DISCUSSION

OCCURRENCE OF THE PLIOCENE ANTELOPE, ILINGOCEROS, IN NEVADA

UNTIL recently the only known occurrence of the peculiar twisted-horn antelope, *Ilingoceros,* was that recorded by Dr. J. C. Merriam[1] from the Thousand Creek Pliocene deposits of northwestern Nevada. During the past 30 or more years much interest has been manifested by students of fossil mammals in the paleontological history of the Antilocapridae. The family has come to be recognized as having a unique position in American animal life. Thus, its representation to-day by a single genus, *Antilocapra,* stands in decided contrast to the great diversity of type which characterized the family in former geologic time. The existence of many different kinds of antelopes in the past is exemplified by the several extinct genera in Pleistocene faunas, but even more so by the unusual and even bizarre creatures of the Pliocene.

Although the extended studies which have been conducted on the later Tertiary faunas of western North America and their correlation have brought to light new genera of antelopes, it is rather odd that no new occurrences of *Ilingoceros* have been found.

Pliocene localities at Smith Creek in central Nevada, yielding fossil mammalian remains, were discovered by Stock and Furlong about 1928. Later, in 1931 and 1934, summer field parties from the California Institute of Technology conducted further explorations in this region and obtained additional materials. No complete survey has been made as yet of the fossil assemblage. R. W. Wilson[2] published a report on the rodents in the fauna, and on the basis of this study correlated the Smith Creek fauna with that from the middle Pliocene Thousand Creek beds.

A recent survey of the larger fossil mammals from the Smith Creek Pliocene in the paleontological collections of the California Institute of Technology brought to light a fragment of a frontal bone with the basal part of the horncore and roof of the orbit. On the basis of size, proportions and morphological characters shown by this specimen, No. 795, C. I. T. Coll., there can be no doubt that it belongs to *Ilingoceros.* Associated limb elements confirm this conclusion. Hence the geographic range of the genus is extended, at least locally in what is now the Great Basin region, and the identification lends further support to Wilson's view that the Smith Creek and Thousand Creek faunas are closely related in time.

E. L. FURLONG

CALIFORNIA INSTITUTE OF TECHNOLOGY

[1] J. C. Merriam, *Univ. Calif. Publ., Bull. Dept. Geol.,* Vol. 5, No. 22, pp. 319–330, 7 figs., 1910.

[2] R. W. Wilson, *Carnegie Inst. Wash. Publ.* No. 473, pp. 15–34, 2 pls., 1936; *Carnegie Inst. Wash. Publ.* No. 487, pp. 21–73, 1937.

HALOGETON GLOMERATUS, POISONOUS TO SHEEP

Halogeton glomeratus (Chenopodiaceae) has been reported to have established itself in northeastern Nevada in 1935 and has spread rapidly over the range.

In an area a few miles south of Wells, Nevada, there have been heavy sheep losses during the past two years which have been suspected to have been due to this plant.

Examination of a sample of the plants from the area on which poisoning has recently occurred has disclosed the presence of large quantities of oxalates, which has justified the suspicion that this plant was the active agent.

Chemical analysis showed the dried sample to contain total oxalates equivalent to 19 per cent. anhydrous oxalic acid. Oxalates in water-soluble form were found equivalent to 11 per cent. anhydrous oxalic acid.

The presence of calcium oxalate crystals may be easily demonstrated by shaking the dry ground plant with water when the calcium oxalate may be seen at the bottom of the liquid, the greater part of the plant tissue floating to the surface.

The presence of several other crystalline compounds was observed with the compound crystals of calcium oxalate. These will be investigated further.

The occurrence of oxalates in members of the Chenopodiaceae is well known but in the quantities found in this plant, somewhat unusual. No mention has been found in the literature of the occurrence of oxalates in *Halogeton glomeratus* nor of possible poisonous properties to animals eating the plant.

M. R. MILLER

CHEMICAL LABORATORY,
NEVADA AGRICULTURAL EXPERIMENT STATION,
UNIVERSITY OF NEVADA

WAR WORK IN THE HIGH SCHOOLS

THE high schools of the country are now asked to train the boys and girls in a way never before attempted. Workers of all kinds are now in demand. Much of this work requires thought and skill. They must acquire the ability to think straight and to work steadily and accurately in the shortest possible time. Industry, agriculture, business and the armed forces are all in need of them.

Young people are asked to prepare immediately for one of five major needs. (1) The armed forces need men with practical technical training. An increase in the armed forces of approximately three million men is expected by the end of 1943 or early in 1944. The men needed most are those with specific types of preparation. (2) A continuous supply of scientifically trained workers is demanded. These include especially physicists, meteorologists, radio engineers, all other types of engineers and medical men. (3) The war industries have definite and immediate need for men with practical technical training. (4) Industry and civil life need a continuous supply of physicists, engineers, doctors, chemists and biologists, both for war production and for essential civilian needs. (5) Agriculture and business must have the continuous services of boys and girls. The more training these young people have the more efficient they become for taking the places usually held by older and more experienced people.

Five pre-induction courses have been presented by the War Department and the U. S. Office of Education in elementary electricity, elementary machines, elementary shopwork, automotive machines and radio. Emphasis on these courses will prepare many students for much-needed work, but some students should prepare to go further while others not suited for work of this type must select other useful fields. It is the business of the high school to classify the students and prepare each for the type of this essential work for which he is best adapted.

The Cooperative Committee on Science Teaching has made a definite study of each of the four great science groups—physics, mathematics, biology and chemistry—and offers suggestions on the best courses for the high schools to pursue to meet the changes demanded by the war. These recommendations are published in the February issue of *School Science and Mathematics*. Copies of the report may be obtained by applying to Robert J. Havighurst, The University of Chicago.

GLEN W. WARNER
WOODROW WILSON CITY COLLEGE,
CHICAGO

SCIENTIFIC BOOKS

COMPARATIVE VERTEBRATE ANATOMY

Comparative Vertebrate Anatomy. By LIBBIE HENRIETTA HYMAN. 2nd edition. University of Chicago Press. i–xx, 1–544 pp. 136 figs. 1942. $3.50.

IT is hardly possible to review a book properly without also undertaking some sort of analysis of the purpose for which it was written. This is all the more desirable in the present field, because books for use in comparative anatomy classes have not in the past proved entirely satisfactory.

Comparative anatomy of vertebrates is a broad field that it is really impossible to segregate from embryology. It covers the range of vertebrate variation and necessitates more or less dissection—a time-consuming occupation. In breadth it might well be compared with History. Suppose, in his progress from kindergarten to Ph.D., one had not more than 90 hours to cover the extent of History—Ancient, Roman, English, French and United States combined. And yet the student is usually given in comparative anatomy a breadth of field and a wealth of detail that it would take him years to cover adequately.

The only students needing much detailed knowledge of comparative anatomy are those expecting to make a career of either zoology or medicine. To the very much larger percentage of other students the subject is merely an academic discipline the minutiae of which they will soon forget. For such of these as elect it, the presentation should either be combined with embryology, or in a condensed course of one semester, stressing principles and bearing somewhat the same relation to the topic as the course in physiology and anatomy for trained nurses does to these subjects as offered to the student of medicine. From the standpoint of the medical student, at least, what is desired is a working understanding of the phylogeny of the systems—how the parts of the body get that way—rather than a precise knowledge of the anatomy of dogfish, mud puppy or tortoise.

Miss Hyman is a gifted writer of text-books, as she demonstrated in her "Laboratory Manual for Comparative Vertebrate Anatomy" (1922), a book that has been very widely used. The volume under review is a second edition of this, some 30 per cent. larger, with parts rewritten and amplified, and almost twice as many figures. It is now less frankly a dissecting manual. Few, I think, can find fault with the author's plan of procedure as set forth in her prefaces. She is fully aware of the difficulty in presenting such a broad subject in a limited space, particularly by one whose chief research interests lie in the field of invertebrates. Her approach, from the systemic rather than from the type aspect, is in accordance with progressive ideas generally entertained on the subject.

The dogfish, mud puppy, turtle, rabbit and cat are the forms receiving particular consideration, but some attention is paid to other kinds as well. Birds are omitted, as they are so specialized that they hardly belong in a work of this scope. It is probable that the turtle could also be dropped, with some benefit to the student. Both rabbit and cat, especially the latter, are firmly entrenched in zoological curricula, on the basis of availability. In some respects they are entirely satisfactory, but in others, as skeletal and muscular systems, they are quite specialized. Some col-