

his seining experiments on Forbes' Brook, Prince Edward Island, for the past summer.

During the first week of July four thousand trout fry were distributed along a length of about one quarter of a mile of this stream. It was seined three months later with the following results:

Trout, yearlings and older.....	319
Fundulus	82
Atlantic salmon parr	33
Stickleback	16,152
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Total	16,586
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Surviving trout fry	1,064

To test the efficacy of the seining twenty-five marked fingerlings were dropped into the brook at a point which was considered a fair average as regards difficulties of seining. In three quarters of an hour twenty-four of them had been removed by the seine, which represents an error of 4 per cent. for this method of recovering fry.

The superintendent of fish culture for the Dominion of Canada assures us that Forbes' Brook is a typical trout stream. The approximate loss of trout fry in Prince Edward Island streams will average therefore about 73 per cent. for three months.

QUERIES

- (1) Are we feeding trout fry to older trout and to inferior fish? What rôle is played by the 16,152 stickleback?
- (2) Are the fry being starved to death through shortage of natural food for 16,586 fish, apart from the food required for the 4,000 fry?
- (3) How many of the surviving 1,064 fry (if any) will be alive when they shall have become four years old?
- (4) Should we continue to distribute trout fry irrespective of the presence in streams of many enemy and competitor fish?

A. P. KNIGHT,

Chairman, Biological Board of Canada
KINGSTON, ONTARIO
December, 1925

WORK ON SPHENODON

IN the issue of SCIENCE for December 25, 1925, there appeared under the heading of "Science News" an item concerning work in the University of Chicago on *Sphenodon*. It seems desirable in this connection to make the following statement: In 1922 an expedition from this university visited New Zealand and brought back four living specimens of *Sphenodon* as well as one preserved in fluid, and on the basis of this material and the literature procurable we

have undertaken a monographic account of this interesting reptile. Papers have already been prepared on the muscular system, digestive system and habits in captivity. Work on the nervous system, particularly the brain, has been going on for six or eight months under the supervision of Dr. Gilbert L. Houser of this university. Other papers will deal with the urogenital system, the blood supply, the skeleton, etc. While of course no one can claim any monopoly in scientific investigation this statement will show that the work on *Sphenodon* has already been going on for several years at the University of Iowa.

C. C. NUTTING

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THE FOURTH EDITION OF THE BIOGRAPHICAL DIRECTORY OF THE AMERICAN MEN OF SCIENCE

A FOURTH edition of the *Biographical Directory of American Men of Science* will be published as soon as the compilation can be made and about five years after the publication of the third edition, which was issued in 1921. The work is intended to be a contribution to the organization of science in America, and the editor will greatly appreciate the assistance of scientific men in making its contents accurate and complete. Those whose biographies appear in the third edition have received or will later receive copies of the sketches for correction which should be promptly returned. The editor will be under obligations to scientific men who will send sketches of those who should be included, or let us have their names and addresses. All those engaged in scientific work whose biographies are not included in the third edition are requested to send the information needed. For this purpose the blank that is given on an advertising page (xiii) of the current issue of SCIENCE may be used.

It is intended that each entry shall contain information as follows:

1. The full name with title and mail address, the part of the name ordinarily omitted in correspondence being in parentheses.
2. The department of investigation given in italics.
3. The place and date of birth, including month and day.
4. Education and degrees, including honorary degrees, with dates.
5. Positions or professional occupation with dates, the present position being given in italics.
6. Temporary and minor positions; scientific awards and honors; expectations, etc.
7. Membership in scientific societies with offices and dates at which they were held.
8. Chief subjects in which research has been published or is now in progress.

All those in North America should be included in the book who have made contributions to the natural and exact sciences. The standards are expected to be about the same as those of fellowship in the American Association for the Advancement of Science or 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; this will be materially lightened if men of science will give the assistance here requested.

J. McKEEN CATTELL

3939 GRAND CENTRAL TERMINAL,
NEW YORK, N. Y.

SCIENTIFIC BOOKS

Ancient Hunters and Their Modern Representatives.

By W. J. SOLLAS, professor of geology and paleontology in the University of Oxford. Third Edition, Revised. London: Macmillan and Company, 1924.

THOSE who have read the first (1911) and second (1915) editions of "Ancient Hunters" have another treat in store for them in the third edition. The plan of the work remains the same, except for minor details. The number of the chapters and their headings are identical, with the exception of Chapter V, the title of which has been changed from "The Most Ancient Hunters" to "Lower Paleolithic Chellean and Acheulian Ages"; to this chapter the discussion of Piltdown Man and Heidelberg Man has been transferred from Chapter II. At the end of the last chapter there has been added a chronological table, not found in the previous edition.

The chapters have been expanded largely through the addition of new material, so that the reader now has a volume of 689 pages and 368 illustrations, in comparison with 591 pages and 314 illustrations of the second edition. In a perusal of the pages, one notes evidences of revision as well as expansion. For example, his attitude on the subject of eoliths has undergone a change. After a brief study of the Westlake collection from Cantal, Sollas concludes that "in the present state of our knowledge, I think the balance of probabilities distinctly points to the conclusion that these eoliths are the work of an intelligent being."

The large bone implement from Piltdown is referred to the Chellean Epoch and is supposed to be of the same age as the skeletal remains of *Eoanthropus*. The pointed end of a wooden spear found by Hazzledine Warren in a bed containing remains of *Elephas antiquus* at Clacton-on-Sea is thought to be of a somewhat later age, namely, the Lower Acheulian Epoch. Sollas accepts the evidence for a warm stage ushering in the Mousterian Epoch.

Depéret's theories regarding strand-like correlations with glacial phenomena are accepted, which will please some critics and displease others. It will be recalled that Depéret's nomenclature for the old shore lines beginning with the highest are: Sicilian (90 meters), Milazzian (60 m.), Tyrrhenian (30 m.) and Monastirian (20 m.). Sollas would refer *Pithecanthropus* to the Lower Sicilian, *Eoanthropus* to the Lower Tyrrhenian and Neanderthal man to the Lower Monastirian. It is evident therefore that the author has not suppressed his personal opinions on controverted questions; granting that some of these may be wrong, there is much in the book to commend.

The numerous illustrations add materially to the text, although some of the borrowed ones have suffered somewhat in the reproduction process and the sketch map (Figure 106) of the district of Les Eyzies is antiquated.

GEORGE GRANT MACCURDY

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

A SIMPLE METHOD FOR MAKING DIFFERENTIAL COUNTS OF SMALL SPORES

EVERY one who has attempted differential counts of small spores by counting the number of each kind in a field knows how difficult it is to keep from counting the same spores over and over and how tedious the procedure becomes if there are many counts to be made. For many individuals this procedure is subject to considerable experimental error. Incidentally, counting the spores in a field or part of a field and computing therefrom the percentage of each is a slow process. The following method requires two persons, an observer and a recorder, but is very rapid and eliminates some of the experimental error. Select a thin round cover glass and with India ink rule across it two parallel lines a millimeter or less apart. In the middle of the cover draw a third line perpendicular to and joining the first two, thus forming a narrow letter H in the center of the cover. Drop the cover onto the "stop" of an ordinary 10 X eyepiece as though inserting a micrometer disc. Such a cover, unlike an ordinary micrometer disc, does not perceptibly interfere with definition, a factor of importance when observing hyalin spores. Place the slide, which should be prepared so as to give a fairly uniform distribution of spores, in position on a mechanical stage having convenient right and left movement. Arrange the eyepiece containing the cover slip so that the parallel lines coincide with the right and left movement of the stage. With a 3 or 4 mm lens, select, in the region well to the left of the center