origin. Where long continental slopes descend beneath the ocean at a steeper gradient than 1 in 35, slips and earthquakes of this kind may be expected. The western boundary of the Tuscarora deep, in the North Pacific, is a source of many earthquakes, among them the destructive disturbance of June 15, 1896. There Milne infers 'sudden sub-oceanic changes along the basal frontier of a continent, the magnitude of which it is difficult to estimate.' Certain 'unfelt earthquakes' recognized by the horizontal pendulum are recorded at widely separated stations, 'and it is fair to assume that in these instances the whole world has been shaken.' Their source cannot have been on any land, for then they must have been observed in the ordinary manner; they are therefore ascribed to submarine movements.

If the occurrence of sub-oceanic slides be verified, they afford a new argument for the permanence of continents and oceans; for nowhere do the sedimentary strata of the continents exhibit so confused a structure as must be thus produced along the slope and basal frontier of a continental mass.

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CURRENT NOTES ON ANTHROPOLOGY.

STONE IMPLEMENTS FROM THE POTOMAC DISTRICT.

PROFESSOR WILLIAM H. HOLMES contributes to the Fifteenth Annual Report of the Bureau of Ethnology one of his excellent and beautiful papers, this one on the 'Stone Implements of the Potomac Chesapeake Tidewater Province,' 152 pages, with 104 full-page plates, and 36 figures in the text. The geographical and geological relations of the area are carefully explained, and the artefacts themselves are examined under the classification of flaked, battered or abraded, and incised or cut stone implements and utensils. The typical forms and characters are illustrated, the processes of manufacture are set forth, and the extensive quarries where the material was obtained are described.

The conclusion of the author, after years of patient research with reference to the antiquity of man's work in this region, may be given in his own words (p. 146): "The art remains preserved to our time indicate the prevalence of extremely simple conditions of life throughout the past, and exhibit no features at variance with those characterizing the historic occupancy." So that we shall have to go elsewhere to find 'paleolithic man.'

ETHNOGRAPHY OF THE CALCHAQUIS.

IN SCIENCE, May 7th, I referred to some interesting art remains discovered by Ambrosetti in the territory of the ancient Calchaquis. Ethnographers have been unable to identify these with any modern tribe (see 'The American Race,' p. 319). The latest effort is by Dr. Ten Kate. He availed himself of a series of skeletons in the Museo de La Plata, exhumed from old graves in Calchaqui territory. Some were deformed, and of the normal there were a number of types; but the characteristic features were extreme brachycephaly and a short stature. In both respects these ancient differed from the modern natives of the place. Looking around for similarities, Dr. Ten Kate found them among the Huarpes of the province of La Rioja, where skeletons with the same traits occur. He does not, however, identify them with the Huarpes (or Allentiacs), who are probably related to the Chaco tribes, but rather with the Araucanian stock, so far as one can judge from the synopsis of his conclusions in the *Centralblatt für Anthropologie*.

These analogies are not borne out by the linguistic evidence of the proper names in

Calchaqui territory, which rather points to Aymara or Kechua affinities as undoubtedly to the arts of this extinct population.

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NOTES ON INORGANIC CHEMISTRY.

MODERN ALCHEMY.

Dr. H. Carrington Bolton contributes to the last *Chemical News* an article entitled 'Recent Progress of Alchemy in America.' It is largely devoted to such details as are known of the claims of Dr. Stephen H. Emmens, of New York, and of Edward C. Brice, of Chicago, together with the Mint Report on the Brice process. Dr. Emmens is the inventor of the high explosive Emmensite, and the author of the 'Argentaurum Papers.' It is perhaps worth while to give a brief abstract of his claims, taken from his own publications. He states that he was led to his present study by the investigation in 1892, at the instance of Commodore Folger, of a specimen of rustless nickel steel, which it was proposed to use for torpedo netting. He says that he found in both nickel and iron, and subsequently in cobalt, 'a certain product which seemed to differ from anything recorded in the text books.' Inferring that, if such a substance were found common to the metals of the fourth series of Mendeléeff's group eight, similar results would be found in other groups, he began the study of gold and silver. 'By certain physical methods and by the aid of certain apparatus' he claims to have succeeded in bringing about an extremely minute subdivision of silver, and was 'surprised to find that the substance obtained differed so far from ordinary silver that it could no longer be regarded as the same elementary substance.' His alleged substance, which he calls *argentaurum*, symbol *Ar*, he considers to be the missing element between silver and gold in the second subdivision of Mendéeleff's group two. "Argentaurum can be aggregated into molecules having a density considerably superior to that of silver molecules, and, we think, identical with that of ordinary gold molecules. Whether we are right as to this or not, the condensed argentaurum presents the appearance and is endowed with the properties of ordinary metallic gold." Dr. Emmens estimates that 'one ounce of silver will produce three quarters of an ounce of gold' at a profit of at least three dollars an ounce. He operates on Mexican dollars, and has sold to the U. S. assay office six ingots of an alloy of silver and gold aggregating in value $954.80. Dr. Emmens remarks: "The gold-producing work in our argentaurum laboratory is a case of sheer mammon seeking; it is not being carried on for the sake of science, or in a proselytizing spirit; no disciples are desired and no believers are asked for. I have every confidence that the production of argentaurum gold will be brought up to 50,000 ounces monthly within a year." Should this result be attained, the problem of bimetallism will be happily solved.

Regarding the Brice process, three government experts worked for three weeks under Mr. Brice's direction, and officially report: "We have seen not the slightest evidence of any 'creation' or transmutation. On the contrary, the claimant failed in every instance to recover the entire amount of silver and gold known to be present in the materials. The claimant seems to have devised a variety of irrational and wasteful methods for recovering a portion of the silver and gold known to metallurgists as being present in many commercial metals, such as antimony and lead." Mr. Brice's application for a patent has been again rejected. Incidentally, the assay office investigation revealed that commercial antimony contains a very small percentage of gold, which is recovered by the Brice process.