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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.*

On request in advance, one hundred copies of the number containing his communication will be furnished free to any correspondent.

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

The International Geological Congress in Washington.

THERE have been numerous unofficial accounts of the late Washington meeting of the Geological Congress, but none has yet appeared in which the attendance and work performed have been compared with those features of the previous congresses.

It will be recalled that at the London session of 1888 the American committee was authorized to invite the Congress to meet in America for its next or fifth session. Austria-Hungary had previously had a quasi promise that the fifth session should be held in Vienna, but her representatives at the London session, Mojsisovics and Stur, gracefully and generously yielded to the invitation from America.

From the official minutes of the meeting of the Council on Wednesday, Sept. 19, we learn that M. Frazer presented, on behalf of many scientific societies and of institutions for higher education, the invitation to meet in the United States in 1891. M. von Zittel, Hauchecorne, Stur, Hunt, Capellini, de Lapparent, and Macfarlane warmly seconded this invitation. The former added that the well-known generosity of Americans would make the visit easy. M. Stur said that the Austro-Hungarian geologists very much desired the congress to be held in Vienna, but after having heard the invitation to meet in the United States he would also support this invitation, in the hope that three years later, or in 1894, the congress would come to Vienna, when he promised them a warm reception. M. Neumayr repeated M. Stur's wish, and hoped that the session of 1894 would be reserved for Vienna.

The last act of the president of the congress, Professor Prestwich, was to declare the session closed and adjourned to Philadelphia in 1891.

Three years is none too long to get the endless details for a meeting of this kind arranged, yet over two years were wasted, and less than twelve available months remained in which to secure the participation of societies and geologists throughout the world, to negotiate special rates of transportation on sea and land, to perfect the plans of visits to mines and distant localities, and, above all, to raise money to entertain the foreign guests in a manner which they have been taught to understand is the American manner. The result may be gathered by an inspection of the following table, which gives the attendance of members from foreign countries as well as from the country in which the session was held for each of the five sessions. It should be noted that there are no official statistics giving the number enrolled separately from the number which attended the first or Paris session. The "N" in the first horizontal line below the name of the city indicates natives of the country where the session was held; the "F" stands for foreigners.

	Paris 1878	Bologna 1881	Berlin 1885	London 1888	Washington 1891
	N. 193 F. 107	N. 150 F. 75	N. 166 F. 97	N. 281 F. 151	N. 148 F. 58
Argentina	–	–	–	1	–
Australia	1	–	–	1	–
Austria-Hungary	5	8	17	10	3
Belgium	14	6	6	15	3
Bulgaria	–	–	–	1	–
Brazil	–	–	1	–	–
Chili	–	–	–	–	1
Canada	3	1	1	3	2
Denmark	1	1	1	–	–
Egypt	–	2	–	–	–
France	193	18	10	17	5
Germany	6	6	166	29	23
Great Britain	3	6	12	281	3
Holland	3	–	2	1	–
India	–	1	–	1	–
Italy	15	150	19	12	–
Mexico	1	–	–	2	3
Norway	2	–	3	2	1
New Zealand	–	–	–	1	–
Portugal	1	2	1	2	–
Peru	–	–	–	–	1
Poland	–	3	–	–	–
Roumania	9	1	1	2	2
Russia	7	6	7	13	8
Sweden	6	1	3	4	4
Switzerland	10	8	3	5	2
Spain	12	4	1	4	–
United States	8	1	9	14	148
Percentage of foreigners	35.66	33.33	36.88	34.80	28 15

It appears from the table, which has been compiled from the official reports of the first four sessions, and from the report of the Washington session published in the *American Geologist*, that the last or American session was distinguished, first, for the smallest aggregate attendance of participants; second, for the smallest number of native participants; third, for the smallest number of foreign participants; fourth, for the smallest proportion of foreign to total participants.

How far the American participants represented the geologists of the country it is difficult to say, but of the six who were accredited to Philadelphia, one was a professor of physics in the University of Pennsylvania, one was a physician and mineral dealer, two were young mining and geological engineers, one was an amateur mineralogist, and the sixth was a professor of geology.

But the difference in the character of this from all previous sessions of the International Geological Congress becomes apparent when we examine the lists of the foreign visitors. Of men like

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 Zittell, 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