others have been trenched by streams. All show more or less distinct changes of form by weathering and washing (especially where torrent fans are built upon them), although generally retaining something of the tumult of surface that characterizes recent slides. One of the slides (that by Schwanden in the Linththal) has a small amount of morainic material strewn over its surface, as well as more abundant moraine beneath it; and from this Oberholzer concludes that it occurred during the last interglacial epoch. But inasmuch as its surface is still very uneven, it can hardly be believed that it has been overridden by more than a small and short-lived glacier.

No reference is made to the suggestion, which is certainly gaining ground among Swiss observers, that the landslides of the class here described result from the oversteepening of the basal slopes of valleys that have been overdeepened by glacial erosion.

THE GREAT AFRICAN LAKES.

THE peculiar likeness of the fauna of Lake Tanganyika to marine forms has prompted a special study of the Great African Lakes by an expedition under the direction of J. E. S. Moore, whose report contains matter of much value (Tanganyika and the countries north of it. Geogr. Journ., XVII., 1901, 1–35).

North of Tanganyika, the floor of the great rift valley or *graben* in which the lakes lie rises to form a strong barrier which once constituted part of the divide between the Congo and the Nile drainage systems. But now a group of large and active volcanoes some 50 miles further north, one of which is 13,000 feet high, have built a second barrier on the valley floor, thus cutting off the basin of Lake Kivu from that of Albert Edward Nyanza, and raising the former nearly 2,000 feet. That Kivu was once tributary to the Nile is clearly shown by its fauna, which is in nearly all respects identical with the normal fresh-water lake fauna of the Nyanzas to the north; but its outlet, Rusisi river, now flows south with many cataracts over the rocky swell in the valley floor, thus connecting Kivu with Tanganyika; and it is evidently since this connection was made that a fish characteristic of the Congo basin has reached Kivu. The rift valley, the active volcanoes far inland, the great lakes and their peculiar fauna combine to make this a region of remarkable interest.

W. M. DAVIS.

RECENT PROGRESS IN PALEONTOLOGY.

CONGESTION OF MUSEUMS.

IT is very important that the various museums of the country should receive special funds with which to work up the collections of vertebrate fossils that are rapidly accumulating. Much more time is required in preparing a fossil than is spent in collecting and shipping it from the field. The result is that all the museums of the country which have been collecting during the past few years are greatly congested with material. According to a moderate estimate, from five to fifteen years of constant work must be spent upon the collections now in each of our museums. The delay in working up fossils of various types threatens to cause serious inconvenience and delay in the matter of publication. Even highly trained preparators are unable to prepare a fragile fossil rapidly. Some single dinosaur vertebræ, for example, are so broken that from a month to six weeks must be spent upon them. The collections which have already been made in the West fill thousands of boxes, and the most welcome gift which could be made to any of our museums would be a gift especially for the purposes of preparation.

SPECIAL INVESTIGATIONS.

A GRATIFYING division of labor is in progress among the vertebrate paleontologists of the country. In Kansas University, Professor Williston is beginning a very careful study of the Plesiosaurs, which will form a sequel to his admirable memoir upon the Mosasaurs. In the University of California, Dr. Merriam is making a special examination of the John Day fauna. In Yale University, Dr. Wortman is thoroughly revising the rich collections made in the Eocene or Bridger beds, and will publish a series of papers illustrating Professor Marsh's principal types. In the American Musuem, Dr. Hay is especially studying the fossil Chelonia of the American Museum and Cope collections; Dr. Matthew is making a study of the Creodonts of

the Miocene fauna of Kansas and eastern Colorado, of which much remains to be done; Mr. Gidley is working upon the Pleistocene horses, and has just completed a very careful revision of the species; Dr. McGregor is working upon Belodon and the Phytosauria, comparing the American and German types; Professor Osborn is especially studying the Titanotheres. At Princeton, Professor Scott is working up the Patagonian mammals. In the Carnegie Museum, Mr. Hatcher has just completed a memoir upon Diplodocus.

EVOLUTION OF THE HORSE.

A FRIEND of the American Museum of Natural History has recently presented a fund, which is to be used exclusively for the collection, exhibition and study of the fossil horses of America. Professor Osborn has planned two expeditions for the coming season, with the especial object of filling gaps in the already rich series. It is proposed also to mount as complete a series of fossil skeletons as possible, showing all the chief stages in the evolution of the horse from *Hyracotherium* to *Equus*. Four complete skeletons have already been procured, two of which have been mounted. It is also proposed to exhibit recent types of skeletons, showing the effects of artificial selection. H. F. O.

AN ARCHEOLOGICAL MAP.

BENEDICT'S map of Chain-O'-Lakes, near Waupaca, Wis., copyrighted by F. M. Benedict in 1896, although not well known, is yet of considerable value and interest to archeologists. It locates the Wisconsin and Wolf River Indian trail, and by numbers indicates village sites, a bake hole, kitchen middens, graves, and conical, ovals and effigy mounds.

The location and description of such remains, however brief, are always valuable. The great number of archeological sites, and the comparative ease with which they could now be located and described, seem to cause local students to ignore the great need of present work in this line. They do not realize that the facilities for the work at the present time are far better than they will be a few years hence, when but a fragment of the same results could be accomplished. Mounds plowed over are harder to find, and crops ruined by the excavations of the explorer are more expensive than anything injured on wild land. Permission of owners is also harder to secure in more thickly settled regions. In this connection Mr. Benedict's efforts certainly are commendable.

It is very desirable that such a map be constructed by every local student or lover of archeology, until every county in the country is covered. It might be saved for future use either by being published or by filing duplicate copies of it in several libraries or museums. Certainly specimens found by such students deserve a careful record and preservation in the nearest substantial public museum or college.

HARLAN I. SMITH.

THE BIOLOGICAL STATION OF THE UNIVERSITY OF MONTANA.

THE Biological Station of the University of Montana will be open for its third season beginning July 22d, for four weeks. The laboratory is near the P. O. of Holt, Montana, at the northern end of Flathead Lake, and from it a great variety of collecting grounds is easily accessible: Flathead Lake is 32 miles long and 16 wide, with an elevation of 4,000 feet; Swan River debouches into the Lake near the station, and numerous other large and small streams, swamps, smaller lakes, forests and mountains with an altitude of ten thousand feet offer a variety of conditions not within reach of many similar institutions.

Courses in zoology, botany, ornithology and nature study will be offered. A small party will leave Missoula early in June and will make explorations in the Cabinet or Mission mountains, reaching the Laboratory at the beginning of the sessions.

The facilities of the station which are placed at the service of students and investigators embrace a gasoline launch, row-boats, botanical apparatus, insect nets, pumping apparatus, etc., and a team and wagon equipped with camping outfit.

The New York Botanical Garden will cooperate in the botanical work of the Station. Dr. D. T. MacDougal, director of the laboratories in that institution will join the party in