

## SCIENCE:

A WEEKLY NEWSPAPER OF ALL THE ARTS AND SCIENCES.

PUBLISHED BY

N. D. C. HODGES.

874 BROADWAY, NEW YORK.

SUBSCRIPTIONS.—United States and Canada.....\$3.50 a year.  
Great Britain and Europe..... 4.50 a year.

Communications will be welcomed from any quarter. Abstracts of scientific papers are solicited, and one hundred copies of the issue containing such will be mailed the author on request in advance. Rejected manuscripts will be returned to the authors only when the requisite amount of postage accompanies the manuscript. Whatever is intended for insertion must be authenticated by the name and address of the writer; not necessarily for publication, but as a guaranty of good faith. We do not hold ourselves responsible for any view or opinions expressed in the communications of our correspondents.

Attention is called to the "Wants" column. It is invaluable to those who use it in soliciting information or seeking new positions. The name and address of applicants should be given in full, so that answers will go direct to them. The "Exchange" column is likewise open.

For Advertising Rates apply to HENRY F. TAYLOR, 47 Lafayette Place, New York.

## CURRENT NOTES ON ANTHROPOLOGY.—II.

[Edited by D. G. Brinton, M.D., LL.D.]

## Prehistoric European Migrations.

LITTLE by little the seemingly impenetrable veil which shrouded the wars and wanderings of European nations before history began is lifting. Scientific methods undreamed of half a century ago now reveal the secrets of ages too remote to date. We can trace man in western Europe steadily advancing through the development of a continuous culture from the rudest period of chipped implements of stone to an epoch when he learned to polish and bore that material, and finally threw it aside to arm his hand with a blade of glittering bronze.

The continuity of this development is one of the master generalizations from the long labors of Worsaae, Mortillet, and others. It has recently received further solid support in an excellent critical study by Dr. Sophus Müller, entitled "Instruments Tranchants de l'Ancien Age de Pierre," published in the *Mémoires de la Société Royale des Antiquaires du Nord*. It is especially devoted to the use of the triangular stone celts found abundantly in Denmark. They are shown to be tools, and to belong to the earliest stone age of that portion of the continent.

Neither they nor any of the relics from northern Europe carry us so far back in the past as some from France and the Iberian Peninsula. This fact leaves little room for doubt but that these latter regions were inhabited first. Even there the advent of man must be placed as a post-tertiary event. This is the mature opinion of such authorities as Topinard, Cartailhac, and especially of M. Alexandre Bertrand, whose excellent book, "Nos Origines," has recently appeared in a new edition. M. Bertrand is director of the National Archæological Museum at St. Germain-en-Laye, and a most conscientious student. From his and others' observations it appears that matters went smoothly enough in Europe down to Neolithic times; but then widespread migra-

tions began. More than 1200 years B.C., thinks M. Bertrand, the Ligurians came down from somewhere up north, and conquered portions of the littoral of Spain, Gaul, Italy, and Sicily. The interior of France and the Iberian Peninsula was then peopled by "Iberians." Not far from the date mentioned these were driven westward by inroads of the Celts. He acknowledges, however, that there are no relics positively attributable to either Ligurians or French Iberians; and his theory therefore must be accepted as only one degree less unlikely than the purely gratuitous one of Virchow, who makes out the Ligurians to have been "Turranians."

In recent numbers of the *Globus* and *Ausland*, Karl Penka urges with renewed vigor his theory that Scandinavia was the original home of the Aryan stock; and that not very long before the beginning of our era the whole of central Europe was peopled by Celts. He has an earnest disciple in E. Krause, who lately issued a volume of nigh 700 pages on "Tuisko-Land," his name for Scandinavia, to which, with great wealth of learning, he traces both the myths of Hellas and the simple cults of pristine Rome.

Another ethnologist with his own notions is Dr. Theodore Köppen, librarian of the Imperial Library at St. Petersburg. In a pamphlet reviewed at length in the *Archiv für Anthropologie* (Band xx.) he insists that the Finnic and Aryan linguistic stocks are one in origin; that their ancestral home was somewhere about the region of the middle Volga; that the separation took place into eastern and western branches on the river Don; and that at that time arose the Aryan and Ugro-Finnic divisions. His arguments are principally linguistic, and he lays especial stress on the words for "honey" and "linden bast," which he finds the same in the two stocks. His work is principally interesting as showing the growing tendency among scholars to discard the old theory that the Indo-Europeans began in Asia, in favor of an origin in Europe; but Köppen repeats the familiar error of attributing the theory of the origin of the white race in Europe to Dr. Latham; whereas, long before he mentioned it, it had been urged with clearness by Omalius D'Halloy, the distinguished Belgian anthropologist.

## Retrogressive Culture in Prehistoric Times.

The general law of the continuity of development holds good throughout historic and prehistoric time; but the careful archæologist will always bear in mind that, in both, periods of retrogression have occurred in many localities; and he will not, therefore, assign to relics of man's industry a later date solely on the ground of higher technical perfection. Often a tribe or nation has been conquered or destroyed by one ruder though stronger, and for generations a lower has followed a higher degree of art-produce.

Two or three examples of this in prehistoric times have recently been adduced. Mr. H. Stopes reports in the Proceedings of the British Association for the Advancement of Science, 1890, a curious station in the Thames Valley, where some tribe in the Palæolithic condition had overwhelmed one with Neolithic culture; and not understanding the use of the polished stone implements of the latter had chipped them into rough stone shapes! Not less remarkable was the discovery of the brothers Siret, in the caves and rock-shelters near Almeria, Spain, that the most ancient Neolithic potteries there are distinctly superior in make and ornament to those of later date. Something similar seems to be the case with the interesting series of potteries lately exhumed in the Neolithic station of Latinne, Belgium, by M. de Puydt. They

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