

commerce from its port, nor are all the charges contained in the report to be met by the statement that the governor of the State of New York is responsible, by reason of having vetoed appropriations. The report is a serious reflection upon public officials in whom the public and sanitarians have placed implicit reliance, and should be met in the same official way that it has been issued. Unless it is so met, the quarantine authorities must not expect public confidence; and, whether they do or not, we fear they will not receive it. We shall be only too glad to open the columns of *Science* to them, and present their statements as fully as we have those of the committee of Philadelphia physicians.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF PHYSICAL EDUCATION.—The American Association for the Advancement of Physical Education will hold its third annual meeting at the Adelphi Academy, Brooklyn, on Nov. 25. The following programme has been announced: paper by the retiring president, Prof. Edward Hitchcock, A.M., M.D., Amherst College; 'Physical Training in Elementary Schools in the United States' (extract from report of New Hampshire Board of Health for 1887), E. H. Fallows, Adelphi Academy; motion by C. G. Rathman, N. A. T. B., relative to physical training in elementary schools in the United States; discussion; report of work done by the N. A. T. B. the past year, H. M. Starkloff, M.D., president N. A. T. B.; 'Physical Measurements, their Use to the Individual,' Edward Hitchcock, jun., M.D., Cornell University; discussion opened by W. L. Savage, A.M., M.D., director Berkely Lyceum, New York City; general discussion; 'Military Training as an Exercise,' J. W. Seaver, M.D., Yale University; discussion opened by Gen. E. L. Molineux, Brooklyn, N.Y., and John White, Ph.D., head master Berkely School, New York City.

REMOVAL OF NEEDLES FROM THE BODY.—Dr. Littlewood describes in the *Lancet* a method which he has used successfully in seven cases for the removal of needles from the body. The part supposed to contain the needle is thoroughly rubbed over with an electro-magnet, so as to magnetize the metal, if present. A delicately balanced magnetic needle is held over the part. If the needle is present, its position can be ascertained by the attraction or repulsion of the poles of the magnetic needle. Having ascertained the presence of the needle, and rendered the part bloodless and painless, an incision is made over the needle; the electro-magnet is then inserted in the wound, and the needle felt for and withdrawn. If the needle is firmly embedded, the positive pole of a galvanic battery is placed on the surface of the body of the patient, and the negative pole in contact with the needle, which becomes loosened by electrolysis, and can then be easily removed by the electro-magnet.

## ETHNOLOGY.

### Were the Toltecs an Historic Nationality?

DR. BRINTON has for a long time maintained that the Toltecs were no historic nationality, but an entirely legendary people. In a lecture delivered before the American Philosophical Society on Sept. 2, he takes up the question, and ably defends his standpoint which he first expressed in 1868 in his 'Myths of the New World.' The present paper was written to criticise the statements of Charnay and others who maintain the historical character of this people. The enthusiastic Frenchman Désirée Charnay considers the Toltec civilization the basis of all Central American culture, and traces their migrations from the northern boundary of Mexico to Copan; but the reasons which he brings forth to support his theory, and which are entirely founded on the character of Central American arts, are not at all conclusive. The Mexican and Central American styles are not sufficiently studied to draw any conclusions as to what is original in each tribe, and what is borrowed from the other; and Charnay's assertion of a connection between East Asian and Central American arts warns us from accepting his arguments without a thorough criticism. Brinton's opinion is that the emigration of the Toltecs from the north, the foundation of Tula in the sixth century, and the dispersion of the Toltecs all over Central America, are entirely fabulous. He compares the facts known

about Tula and the legends as told by the best authorities, and finds that Tula was nothing else than one of the stations the Aztecs occupied in their migrations. To explain the wide celebrity of the place, which extended to Guatemala and Yucatan, Brinton recurs to its etymology. As the meaning of the name, which is not of rare occurrence in Mexico, he gives 'the place of the sun,' and this, he thinks, brought it into connection with many a myth of light and of solar divinities. This process is one often occurring in the development of folk-lore. There can be no doubt that Brinton's opinion, that no immediate truth underlies the myth which makes Tula the birthplace and abode of gods, and its inhabitants the civilizers of Central America, is correct.

ANTHROPOLOGY IN THE AMERICAN AND BRITISH ASSOCIATIONS FOR THE ADVANCEMENT OF SCIENCE.—It is of interest to compare the papers read in the Section of Anthropology of these two associations. While the section of the British Association devoted much of its time to considering theoretical questions, such as the probable existence of an Archaian white race, the origin of totemism, etc., such questions were hardly touched upon at the meeting of the American Association, which devoted most of its time to listening to the reports of results obtained by explorers in the ethnological and archaeological field. This may in part be due to the fact that the field of researches in America is so vast. The amount of unknown material is so large, that every year brings some new and unexpected discoveries. But there is another characteristic feature of the American Association. What little discussion of theories there was, referred principally to the discussion of classifications,—a subject which seems to have been entirely wanting among the papers of the British Association. If we consider that classifications are only a help, not an aim, of science, and that the great goal of ethnology and anthropology is to outline the early history of mankind and to work out the psychology of nations, we must concede that the work of the British Association is superior to ours. We do not mean to say that there are no vague theories held by British scientists, or that no eminent work is done by Americans; but the favorite studies of ethnologists as a whole, and as expressed in the subjects of papers presented to the English Association, seem to be of a more general and of a higher scientific character than they are here. We mention a few of the papers read at the Manchester meeting of the British Association according to the reports published in *Nature*. Mr. I. Taylor discussed the probable origin of the Aryans. He dwelled on the recent linguistic researches, which show that the primitive Aryans must have inhabited a forest-clad country in the neighborhood of the sea, covered during a prolonged winter with snow; the vegetation consisting largely of the fir, the beech, the oak, and similar trees, while the fauna comprised the bear, the fox, the hare, the deer, and the salmon. These conditions restrict it to a region north of the Alps and west of the Black Sea. The author attempted to show, both from the anthropological and the linguistic point of view, that the Aryans have evolved from a Finnic people. J. S. Stuart maintained the existence of an Archaian white stock, from which he is inclined to derive so widely different phenomena as the American and Chinese civilizations, as well as the origin of Hittites, Iberians, and Picts. C. Staniland Wake treated the problem of totemism from the point of view that the totem is the re-incarnated form of the legendary ancestor of the gens or family group allied to the totem,—a view which is undoubtedly correct in many cases. S. J. Hickson gave a few remarks on certain degenerations of design in Papuan art. It would have been more proper to speak about conventionalism in Papuan art,—a field that offers many interesting problems, and to which Dr. O. Uhle of Dresden recently made a valuable contribution in the publications of the Ethnological Museum of Dresden. Miss A. W. Buckland spoke about the custom of tattooing, which, although almost universally practised, varies so much in the mode of performing the operation; the various methods seeming to have such definite limits as to make them anthropologically valuable as showing either racial connection or some intercourse formerly existing between races long isolated. This paper belongs to a class of inquiries which have of late been carried on by a number of ethnologists, and which yield valuable results. We call to mind Prof. E. S. Morse's researches on the

release of arrows, which lead the distinguished scientist to so remarkable conclusions. The well-established fact that the non-existence of certain color-names does not prove color-blindness, was shown by Mr. W. E. A. Axon to hold true among the English gypsies. Besides these papers, reports on new explorations were not wanting. Papers on psychophysics, which we consider an important branch of anthropology, were not included in the list of papers read before the Section of Anthropology of the British Association.

## MENTAL SCIENCE.

### Drawing among Primitive Peoples.

THE application of the inductive method to the study of mental facts—and that, too, from its first appearance in Locke or Herbart,—inevitably brought into prominence the observation of minds different from our own, and in particular of peoples less advanced than ourselves in the march of civilization. The seed thus sown has borne good fruit; and in the works of Lubbock and Tylor, of Bastian, of Steinthal and Lazarus, and many others, we have an excellent foundation for an anthropological psychology. The object of this movement is not only to record as far as possible the probable history of our early attempts at culture and the long succession of gradually outgrown customs and beliefs, but also to co-ordinate the various works of mental evolution, to arrange them in some serial order,—as Romanes does with animal evolution,—and thus help to furnish the categories for a general psychology, which will be none the less scientific because it needs to be enlivened by the tact of a humane observer.

Among the characteristics that contribute most to this end are, what have always been and still remain the two great kinds of human expression, language and handiwork, and especially art. The permanence of the latter mode of expression makes it of crucial value to the anthropologist. Dr. Richard Andree, in reviewing the art-productions of savage tribes as shown by their drawings, emphasizes the great development which this talent can attain in conjunction with a low state of psychical development. Travellers often mention the power of savages to rapidly sketch characteristic figures, and among the oldest relics of the cave-dwellers we find distinct tracings of animal forms. As in so many other respects, an analogy is present between the drawings of primitive men and of children. Figure sketching (in outline) and ornamentation are the prominent characteristics of both; while the power of landscape-sketching, as well as a sense for natural beauty, is a much later acquisition. Among the forms drawn, plants are seldom found: what is full of motion and life—the horse, etc.—first attracts the attention, and is transferred to bone, clay, or stone. At times ornamental and figure work go together, but much oftener a development of the one or other alone is possible. The Maoris and the Fiji-Islanders confine themselves to ornaments, and seldom draw a figure. Among the Australians the development of ornamentation has stopped at a certain stage,—with recurrent stereotyped forms of wedges, crosses, and 'herring-bone' patterns,—while scenes from their doings are recorded with much fidelity, and color is often used to lend reality to the design. The Bushmen excel in painting (though without perspective), and trace with great accuracy the scenes of daily life, of hunting, warring, etc. As figure-painting allows of very various development, we find different styles of conventionalism—the art of ancient Peru is a notable example—in different tribes. Other peoples—and here the Arctic tribes stand in the first rank—aim at a faithful representation here: ornamentation finds no place, and such subjects as fishing, sleighing, etc., are the usual ones. The attempts at human forms are often failures; but the drawings of their most common animals, as the reindeer, are sufficiently exact to serve as a means of zoological identification.

Even the humerous is found on the primitive 'canvas,' and especially among the fun-loving negro tribes. Exaggeration of small peculiarities (as in children) is the marked trait. The natives of the Loango coast carve in a spiral on elephant's tusks a whole carnival of ridiculous figures,—sailors, officers, *savants*, etc.

The material of the artist is very various. Many cut and daub

their utensils; the Peruvians decorate their woven fabrics; the Australians draw on blackened bark; the Africans carve in ivory. The universal imitative bent, of which the desks and walls of a school-room often show striking evidence, appears in many curious savage 'art-galleries.' On the island of Depuch, off the north-west coast of Australia, are found scratched on the smooth rock a crowd of men, birds, fish, crabs, bugs, etc., and colored black, white, red, yellow, and (seldom) blue. This seems to have been a pastime of these fishermen for generations.

While the drawing talent is thus quite a general one, the possibility of a large development of it is limited. It usually stagnates in conventionalism, and seldom reaches the stage, as it does in the Eskimo, of being utilized as a pictographic language.

In conclusion, Dr. Andree calls attention to the fact that almost everywhere the men alone are the artists. In one case this rather anomalous phenomenon leads to curious results. Among the Papuans of New Guinea, vessels and implements of wood are quite generally decorated, while the pots made by the women are devoid of all ornamentation.

RE-ACTION AND INHIBITION TIME.—If it is arranged that a certain action is to take place at a given signal, it will be found that a quite constant time elapses between the signal and the re-action. Besides executing a motion, we can exert our will towards restraining an act; and this not always by the contraction of an antagonistic muscle, but by a direct inhibitory action of the nervous centres. Dr. Gad of Berlin has measured the time necessary to thus inhibit the action of the muscles used in mastication, and announces the important result that this time is the same as is necessary for an ordinary re-action. This is true not only under ordinary conditions, but the variations in the time by practice, by fatigue, under the influence of narcotics, etc., for the two acts, is about the same, as is shown in the following table:—

	Re-action-time.	Inhibition-time.
Before practice . . . . .	0.25 sec.	0.30 sec.
After practice . . . . .	0.15 "	0.14 "
With weak stimulus . . . . .	0.20 "	0.17 "
With strong stimulus . . . . .	0.12 "	0.11 "
After fatigue . . . . .	0.18 "	0.16 "
8 minutes after taking alcohol . . .	0.12 "	0.09 "
30 minutes after taking alcohol . . .	0.25 "	0.20 "

In short, the mechanism of inhibition works as accurately and as delicately as that of re-action.

A REMARKABLE CASE OF AMNESIA.—The many strange phenomena of amnesia have been enriched by the experience of one of the ablest living psychologists, Professor Bain. Some months ago Professor Bain fell from his horse, and was unconscious for about three hours afterwards. During this time his shoulder, which had been sprained by the accident, was set without his knowledge. Upon regaining consciousness, it was found that he had lost all remembrance of what had occurred an hour before the accident, as well as of the three hours following. He was found on a different road from that which he can remember having intended to take, and so must have changed his mind. Of this he has lost all recollection; otherwise there were no mental effects. The editor of *Mind*, who tells the story, adds another case in which a gentleman, after falling from a carriage, remained unconscious for nearly four months. Upon re-awakening, not only was this interval a total blank to him, but the events of the week preceding the accident were equally lost. Important transactions which he had made during that week were forgotten. This suggests that there may be some relation between the duration of unconsciousness after the accident and the memory-blank before. At all events, the phenomena, mysterious as they are, deserve to be recorded. The authenticity and careful analysis of the above cases add to their value.