

a year. Exact information about numbers of birds per unit of habitat is vitally important in determining what types of habitat produce the largest numbers and greatest variety of birds so that we can appraise the effects of various land uses such as agriculture, forestry, and industry on birds by the way they modify habitats. Bird students who have become proficient in the basic methods of identification and recording of species are urged to extend their activities to include breeding and winter bird censusing. It may seem more confining but the results are likely to be of great value.

It may be stated then that the basic objective of *Audubon Field Notes* is to give as many as possible of the individual bird-watchers of America—whether they be professional bird-students or seriously interested amateurs—a chance to cooperate in presenting just as accurate a picture as possible of the current conditions of birdlife in their respective regions, so that they may know that they are contributing toward a knowledge of these conditions and the reasons for them, both as an interesting permanent record and also as an aid to conservation agencies in keeping track of changing trends in abundance of birds.

From an editorial in *Audubon Field Notes*, Sept. 1948, by John W. Aldrich.

## Biological Briefs

DOCK, GEORGE, JR., What Glasses for Birds? *Audubon Magazine*, Vol. 50, No. 5, p. 316, Sept.–Oct. 1948.

The experts use glasses of many powers and specifications, so what is the amateur to choose? No single glass meets all the desirable requirements in equal degree. In a recent survey the 7 × 35 glass appeared to be the first choice of the largest number of persons asked. The magnification of seven diameters is large enough to bring most details into view at reasonable distances and small enough to permit one to hold the glass steady without placing it on a support of some kind.

A seven-power glass has a field about 150 yards wide at a distance of about 1000 yards. The 35-millimeter lens admits enough light to give a bright image under most conditions. It is important to note that the second number in the designation of a glass does not have anything to do with the field size. It indicates the diameter of the objective or front lens, and is therefore a measure of the amount of light admitted, or of the relative brightness of the image.

CHERBONNIER, MARIE ELINA, Critical Thinking in the Use of Alcohol and Tobacco, *The Science Teacher*, Vol. 15, No. 3, p. 114, Oct. 1948.

The adolescent is conditioned against preaching. He must be convinced that he is dealing with reliable formation, or at least with information that seems reliable to him. He can be taught to study the “credentials” of an author and to distinguish between sweeping statements based on emotion and carefully considered judgements based on experiments and records. In the study reported the students made their own surveys, with no opinions from the teacher. Comparison between the pre-test and the questionnaire given at the end of the study shows evidence of much critical thinking on the part of the students, resulting in many changes of opinion and in the development of constructive attitudes. The teacher felt that the students had made some progress in looking for reliable authority, in discrimination between assumptions and facts, in withholding judgements and in recognizing the place of the scientific method in the solution of social problems as well as in biological laboratory problems.

HADLEY, C. H., Control of the Japanese Beetle, *Plants and Gardens*, Vol. 4, No. 3, p. 188, Autumn 1948.

Japanese beetle grubs are subject to several diseases caused by microbes. Among these are the “milky diseases” the bacteria of which are ingested (in spore form) by the grubs, eventually resulting in the weakening and death of the grubs. The United

States Bureau of Entomology has developed a device for inoculating living grubs with the bacteria and using the infected grubs for mass production of the spores. The "spore-dust" is applied to beetle-infested soil. When the bacteria become established in the soil the beetle population goes down rapidly. One application of spore-dust is usually enough to get the bacteria started. Where quick results are essential DDT or lead arsenate must be used for the first season or two. The effectiveness of milky disease builds up over several seasons. The disease does not directly affect adult beetles, but of course reduces their numbers by killing the grubs. Since the beetle is a good flier, there is of course constant danger of reinfestation of a soil area that was previously freed from beetles.

**The Mechanical Properties of Human Bones**—A Technical Report from the National Bureau of Standards, Washington, D. C., *The Science Counselor*, Vol. 9, No. 3, p. 98, Sept. 1948.

How much physical shock can the body stand? How much compression can human bones undergo before shattering? Are our bones as strong as steel? As hickory wood? Work by the National Bureau of Standards indicates that ordinary techniques and instruments can be used to find the answers to these and other similar questions. Why is it important to find answers to them? High speed aviation has created many problems concerning safety devices. Sometimes an airplane is completely wrecked and the occupant gets by with hardly more than a bruise; at other times a relatively slight blow on some part of the body causes serious or even fatal damage.

Preliminary data indicate that bone may be considered an elastic, brittle material having about one fourth the compressive strength of cast iron and about twice that of hickory. The elasticity is about that of wood.

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## Reviews

### BOOKS

GOETHE, C. M. *Geogardening*. The Keystone Press, Sacramento, California. xx + 350 pp. 1948.

C. M. Goethe needs no introduction to the reading public. He is remembered as the author of *Sierran Cabin From Skyscraper*, *War Profits and Better Babies*, and numerous other writings. His friends will welcome this new contribution and its influence toward reducing "biological illiteracy" in the United States. This book is an account of the author's ransacking the world in quest of first-hand information about the flowers, shrubs, and trees in his garden, with the view to ascertaining their genesis and ecological relationships, both biological and physical, between the plants and their 'Sauvage' environments. The reader is taken from one geogardening experience to another, as the author engagingly describes his wanderlusting to Japan, China, France, Mexico, Africa, Tibet, South America, and, in addition, many other countries. Each of the ninety one brief chapters is devoted to a separate theme. Gardenlovers will find comments upon their favorite flowers, shrubs, and trees. A limited number of those discussed will be mentioned. They are: Acacia, Almond, Begonia, Birch, Cactus, Canna, Pine, Cosmos, Ivy, Date palm, Elm, Fig, Iris, Maple, Pansy, Tulip, and Wistaria. This discriminating traveler and writer enhances the reading enjoyment with frequent statements about places, people, animals, local philosophies, and folk lore.

Concomitant, throughout this work, is the author's plea for an improvement of Human Genetics. This advocacy, from one who so conspicuously exemplifies his own teaching, may well be scrutinized and extended by every biology instructor from the secondary school through the university. Typical of the many references to Genetics and Eugenics are the following: "It has lifted man from the stooping, bent-kneed Neanderthalers to the Aristotles, the Shakespeares, the