SCIENCE

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MSS. intended for publication and books, etc., intended for review should be sent to Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

PLEISTOCENE GEOLOGY OF NEW YORK STATE.[1] *I*

INTRODUCTION

THE primacy of New York among the states in population, wealth, manufacture and commerce is based on its physical characters—geologic structure, physiographic relief and geographic relations. The state has the greatest range and perfection in its stratigraphic series and the greatest variety in physiographic features. In scenery other states may possess single features of surpassing grandeur and beauty, like the Colorado Grand Canyon, Yosemite Valley, Crater Lake, the mountains of the Cordillera or the snow-capped volcanic cones of the northwest, but for abundance and variety of beautiful scenery of educational value New York may claim first place. In the variety and excellence of Pleistocene phenomena the state probably excels any other equal area of the earth's surface. This is due to the varied and unusual physiography combined with a favoring attitude of the area in relation to the continental glacier. The features of special excellence occur largely in the western part of the state. These are the series of more than twenty parallel, north-sloping valleys which hold the unique series of twelve so-called Finger lakes; the remarkable succession of glacial lakes in the Ontario drainage area; the conspicuous, abandoned channels of the rivers that drained those lakes; the surpassing display of drumlins, of kames and eskers; the fine series of mo-

[1] Annual address of the president of the Geological Society of America, read on December 28, 1912. The numerous maps which illustrated this address are here omitted.

ern part above water until just before the present stage in the development of the archipelago. This idea seems to receive support from the fact that the Achatinellidæ are almost confined to that part of the island, but it appears doubtful in view of the very large number of endemic Hymenoptera in Hawaii.

T. D. A. COCKERELL

Géologie du Bassin de Paris. Par M. PAUL LEMOINE. Paris. 1911. Pp. ii + 408; 137 figures; 9 maps.

Beginning with the classic "Description géologique des environs de Paris," by Cuvier and Brongniart, which reached a third edition as early as 1835, there have been a number of excellent general works on the geology of the Paris basin, that by Stanilas Meunier, first published in 1875, being perhaps the most used. Whatever the French do, they do well, and the Paris basin is such classic ground for the mesozoic and cenozoic geologist and paleontologist that the present work is of very great interest. That the book is well planned, well written and well illustrated is indeed but faint praise. M. Lemoine, who is vice-president of the Geological Society, has been working in the area for a number of years for the Geological Survey and is well equipped for the task of digesting the eight hundred odd memoirs treating of the area and combining their results with his own researches.

After three preliminary chapters devoted to an introduction for amateurs, and a historical, physiographic and tectonic discussion of the area, he plunges into the detailed geologic history of the basin, which commences with the Triassic. The Jurassic and Cretaceous of the Paris basin may be said to have furnished the standard for the world, as they have also so largely furnished the nomenclature, and these periods are treated at length. The very modern and altogether admirable work of the French paleontologists, particularly on the faunal facies and their correlation with particular sediments, is fully discussed and diagrammatically illustrated. Tertiary geology may be said to have been born in the Paris basin, even if Sir Charles Lyell was one of the wise men present at the birth, and here again the treatment is full and accurate. The Eocene in particular, because of the alternation of marine faunas with littoral, lacustrine and continental deposits containing land plants and terrestrial mammals, deserves to be and is rapidly becoming the world standard. The time is not far distant when the French étages will be used in all countries where men interest themselves in Tertiary history. Osborn has applied them with considerable success in his discussion of American mammal horizons and they lend themselves with equal readiness to discussions of the paleobotanical history of North America.

The book contains nine double-page maps and 137 text figures, every one of which is excellent, and will prove a most useful traveling companion for visiting geologists. The author is to be warmly congratulated, and it is to be hoped that American students will not only read the book, but try to imitate its method in their own geological writing.

EDWARD W. BERRY

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SCIENTIFIC JOURNALS AND ARTICLES

THE opening (January) number of Vol. 14 of the *Transactions of the American Mathematical Society* contains the following papers:

F. N. Cole: "The triad systems of thirteen letters."

H. S. White: "Triple systems as transformations, and their paths among triads."

G. D. Birkhoff: "Proof of Poincaré's geometric theorem."

S. Lefschetz: "On the existence of loci with given singularities."

B. H. Camp: "Singular multiple integrals, with applications to series."

Oswald Veblen: "Decomposition of an n-space by a polyhedron."

C. N. Moore: "On convergence factors in double series and the double Fourier series."

Virgil Snyder: "Algebraic surfaces invariant under an infinite discontinuous group of birational transformations. Second paper."

N. J. Lennes: "Note on Van Vleck's non-measurable sets."

T. H. Gronwall: "Some asymptotic expressions in the theory of numbers."

H. H. Mitchell: "Determination of the finite quaternary linear groups."

L. S. Dederick: "On the character of a transformation in the neighborhood of a point where its Jacobian vanishes."

THE January number (Vol. 19, No. 4) of the *Bulletin of the American Mathematical Society* contains: Report of the October meeting of the society, by F. N. Cole; Report of the October meeting of the San Francisco Section, by T. M. Putnam; Report of the Cambridge meeting of the International Congress of Mathematicians, Sections II.–IV., by Virgil Snyder; Report of the Münster meeting of the German Mathematical Society, by Virgil Snyder; "Shorter Notices": Hulburt's Differential and Integral Calculus, by D. D. Leib; Voigt's Theorie der Zahlreihen und der Reihengleichungen, by R. D. Carmichael; "Notes"; and "New Publications."

THE February number of the *Bulletin* contains: Report of the sixth regular meeting of the Southwestern Section, by J. N. Van der Vries; "Some special boundary problems in the theory of harmonic functions," by T. H. Gronwall; "Note on Fermat's last theorem," by R. D. Carmichael; "Integral equations": review of Lalesco's Introduction à la Théorie des Equations intégrales and Heywood and Frechet's L'Equation de Fredholm et ses Applications à la Physique mathématique, by W. R. Longley; "An advance in theoretical mechanics": review of E. and F. Cosserat's Théorie des Corps déformables, by E. B. Wilson; "Shorter Notices": Fagnano's Opere matematiche, Heath's Method of Archimedes recently discovered by Heiberg, and Höfler's Didaktik des mathematischen Unterrichts, by D. E. Smith; Poincaré's Wert der Wissenschaft, by J. B. Shaw; V. and K. Kommerell's Spezielle Flächen und Theorie der Strahlensysteme, by E. B. Cowley; Horn's Einführung in die Theorie der partiellen Differentialgleichungen, by A. R. Crathorne; Forsyth's Lehrbuch der Differentialgleichungen and Poincaré's Calcul des Probabilités, by R. D. Carmichael; Lamb's Dynamical Theory of Sound, by E. B. Wilson; "Notes"; and "New Publications."

THE DIAGRAMS IN PROFESSOR THORNDIKE'S ADDRESS ON EDUCATIONAL DIAGNOSIS

THROUGH a misunderstanding the lettering was not given for the diagrams in Professor Thorndike's vice-presidential address before the American Association for the Advancement of Science, printed in SCIENCE for January 24. They are here reproduced with the inscriptions.

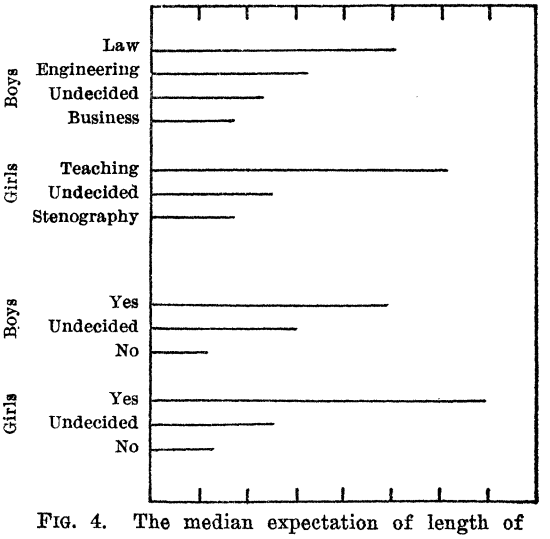

FIG. 4. The median expectation of length of stay in the New York City high schools, in the case of pupils who reported, at entrance to high schools, as shown at the left of the diagram, choice of occupation and intended length of stay.

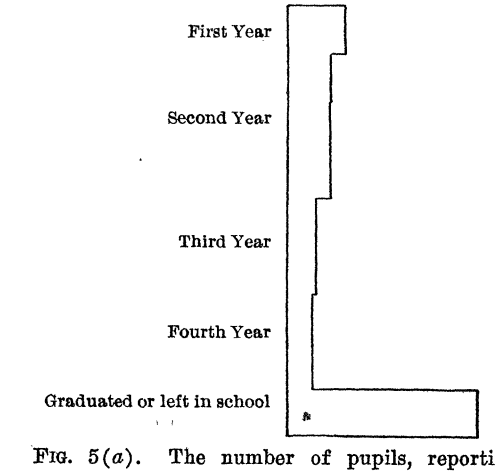

FIG. 5(*a*). The number of pupils, reporting themselves at entrance as expecting to complete the course, who leave in each successive year.