

gestions as to available materials and the time of year when they are obtainable. There are nine units which include insects, vertebrates, microorganisms, higher plants with special work on trees, food, human structure and physiology, reproduction and heredity. Each unit is subdivided into lessons of suitable length for laboratory study, with references to texts and supplementary reading material.

Careful descriptions, detailed directions for experiments and simple labeled sketches make the guide self-explanatory. Adequate space is allowed for drawings, records of experiments and notes. Practical questions and suggestions for supplementary work are designed to arouse and maintain interest. This may prove a very helpful guide in many biological courses which include the above topics.

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ADAMS, NORVAL E., and BANDOW, ESTHER M. *A Study Guide for Applied Biology.* Burgess Publishing Co., Minneapolis, Minn. iii + 113 pp. 1940. \$1.50.

Laboratory study planned on a seasonal basis for the purpose of training the pupil to do independent and scientific thinking is the main purpose of this guide. It is divided into twelve units designed to show the application of the life functions. The topics include adaptations to environment, insects, other invertebrates, vertebrates, special study of man, bacteria and other "friendly enemies," higher plant life and heredity, with also one on conservation. Units are organized into problems with an outline at the beginning of each. Important facts or principles

and pertinent questions are listed under the heading "You will need to know." Laboratory problems, many of which call for actual work in the field and suggestions for demonstrations are given, with space provided for results. "Additional activities" are designed to promote further interest in project work. This guide would be most useful in sections where distances to fields and streams are not great and where students could go in small groups to collect their material, provided it covers the work usually included in the specific biology course.

RUTH A. DODGE.

STILES, KARL A. *Laboratory Explorations in Animal Biology.* Burgess Publishing Co., Minneapolis, Minn. x + 158 pp. 1940. \$2.50.

An 8½ by 10¾-inch paper covered, spiral bound manual of the experimental type. It includes accurate, well planned directions mimeographed on the backs of the sheets, and 35 carefully executed drawings most of which are only to be labeled by the student.

The manual may be used with any text although it is specially adapted to Hegner's College Zoology. The sequence followed, from the simple to the complex, admits of treatment in the order most convenient to the instructor.

The exercises combined the desirable features of both the "type" and the "principles" method of study. Questions following each exercise serve as a review of textual material, apply factual material to biological problems, and stimulate library work.

Representatives of such forms as the Sporozoa, Anthozoa, and Scyphozoa are either omitted or included as class demonstrations.

It is questionable whether the mere