hands too full to stop and examine all these competing theories. To test them is the privilege of the psychologists. Pending the establishment of some one of these new theories by an exhibition of approximate unanimity among the psychologists, the rest of us will be apt to content ourselves as best we may with the theory of vision that has thus far seemed no more objectionable than its successors, and which is fortified by the authority of the greatest German physicist of the nineteenth century.

We are fully aware of certain facts in the history of science that may quite naturally be cited in this connection. The great authority of Newton caused more than a century of delay in the acceptance of the undulatory theory of light. The modification of this theory by Maxwell received but a small share of the credit it deserved until Hertz published the experimental evidence upon which light was shown to be very probably an electro-magnetic phenomenon. As soon as any new theory of visual perception is established upon evidence comparable with that brought out by Hertz, if it conflicts with the Helmholtz theory of vision, this will become of only historic interest, like the emission theory of light. Its fate, however, has not yet been sealed.

In this connection it may be permissible to express my hearty accordance with the views set forth by Mrs. Franklin in a recent contribution to *The Nation* regarding the desirability of greater precision in the use of the word 'light.' The meaning of a word is determined by custom rather than argument. But custom may be gradually modified if those who have occasion most frequently to use a special word or form of expression will agree among themselves to guard against ambiguity. No careful physicist at present includes the ultra-violet or infra-red ether vibrations among light vibrations. The distinction between luminous and non-luminous energy waves is generally accepted and applied. But we need to habituate ourselves to the use of the term 'light-sensations,' rather than 'light,' when reference is made to what is carried to the brain by the optic nerve, whether the origin of the sensation is found in luminous, electric or mechanical energy. The American sense of linguistic æsthetics may be depended upon to prevent the adoption of such cumbrous unhyphened compound words as are tolerated by our German friends. But the scientific demand is for clearness combined with accuracy, for an application of the doctrine of conservation of energy in the giving and taking of ideas. Whatever differences may exist between the physicist and psychologist regarding the explanation of light-sensation, they can certainly clasp hands and agree not to deceive each other by unnecessary vagueness in the use of language.

W. Le Conte Stevens.

THE PHILADELPHIA BRICK CLAYS, ET AL.

I had not thought there was occasion for responding to the article of Prof. G. Frederick Wright (Science, No. 59, p. 242), until inquiry concerning the truth of the matters touched upon began to be made by correspondents. I shall not now take space to state the case fully, but only to say that the term 'Columbia,' as used by Prof. Wright, and indeed as it has been generally used in the past, is a somewhat ambiguous one. It has been made to cover formations, chiefly extra-glacial, widely separated in time, ranging indeed from the beginning of the glacial period nearly to the present. The Jamesburg formation of New Jersey falls within the limits of the Columbia, according to this usage, but the term Jamesburg has never been extended to the extra-morainic drift discussed somewhat fully in the New Jersey geological report of 1893. Most of the Jamesburg deposits of New Jersey are, I take it, relatively young, as indicated by Prof. Wright's citation from my report. But if I interpret rightly, there are remnants of a much older division of the 'Columbia' formation, not referred to explicitly in the report from which Prof. Wright quotes. These remnants are in scattered patches, and are quantitatively unimportant; but they are, as I believe, very significant. If present interpretations be right, there was very extensive erosion after the deposition of the formation of which these patches are remnants, this erosion antedating the deposition of the great body of material which passes under the name of 'Columbia.' Just where in the complex 'Columbia' the 'Philadelphia brick clays' belong, is a question I have nowhere

discussed. While from their general position, I have an opinion as to their age, I have given them too little attention to make it worth while to express that opinion in print. I venture the suggestion, however, that the 'brick clays' may be of various ages. Some of the clays used for brick about Philadelphia (whether 'Philadelphia brick clays' or not is another question) are at low altitudes, and are *younger than the Trenton gravels*, since they overlie them. Others are at much greater altitudes, and are presumptively of different, perhaps very different age. When our work in New Jersey is complete I shall attempt to make as careful a correlation of the various formations, and of their various phases, as the facts at hand shall warrant. Until that time, inferences based on annual reports, which are confessedly 'reports of progress,' are liable to be misleading. Possibly it would be as well not to make them.

Prof. Wright is good enough to refer to the conclusions which I have reached, as a "distinct advance." I, however, do not see any reason to think that my final conclusions are likely to be antagonistic in any important sense to the opinions which I have heretofore held, opinions which are in general harmony with those of Prof. Chamberlin, whose name is brought into the article in question. The most important modification of my own views which has yet taken place is the reference of a larger portion (than formerly) of the Jamesburg to the 'low-level' (younger) division.

I am not personally qualified to speak concerning the Conewango and Allegheny terraces, to which allusion is made; but, if I understand the matter correctly, there has been no abandonment by Prof. Chamberlin and his co-laborers of any essential position relative to the phenomena along the Allegheny River. On the contrary, I have been under the impression, all along, that the detailed study of the region had tended to confirm the essential correctness of the position taken by Prof. Chamberlin long ago.

ROLLIN D. SALISBURY.

UNIVERSITY OF CHICAGO, March 9, 1896.

PRIMITIVE HABITATIONS IN OHIO.

IN a recent discussion between two ethnologists it was advocated that all tribes living in timbered sections constructed houses of logs, bark or saplings, and that the tepee or skin lodge proper was characteristic of the plains. At Oregonia and Fort Ancient, two points in the Little Miami Valley, in Ohio, are large village sites upon which the sunken depressions marking lodge sites are still discernable. One of these areas has been under cultivation; the other is in its natural state. Some of the depressions are circular (the deeper ones), while the others are irregular. Ashes, charcoal, pottery, bones and implements are found in them to a depth of two or three feet, indicating a considerable excavation for the fireplace of each home. Those which are circular may have assumed such shape by natural agencies, as the wash of the soil into the deepest part of the excavation.

A number of the irregular sites were excavated. While the greatest quantity of refuse was found in the center, yet the debris extended on all sides for a distance of 12 or 15 feet. The site itself would vary from 20 by 25 to 30 by 45 feet, and frequently the ashes, pottery and bones were six or seven inches deep near the outer edge.

No modern relics have been found on either of these spots, although a careful examination (covering many months) was made of each. From the excavations it would appear that the habitations were permanent. At one point, considerably below the surface, remains of small (ends) logs eight inches in diameter were found, but it was hard to determine the character of the habitation.

I am of the opinion that most of the houses were of logs, coated with clay, thus forming 'clay domes' after the fashion of the Mandans. My theory is based upon these facts: The depressions, their extent and character; the fact that the first plowing of the southern part of Fort Ancient revealed circular embankments a few inches high, also irregular and slightly raised masses of reddish clay. When the lodge decayed and fell the upper portion would naturally fall into the entire space enclosed. As the walls immediately above the base were thick, when they fell the circular ring was formed.

The farmers also stated that the clay in these