

Capellini, Hauchecorne, Beyrich, Renevier, Vilanova, Delgado, de Lapparent, Dewalque, Torell, and a few others who have been the acknowledged leaders and directors of the congress, and most of whom have attended every session, not one was here. In fact, with the exception of Professors Gaudry, von Zittel, T. M. K. Hughes, Dr. Barrois, and perhaps two or three more, there were no geologists of the first rank from abroad at all. Professor Hauchecorne stated three years ago that he intended to bring twenty or thirty mining students from Germany to visit our anthracite regions, yet the writer is informed that after the arrangements for a visit to the anthracite fields had been completed by others than the Washington committee, no one took advantage of the opportunity.

As to the work done, according to the reporter of the *American Geologist*, "the congress passed off with the simple presentation, largely or entirely, of some American views on American geology, followed by such desultory comment or discussion as happened to spring up."

The "long excursions" may have resulted in much good to the visitors. It is to be hoped that they did, for the subscription price was prohibitive for many foreigners who would have been best able to profit by them.

PERSIFOR FRAZER.

Philadelphia, Pa., Oct. 27.

The Man of the Future.

A READING of the article under the above heading by Dr. Shufeldt (*Science*, Oct. 16) impresses me with the manifold difficulties attending all speculations regarding the future history of the race, as a result of the varying standpoints occupied by the anthropological prophets.

The problem of human progress seems to have a five-fold aspect, physical, material, social, moral, and intellectual; and it therefore involves questions belonging to sciences as widely divergent as physiology, technology, sociology, and psychology.

Upon its first phase Dr. Shufeldt, as a professional biologist, can speak with much more authority than myself. But there is not wanting excellent biological authority for the supposition that a further natural development in this respect is precluded by the artificial conditions which have made man to a large extent independent of those laws whose operation is traceable in all the history of organic evolution. This, of course, does not militate against the probability of changes tending towards his perfect adaptation to the erect posture and the elimination of rudimentary structures, as resulting from the varying conditions of his artificial environment. Although in the sub-human state the environment may have made the man, in the human state the man, generally speaking, makes his environment. The care taken to preserve the sickly, imbecile, and otherwise useless or noxious members of society, is, from this point of view, a powerful anti-progressive factor. The refinements of civilization place man out of the reach of natural selection, and operate to diminish his vital energy, at the same time they promote delicacy of structure. Such practices as tight-lacing and foot-pressing are barbarous customs, tending truly, as Dr. Shufeldt observes, to produce structural modifications, but certainly doomed to extinction at the very next stage of psychological evolution.

The ruling ethical codes not only give rise to an unscientific tenderness, but they operate to prevent sexual selection. The only serious attempt at scientific human stirpiculture was in the Oneida Community; and this has been a failure, partly because of the inevitable triumph of traditional instincts over speculative principles, as soon as the zeal of the experimenters had cooled, and partly because of symptoms of a violent crusade against the experiment by the exponents of the accepted morality. If the government could follow the suggestion made by Professor Lester F. Ward and other savants, and relegate the whole business of the propagation of the species to individuals especially selected for the purpose, a very rapid improvement would naturally take place; but the plan is fraught with collateral difficulties, and, even if these could be overcome, it seems to be forever out of the question, on account of the moral impossibility of obtaining for it, under any conceivable circumstances, the sanction of public opinion.

Dr. Shufeldt's prediction of the abolition of war is open to the criticism that we have no knowledge of any animal whose existence is not accompanied, if not maintained, by warfare and even deliberate slaughter. Progress has thus far tended, not towards peace, but towards periodicity in war. The engines of destruction become daily more deadly, and each war is more costly, both in men and money, than the preceding. Chateaubriand, in his pamphlet "De Bonaparte et des Bourbons," calculated that more lives had been lost during the Napoleonic wars than during the whole of the Middle Ages throughout all Christendom. An argument in favor of war, considered in the abstract, is that its psychological effects are exceedingly good, and that periods of peace are usually periods of moral degradation.

The material progress of the past century has been unquestionably enormous, and as its continuance seems to be assured for all time, it is difficult to set a limit to its possibilities; but this field is a well-worked one, and predictions are superfluous. It must be observed, however, that the problem of aerial navigation seems on the point of being solved, now that it has passed out of the hands of charlatans into those of serious scientific investigators; and if it once becomes an accomplished fact, it will produce such changes in the conditions of human life as to vitiate any speculations which do not take it into account.

The social progress of the world, or even of Christendom, I venture to believe problematical. The principle of political and social equality seems to be directly in the teeth of modern science, which assures us, above all things else, that inequality is not merely an existing fact throughout the whole domain of nature, but that it is the *sine quâ non* of progress. Every new type is created by the accumulation of variations in the old. The differentiation of the patrician classes from the plebian is a continuation of the same process which, according to the evolutionary hypothesis, has differentiated from each other all the diverse forms of animal and vegetable life. The tendency in modern society to obliterate hereditary distinctions is detrimental to progress, for so far as it is carried out it makes impossible the production of any higher human type than the present.

Furthermore, the laws of nature are uniform throughout all realms, and that of specialization of function holds good in sociology as well as in biology. The highest social condition would be one in which every social, industrial, and political function was performed by a distinct class, concentrating upon that function all its energies. It is this principle which alone makes the man structurally superior to the *Amoeba*; and the popular negation of it is an indication that the tide of social development is in its ebb.

This negation is not usually extended to the industrial realm, where specialization of function is the order of the day. But this industrial progress has given rise to grave problems, which cannot be solved in a half-hour.

It is when we come to the psychological aspect of progress that we are confronted with the most serious difficulties, for upon no point is there a greater variance of opinion in the thinking world than upon the lines which true moral, religious, and intellectual progress must follow.

It is even a debatable question whether there can be any moral or religious progress, as it is denied that ethics or religion have any other than a pathological significance. To give them validity, there must be a real object and true mode of worship, and an imperative norm of duty. It would seem, on the one hand, that it is impossible to verify or vindicate scientifically these fundamental postulates; and yet both religion and ethics are so characteristic of the human species as to lead to the suspicion of a psychological atavism wherever they are absent.

Passing by this antinomy, it is evident that if there are any religious and ethical facts, they must be capable of definition, classification, and rational exploitation: in other words, a science may be erected upon them, and a progress in this science must take place parallel to that which every other science is undergoing.

The question of intellectual progress in general is as difficult as that of religion and morals. Such a progress may take two forms; either the accumulation of knowledge, or the development of the faculties of thought and observation. As regards the first, no one

can doubt that the stock of knowledge possessed by the human race at large is rapidly increasing, and will continue to do so. But in the second we meet with several difficulties. If, as Dr. Paul Carus says, metaphysics is "a disease of philosophy" and devoid of value, its decreased influence in the world of thought would seem to indicate a progress of the human mind in the direction of healthy and fruitful activities. But the fact that all science presupposes certain metaphysical concepts,—as that of the trustworthiness of the instinct which attributes objectivity to phenomena cognized by the senses,—would seem to belie the dictum of the great monist; and, as the abstract notions of metaphysics are much farther removed from sub-human psychological conditions than are the concrete ones of natural science, the disuse of metaphysics would appear from an evolutionary standpoint to be, like the atrophy of the religious sense, an indication of retrograde development. Nevertheless, the widely diffused intellectual activity of the present, in which even metaphysics is represented by a greater number of schools than ever before, and which, for the first time in the history of the world, has a broad basis of scientific facts, cannot but tend towards a still higher intellectual condition. One of the most important steps in this direction will surely be a synthesis of the now comparatively isolated departments and schools of human knowledge and thought.

No factor is more promising than the new scientific theories of education; which ought of themselves, when their application has become more general, to develop within a few generations a new and superior type of mind.

No theory about the psychological future of mankind can afford to ignore the strange possibilities opened up by the science of hypnotism. This is a most fruitful field of speculation. We live in a period of esthetic decadence; but neither can esthetic development be left out of account. The esthetic faculty contributes more than any other to individual happiness, and it may be capable of being brought by systematic cultivation to a degree of perfection hitherto unknown.

To sum up, it would seem that there is an undoubted material progress under way, from which wonderful and startling results are to be anticipated, but which will not, unless accompanied by a great intellectual decadence, terminate, as Dr. Shufeldt predicts, in a total destruction of the forests, or, indeed, of any portion of the flora or fauna of the globe which has even a picturesque or decorative value. The wide-spread idea that the development of material resources is all there is of progress, is both an effect and a cause of a temporary tendency to physical, social, and psychological retrogression.

Neither our senses nor our memories are as acute as those of our barbarian ancestors; our taste and capacity for intellectual speculation is not as great as was possessed by our predecessors of the scholastic period, or by the south Asiatic Aryans of any historic time; the ideals of strength and intensity embodied in the Niebelungenlied, those of delicacy and grace which gave rise to the Arthurian legends, and those of divine love and beauty which inspired the Old Masters, have alike become dim and distant to us; and the low vice of avarice rules the day.

But never before was the sum of human knowledge so vast; never were all questions, physical, social, and psychological, studied so carefully and in so full a light; never was the importance of education, and of right education, so generally recognized and insisted upon; and never has the race seemed so near to that fusion into one great world-nation which is indispensable to a universal distribution of the knowledge and ideas and materials which are now of but local utility.

The tendency of the times is to subordinate man to civilization; but civilization is useless except in so far as it promotes the happiness or personal development of man. If any real improvement is to be accomplished in the race itself, in contradistinction to its material environment, there will evidently be necessary a systematic encouragement of that salutary inequality by which favorable variations are husbanded and a specialization of function in the social organism secured.

I cannot venture, in view of the complexity of the problem, to hazard a prediction even for the next stages of human evolution, to say nothing of the millions of years over which Dr. Shufeldt so

gaily gambols. His very dramatic picture of the last man can, however, never be realized in fact unless the expected modification in the human organism shall amount to a radical transformation. It is inconceivable that man should be the last of all living forms to disappear during the process of the earth's cooling. As at present constituted, he would succumb, even with all the appliances of civilization, long before many of the lower species. Most of the latter could, in no supposition, be exterminated by him, and many of them, as the doctor well knows, possess incredible powers of resistance to unfavorable climatic and other conditions.

Speculations regarding so very remote a future are of doubtful utility, especially in view of the daily possibility of one of those celestial casualties familiar to astronomers, such as a collision with a dead sun. I forbear to picture the sublime horrors of such an event, but they may at any moment be realized, though with such rapidity that before any human mind could guess the truth the whole solar system would have been dissolved, by the heat resulting from the impact, into invisible vapor.

MERWIN MARIE SNELL.

Washington, D.C., Oct. 26.

Government Science.

THE communication of Eugene Murray Aaron in the issue of *Science* for Oct. 23, under the above heading, contains statements and presents conclusions which I believe to be well founded. Like that writer, I am warmly in favor of the recent reforms in the methods of filling vacancies in the various departments of the civil service, in positions where technical and scientific knowledge is not required. But I am firmly of the opinion that if the heads of scientific bureaus were allowed to select their assistants, subject of course to the approval of the Civil Service Commission, far better results would be secured.

An instance was recently reported to me similar to the case cited by Mr. Aaron. A Washington daily contained the announcement of a vacancy in a subordinate position requiring special scientific attainment. A few young men, hanging around Washington for something to turn up, saw the advertisement as soon as it appeared, and at once placed themselves under instruction to "cram" for the examination. The one of their number who showed the highest average secured the position.

A man far more competent to fill it, residing many miles from Washington, was urged by friends to make application. His letter of inquiry was received too late, and thus a tyro was appointed when an expert might have been secured, to the expressed disgust of eminent scientists in government employ. C.

Highlands, N.C., Oct. 30.

Words of Algonkian Origin.

The Chinook jargon, that *lingua franca* of the region of the Columbia, has recruited its vocabulary from many different sources. Amongst others the Algonkian tongues have contributed their share towards the formation of this linguistic mosaic.

In the "Partial Vocabulary of the Chinook Jargon," given in 1863, by Theodore Winthrop (*Canoe and Saddle*, Boston, 1863. New ed., Peterson, Edinburgh, 1883, pp. 211-214), we find the following words of Algonkian origin:

Kinni-kinnik, = smoking-weed,

Tatoosh, = milk, cheese, butter.

Wapato, = potato.

The word *moos-moos*, "beef," "cattle," which also occurs, is probably not Algonkian. It occurs in a vocabulary of the "Chenook" of Fort Vancouver, and the "Calapooa," collected before the year 1840, by the Rev. Samuel Parker (see *Journal of an Exploring Tour beyond the Rocky Mountains*, Ithaca, 1840, pp. 393, 398).

George Gibbs, in his "Dictionary of the Chinook Jargon, or Trade Language of Oregon" (Smithson. Miscell. Coll. 161, Washington, 1863, pp. xiv., 44), attributes a Cree origin to two, and a Chippeway origin to one, of the 490 words of which the jargon was then composed. These words, regarding which he observes: "The introduction of the Cree and Chippeway words is of course