

and open-mouthed by slight submergence; off-shore sand reefs, with inlets and off-sets; agriculture and forestry, rather than mining and manufacturing, as industries—to all these a good artesian supply of water is an important additional feature, especially to the towns on the low and smooth littoral plain and to cities on the shore or on the off-shore sand-reefs.

'Artesian well prospects in the Atlantic coastal plain region' is a timely summary, by N. H. Darton (Bull. 138, U. S. Geol. Surv.), of our present knowledge on this subject. It gives much encouragement for the future. A number of colored maps and corresponding sections make the report easily understood. The location of successful and unsuccessful wells is conspicuously shown. Repeating the curious example, already described by Darton, of wells in eastern Maryland supplied by water-bearing strata (aquifers) that pass under Chesapeake bay, we here find wells about Norfolk fed by aquifers that pass beneath the saline estuaries of southeastern Virginia. The greater amount of detailed knowledge concerning the well prospects in New Jersey than in the Southern States is a tribute deservedly earned by the New Jersey Geological Survey.

#### DRUMLINS IN NORTH GERMANY.

K. KEILHACK, of Berlin, describes a 'Drumlinlandschaft in Norddeutschland' (Jahrb. k. preuss. geol. Landesamt, 1896 [1897], 163–198), from which it appears that an extensive group of well defined drumlins lies east of the lower Oder, between the Baltic sea and one of the terminal moraines of that glaciated region. The hills, illustrated by a number of detailed maps, are of moderate height, with ratio of  $2\frac{1}{2}$  or 3 between length and breadth; some of them being elongated ridges, three or four kilometers in length. Their distribution, indicated by diagram and map, is of

especial value in a region where glacial striae are rarely seen; for their axes show as ympathetic parallelism in a curving arrangement that strongly indicates a glacial flow toward the free morainic border near by. Now that drumlins have been found on the northern piedmont of the Alps by Sieger and Früh, in Sweden by de Geer, and south of the Baltic by Doss and Keilhack, they need not be regarded as such rarities in continental Europe as they were thought to be fifteen years ago.

#### THE VERNAGT GLACIER.

THE Vernagt glacier in the eastern Alps, famous for its flood-like advances into the Rofen valley (1599, 1680, 1773, 1845), and for the disasters caused by the outbreaks of the impounded valley stream, is made the subject of accurate measurement and description by Dr. S. Finsterwalder, of Munich; his monograph forming the first 'scientific supplement' to the Zeitschrift of the most flourishing of all Alpine clubs, the German and Austrian Alpenverein (Graz, 1897). The history of the glacier and the earlier maps of its form are carefully reviewed. A detailed account is given of the author's survey, the result being presented on a most beautiful map in several colors, on a scale of 1:10,000, with contours every ten meters. Then follows a discussion of the conditions of glacial motion, as here exemplified, and finally a consideration of the outbreaks of this remarkable glacier; their cause being ascribed to variations of snow and névé supply in the irregular upper reservoir. A special study follows on the end of the glacier in 1891, '93 and '95, by Blümcke and Hess.

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#### CURRENT NOTES ON ANTHROPOLOGY.

##### QUIPU READING.

IN the *Bulletin* of the Free Museum of Science and Art, Philadelphia, for December, 1897, Dr. Max Uhle has an article on

a modern quipu (his orthography is *Kipu*) from Bolivia. This one is not the same which he described in the *Ethnologisches Notizblatt*, of Berlin (referred to at that time in these notes). He obtained it from a native on a hacienda near Lake Titicaca, and its purpose was to keep the tally of the sheep, rams, ewes and lambs entrusted to his care. Others are used for reckoning the harvest and rendering accounts of various kinds. These are usually white in color only, and the count is registered by knots. Quipus of various colors are probably still in use, though Dr. Uhle was unable to secure specimens. He discusses four ancient and modern authorities on the significance of the hues, and believes that by further research we shall be able to extend our knowledge greatly of this curious method of recording facts.

#### ETRUSCAN STUDIES.

A WRITER somewhat well known for his archæological essays, Guiseppe Fregni, published last year a study of some of the leading Etruscan inscriptions, with what he alleges are translations (*Delle più celebri Iscrizione Etrusche*, p. 155, Modena, 1897). It is well illustrated and presents with care copies of eight or nine of the longer inscriptions and a discussion of the alphabet and its variants.

To the learned author the Etruscan problem is child's play in the simplicity of its solution. He allows himself humorous flings at the erudite obtuseness of previous students. All you have to do is to read the inscriptions in any or all of the Italic dialects, taking the words now in one, now in other, and, if they don't fit, cutting them up or expanding them, to make them fit, and calling in the Greek or Phœnician when the Italic dialects are wholly refractory. To be sure, they could be read, according to this method, just as well in English or Dutch or Choctaw; but this objection the

author does not take into consideration. He presents complete and fluent renderings of all of them.

#### THE HUICHOLA TRIBE.

AN interesting collection of ethnographic objects has been brought by Dr. Carl Lumholtz from the Huichola Indians. They dwell in an extremely mountainous part of western central Mexico, and are rarely visited by white men. They are pagans, though retaining some faint traces of the Christianity taught them in the last century by the Jesuits and Franciscans. Much of their ritual is occupied with 'rain-making,' and their symbolism is markedly aboriginal in spirit. The sacred plant *peyotl*, so common in the native rites throughout Mexico, and prized for the intoxication it produces, is held in high esteem among them.

The Huichola language has generally been considered a dialect of the Uto-Aztecan stock, and perhaps in them we may recognize some of the ancient 'Chichimecs.' Dr. Lumholtz has published some account of his researches in the last number of the *Bulletin* of the American Museum of Natural History.

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#### NOTES ON INORGANIC CHEMISTRY.

SATISFACTORY reductions in blowpipe analysis are often attended with more or less difficulty, as, for example, the reduction of tin oxid or barium sulfate. In the last *Zeitschrift für anorganische Chemie* a new method is proposed by Professor Walther Hempel, which he claims obviates many difficulties. A very small piece of metallic sodium is flattened out on a small piece of filter paper, and the substance to be examined is rolled up in this and wound with a close spiral of finest iron wire. After the excess of paper is cut off, the roll is slowly burned in the interior of a Bunsen flame and cooled in the stream of gas close