone map consists in extending Transition zone to the upper limit of *Pinus jeffreyi* instead of confining it to the limits of *Pinus ponderosa, Pinus lambertiana, Libocedrus decurrens, Quercus californica* and the accompanying set of plants and animals. As a result the zone is extended in places at least five hundred feet too high, and the Canadian zone above is correspondingly narrowed. This has apparently resulted from a failure to clearly discriminate between *Pinus ponderosa* and *jeffreyi* and therefore to crediting them with the same range (p. 31). *Pinus jeffreyi* in the San Bernardino, San Jacinto and Sierra Nevada Mountains ranges generally 500 to 1,000 feet higher than *ponderosa,* and by just this much overlaps the lower edge of Canadian

zone.[1] While leading to some confusion in the resulting effort to separate Transition zone into upper and lower divisions, this error is largely compensated by the fact that the vertical range of each species is given and the zones can be checked up thereby. When the zone-marking species are accurately mapped over wider areas, such local defects are easily eliminated.

Approximately ninety pages are devoted to notes on the 139 species of birds, and it is only fair to say that few lists of equal length have contained so much important data on distribution, abundance, migration and habits. A chapter on Bird Population and its Modifying Influences throws much light on local migrations up and down the mountains in pursuit of food, while the bird census and the varying abundance of birds in relation to insect food show the vital importance of birds in an agricultural region. The great number of nesting records, each with date, exact locality, altitude and zonal surroundings, gives for the first time sufficient data for mapping the breeding zones of many of the species in these mountains and furnishes a mine of material for the student of distribution. The nesting habits, food habits, songs, call notes, rare eggs and rare or little known plumages are described and much information that is actually new is put on record.

The notes on 35 species of mammals cover twenty-six pages and are practically all first-hand records of observations on distribution, abundance, food and habits. Many of the species that show local variation or interesting peculiarities are described in detail and in some cases tables of measurements are given. All of these notes are of permanent value and contribute toward a fuller knowledge of our native mammals.

Eleven pages of notes on lizards and snakes are of importance in defense of these interesting, useful and much maligned animals.

Besides the colored zone map and transverse section of the mountain zones there are twenty-two full-page plates from photographs of mountain scenery, trees, shrubs, birds' nests and snakes.

The value of such detailed, accurate and reliable local surveys is appreciated nowhere more than in the U. S. Biological Survey, which is working along the same lines over wider fields.

VERNON BAILEY

[1] The same error of extending transition zone to the upper limit of *Pinus jeffreyi* was made by Dr. H. M. Hall in his otherwise accurate and excellent botanical survey of the San Jacinto Mountains, and in this case also it led to an effort to separate the zone into upper and lower divisions. (See University of California Publications in Botany, Vol. I., pp. 1–140, 1902.)

The Microscope; an Introduction to Microscopic Methods and Histology. By SIMON HENRY GAGE, Professor of Histology and Embryology, Emeritus in Cornell University. Tenth edition. Pp. 359, 258 figures.

The tenth edition of this well-known book on the microscope retains all the meritorious features which have contributed to the success of the former editions. It has been the author's constant desire to have his book represent the "present state of knowledge of the microscope and the technique of its employment." All who have had acquaintance with the former editions (and who among microscopists has not?) know how successful he has been in accomplishing this end. In the present edition, besides incorporating discussions of new or improved features of the microscope and its accessories, additions have been made to the sections dealing with the manipulation of materials.

The same general order of presentation has been followed as in former editions. Of the ten chapters which constitute the work, chapters I.–VII., deal with the microscope and its appliances. Chapter VIII. is given up to various methods of photography (including photographing with a microscope, photographing opaque objects and the surface of metals and alloys, enlargements, etc.) and is rich in practical directions and advice, serviceable to the experienced, as well as to the inexperienced, worker. Chapter IX. is devoted to the preparation of reagents, the making of microscopic mounts, together with notes and comments on materials, methods of storing, and