

## LETTERS TO THE EDITOR.

[Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.]

## United States geologists, sandstones, and the Keweenaw series.

HAVING objected to certain current views in geology and lithology, especially those of one of the preceding U. S. geological surveys, it is with great pleasure I observe that some of the officers of the present U. S. geological survey, in recent publications, take concordant grounds, in several points, with those published by myself between 1877 and the summer of 1880. These are: 1°. The necessity for the essential union of field and microscopic work, the former to dominate in points relating to the origin of rocks, from the inability of the latter to do what it was claimed it could; and as a reaction against the present too exclusive sedimentary theories; 2°. That propylite has no existence as a rock species, but is an altered state of other rocks (principally andesite), its erection into a distinct species being due to erroneous microscopic and other observations; 3°. That the conglomerate beds of Keweenaw Point are formed in the main from the *débris* of granitic and old rhyolitic and trachytic rocks (the basaltic *débris* is subordinate).

*Appropos* of Mr. G. P. Merrill's letter in SCIENCE, No. 8, it is proper to state, that, since sandstones are detrital rocks, the minerals contained in them would of necessity have the same inclusions as they had in the rocks from whose detritus the sandstones are formed; and that it has long been known to lithologists, and fully published in the past, that the quartz of sandstones contains fluid inclusions (both with and without moving bubbles), glass inclusions, trichites, etc.

Owing to some remarks in the same number, it is necessary to add somewhat to my previous letter upon Keweenaw Point geology. The evidence advanced by Logan, which Dr. Hunt finds so convincing, was mainly a difference in dip between the traps and sandstones when several miles apart; and all the evidences, as Logan says, only "seem to support the suspicion that the sandstones may overlie unconformably those rocks, which, associated with the trap, constituted the copper-bearing series." The 'Keweenaw series' was first founded on observations on Keweenaw Point; and it, of course, is to live or die there. The observations mentioned in my previous letter are clear, definite, and positive, and substantiate the views of Whitney, Selwyn, and Winchell. They include and explain those of the Michigan and Wisconsin geologists on which the series was based; and, until they are disproved, they definitely show that the Keweenaw series has no separate existence, but overlies, and is continuous with, the eastern sandstone. Dr. Hunt's argument is based on the dictum that the traps underlie the eastern sandstone; and hence his argument is void. Over two years ago the attention of Messrs. Selwyn, Hunt, Irving, and Winchell was called to my observations; and, until they disprove them, it is difficult to see why they should ignore them, and enter upon an interminable theoretical discussion regarding a series which those observations showed did not exist.

Cambridge, Mass.,  
April 3, 1883.

M. E. WADSWORTH.

## The Ainos of Japan.

A note in SCIENCE of March 30, on the Ainos of Japan, seems to call for a word of comment. A residence of four years in the Island of Yesso, in the

capacity of a government official, threw me in almost daily contact with the Ainos, and presented opportunities for studying this most interesting people, which enable me to speak with some degree of assurance concerning them.

That the Ainos of Japan have no race affinities with the Japanese is not to be denied: in fact, all authorities upon the subject, especially those who have studied the people in their own home, are unanimous upon this point. It would seem, however, that, with regard to the Aino population, there is a diversity of opinion, which makes glaring discrepancies in the records given. Having personal acquaintance with some of the authorities which Dr. Brauns cites, — i.e., the missionaries of Hakodate, — and having had abundant opportunity to verify the government statistics by inspection of Aino settlements in various parts of the island, I cannot but feel justified in the statement that the figures given by Dr. Brauns, and so often stated at random by others, are far too large. Statistics compiled for me from the government records show the following population, by provinces:—

PROVINCE.	Male.	Female.
Chisuma . . . . .	237	223
Hitaka . . . . .	2,561	2,709
Iburi . . . . .	1,889	1,837
Ishicari . . . . .	532	526
Kitami . . . . .	635	614
Kushiro . . . . .	732	717
Nemuro . . . . .	229	244
Oshima . . . . .	125	120
Shiribeshi . . . . .	450	407
Teshiwo . . . . .	186	166
Tokachi . . . . .	740	758
Totals . . . . .	8,316	8,321
Grand Total . . . . .	-	16,637

The province of Chisuma includes all of the Kurile Islands, while the other provinces are embraced in the Island of Yesso. Of the 1,058 Ainos in the province of Ishicari, 750 were brought from Saghalien when that island was ceded to Russia in exchange for the Kuriles, about the year 1876, and are those spoken of by Mr. Brauns as found near Sapporo. With regard to the number of Ainos found on the Asiatic continent, no reliable statistics are to be found; but it is probably large.

The tribute which Mr. Brauns pays to the Aino character is certainly worthy of indorsement; and it would be a pleasure to add to what he says, were it not that want of space forbids, and that these facts will shortly appear in a more permanent form, as they are embodied in a book now nearly ready for the publisher. It only remains to add, that, while the figures given are undoubtedly very near the true population of the various Aino settlements, they cannot be taken as more than closely approximate.

D. P. PENHALLOW.

Houghton Farm, Mountaineville, N.Y.,  
April 2, 1883.

## PREHISTORIC TREPHINING.

On prehistoric trephining and cranial amulets. By ROBERT FLETCHER, M.R.C.S. Eng., Act. asst. surg. U. S. army. Washington, Government printing-office, 1882. 32 p., 9 pl., cuts. 4°.

THIS brochure, which is a part of vol. v. of the Contributions to North-American ethnol-