

show a finish that we do not find in what appear to be later deposits.

Prehistoric Commerce Between Africa and Asia.

The ancient relations which existed between Egypt and the east coast of Africa on the one side, and Mesopotamia and India on the other, are placed in strong light by two articles which have lately appeared in the *Verhandlungen der Berliner Anthropologische Gesellschaft*.

The one, by G. Schweinfurth, undertakes to show the external relations of ancient Egypt by means of the origins of the earliest cultivated plants found in the tombs or mentioned in the inscriptions. Their three earliest and most valuable cereals, wheat, barley, and spelt, he believes were introduced from Babylonia. The fig was imported from southern Arabia, its native home. From Persia were brought the pomegranate and the henna used as a cosmetic by the beauties of the earliest dynasties. From the remoter region of India came rice, sorghum, sesame, and the sugar-cane. As all these exotic plants were familiar to the Egyptians at the beginning of their history, they testify to an active and far-reaching commerce before the date of Menes.

The second paper, by Mr. Merensky, is especially concerned with the culture influences of ancient India on eastern and central Africa. He adduces much historical evidence to illustrate this intercourse, and finds as the result of it the presence of Indian coral and pearls in central Africa, the shape of the hand axe, the musical instrument called the marimba, the use of the betel nut, the worship of fire, traces of a caste system, etc.

Both articles confirm the growing belief in the wide extension of prehistoric commerce.

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.

On request in advance, one hundred copies of the number containing his communication will be furnished free to any correspondent.

The editor will be glad to publish any queries consonant with the character of the journal.

The Question of the Celts.

IN "Current Notes on Anthropology" (*Science*, Mar. 11) Dr. Brinton reviews a late essay by Schaaffhausen upon the ethnographic position of the Celts. He states: "The difficult problem of the conflicting physical types among the Celtic nations—the one short in stature, brachycephalic, and brown, the other tall, dolichocephalic, and blond—he [Schaaffhausen] summarily solves by supposing either an intermixture with other types or a change in mode of life and climatic environment."

The first mentioned type is apparently that now represented by the Auvergnats and Savoyards, whose ancestors were the Celts of Cæsar. Now Schrader has pretty well established the fact that this race has no claim to the name Celtic other than the fact that at one time they spoke a Celtic dialect. Rather they were Ligurians related socially to the Lapps and Finns; and their original language was that now represented by Basque, their Celtic dialect having been acquired from the tall, fair, brachycephalic race which conquered them, and drove them to the south of France. There should be no need to say that community of language does not necessarily imply identity of race; for one only has to look upon the Mexicans, who speak a Neo-Latin dialect, but whose race-type has almost wholly reverted to that of the Aztecs. The French inhabitants of Louisiana cannot now be distinguished by their language, and the speech of Jamaica is an English jargon, though the population is now almost wholly negro. The fact that French is a Neo-Latin language by no means proves any racial connection between the Latins and the French, who are descended from several distinct races.

Now there is very good evidence that the tall, fair, brachycephalic people, whose remains are found in the round barrows of Britain and in the graves of Belgium, France, and Denmark, spoke the original Celtic tongue. They were the Belgic Gauls, and they overran France, conquering the short, dark, brachycephalic Ligurians and imposing their language upon them. The Ligurian tongue, ancestral to Basque, was a Euskarian dialect related to the Ural-Altaic group, which was ill-fitted to survive in contact with the Aryan speech of the northern race. The best modern representatives of the type of the conquering race are the Danes and Slavs, especially the Lithuanians.

The tall, dolichocephalic and blond type is certainly represented now by the Swedes, and fair north Germans, and has been well called the Scandinavian type. The Anglo-Saxons and Teutonic tribes belonged to this race, and their speech was ancestral to the German and English. If this be true, and the facts seem well attested, it is hard to see how this tall, fair, dolichocephalic type can be logically drawn into the Celtic controversy.

In conclusion, it would seem that the conflicting types among the Celtic nations are due solely to the application of the name Celtic to several distinct races, and if that name is restricted, as there is excellent ground for doing, to the tall, fair, brachycephalic race, the difficulty of conflicting types vanishes.

P. MAX FOSHAY.

Rochester, March 15.

The Color Question Again.

I NOTICE in your issue of Feb. 26 an article by Professor Pillsbury of Smith College, in which my name is mentioned in connection with a system of color instruction.

Perhaps an explanation of the exact scope and intention of this scheme may avoid any misapprehension of the claims that are made for it.

The sole object has been to apply, as far as possible, scientific facts of color to elementary instruction in color and the artistic use of color. While it is easy to find various indications that the old theory of Brewster has been abandoned by the scientists and the Young-Helmholtz theory of the three primaries, red, green, and violet, accepted in its place, no practical advance in the application of the latter theory to art instruction has been secured. The following quotation from the publishers' notice of a valuable book, "Theory of Color," by Dr. Wilhelm von Bezold, shows the advanced ground regarding color taken by this scientist:—

"The theory of three primary colors, red, yellow, and blue, has therefore been abandoned, and with them the whole system of so-called secondary and tertiary colors has fallen to the ground. It might be feared that anarchy would take the place of order in the realm of color after the overthrow of the old system of classification. This is not the case, however, for the system of colors adopted by Professor von Bezold not only affords a ready means of classifying every sensation of color which may possibly affect the eye, but is exceedingly simple."

But experience has shown that this book, although the ablest attempt to unite the scientific theory of color with the practical use of colors ever offered at the time it was published, has, in the sixteen years since the English translation was printed, had no practical effect on the terms employed by the artists or on the methods employed in color instruction.

Owing to the fact that the illumination and purity of all pigmentary colors fall so far below the spectrum colors as found in sunlight, it is impossible with them to produce by the union of the three primaries, red, green, and violet, any reasonable approximation to the colors seen in nature. Therefore it has been practically impossible for artists and art educators to avail themselves of the scientific theories of color in their work.

Right here is where we find the real value of the system to which Professor Pillsbury has alluded. It practically bridges the chasm between the science of color and the practice of color in the use of pigments. Instead of beginning with three primary colors seen in the spectrum we are content to select six. By choosing six colors, red, orange, yellow, green, blue, and violet, as they appear in the spectrum, making the best imitations of

them possible with pigments, and applying these to the Maxwell rotating disks, with the addition of black and white, we can make and accurately name a very large proportion of all the colors found in nature which also agree somewhat nearly with similar pigmentary compositions.

As above stated, this system of color instruction includes a practical nomenclature of color never before advanced, which has already been explained by Professor Pillsbury. Professor A. H. Church of the Royal Academy of Arts, in a series of lectures before the Society of Arts, London, an account of which has been published in this country, urges a scientific consideration of color in its application to art, and near the close of one of his lectures he says:—

"We want an international color conference, in which artists, manufacturers, and scientists shall be represented. We want an agreement upon the name to be assigned to a number of different hues. We want representations of these hues reproduced in enamel, preserved like our standards of weights and measures, and distributed to every educational institution in the United Kingdom. . . . The importance of having a definite nomenclature of quite intelligible character at our disposal when we are talking or writing about the decorative employment of color is so important that I venture to make a few suggestions which may tend toward the attainment of this object."

After making a suggestion for a method of notation, Professor Church adds:—

"The corresponding modifications in the five other principal series of colors would be expressed in a similar manner, the symbols, etc., being used exactly in the same way as in chemical notation. In order to obtain a scale in a concrete form I would recommend the use of Maxwell's rotation method by which each step in the gradation could be matched."

This author next proceeds to give a nomenclature of colors, but as it is based on the three primary colors of the scientist, namely, red, green, and violet, and the introduction with them of such additional terms as sea-green for a symbol, it is neither as simple nor as definite as the one which has been described in your article to which I have referred. This nomenclature is based solely on nature's standards as found in the solar spectrum. Should we be favored with the international conference suggested by Professor Church, and should such a conference adopt the six standards and definitely locate them in the spectrum by their wave lengths, the world would then have standards which are the same in one country as in another, and would remain the same in the twentieth century as in the nineteenth.

As a manufacturer of an extended line of colored papers I am constantly putting this proposed nomenclature to a severe test by ordering new colors by telephone. That is to say, we make the desired combinations on the wheel in our office and then telephone them to the factory, ten miles distant, where they are again made on the wheel and the papers are then manufactured to correspond with the results of these combinations. Under this plan we are liable to have occasion to "telephone a color" frequently. In the same way we could call colors to Europe should it be necessary. MILTON BRADLEY.

Springfield, Mass., March 17.

Professor Alexander Agassiz on the Origin of the Fauna and Flora of the Galapagos Islands.

In the "General Sketch of the Expedition of the 'Albatross' from February to May, 1891" (Bull. Mus. Comp., Zool., Harvard College, Vol. xxiii., No. 1, Cambridge, Feb., 1892) Professor Alexander Agassiz refers to my paper "On the Origin of the Galapagos Islands" (*Am. Nat.*, March-April, 1891). There are some fundamental misunderstandings of my statements in Professor Agassiz's remarks, which need correction.

Page 71, he says: "He [Baur] speaks of the Galapagos as being connected with the mainland by the 4,000-meter line." Then he adds "This [the connection of the Galapagos with South America] is an important fact; all the older maps showed the Galapagos separated from Central America" (!). To this I have to reply, that I never expressed the opinion that the Galapagos were former-

ly connected with South America. The same is repeated by Professor Agassiz in two other passages (p. 71).

In all my statements in regard to the land connections I was very cautious, as will be seen from p. 310: "*In their general characters the fauna and flora of the Galapagos show resemblances to the great Mexican and Sonoran province, and also to the West Indies, and it may be that the connection was with these regions (and it seems more probable than any other), but of course it is quite impossible to bring to-day any positive proof for this idea.*" (The italics are mine.)

According to Professor Agassiz the proof of my subsidence theory "is based on no better evidence than the so-called alpine character of parts of the flora and upon the presumed former connection of the Galapagos Islands with the Central American continent." Professor Agassiz has completely overlooked the main point of my argument. This I considered the harmony in the distribution of fauna and flora, as will be seen by referring to my paper. I tried to show that this harmony was absolutely unexplainable by the theory of elevation. After this was done, I examined whether our present knowledge of the soundings showed any serious obstacle to the theory of subsidence, and I found that it did not. *Professor Agassiz did not refer with one word to this harmony of distribution, which formed the basis of my whole ideas!*

When Professor Agassiz or any one else is able to explain this by the elevation theory, I shall be the first one to adopt it. But until this has been done, I believe in subsidence.

The paper to which Professor Agassiz refers was written before my visit to the islands. My investigations have only more convinced me of the insufficiency of the elevation theory. In my final work I shall speak fully about this question and about other points in Professor Agassiz's article.

G. BAUR.

Clark University, Worcester, Mass., March 15.

The Scientific Alliance.

I HEARTILY agree with your leading article of March 11, and trust that you will continue to press this subject. The further co-operation of the scientific societies in this city will result, I feel confident, in increased activity and effectiveness in each.

The special needs of many branches of work now being carried on here are more funds for publication and for first-class illustration. There is no national publication open to all papers of merit, like the Royal Society Transactions. The only journal I know of which provides liberally for illustration is Whitman and Allis's *Journal of Morphology*, and this is now, I have learned, overstocked for two years to come with biological papers of a high class.

HENRY F. OSBORN.

Biol. Dept., Columbia College, March 18.

BOOK-REVIEWS.

Travels amongst the Great Andes of the Equator. By EDWARD WHYMPER. New York, Scribner's. 8°. \$6.

AMONG the fascinating books of Professor Tyndall's is one on "Hours of Exercise in the Alps," in which, among other matter, he records the several unsuccessful attempts he made to ascend the Matterhorn, and how the rope left, by his party, hanging over a ridge of rocks enabled the next following party of climbers headed by Edward Whymper to gain such advantage as to be able to reach the top. This first success was marred by a terrible tragedy, only three or four of the party of seven getting back to the foot of the mountain alive.

But Edward Whymper added another triumph to his record as a mountain climber in his being the first to reach the summit of Chimborazo in 1879. It is the account of his journey at that time that is now published.

A hundred years ago the natives of the valley of Chamonix who took travellers up the mountain suffered as much as their employers from physical sensations ascribed, no doubt rightly, to the rarity of the air. They were unable to walk more than a few paces without halting. Last autumn travellers who walked in early morning from the hut under the Bosses (14,000 feet) to the top (15,780 feet) had the company of five Chamoniards. They