Transcription, January 2015:

New-York Daily Tribune 51(16317) (19 July 1891): 14d-14e (anon.).

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‘The Antiquity of Man. Some New Chapters in Wallace’s Writings.’

Natural Selection and Tropical Nature. Essays on Descriptive and Theoretic Biology. By Alfred Russell Wallace. New Edition with Corrections and Additions. Pp. xii., 492. Macmillan & Co.

The works which are combined in this volume are too well known to require any addition to the praise which they long ago received from the scientific world. To have hit on the principle of natural selection before Darwin had formulated it sufficiently attests the acuteness of the author and the breadth of his study and observation. Few men are more thorough critics of scientific theories than Mr. Wallace. There is, however, some new matter in this volume, which is of special attractiveness in these days when man and his condition both in this world and the next are themes of extraordinary popular interest. In a chapter on the antiquity of man in North America the author has arranged the facts that have come to his notice indicating the extremely remote period in the past to which human life extended on this continent. This may be looked upon as supplementary to a chapter on the antiquity and origin of man which is here reprinted from “By-Paths in the Doman of Biology,” and to others on the development of the human races under the law of natural selection, and on the limits of natural selection as applied to man. It is remarkable testimony to the fact that biology is practically at a standstill, confronted by the anthropological problem, when the author deems the papers written as long ago as 1864 still up with the times. In various places he indicates by a footnote, or in some other way, a modification of earlier views, but no such remark is made in these chapters.

In some aspects of the subject he is certainly right. There seems to be no way, save the one he has marked out, by which the opposing opinions as to whether man is one species or many are to be brought into harmony. He argues that at the outset man was of one stock and was then subject to all the influences which have modified animal life, so that races were differentiated before mankind had reached a condition of life comparable to that of the lowest savages in the modern world. But as soon as human beings reached a stage when they began in the crudest and simplest manner to meet the necessities of their environment by artificial means, then the law of natural selection, inexorable with the brute, began to lose its hold upon them: their physical characteristics ceased to change and the germs of mental and moral qualities began to be developed. “Thus man by the mere capacity of clothing himself,” he adds, “and making weapons and tools, has taken away from nature that power of slowly but permanently changing the external form and structure in accordance with changes in the external world.”

This is certainly an attractive theory, but he proceeds to argue that the men in this state of nascent mentality who happened to live in regions where the soil was sterile and the seasons inclement would be superior to those in more favorable climes. Modern facts lend countenance to such a notion, but all that is known of primitive life is against it. The civilization of Egypt and that of the Mesopotamian Valley on the one hand and that of the Peruvians and Mexicans on the other were sub-tropical. The evidence in the case of Babylon goes to show that the movement of civilization was up the Euphrates from regions of fierce heat toward the cooler clime. As to the Peruvians it is still an open question whether they descended from the north or traversed the sea, carrying with them a civilization of which there are still monumental relics

in Polynesia. That point will have to be settled before the culture of the Incas figures to much utility in any discussion as to the origin of man.

If it were true that, as in modern times, so in primitive, the men of the colder regions were superior to their congeners who were more favorably situated, then the barbarism of Northern Europe, lasting from the glacial epoch down to a date thousands of years after the civilization of Egypt and of Babylonia had culminated, would be more unaccountable than it is—and that is hardly possible. Why should Europe have had to wait until Babylon and Egypt civilized Phoenicia, and then have had to receive gradually at the hand of Semitic traders suggestions from the Orient? For example, Schrader and Ihering agree that even so obvious a step toward civilization as that of granting the ex-tribal visitor the privileges of a guest was not taken by the Greeks without the influence of the Phoenicians. Ordinarily he was killed as a sacrifice to the gods. How great the transition was between the habit of murdering men and the less offensive habit of inviting them to dinner is hard for a modern to estimate. So, not only the Greeks, but the whole Indo-European world seems to have obtained its knowledge of gold and iron, and possibly of silver and copper, through Semitic channels. Such facts as these are, one may say, crucial tests of a theory and they certainly do not bear out the opinion that man's struggle with nature in her adverse aspects hastened the evolution of his intellect. All that can be said is that they have given the European races the dominance at last, after an interval which may have lasted anywhere from 10,000 to 500,000 years, that is, from the disappearance of the glaciers and the tertiary ocean in Europe down to the beginning of the historical record. It must be acknowledged, however, that the first uprising of Europeans with whom the inhabitants of Western Asia Minor may properly be included, since they necessarily had much the same breeding, shows an unexpected degree of civilization. The only war that Ramses III waged, which really warranted his reputation as a great strategist, was that in which he defeated forces by land that had overrun and almost effaced the Hittite Empire, and flushed with victory had begun their march against Egypt, and then destroyed an allied force by sea that swept through the Pelusiac mouth of the Nile before it could be intercepted. In this case the European races showed—at least a century, perhaps two centuries, before the earliest possible date for the Trojan War—a capacity for organization and for harmonious action as great as that shown much later by the Gauls in their conquest of Rome, and a really startling proficiency in naval affairs. But this incident recorded on the Egyptian monuments only lengthens the European historical period three or four generations, a mere nothing to that vast emptiness, ages upon ages, which the biologists and geologists demand, and which they have as yet failed to fill with any adequate indications of progress.

Natural selection, the survival of the fittest, the preservation of favored races in the struggle for life—these are statements of a principle which not only meets the empirical tests of induction, but satisfies the mind even before a single example has been cited. But it does not explain the disappearance of "low and mentally undeveloped populations with which Europeans come in contact." Rum and the rifle have to be considered in the matter, and besides some of the stock instances relied upon, which are cited also by Mr. Wallace, amount simply to a misstatement of a fact. It is not true that the Red Indian is disappearing from North America. Taking the estimate of anthropologists as to the probable population of Europe in the period when men lived by the chase as a criterion, it may safely be said that the Indian inhabitants of the United States have doubled, if not trebled, in numbers since the Pilgrims landed on Plymouth Rock. The loss of famous tribal names has nothing to do with the facts. Any argument from the mounds and fortifications of the Mississippi Valley would be misleading. It is an open question whether or not those extensive earthworks which seem to a modern the walls of cities ever contained anything resembling a

town. If the Moundbuilders were of the same origin with the Pueblo tribes of the Southwest, then they probably built these so called walls merely as a foundation for their dwellings, exactly for the same reason that the Assyrians, though they lived in a country where solid foundations could easily be reached, continued for thousands of years to build their houses as though these rested on the treacherous alluvium of Babylonia. The works of the American Moundbuilders were a question of time not of numbers, and a modern Pueblo would afford the best data for estimating the population of the mounds in Ohio or Tennessee. Take another notorious case—it is the European, not the negro, who is vanishing from the French West Indies. According to Mr. Wallace's application of the principle of natural selection, the negro ought to be losing numbers in the Southern States, but this is far from being the case. Turning to Asia, we may say that it is doubtful if the European can perpetuate himself in India without constant immigration.

All this is intimately connected with a problem the solution of which as offered by the experts in biology is thoroughly unsatisfactory to the layman in science, namely the differentiation of man in respect to the size and shape of the skull. The averages given by Mr. Wallace—which will serve the present purpose as well as a more elaborate list—are for cranial capacity: Teutonic peoples 94 cubic inches. Esquimaux 91. Negroes 84. Australians 82. Bushmen 77; idiots, less than 65; gorillas—the largest example known—34 ½. But as Mr. Wallace says, there are frequent examples of savages with cranial capacity equal to that of exceptionally large European skulls, so that practically the comparison as to the size of the skull bears no proportion to that between the intellectual conditions of given races of men. Moreover, the skulls of prehistoric man, even those supposed to date from an incalculably remote period, show substantially no change. Therefore, if the size and shape of a man's head were an infallible index to his mental powers, the European cave-dwellers must have been every way the equals of their remote descendants. Nobody believes this possible, and the author of the book in hand, while clinging to the notion that the size of the skull is of primary importance, endeavors to solve the difficulty by supposing that the savage possesses a brain in excess of his requirements, prepared in advance for the progress which he and his descendants are to make in civilization. It is a strain on credulity to expect one to believe that the post-glacial European had a big brain because his possible descendant in the nineteenth century would need all the intellect he could muster to make a living.

Briefly, the facts seem to indicate that all the elaborate disquisitions of the last ten or twenty years in which have figured to weariness such hard words as dolichocephalic, bracycephalic, orthocephalic and mesocephalic, have not enlarged knowledge on the subject of the antiquity of man a single degree. It would seem to be time to consider whether the differences indicated by these words are of anything more than secondary importance. Mr. Wallace says the size of the skull is of the highest value, and cites as proof the fact that the cranial capacity of a human being must equal 65 cubic inches, otherwise he will be an idiot. If this proves anything, it proves too much. The idiot is neither a man nor a monkey. He is not in harmony with nature whether he be classed with the superior animal or with the one inferior to him. The gradual growth of brain from the size adequate to meet a monkey's necessities to that required for a rational man must pass the point at which a man is an idiot. But it is impossible that a generation of idiots could ever have existed, for such an accident would have precluded the evolution of humanity altogether.

It is more reasonable to put the consideration of the size and shape of the skull under the head of what Darwin called correlation of growth, thus making it of secondary importance. An increase in the size and a modification in the shape of the brain-case would naturally though not necessarily be supposed to

accompany a change in the quality and texture of the brain itself. In this view of the matter, what becomes of biology in its relation to prehistoric study? The brain of prehistoric man has departed. What little information could be obtained from the skull he has left has been worked out. Biology, should, therefore, be content with a subordinate place in future investigations. The real question is, What is the relation of brain tissue to brain product? If biology furnishes an answer to that question, archaeology and mythology and philology may furnish the necessary third term—prehistoric brain product—for a plain computation under the simple rule of three, and the answer should be a scientific description of human brain tissue in prehistoric times.

The concluding chapter is a beautiful tribute to the memory of Darwin. None could have summarized so well and briefly the debt of the world to that lamented scholar and discoverer. The eulogy is all the more delightful because Mr. Wallace might have cherished that sort of jealousy which has embittered the life of many a student surpassed accidentally at a critical moment by another worker in his field. But there is nothing here except large-hearted commendation justified by minute knowledge of facts. It is a testimonial of lifelong friendship as well as a thoughtful interpretation of a career and a personality likely to be better understood a hundred years to come than they are now.

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