pure-bred *O. Lamarckiana* so far studied I have found no indication of the number ever approaching twenty; but from the evidence of repeated counts it seems to be fourteen or fifteen. I have at least eighteen good clear demonstrations of mitotic figures showing only fourteen chromosomes, all distinctly outlined and clearly defined—with no trace of a chromosome in a preceding or following section; on the other hand, I have encountered a sufficient number of less clearly defined figures, in which there seems to be but thirteen, and in others fifteen chromosomes, to make it necessary to state the number for the present with reserve. Chromosomes frequently lie in such positions as to make it impossible to distinguish between a long-looped form and two so placed as to give a similar appearance; also a looped chromosome may be sectioned at a point to give the two halves the appearance of distinct individuals.

The number of chromosomes characteristic of the somatic cells of *O. gigas* is probably twenty-eight or twenty-nine, although the difficulty in counting is here increased by the large number; however, I have six or seven excellent figures showing twenty-eight sharply-defined chromosomes, and as many more, not so clearly outlined, in which there is a strong indication of twenty-nine. It is hoped that the hundreds of new sections now in process of preparation for study will establish the facts, shortly.

Other points of interest are coming to light, particularly in connection with the hybridization of mutants, and will be mentioned in a later note.

Anne M. Lutz
Station for Experimental Evolution,
Cold Spring Harbor, L. I.,
June 28, 1907

CURRENT NOTES ON LAND FORMS

DIAMOND HEAD AND MOHOKEA

C. H. Hitchcock has recently described a tuff cone and a caldera in the Hawaiian Islands ("Geology of Diamond Head, Oahu," *Bull. G. S. A.*, XVII., 1906, 469–484; "Mohokea Caldera," *ibid.*, 485–496). Diamond Head, on the island of Oahu, is a well-formed tuff cone with a broad and shallow crater, which the author concludes was thrown up explosively from beneath the level of the sea, the volcanic material having been ejected through fossiliferous limestones of Tertiary age. The cone is compared with the Monte Nuovo near Naples. Considerable attention is given the conflicting theory that the cone was built up gradually by the slow accumulation of material ejected at long intervals. The features of the cone are illustrated by several plates.

Mohokea, on the island of Hawaii, is described as a very irregular caldera only partially enclosed, the open side being toward the sea. Two parallel lines of faulted and tilted lava blocks cross the caldera from southeast to northwest, and are believed to be part of the overlying crust which dropped in when the caldera was formed, although the blocks themselves have been in part crowded up until their crests rise higher than the surface without the caldera. Mohokea is compared with the irregular Haleakala caldera, and illustrations of both are given.

D. W. J.

A PENEPLAIN IN EQUATORIAL AFRICA

It is generally accepted among physiographers that a peneplain worn down on crystalline rocks in a humid climate would be heavily cloaked with a deep soil of local weathering; and in favor of this opinion the deeply decayed rocks of the somewhat uplifted and dissected Appalachian Piedmont belt may be instanced. In a subarid climate the case is different.

An excellent account of an extensive peneplain, exposing large areas of bare rock, on the southern border of the French Sahara in latitude 18° to 21° N., northeast of the great bend of the Niger and on the arid outer border of the subequatorial (summer) rains, is given by E. F. Gautier ("A travers le Sahara français," *La Géogr.*, XV., 1907, 1–28). The rocks of the region are for the most part Archean granites and gneisses, broken here and there by less ancient igneous intrusions, and associated with belts of strongly folded and

metamorphosed Silurian strata. The Archean area is a smooth platform, a plain of hardly perceptible undulation, its barren surface of bare rock being frightfully desolate; it is interrupted by weathered blocks, often standing in fantastic heaps, and by isolated knobs, which gain an exaggerated appearance of height by reason of the extraordinary flatness of the surrounding plain. The areas of eruptive rocks preserve a greater relief and a more rugged surface; here the trails are at their worst. The Silurian areas possess rounded swells of quartzite between broad shallow depressions; that is, old ridges between old valleys, and thus present a landscape of low, gently modulated forms in contrast with the plain and boulder heaps of the Archean area and with the stronger reliefs of the eruptives. The peneplain as a whole slopes evenly from about 800 m. altitude in the northeast to about 500 m. in the southwest in a distance of 200 kil. It is spoken of as a block, faulted and uplifted in mass. Nevertheless its border on the northeast presents only gentle slopes; there alone are the water courses distinctly enclosed in well-defined valleys beneath the upland surface. Elsewhere the drainage system is highly peculiar, and expresses far-advanced old age, the altitude at which the gently inclined plain now stands being, in the reviewer's opinion, suggestive rather of the inability of the weak, wet-weather, silt-laden streams as yet to have worn their courses closer to normal baselevel, than of elevation in mass after reduction by normal erosion to a lower level. On the Archean area the valleys appear to be so old and the interfluves so completely worn down, that the wadies turn about "sur une pénéplaine rigoureusement horizontale." In the dry season the wadies are not barren stony beds marked by the work of violent floods, like the wadies of the Sahara farther north, but smooth plains of fine alluvium, more or less overgrown with grass and bushes which survive on the ground water stored from the previous wet season.

The alluvium of the wadies is not separated from the bare-rock plains by any distinct border or banks, but the surface of one merges into that of the other; towards the wady border the vegetation thins out and disappears. When the short-lived local rains supply water enough to run from the impermeable rock plains, a wady flows not as a stream, but rather as a sheet of very small depth, great breadth (over a kilometer) and feeble current, soon to be absorbed in the silty alluvium—"une nappe d'épaisseur pelliculaire, très languissament progressive, et bien vite absorbée par l'énorme masse des alluvions." Nowhere else in the world does a single river bear so many names in different parts of its course. A large scale map would show the drainage system of this peculiar region as abnormally, clumsily broadened. Gautier adds pertinent notes on climate, flora, fauna and inhabitants. W. M. D.

A PREHISTORIC LANDSLIDE IN THE ALPS

DETRITAL hillocks in various Alpine valleys, formerly interpreted as moraines, have in more recent years been recognized as prehistoric, usually postglacial, landslides. One of the best examples of the kind is that by Kandersteg, south of Lake Thun, first identified as a landslide by Brückner in 1891; and lately described in detail by V. Turnau (Inaug. Dissert., Univ. Bern, 1906). The material came from a huge nitch, still clearly defined, on the northwestern side of the Fissistock, where the strata dip down the slope and outcrop in basset edges on the steepened wall of the glacially overdeepened valley of the Kander. The nitch is about three kilometers long, and nearly one wide; its upper cliffs reach 3,000 m. altitude; its lower edge lies at 1,500 m. The detritus occupies the Kander valley for a length of 8 kil., northward from the point of its oblique entrance, with a width of from a half to one kilometer, the valley floor at the entrance of the slide being 1,200 m., and at its lower end, 800 m. altitude. The highest part of the slide is opposite its source, where the gliding mass was banked up against the opposite valley wall. The thickness of the detritus is seen to vary from 150 to 30 m., but its bottom is not observed. Its form is extremely irregular, and it has greatly

obstructed the flow of the valley stream. Its surface is strewn with large blocks of rock. Its volume is estimated at 900,000,000 cu. m. A little farther east, in a branch of the Kander valley, a similar but much smaller slide forms the barrier by which Oeschinen lake is enclosed in a cirque-like valley head.

Turnau quotes estimates of the volumes of other landslides. That of Elm, which happened a score of years ago, is 10,000,000 cu. m.; that of Goldau, a century ago, 15,000,000. Far greater was the prehistoric landslide of Flims in the upper valley of the Rhine, which is estimated at 15,000,000,000 cu. m.; or a thousand times greater than the Goldau slide, and even sixteen times greater than the great slide of the Kander valley.

W. M. D.

PRELIMINARY LIST OF SCIENTIFIC COMMUNICATIONS TO BE PRESENTED AT THE SEVENTH INTERNATIONAL ZOOLOGICAL CONGRESS, BOSTON, AUGUST 19 TO 23, 1907

In response to the invitations of the General Committee and of the various secretaries of the organization a generous number of acceptances to address the congress or to read papers before its sections have been received. The communications thus submitted fall under three heads: addresses, for which the speakers have been invited; voluntary communications to be given before sections; and demonstrations. The number and quality of these contributions presage an unusually successful meeting.

The following speakers have consented to deliver addresses either before the general meetings or the sectional meetings: Professor W. Bateson, Cambridge, England; Professor C. Depéret, Lyons, France; Dr. H. Driesch, Heidelberg, Germany; Dr. T. N. Gill, Washington, D. C.; Professor Richard Hertwig, Munich, Germany; Dr. G. Horváth, Budapest, Hungary; Dr. L. O. Howard, Washington, D. C.; Professor A. A. W. Hubrecht, Utrecht, Holland; Professor J. Loeb, Berkeley, Cal.; Professor C. E. McClung, Lawrence, Kan.; Professor J. P. McMurrich, Ann Arbor, Mich.; Sir John Murray, Edinburgh, Scotland; Dr. R. F. Scharff, Dublin, Ireland; and Professor C. O. Whitman, Chicago, Ill.

For the presentation and discussion of scientific communications fifteen sections have been tentatively named and the organization of each section has been put into the hands of a secretary to whom requests concerning that section should be addressed. The names of the sections and the persons having charge of them are as follows: General Zoology, F. R. Lillie, Chicago, Ill.; Systematic Zoology, D. S. Jordan, Stanford University, Cal.; Entomology, L. O. Howard, Washington, D. C.; Ornithology, Witmer Stone, Philadelphia, Pa.; Palæozoology, H. F. Osborn, New York, N. Y.; Comparative Anatomy, C. S. Minot, Boston, Mass., and J. S. Kingsley, Tufts College, Mass.; Embryology, E. G. Conklin, Philadelphia, Pa.; Cytology, E. B. Wilson, New York, N. Y.; Zoogeography, L. Stejneger, Washington, D. C.; Thalassography, W. E. Ritter, Berkeley, Cal.; Applied Zoology, C. W. Stiles, Washington, D. C.; Comparative Physiology, W. B. Cannon, Boston, Mass.; Experimental Zoology, T. H. Morgan, New York, N. Y.; Heredity, C. B. Davenport, Cold Spring Harbor, N. Y., and Animal Behavior, H. S. Jennings, Baltimore, Md.

The following preliminary list of communications is announced for the sectional meetings:

T. B. Aldrich: Title not yet received.

R. J. Anderson: "Notes on the Movements in Some Animals, with especial reference to their Susceptibility to Training," "A Short Review of the Mammalian Mandible," "Illustrations Suggestive of the Mode of Formation of the Cetacean Flipper."

S. von Apáthy: "New Method of Making Serial Celloidin Sections," "An Unintentional Experiment on Living Nuclei and the Real Structure of the Cell Nucleus," "New Facts and Critical Notes about Neurofibrillæ," "The Presence of Krause's Membrane as a General Feature of Striated Muscles."

S. Awerinzew: "Ueber die Myxosporidien von *Drepanopsetta platessoides*," "Die Marine Biologische Station an der Murman-Küste."

C. R. Bardeen: Title not yet received.

P. Bartsch: "A Study in Distribution based