The scientific objects of the expedition may be briefly stated as follows: 1. Geographical.—To explore King Edward's Land, to throw further light on the nature and extent of the great Barrier ice formation, and to continue the survey of the high mountainous region of Victoria Land. 2. Geological.—To examine the entirely unknown region of King Edward's Land and continue the survey of the rocks of Victoria Land. 3. Meteorological.—To obtain synchronous observations at two fixed stations as well as the weather records of sledge journeys. 4. Magnetic.—To duplicate the records of the elements made by the *Discovery* expedition with magnetographs. The comparison should throw important light on secular changes. 5. Miscellaneous.—In addition, attention will be paid to the study of marine biology at both stations and in the ship, and the examination of physical phenomena will be continued. The plan which has been outlined to secure the main object of the expedition, together with subsidiary plans for the complete exploration of the region of King Edward VII. Land, will necessitate the establishment of a strong party of men at the winter stations and a more ample equipment than has hitherto been taken. It follows that the ship in which the expedition embarks must be suitable in size as well as strong enough to enter the heavy pack ice likely to be met with in the region of King Edward VII. Land. These considerations prevent the full realization of the project under a total estimated expenditure of £40,000. The steamship *Terra Nova,* which served as a relief ship in the *Discovery* expedition, has been purchased for the expedition.

UNIVERSITY AND EDUCATIONAL NEWS

Mr. Andrew Carnegie has subscribed $100,000 to McGill University as a part of the general fund of $2,000,000 which friends of the university are trying to raise.

The University of California has purchased 250 acres of land adjoining the campus. This land comprises the inner portion of Strawberry Cañon, running to the crest of a ridge of the Berkeley Hills.

The John Morley Chemical Laboratories of Manchester University were opened on October 4 by Sir Henry Roscoe, who was for many years the professor of chemistry of the university. Lord Morley, the chancellor of the university, in whose honor the laboratories are named, made the principal address.

At Princeton University Dr. E. P. Adams, assistant professor of physics, and Dr. L. P. Eisenhart, instructor in mathematics, have been promoted to professorships.

Dr. Ralph Edward Sheldon, associate in anatomy in the University of Chicago, has been appointed as assistant professor of anatomy, in charge of histology, embryology and neurology, in the University of Pittsburgh Medical School.

At Cornell University H. E. Howe and H. O. Taylor have been appointed instructors in physics.

At Wellesley College, Miss Louise S. McDowell has been appointed instructor in physics.

At Birmingham University the chair of zoology, rendered vacant by the death of Professor T. W. Bridge, F.R.S., has been filled by the election of Dr. Frederick William Gamble, F.R.S., and Professor Peter Thompson, of King's College, London, has been appointed professor of anatomy in the place of Professor Arthur Robinson.

Professor George A. Gibson, of the Glasgow and West of Scotland Technical College, has been elected to the chair of mathematics at the University of Glasgow.

DISCUSSION AND CORRESPONDENCE

A NEED OF INTERNATIONAL CONGRESSES

In Science for September 17 appeared the very interesting account of the proceedings of the Seventh International Congress of Applied Chemistry, held in London in May, 1909. This account is impressive in many ways, and especially in one, of which, possibly, the author, Professor Baskerville, was not conscious. The report throws into strong relief the great

need of such international gatherings—an international language, in which the proceedings may be held, in order that all the participants may understand fully and immediately what is being done.

It is stated in the report that distinguished men of chemical science were present from more than twenty nations, yet the business of the congress was transacted in four languages only, English, French, German and Italian. After the name of each speaker is given the language used—confined, of course, to the four named. It is a fair question to ask if those present from Russia, Spain, Sweden, China, Japan and other lands, understood all or any of the speeches; or if, indeed, even some of those speaking in one of the languages named, understood the remarks of their colleagues using some of the others. How many of the delegates were debarred from participating in the debates because they did not know, or were unskilled in the use of the official languages, and how many of those present were compelled to await the publication of the proceedings before being able to digest them and were compelled, even then, to rely upon the work of a translator? How much valuable time was lost in interpreting the speeches or in repetition of the same remarks in four different tongues?

The Societa Fotografica Italiana presented to the Section of Photochemistry an album of photogravures, showing the effects of the great Messina earthquake, and it was necessary to print the text in four languages, and doubtless this course was also followed in publishing the *Proceedings* of the congress. Does this not seem to entail much labor and expense which science should be able to find means to avoid?

Dr. Wiley, in urging upon the congress the acceptance of the invitation of the United States government to hold the next meeting in America, voiced his appreciation of the language difficulty when enlarging upon the number of foreign-born citizens of the United States and in assuring the delegates that they could count upon being welcomed in their own tongue; though, apparently, he did not venture to promise them that they would be able to understand the proceedings of the congress itself.

These and other items appearing in Professor Baskerville's report show plainly how the diversity of language still stands like a menacing angel with drawn sword at the portal of all international gatherings, threatening with misunderstanding and difficulty all who seek to enter. How long will civilized humanity, and particularly scientific humanity, upon which depends the progress of the race, submit to such humiliating conditions?

The question presses harder to-day than ever before, as modern progress makes international communication more frequent and necessary. Surely science, which has leveled so many obstacles before advancing mankind, must soon give its serious attention to this one, which looms so large, and more especially so, because the solution of the difficulty is so obvious. This solution is the world-wide adoption of an *international* language—a second language which all will learn in addition to their natural tongue, and by means of which they can communicate with all civilized men. What language to select for the purpose is, however, not so obvious and here the difficulties arise. It is not necessary to enter here into a discussion of these; Dr. Kellerman, in an illuminating article in the *Popular Science Monthly* for September, has taken up the whole matter most thoroughly and it would appear that the conclusion reached in that article, viz., the official adoption of the artificial international auxiliary language Esperanto, a living tongue already largely used for the purposes in view, is the logical one. This language seems to be making good its claim of easy acquisition, combined with power of euphonious and clear expression, and being widely disseminated already, seems to await only general official recognition by governments and prominent international associations to prove the actual solution of the troublesome question.

That this is believed by many scientific bodies is shown by the fact that they have already taken the step indicated and made Esperanto their official language. The Pan-

American Scientific Congress at Santiago, Chile, in January, 1909, with official delegates from twenty American governments present, not only took such action, but, in addition, adopted on January 4 the following resolution:

Considering, that a neutral auxiliary international language is necessary, and observing that the idiom Esperanto fulfils the requirements, that it is already sufficiently widespread throughout the world, and that official propaganda alone is lacking:

1. That the First Pan-American Scientific Congress decide to express to the American governments the pleasure with which it would view the call for a congress to which would come official representatives of all civilized countries, with the purpose of solving the problem of the adoption of a neutral international auxiliary idiom; and

2. It agrees to urge upon the government of the United States of North America that, under its grand auspices this desire of the Scientific Congress may be effected.

The next Congress of Applied Chemistry meets in America in 1912, the same year in which the next Pan-American Scientific Congress will gather in the same country. May we not hope that before that time the expressed desire of the latter will be realized, and that, led by the United States, as suggested, the governments of the nations will place in the possession of every man the instrument by which he can make himself understood by every other man?

At Washington, in the summer of 1910, will meet still another international body, the Sixth Annual Esperanto Congress, and if the experience of recent preceding years is duplicated, there will gather in attendance delegates from thirty or more nations, speaking as many languages; but, in great contrast to the congress, the report of which inspired these remarks, the proceedings will be in only one language—Esperanto. No time will be wasted in translation or repetition and *all* the members will understand *everything* that is done, *at the time,* and will be able to discuss freely all the matters presented. Every international gathering and association can do the same, if it will, instead of continuing to struggle with the archaic system now in vogue.

Surely all our scientific brethren will soon recognize this fact and a new step upward in human progress will have been achieved.

J. D. HAILMAN

PITTSBURGH,
September 22, 1909

THEORY AND HYPOTHESIS IN GEOLOGY

THE importance of hypothesis and of theory in geological research, as indeed in every other branch of learning, can not be over-estimated. Concrete facts are valuable, and their observation and accumulation are indispensable, but, in pure science, they are of worth chiefly in so far as they are available in explaining the cause of the phenomena for which they stand. The purpose of such science is to ascertain why and under what circumstances present effects were produced. Every hypothesis and every theory is therefore an attempt to expound the relations between cause, condition and effect.

Granting that observation, as far as pursued, has been correct, there are still many reasons for disagreement in theories. Scantiness and multiplicity of data may lead, respectively, to error of interpretation and to variety of inference. In both events, the personal equation is at a maximum. Again, lack of experience—that is, want of a thorough acquaintance with all the facts, not only in the specific case which serves as a foundation for the theory, but also in all similar occurrences—may result in diversity of opinion. Very common, too, has been the tendency to exaggerate the importance of some one particular factor or cause. Consider, for example, the numerous efforts to account for a glacial epoch. This fallacy is due partly to the personal equation, partly to a failure to discern all the premises, and partly to an innate desire for simplicity, a craving which induces the theorist to assign but one cause to a given phenomenon.

The misconception of the need for unity of cause may be an outgrowth from the doctrine of uniformity. But uniformity is not synonymous with simplicity, any more than complexity is synonymous with chaos. Nature is orderly; its realms are everywhere subject to