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Professor Tuckerman's notice), to this memorial to a model scholar and scientist. Whatever money may be contributed will be kept as a fund, of which only the income will be employed in making additions to the collection, or in repairs and rebinding. The sum of a thousand dollars would probably suffice as such a fund.

— An interesting incident of the statistics showing the social, sanitary, and economic condition of women employed in shops and factories of the United States, which are to be published in Col. Carroll D. Wright's annual report of the Bureau of Labor, is that they were collected by women who were employed as special agents of the bureau for that purpose. More than seventeen thousand women were interviewed.

— Prof. Aug. Kerckhoffs, of Dutch origin, but who has long been settled in Paris as a teacher of languages in a commercial school, will succeed the late Herr Johann Martin Schleyer as head of the Volapükists. Father Schleyer published his first book on Volapük in 1879, and nine years later, at the time of his death, a moderate estimate puts the number of his followers at not less than a quarter of a million persons. Professor Kerckhoffs is the most distinguished of his pupils.

— In *Science*, No. 300, p. 207, line 21, for '110' read '1100.'

#### 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.

Twenty copies of the number containing his communication will be furnished free to any correspondent on request.

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

#### On the Alleged Mongolian Affinities of the American Race: A Reply to Dr. Daniel G. Brinton.

A FEW days ago a paper of Dr. Daniel G. Brinton, entitled 'On the Alleged Affinities of the American Race' (*Science*, Sept. 14, 1888), came to my knowledge.

This paper, which purports to be a refutation of the asserted Mongolian affinities of the American natives, contains, in my estimation, such wrong interpretation of acknowledged facts, and such illogic argumentation, that, although I generally avoid discussions of this kind, I cannot help making an exception this time.

It would be worth while to examine and criticise thoroughly all the arguments brought forward in Dr. Brinton's paper, but a general review will sufficiently show the nature and value of Dr. Brinton's refutation.

Unfortunately, for the present I am compelled to discuss the matter in a rather incomplete way, as I am travelling, and do not have the necessary works at hand from which I should like to quote, in order to prove what I say. I have therefore to make all my statements and quotations from memory.

Let us examine now Dr. Brinton's arguments against the asserted Mongolian affinities of the native Americans, as existing in language, in culture, and in physical peculiarities.

First, as to language. In claiming that there is no linguistic connection between the American and Mongolian languages, which may be true, Dr. Brinton forgets that also in the (his) Mongolian race the various languages are far from showing any connection one with another, and yet he considers the peoples who speak these different languages as being of one race. Moreover, in the Caucasian and negro races of Blumenbach's classification, which Dr. Brinton seems to adopt, widely different languages, not showing the remotest linguistic connection, have been grouped together. For instance: the Basques, the Caucasians proper (of the Caucasus), the Semites, and numerous other groups of peoples, are considered to be of one race, the white or Caucasian. The African negroes, the Melanesians, the Negritos of the islands of south-eastern Asia, and the Australians, are equally regarded as forming another, the black or negro race. Although there is no linguistic affinity between the different groups just mentioned, they are affiliated by physical characteristics, and each forms respectively one great race. As long as we accept this, we have a perfect right to group the Ural-Altai, and other Mongolian languages, with the native languages of America.

Second, as to culture. Although I am far from professing that ancient American culture has borrowed any thing from Europe, Asia, or Africa, neither do I positively deny the contrary until further evidence.

The science of archæology, as Dr. Brinton himself admits, only came into being at a comparatively recent date. If this be true of archæological science in general, it is more so of American archæology in particular, and we are consequently very far from having exhausted it. The different branches of ancient American culture, from the arid regions of the South-west to Peru, have not yet been studied systematically enough, and in connection with ethnology (as they should be), to permit us at present to draw any certain conclusions as to whether they contain any foreign elements, Mongolian or otherwise.

There is no need whatever as yet of hurrying Americanists, as Dr. Brinton wishes, to recognize the absolute autochthony of native American culture. The coming-forth of truth from studying a branch of science cannot, and never will, be forced: it *grows*, gradually and slowly, in the same proportion as our knowledge increases.

Third, as to physical peculiarities. Putting aside for the present linguistic and cultural affinities between Mongolians and native Americans, to deny that the American aboriginal belongs by his physical characteristics to the Mongoloids is equal to denying that the Basques and the Fins belong somatologically to the white race, or to claiming that the Hottentots and the Negritos do not form branches of the black race.

The comparative study of physical characteristics is perhaps the only satisfactory way of classifying the human races; and, although I cannot deny that any other classification, linguistic or sociologic, has its value and right of existence, we never ought to try to harmonize and to unite them, as is often done. As the different classifications have as many absolutely different points of view, their union can only lead to erroneous estimations. This illustrates, that, even admitting that the languages and cultures of the native American are not Mongoloid or Mongolian, nevertheless the physical peculiarities of these races may be the same.

Before I continue, let me state what I call, on purely somatological grounds, the Mongoloid race. Mongoloids, or Mongolians, in the widest sense, are, to me, a number of zoölogical varieties (*variété héritaire*, in the sense of A. de Jussien) of the same subspecies or race, distributed promiscuously, and in different proportions (in the sense of Kollman's *penetratio*: see Kollman's studies on European and American anthropology, in *Archiv für Anthropologie* and *Zeitschrift für Ethnologie*), over parts of northern and eastern Europe, the greater portion of Asia, the Indian Archipelago, Polynesia, a part of Madagascar, and originally over the whole American continent with its numerous islands. The term 'Mongoloid,' as I understand it, is in the main synonymous with Oscar Peschel's '*Mongolenähnliche Völker*,' and with the '*racés jaunes*' of French anthropologists.

The varieties of this great race differ somatologically much less among themselves than the varieties of the white and black races.

I will now consider, one by one, the arguments of Dr. Brinton against the racial relationship between Mongoloids and American natives.

First, as to color. Dr. Brinton forgets, that, in condemning Cuvier for the confusion of the American with the Mongolian race, because he based his racial scheme principally on the color of the skin, he equally condemns Blumenbach, whose division Dr. Brinton first calls 'eminently scientific.' We know that Blumenbach divided mankind into a white, yellow, brown, red, and black race, — a division at least just as much an '*a priori*' hypothesis, as it pleases Dr. Brinton to call Cuvier's divisions. Blumenbach had probably seen just as few pure Mongolians and American natives as Cuvier; otherwise he would not have called the Americans red. True 'redskins' do not exist. The American aboriginal is assuredly more yellow than red.

As far as my own observations among Indians go, in North and South America and in Mexico, and among Chinese, Japanese, and Malays, I have come to the conclusion that they all have the same color of skin, which we might best call yellowish brown, but in a great variety of shades, which often occur among the same people

or tribe, and depend upon age, sex, and general health. Expression, mode of living, climate, and altitude are, furthermore, the main factors which determine the many different shades of the color of the skin, not only among the Mongoloids, but also among the white and black races.

Let us suppose for a moment that the color of a Mongolian were yellow, and that of an American red: would it ever occur to a modern anthropologist to classify them for this reason in a separate and distinct race?

There is no race in which both the color of the skin and the color of the hair vary more than in the white. Think of a blond, florid complexioned Teuton, and an Italian with raven-black hair and dark skin. And yet, on account of the rest of their physical characteristics, they belong to the same race.

After this, what Dr. Brinton said about the difference between the character and color of the hair of Mongolians and Americans needs no further refutation.

Although I have probably studied somatologically more American Indians, and have examined more of their skulls, than any other anthropologist living, as yet I hesitate to name "a positive cranial characteristic of the red race." At any rate, Dr. Brinton is mistaken in thinking that the *os Incaë* is found in its extreme development in the "American race," and in its greatest rarity among the Mongolians. What in the days of Von Tschudi seemed true, has been refuted since. As I write this without any books at my disposal, and simply quote from memory, I cannot now give any statistics of the relative frequency of this anomaly in different races, but would refer to Virchow's and my own investigations on this subject (VIRCHOW, *Ueber Merkmale niedrer Menschenrassen am Schädel*; TEN KATE, *Craniologie der Mongoloïden*).

Although it is true that the glabella is more prominent in American skulls than in Altaic or northern Mongoloid crania, this is no argument to separate them racially from each other. The African negroes, for instance, seldom have a prominent glabella; the Australians, on the contrary, have, as a rule, an exceedingly strongly developed glabella; but nevertheless both African negroes and Australians are considered as belonging to the same race.

As far as the "Aymarian depression" is concerned, one might as well call all different artificial deformities of the skull, those in Europe included, racial characteristics. They are merely incidental, and belong as much to the domain of ethnology as to that of physical anthropology.<sup>1</sup>

It is not quite correct to assert, that, "of all the peoples of the world, the Mongols, especially the Turanian branch, are the most brachycephalic."

Many years ago, in the days when our craniologic knowledge was very limited, we had reason to believe this to be a fact; but since one armchair anthropologist copied this statement from the other, and since Aitken Meigs studied craniology after very imperfect methods, facts have accumulated to show that in America also we find extreme brachycephaly, as well among the prehistoric as among the historic peoples, from British America to Patagonia. At the same time extreme dolichocephaly is found, besides among the Eskimo, throughout the American Indian tribes, from north to south; but it cannot be considered an American craniologic characteristic, for among the Asiatic tribes dwelling nearest to the Eskimo (the Aleuts, for example), dolichocephaly in a marked degree is found, which fact is in absolute contradiction to Dr. Brinton's assertion (see, among other works, DE QUATREFAGES and HAMY, *Crania ethnica*; KOLLMAN, 'Die Autochthonen Amerika's,' in *Zeitschrift für Ethnologie*, 1883; TOPINARD, *Éléments d'Anthropologie générale*; and my own publications in American and Asiatic anthropology).

The value of the so-called 'Mongolian eye' (*l'oeil bridé*) may have been exaggerated as a racial characteristic: it is nevertheless

<sup>1</sup> Although Dr. Brinton does not mention any ethnologic peculiarities as having been asserted in favor of the affinity between Mongolians and Americans (for they have been asserted), I think it would have been worth while to discuss them. What I said above about the study of archæology is equally true in regard to ethnology. Systematic and comparative, and, above all, empiric ethnological researches, both among the native Americans, especially the northern, and among different Mongolians, particularly the Siberian tribes, would throw much light upon their relationship. I think, for example, that we will never be able to understand thoroughly the ethnology of the Tinné tribes, as long as the Mongolians proper, and certain erratic tribes in the Gobi, have not been studied.

very frequent among children, both of Mongolians and native Americans, as also among women, more than in any other race I know of. As it is admitted that in all races women and children show certain racial characteristics, especially those belonging to physiognomy, better than men, we may safely call the Mongolian eye a racial characteristic, though perhaps of less importance.

As regards the nasal index, before we can draw any conclusions from it, we have to make a distinction between the nasal index of the living (*sur le vivant*) and the nasal index of the bony skull, which often are in no correlation at all. Such is the case among the Eskimo, who are leptorrhinic, and belong at the same time to the same group as the American and northern Asiatic tribes.

To come to Dr. Brinton's last argument against the asserted Chinese traits of certain American tribes, I must say, that, although I never have seen any living Botocudo, I have examined their crania, and find that there is a certain resemblance between them and those of the Eskimo. If I am not wholly mistaken, Dr. Ph. Rey, who has also lived among the Botocudo, has pointed out this similarity in his anthropological study on this tribe (Paris, 1880).

I cannot say whether the tribes of the North-west Pacific coast have any Chinese traits, as I have not seen them myself; but this I can state, that among several tribes in North and South America (for example, Iroquois, Apaches, Hualapais, Maricopa, Pima, Carib, Arowak) I have seen persons who strongly resembled not only Chinese, but also Japanese and other Mongolians, and even Malays.

In some of them this similarity was so marked, that once on the Demerara River, in British Guiana, I questioned some Indians of the Ackawoio tribe, to convince myself that they were not Chinamen.

Dr. Brinton admits that the Eskimo "possess in some instances a general physiognomical similarity," concluding that "this is all," and "not worth much as against the dissimilarities mentioned." Does not Dr. Brinton know that physiognomy is really a very important consideration in racial distinctions? Every anthropologist knows that physiognomy is a complex of different traits, several of which are first-class racial characteristics. I will only mention the general shape of the forehead, the implantation and form of the nose, and the breadth and length of the face. If physiognomical characteristics had as little value as Dr. Brinton seems to think, then we might as well give up the study of physical anthropology altogether.

To recapitulate my criticism, I wish to say that Dr. Brinton's argumentation against the affinity between Americans and Mongolians is based upon entirely wrong reasoning. If the reasons he gives were correct, then the classification of the other races of the human species would be equally wrong; for in each of them peoples are grouped together, which, although related by physical characteristics, are linguistically and ethnologically entirely different from each other, not to speak of the difference in their psychological and social evolution.

When I admit that the native Americans are Mongoloids, I do not necessarily imply that America has been populated from Asia or elsewhere. However, if we accept the theory of evolution, this is the most probable explanation of the observed facts. But, leaving the doubtful origin of the Americans, and of their languages and arts, out of the question, I maintain that there is a physical similarity, racial affinity, and relationship between the indigenous Americans and the Mongolians in the widest sense.

This is, in the present state of anthropological knowledge, an undeniable fact. He who denies it does not believe in physical anthropology; and not to recognize this branch of science is equal to denying natural history in general. DR. H. TEN KATE.

Mexico, Oct. 8.

#### Queries.

38. WHEN WAS THE BILLION CHANGED?—Can any of the readers of *Science* state at what time, and from what incentive (by what fatuity), the people that has proposed a system of metrology for universal adoption depreciated the arithmetical *billion* (the second power of the million) to a nominal 'trillion,' making the anomalous 'billion' one-thousandth of its explicit value?

W. B. T.

Washington, D.C., Oct. 31.