

Two new volumes have been added to Ostwald's series of scientific classics, published by Mr. W. Engelmann, Leipzig (London: Williams and Norgate), bringing the number of reprints and translations in the collection up to 145. One of the volumes is a translation, by Herr F. Plehn, of Kepler's "Dioptrice," with an introduction, notes, and sketch of Kepler's life and work. The second volume (No. 145) contains reprints of two papers by Kekulé, edited with notes by Herr A. Ladenburg; the papers are:—"Über die Constitution und die Metamorphosen der chemischen Verbindungen und über die chemische Natur des Kohlenstoffs" and "Untersuchungen über aromatische Verbindungen."

THE annual report of the Smithsonian Institution for the year ending June 30, 1903, has been received. As usual, the general appendix makes up the greater part of the volume. The excellent and varied selection of beautifully illustrated papers by men of science of all nationalities, constituting the general appendix, provides a trustworthy indication of the extent and nature of the progress in science during the twelve months with which the report deals. It is impossible here to give even the titles of the fifty-three papers included. Some of the papers have been reprinted from NATURE and other periodicals, some are addresses delivered before scientific bodies, and a few are new contributions. In addition to these works there are a number of translations of papers originally published in other languages. The first place is given to a reprint of the general description of the moon included by Prof. N. S. Shaler in the introductory chapter of his memoir on "A Comparison of the Features of the Earth and the Moon." This paper is illustrated by ten magnificent plates. The work done on radium and radio-activity is chronicled in papers by M. E. Curie, Prof. J. J. Thomson, Sir William Ramsay, Mr. Soddy, Sir Oliver Lodge, Sir William Crookes—the names being mentioned in the order in which the papers are printed. Geographical research is represented by contributions by Captain E. W. Creak, Mr. Alfred H. Brooks, Commander Peary, Sir Clements R. Markham, Dr. Otto Nordenskjöld, M. G. Ts. Tsybikoff, and others. The articles on geographical and zoological subjects are illustrated very profusely, and the volume will make a valuable addition to reference libraries fortunate enough to secure copies of it.

OUR ASTRONOMICAL COLUMN.

DISCOVERY OF A NEW COMET (1904 d).—A telegram from the Kiel Centralstelle announces that a new comet was discovered by M. Giacobini at Nice on December 17-11. Its position at 17h. 41.3m. (M.T. Nice) was

$$R.A. = 16h. 14m. 40s., \text{ dec.} = +27^\circ 28',$$

and its movement was in a north-easterly direction.

This position is situated on the western boundary of the constellation Hercules, about 44m. east of α Coronæ, which has approximately the same declination ($27^\circ 2'$), and is favourably situated for observation during the three or four hours preceding dawn.

A second telegram from Kiel informs us that the comet was again observed at Nice on December 18. Its position at 16h. 44m. (M.T. Nice) was as follows:—

$$R.A. = 16h. 17m. 34s., \text{ dec.} = +27^\circ 54' 8''.$$

TEMPEL'S COMET (1904 c).—The following details of M. St. Javelle's re-discovery of Tempel's second comet are given an No. 3984 of the *Astronomische Nachrichten*:—

	M.T. Nice	R.A. (app.)	Dec. (app.)
	h. m. s.	h. m. s.	h. m. s.
Nov. 30 ...	6 7 48 ...	19 36 39.89 ...	-24 48 37.3
Dec. 1 ...	5 55 10 ...	19 40 23.58 ...	-24 46 17.5

NO. 1834, VOL. 71]

The comet was a feeble and ill-defined object as seen in the Nice equatorial of 0.76 m. aperture, and had the appearance of a whitish spot 1'.5 to 2'.0 in extent; no nucleus was visible.

A continued abstract of M. Coniel's daily ephemeris (*Astronomische Nachrichten*, No. 3971) is given below:—

12h. M.T. Paris.					
1904	α (app.)	δ (app.)	log Δ	$r:2^2\Delta^2$	
	h. m. s.	'			
Dec. 20 ...	20 51 30 ...	-22 55 ...	0.31206 ...	0.113	
,, 22 ...	20 58 39 ...	-22 36 ...	0.31480 ...		
,, 24 ...	21 5 43 ...	-22 17 ...	0.31760 ...	0.108	
,, 26 ...	21 12 44 ...	-21 57 ...	0.32044 ...		
,, 28 ...	21 19 41 ...	-21 35 ...	0.32333 ...	0.103	
,, 30 ...	21 26 35 ...	-21 13 ...	0.32626		
1905					
Jan. 1 ...	21 33 24 ...	-20 50 ..	0.32924 ...	0.098	

ENCKE'S COMET (1904 b).—An observation of Encke's comet was made by Herr van d Bilt at Utrecht on December 8. At 8h. 3m. 46s. (M.T. Utrecht) the position of the comet was

$$\alpha \text{ (app.)} = 20h. 46m. 22.11s., \delta \text{ (app.)} = +5^\circ 12' 29''.5,$$

and its magnitude was estimated as 7.5. This observation indicated that a correction of +41s., +1'.2 was necessary to the ephemeris published by Messrs. Kaminsky and Oculitsch in *Astronomische Nachrichten*, No. 3981 (*Astronomische Nachrichten*, No. 3985).

OBSERVATIONS OF OCCULTATIONS BY PLANETS.—Dr. T. J. J. See, writing to the *Astronomische Nachrichten* (No. 3984), explains the futility of making observations of occultations by planets for the purpose of determining the extent of the planetary atmospheres. He points out that the extent of the irradiation about a planet's disc, at night time, in every case exceeds the probable extent of the planet's atmosphere, so that the star is lost in the irradiation zone before the interposition of the atmosphere between it and the observer.

Thus observations of this character, made during the hours of darkness when the irradiation affects the observation, can never succeed in determining the amount of refraction suffered by the star light in passing through the planet's atmosphere, because the star is always hidden before it reaches even the outer limit of that atmosphere.

RELATIVE DRIFT OF THE HYADES STARS.—In a paper communicated to the British Astronomical Association Dr. Downing, F.R.S., discusses the resulting values obtained by Herr Weersma, and published in No. 13 of the Groningen Astronomical Laboratory *Publications*, in order to determine the relative drift of the sixty-six Hyades stars dealt with by the latter observer.

The results of the discussion show that these stars may be arranged in three chief groups as regards the amount and direction of their annual motion. The first group contains thirty-eight stars, including most of the bright ones except Aldebaran, having a mean motion of 0".096 per year in the mean direction 106° from north towards east. In the second group Aldebaran and three faint stars are included, and the annual mean motion is as much as 0".160 in the mean direction 160°. In both these groups the magnitudes are in no way related to the amounts of movement, some of the fainter stars, in fact, having a greater apparent motion than the brighter ones in the same group. The values for the third group are 0".036 and 254° respectively, and it is reasonably conjectured that this group is at a greater distance from our system than the others (*Journal British Astronomical Association*, No. 1, vol. xv.).

DESIGNATIONS OF THE VARIABLE STARS DISCOVERED DURING 1904.—In No. 3984 of the *Astronomische Nachrichten* the Variable Star Commission of the Astronomischen Gesellschaft publish a catalogue of fifty-eight new variables, discovered by various observers during the present year. They give for each star the number by which it will in future be known, the temporary designation which this replaces, its coordinates and the amount of precession in each coordinate, for 1900, and the magnitude. The catalogue is followed by a detailed account of the discovery, variations, and general characteristics of each variable.

THE "COMPANION TO THE OBSERVATORY."—The 1905 edition of the well known "Companion to the Observatory," published at 1s. 6d. by Messrs. Taylor and Francis, contains its usual complement of useful data for all kinds of astronomical observations. Ephemerides for the planets and their satellites, the Greenwich magnetic elements, the times of maxima and minima and the periods of numerous variable stars and data relating to a number of double stars are given amongst the mass of information contained.

As in previous years, Mr. Denning gives the dates and radiant points of the principal meteor showers and Mr. Maw has supplied the double-star tables, whilst the ephemerides of an ever-increasing number of variable stars have been taken from advance proofs generously contributed by M. Lœwy.

GLACIATION IN NORTH AMERICA.¹

THIS volume, which has only recently reached us, is by no means of merely local interest. The first 226 pages form a treatise on glacial geology in general, and represent the author's views after some twelve years of study of drift deposits in the field. No one who examines plates i. to vi. can mistake the character of these deposits; these excellent photographic pictures would meet, indeed, with international acceptance. On p. 30 we have some suggestive figures given as to the area of existing glaciers, from which it appears that the whole drift-covered country in North America is only ten times as large as that still covered by ice in Greenland. The Antarctic ice-sheet, moreover, is as extensive as that postulated for North America in "Glacial" times, a fact that effectually "removes the element of incredibility which, at first thought, attaches to so striking a theory as that of the glacial origin of the drift." The northern ice, however, as Mr. Salisbury immediately points out, extended into temperate latitudes, and special explanations must thus be sought. New Jersey, we may observe, lies on the latitude of Lisbon and Sicily in the northern hemisphere, and corresponds with Cape Town and Melbourne in the southern and more glacial hemisphere. Mr. Salisbury at present seeks the cause of older widespread glaciations (p. 192) in Chamberlin's hypothesis of variations in the amount of carbon dioxide in the atmosphere. Elevation accelerates rock-decay, and this process promotes refrigeration by withdrawing carbon dioxide from the air. The possibility of variation in the constitution of the atmo-

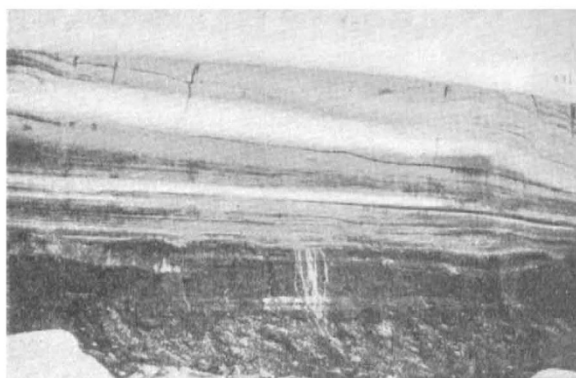


FIG. 1.—Side of a glacier in Greenland, showing the moraine-débris in the lower part, while the upper ice is almost free from it.

sphere, owing to the emanations of volcanoes, is also touched on as one of many other causes controlling the supply of carbon dioxide.

Plates xviii. and xix. are valuable for the comparison they afford between the landscapes formed by the uniform

¹ "The Glacial Geology of New Jersey." By Rollin D. Salisbury. Vol. v. of the Final Report of the State Geologist. Pp. xxviii+802; plates and folding maps. (Trenton, N.J.: MacCrellish and Quigley, 1902.)

ice-cap of Greenland and the protrusion of peaks through a dwindling ice-area in the familiar scenes of Switzerland. Other interesting photographs from Greenland occur on plates xxv. and xxvi., and one of them is here reproduced (Fig. 1).

The general propositions stated by the author are illustrated by examples of moraine-material, striated surfaces, &c., from New Jersey, so that dwellers in that State may now acquire a new insight into the topographic features round them. Mr. Salisbury restricts the word *kame* to material washed out from and left against the irregular

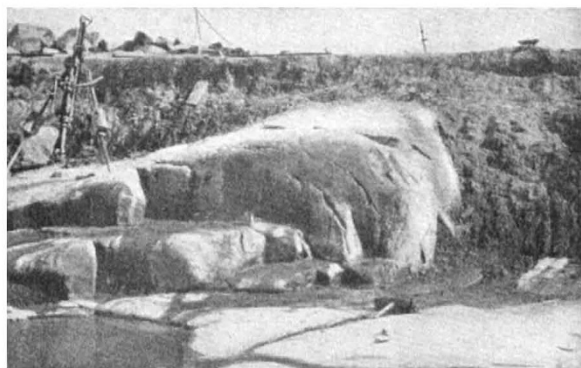


FIG. 2.—Glaciated surface of "trap" at Weehawken, New Jersey.

margin of a glacier (p. 116), while *eskers* represent the channels of subglacial streams. Seeing how these two terms have been interchanged, as the author's references show (p. 136), it might have been well to invent a new word for the special type of water-formed terminal moraine which the author describes here as a *kame*. Chapter v., on changes in drainage resulting from glaciation, contains a very suggestive study of the former glacial lakes in the flat basin west of Newark. The concluding 550 pages are concerned with "local details," the meaning of which becomes clear after so excellent an introduction. One of the most striking illustrations is that facing p. 537 (Fig. 2), where the "plucking" away of blocks along the joint-planes of a glaciated surface is clearly shown by the step-like structure and abrupt details of the lee side of a *roche moutonnée*. This term, by the by, does not seem to be defined in the earlier portion of the book.

In conclusion, we could wish that some "State Survey" would give us a similarly comprehensive memoir for the glacial provinces of the British Isles. G. A. J. C.

THE PEOPLE OF THE NORTH-EAST OF SCOTLAND.¹

IT is to the credit of the Anatomical and Anthropological Society of the University of Aberdeen that it can issue *Proceedings* in a form far superior to those of the Anatomical Society of Great Britain and Ireland—the only other anatomical society in this country. Even in the contents of its *Proceedings* the younger society, founded and fostered by the professor of anatomy in the university, compares not unfavourably with the older society.

Naturally one turns first to those papers which deal with the people in the north-east of Scotland. By common repute they are a shrewd, "hard-headed" race. In a well written paper on the contents of short cists found in Aberdeenshire and neighbouring counties, Dr. Alexander Low tells all that can at present be known of their ancestors, the prehistoric inhabitants of this part. The picture drawn by Dr. Low is founded on the broken skeletons of eight men and

¹ *Proceedings* of the Anatomical and Anthropological Society of Aberdeen University, 1902-04. Pp. 155, 28 plates, 22 figs. in text. (Aberdeen: University Press, 1904.)