THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

After an absence of a quarter of a century, the American Association returned to St. Louis and there held its fifty-third annual meeting during the week beginning December 28.

The officers for the meeting were: President, Carroll D. Wright, Commissioner of Labor, Washington, D. C. Vice-presidents of sections: Mathematics and Astronomy, Otto H. Tittmann, superintendent of the Coast and Geodetic Survey, Washington, D. C.; Physics, E. H. Hall, Harvard University, Cambridge, Mass.; Chemistry, W. D. Bancroft, of Cornell University, Ithaca, N. Y.; Mechanical Science and Engineering, C. M. Woodward, of Washington University, St. Louis, Mo.; Geology and Geography, Prof. C. H. Hitchcock (in absence of I. C. Russell, of University of Michigan, Ann Arbor, Mich.); Zoology, Edward L. Mark, of Harvard University, Cambridge, Mass.; Botany, T. H. McBride, of University of Iowa, Iowa City, Iowa; Anthropology, Anita Newcomb McGee, Washington, D. C. (in absence of M. H. Saville, of the American Museum of Natural History, New York, N. Y.); Social and Economic Science, Simeon E. Baldwin, New Haven, Conn.; Physiology and Experimental Medicine, H. P. Bowditch, of Harvard University, Cambridge, Mass. Permanent secretary, Dr. L. O. Howard, Washington, D. C. General secretary, Charles S. Howe, of Case School of Applied Science, Cleveland, Ohio. Secretaries of the sections: Mathematics and Astronomy, L. G. Weld, of the University of Iowa, Iowa City, Iowa; Physics, Dayton C. Miller, of the Case School of Applied Science, Cleveland, Ohio; Chemistry, Richard S. Curtiss, of Union University (in absence of C. L. Parsons, New Hampshire College, Durham, N. H.); Mechanical Science and Engineering, William T. Magruder, of Ohio State University, Columbus, Ohio; Geology and Geography, G. B. Shattuck, of Johns Hopkins University, Baltimore, Md.; Zoology, C. Judson Herrick, of Denison University, Granville, Ohio; Botany, F. E. Lloyd, Teachers' College of Columbia University, New York, N. Y.; Anthropology, George H. Pepper, of American Museum of Natural History, New York, N. Y.; Social and Economic Science, J. F. Crowell, of the Bureau of Statistics, Washington, D. C.; Physiology and Experimental Medicine, Frederick S. Lee, of Columbia University, New York, N. Y.

On Monday at 10 o'clock in the morning, in the large auditorium of the Central High School, on Grand Avenue, the first general session of the meeting was called to order by Dr. Ira Remsen, of Johns Hopkins University, who introduced his successor, the Hon. Carroll D. Wright, United States Commissioner of Labor, as presiding officer for the meeting. Addresses of welcome were made by the Hon. David R. Francis, honorary president of the local committee, in behalf of that body; by Hon. C. P. Walbridge, in behalf of the city of St. Louis, and by Prof. C. M. Woodward, president of the board of education of the city of St. Louis, in behalf of the educational interests of the city. To all of these a suitable reply was made by President Wright, after which the members adjourned to their respective section rooms and organized for business. During the afternoon the retiring addresses of the vice-presidents of the previous meeting were presented before the respective sections and were as follows:

That before the section of Mathematics and Astronomy was entitled, "The Message of Non-Euclidean Geometry," and was presented by Prof. George B. Halsted, who fills the chair of mathematics at Kenyon College, Gambier, Ohio. Prof. Halsted in beginning spoke of the origin of geometry as a science, due to Thales and Pythagoras. The most diversely demonstrated and frequently applied theorem of geometry bears the name of Pythagoras, and due to him is the first solution of a problem in that most subtle and final of ways, by proving it impossible; his solution of the problem to find a common submultiple of the hypotenuse and side of an isosceles right triangle, an achievement whereby he created incommensurability.

He then passed to the king of geometers, Euclid, whose construction is considered by Alfred Russell Wallace as the most remarkable product of all the ages. Continuing, Dr. Halsted said, "Until the very present, Euclid has absolutely dominated the human mind. The break came not at any of the traditional centers of the world's thought, but on the circumference of civilization, in Russia and Hungary. The new idea is to deny one of Euclid's axioms, and to replace it by its contradictory. There results, instead of chaos, a beautiful, a marvelous, new geometry. Euclid has based his geometry on certain axioms or postulates which have been in all lands and languages systematically used in treatises on geometry, so that there was in all the world but one geometry. The most celebrated of these axioms was the so-called 'parallel postulate,' which in a form due to Ludlam, is simply this: 'Two straight lines which cut one another cannot both be parallel to the same straight line.' The Magyar, John Bolyai, and the Russian, Lobachebski, made a geometry based not on this axiom or postulate, but on its direct contradiction. Wonderful to say, this new geometry, founded on the fiat contradiction of what has been ever accepted as axiomatic, turned out to be perfectly logical, true, self-consistent and of marvelous beauty. In it many of the good old theorems of Euclid and our own college days are superseded in a surprising way."

Clear and erudite was the retiring address on, "The Elements: Verified and Unverified," which Dr. Charles Baskerville, head of the department of chemistry in the University of North Carolina, presented before the Section of Chemistry. After a sympathetic tribute to the memory of Dr. H. Carrington Bolton, the bibliographer of chemistry, whose recent death all chemists mourn, and who from his splendid work in the early history of the Section of Chemistry might well have been called its father, Dr. Baskerville in a masterly way reviewed the history of the concept or definition of the idea of an element from the far-away time of the early Greek philosophers, tracing it through the dim ages of alchemy until Dalton and the able chemists of his time brought the crude ideas of former days into the more perfect light of modern times. Then he discussed the modifying influences of the newer discovered elements, and the effect that radio-activity has had upon the significance of the word "element." This address, which marked the high tide of similar addresses before the section, was accompanied by a long list of chemical elements with their life histories, showing in tabular form their origin, development, and end.

The retiring president of the Section on Geology and Geography was Prof. William M. Davis, of Harvard University, who spoke on the geography of the United States. An abstract of this paper will be found in the current SUPPLEMENT.

Prof. Charles W. Hargitt, of Syracuse University, was the presiding officer last year of the Section of Zoology. He was unfortunately unable to be present at the St. Louis election, but his retiring address on "Some Unsolved Problems of Organic Adaption," was read by Prof. Charles C. Nutting. Much of his address was on the problem of coloration among lower invertebrates, and he discussed three classes of pigments: First—Those directly serviceable in the vital processes of the organism. Under this head may be classed such pigments as hæmoglobin, chlorophyl, zoonerythrin, chalorocruorin, and perhaps others less known. It need not be emphasized that by far the most important of these are the two first named. The others, found chiefly among the lower invertebrates, are believed to serve a function similar to the first. Second—Waste products. Among these the several biliary products are too well known to call for special note. Guanin is a pigment of common occurrence in the skin of certain fishes and is associated with the coloration of the species. Similarly, certain coloring matters have been found in the pigments of many Lepidoptera, known as lepidotic acid, a substance closely allied to uric acid and undoubtedly of the nature of a waste product. Third—Reserve products. Of these there are several series, one of which, known as lipochrome pigments, is associated with metabolism involved in the formation of fats and oils. Perhaps of similar character are such pigments as carmine, or rather cochineal, melanin, etc. It may be somewhat doubtful whether these pigments do not rather belong to the previous class, where should probably be listed such products as hæmatoxylin, indigo, etc., etc., all of which have been claimed as resultants of destructive metabolism in process of being eliminated from the physiologically active tissues of the body of the organism. Of similar character is probably tannic acid, a substance well known among plant products and involved in the formation of many of the brownish and rusty colors of autumn foliage, particularly of the oaks and allied trees, as are the lipochromes in the formation of the reds and yellows which form so conspicuous a feature among autumn colors.

The Section on Social and Economic Science, as well as an interested audience, listened with pleasure to Harry P. Newcomb's address on, "Some Recent Phases of the Labor Problem."

As to why workmen organize he said: "The instinct which impels workingmen to organize rather than to deal separately with their employers is precisely the same as that which at other points of economic contact has universally led to efforts to mitigate the consequences of competition by the simple device of combination. The single workman, dealing with an employer of many workmen engaged to render similar service, is at exactly the same sort of disadvantage which confronts the small manufacturer who has to sell in a market to which a multitude of competing producers have access on equal terms. There is nothing strange in the fact that the characteristic movement of the great industrial revolution which has been in progress since the invention of the spinning jenny and the power loom has left its impress upon labor as well as upon capital. If labor had not organized it would have been a sadly belated factor in the industry of the opening years of the twentieth century. Just as capital must continue to compete with capital, so labor will compete with labor as long as capitalistic production and the wages system endure, but on either side folly could go no further than to seek the perpetuation of the crude, cut-throat competition which seeks the immediate extermination of the rival at whatever cost to the survivor. Such competition is crude in its methods; it is destructive in its consequences, and it is not to-day a means of attaining the highest degree of economic efficiency. Both capital and labor are amply justified in uniting to mitigate this kind of competition."

Concerning the treatment of employers, he said: "The principles which require the fair treatment of fair employers must be established as part of the creed of unionism before the latter can become a genuine means of industrial and social betterment. This would require the revision of some very important features of the methods now current among labor organizations; it would abolish the sympathetic strike and also the general strike, which, in recent instances that all will recall, has frequently paralyzed the industry of entire sections. It would leave labor controversies to be settled by the parties directly concerned and would pretty effectually deprive both of the equally fickle support and opposition of public sentiment based on mere personal inconvenience and annoyance."

Dr. Ira Remsen, president of the Johns Hopkins University and long head of the chemical department of this university, delivered his retiring address on Monday evening. The subject which he presented to the members was, "Scientific Investigations and Progress." He said in part: "The objects of the association are, by periodical and migratory meetings, to promote intercourse between those who are cultivating science in different parts of America, to give stronger and more general impulse and more systematic direction to scientific research, and to procure for the labors of scientific men increased facilities and a wider usefulness. The first object, you will observe, is, 'to promote intercourse between those who are cultivating science in different parts of America'; the second is, 'to give a stronger and more general impulse and more systematic direction to scientific research'; and the third is, 'to procure for the labors of scientific men increased facilities and a wider usefulness.' Those who are familiar with the history of the association are well aware that it has served its purposes admirably, and I am inclined to think that those who have been in the habit of attending the meetings will agree that the object which appeals to them most strongly is the promotion of intercourse among those who are cultivating science. Given this intercourse, the other objects will be reached as a necessary consequence, for the intercourse stimulates thought, and thought leads to work, and work leads to wider usefulness. While the alchemists were at work upon their problems, another class of chemists were engaged upon problems of an entirely different nature. The fact that substances obtained from various natural sources and others made in the laboratory produce effects of various kinds when taken into the system led to the thought that these substances might be useful in the treatment of disease. Then further, it was thought that disease itself was a chemical phenomenon. These thoughts, as is evident, furnish strong motives for the investigation of chemical substances, and the science of chemistry owes much to the work of those who are guided by these motives. And so in each period, as a new thought has served as the guide, we find that men have been actuated by different motives, and often one and the same worker has been under the influence of mixed motives. Only in a few cases does it appear that the highest motives alone operate. We must take men as we find them, and we may be thankful that on the whole there are so many who are impelled by one motive or another or by a mixture of motives to take up the work of investigating the world in which we live. Great progress is being made in consequence, and almost daily we are called upon to wonder at some new and marvelous result of scientific investigation. It is quite impossible to make predictions of value in regard to what is likely to be revealed to us by continued work, but it is safe to believe that in our efforts to discover the secrets of the universe only a beginning has been made. Although science is not likely, within periods that we may venture to think of, to do away with the necessity of cultivating the soil, it is likely to teach us how to get more out of the soil than we now do and thus put us in a position to provide for the generations that are to follow us. And this carries with it the thought that, unless scientific investigation is kept up, these coming generations will be unprovided for."

In a later paper we shall hope to mention some of the more important papers that were presented before this meeting of the association.

At the Kelvingrove Museum, Glasgow, Scotland, a very interesting cast-iron crossing has just been placed in position. It was laid on the Liverpool & Manchester Railway in 1829, at Rainhill. It has just been taken up out of a siding after being 74 years in traffic.