made with Michaelson's wonderful apparatus, no allowance appears to have been made for the effect of the gravitational bending of light. Obviously this would make the apparent angular diameter greater than the real, and a rough approximation shows that this gravitational effect may be of the same or an even larger order of magnitude than the observed angle.

Knowing the parallax and being able to make an approximate estimate of the density, the true diameter of Betelgeuse may be determined with fair accuracy. I have made a rough calculation and find that it is approximately only one fifth of the diameter given, but the calculation should be made by others better fitted than I am.

Reginald A. Fessenden

THE CONSERVATION OF GAME AND FUR-BEARING ANIMALS

The New York State Conservation Commission issues *The Conservationist*. Among the many important communications in it, I wish to call especial attention to one, "New York's annual game dividend," written by Warwick S. Carpenter, secretary of the Conservation Commission.

On the basis of precise data the conclusion is reached that the game and fur-bearing animals of New York state, if capitalized, are worth not less than $53,000,000; they return an annual dividend of more than $3,200,000; and they cost the state for their protection and increase the nominal sum of $182,000. This cost of protection and increase is thus less than six per cent. of the annual dividend.

There is need for emphasizing the financial as well as the æsthetic and scientific sides of the conservation problem and these findings of Mr. Carpenter deserve wide publicity.

Henry B. Ward

SCIENTIFIC BOOKS

A Laboratory Manual of Anthropometry. By Harris H. Wilder, Ph.D., Professor of Zoology, Smith College, Northampton, Mass. 200 pp., 43 illus., P. Blakiston's Son and Co., Phila., 1920.

In order that the records of each observer may be readily made use of by every other observer, it is imperative that series of measures be uniform and be taken in uniform ways. The matter of unification was first placed upon an international basis by the International Congress of Anthropologists held at Monaco in 1906. The unification process was carried still further at the Geneva Congress in 1912. There remain for consideration at some future Congress the general skeletal measures, exclusive of the cranium and lower jaw.

The work of the special International Commissions rightly forms the basis of Wilder's Laboratory Manual. However his statement on page vi of the Preface, that the periodicals in which the reports of the labors of the two Commissions "appeared were exclusively European," is incorrect; for a report from the reviewer's pen, of the work accomplished at Geneva, translated from the official copy of Dr. Rivet, chief recorder of the Commission, appeared both in Science[1] and in the *American Anthropologist* for the year 1912.

To the measures accepted by international agreement, the author adds a convenient and useful list of general skeletal measures, as well as angles and indices. No mention is made of the Sphenomaxillary angle, which might well find a place even in an abridged manual. His enumeration of instruments and description of the manner in which they are employed are done with a thorough knowledge of the difficulties which beset the beginner. The pages devoted to simple biometric methods were written for the special benefit of the student, whose chief interest is in morphological relations, and whose mathematical ability and training are not sufficient to enable him to follow abstruse biometric methods.

To the laboratory student of the subject, Wilder's Manual is recommended for its lucidity and conciseness, as well as for the author's ability to transmit a maximum amount of his own pervading enthusiasm for the subject by means of the printed page.

[1] Vol. XXXVI., 603–608, November 1, 1912.

For good measure, two instructive appendices are added: *A*. Measures of Skulls of 93 Indians from Southern New England; *B*. Bodily Measures of 100 Female College Students.

GEORGE GRANT MACCURDY

YALE UNIVERSITY,
NEW HAVEN, CONN.

THE PRODUCTION OF BIOLOGICAL STAINS IN AMERICA

BACTERIOLOGISTS, during the war time, were often hindered in important work, sometimes involving matters of health control, by the lack of dyes which they were accustomed to use for staining. Some laboratories were provided with a sufficient supply of Grübler stains to use all through the war and are only now running out of this supply; but others were early forced to buy stains of American manufacture. Some of the American stains were so poor as to be unhesitatingly condemned, others although enough for some purposes were not suitable for the particular objects of bacteriologists, while others were so variable as to be unreliable.

Now that the war is over, biological scientists and their supply houses are faced with the problem whether to urge the importation again of German stains (which can now be done only with special permit) or to encourage the establishment of an American source of supply. As scientists we have no objection to the use of German-made materials, and if no other solution of the problem can be found we will be willing enough to consider the Grübler stains standard again, as soon as they can be freely obtained. From the standpoint of national independence, however, it seems well first to see what American producers can do for us in this line, especially when it is considered that certain stains are important to public health and that we ought to be able to count on an uninterrupted supply if there should ever be a new national emergency when importation would become impossible.

The Committee on Bacteriological Technic was asked by the Society of American Bacteriologists to look up the matter, to see whether reliable stains can be obtained in this country and further to see what can be done to protect bacteriologists against the unsatisfactory stains that are put upon the market. Upon looking into the situation we find that all the bacteriological dyes, and nearly the whole list of biological anilins are produced in America in reliable form. The chief difficulty is that there are too many competitors in the field for such a small line of business. Grübler apparently examined all the available textile dyes and determined which were useful to biologists, standardizing them so that the stains bearing his name were uniform. Then he sold them at a high percentage profit, but a perfectly legitimate profit, considering the labor he saved biologists by the study he gave the subject. A number of American concerns, attracted by the great difference between the cost of crude dyes and the price of biological stains, have thought to realize quite a profit from the business, and have begun the "manufacture and standardization" of biological dyes—often to their own discomfiture, but always to the discomfiture of the users of the stains. For a while there was success for all, because a scientist would give any firm a single test; but the result was a needless duplication of dyes of the same name, sometimes alike, but often different, and also the introduction of new names for old dyes. Although some of these concerns are now going out of business, the confusion still remains.

Gradually the users, or at least the distributors, have been learning which houses are manufacturing the most satisfactory stains, and the less reliable manufacturers have been forced out of the business. But the present situation is such that the future importation of German stains is no longer regarded as impossible. Fearing competition from abroad as well as from the unreliable concerns at home, some of the best producers of biological stains are becoming discouraged and are abandoning the effort to increase their line. Under these circumstances the only way to assure the continued domestic