

SCIENCE.

FRIDAY, AUGUST 10, 1883.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

NEXT week will see the annual meeting of the American association for the advancement of science. Although the pendulum-like swing of its migration takes it this year to the westernmost point of its meetings, — to a flourishing city that was founded since the association began its good work, — there is a promise of a larger and more successful meeting than has been its lot to have for several years. Though its roots go down slowly, there is good reason to believe that this society is at last taking firm hold in our hard and stubborn American society, which long seemed to deny it a fair chance of growth. It was, in fact, a much more serious task than it at first seemed, to create in America an association on the basis of that which grew so rapidly and so well in the British mother-country. The success of the British association was due in the main to the fact that the distances the members had to travel were small, so that a large part of the working members could be relied on to attend from year to year in a regular way; thus giving a continuity to its intellectual life that has been denied to our association. Then in Britain, and the sister kingdom of Ireland, there are a score or more places where there exists a strong local life, a pride in the reputation of locality, and a mass of inherited wealth liberalized by long tradition that could easily be brought to the support of such meetings. Still more effective was the support which a centralized government could give, and the money that came easily at the call of the scientific leaders who made themselves responsible for the work the association undertook. All these advantages were denied to the American association in its earlier years. In the most of its meeting-places there was

little to uphold its work; it toiled as a missionary enterprise — patiently, but with scanty reward. Its recent gain in public esteem has been in part the result of its own good and devoted work, but in larger measure it is the result of the exceedingly rapid change in the condition of American city life. The frontier spirit in our American towns, the greed for immediate ends, is passing away. Few towns of twenty thousand people but have their leisured class, or are without some well-shaped ambition for a good name among men of learning. Although the association was, in its earlier years, somewhat before its time, our life is fast growing up to be a support for such work as it seeks to do. Every friend of learning will welcome the assurance of strong life that these changes give to the association, and will look forward to its future with confidence in its work.

Experience that we may gain from the results of the association and of its kindred societies in the mother-country and on the continent shows us clearly what this work should be. First of all is the good-fellowship, the solidarity that is bred by bringing together in one assembly people who have no other chance to get the light from each others' eyes or the spirit from their fellow-workers' tongues. However we may value the material gain of fact, there can be no doubt that this is the precious thing which the association can give to American science. Our workers are necessarily scattered by the geographical immensities of their land; the teaching that the nature about their homes gives them is, from the conformity of conditions in almost all neighborhoods, limited and incomplete. More than any other men of science, they need a season of contact with those trained amidst other conditions. Some things grow well in a corner, but natural science is not of them. Whoever has brought to a meeting of the American association memories of similar gatherings in

Europe must have felt that this social element in our society left much to be desired. The writer recalls the time when he attended the Swiss association at Rheinfelden in one year, and the American the next, in a rather gloomy manufacturing town. At the Swiss meeting all the members dined together in a garden on the banks of the Rhine, after the morning session had been gone through with all due solemnity. There was, be it confessed, much wine, but so much wit and wisdom, withal, that the very prophets of teetotalism would have been moved to sympathy. In the social fire that only a table can provoke, in ordinary mortals at least, these diverse folk, separated by race and tongue, were fused into unity and brotherhood.

Making all due allowance for our inherited need of taking diversions a little sadly, it does seem that we might heighten the social element in our meetings. Even the most august British societies descend to tea after the meetings, and find their profit in it from the closer and more familiar life that it gives. Although we use it little, our American folk have an unequalled capacity for after-dinner talking; half our folk have the *toast-master* in them: so we need not fear that such gatherings would be dull.

Coming to the apparently more scientific aspects of its labors, maintaining the while that the science of good-fellowship is the prince of all learning, let us consider some other parts of the association's work. The experience of the British association seems to show that they succeed in avoiding the extreme haphazard nature of the discussions which mark our own association. This is in part due to the continuity of attendance of its leading members, but it seems as if a part of its gain in this direction had been due to the fashion of having special committees charged with the study of large questions of public interest. Coming to the association with their minds full of the results of especially designated inquiries, the committee-men have been able to give an element of direction to its discussions that have often made them admirably deliberative, and

exceedingly profitable to all who heard them. If our association would take care to provide committees with important inquiries, and could furnish them with the money necessary for the securing of information when such aid was required, we might have each year a solid body of matter which would insure a profit to all who might attend. Giving these reports and their discussion the precedence in the meetings, the vagarists, the lost tribes of circle-squarers, law-finders, and others who wander in the wilderness, would not be able to render the sessions unprofitable to students, as they not unfrequently do, even in these latter days of the association.

There is yet another chance of bettering the association-work. One of its highest aims is to foster the spirit of philosophical inquiry among the people with whom its lot is cast from year to year. Something, but not much, may be accomplished by the mere presence of notable men, and their wise words. Yet the odor of the sanctuary is but fleeting: it is not in the least a monumental thing. The ordinary citizens or the school-children mark the fact that for a week some hall puts on a beehive look; the papers have reports, mostly incomprehensible; and then the matter is forgotten. There seem to be several ways of increasing the local effects of these meetings. First, there should be a careful preliminary study of the scientific problems that the neighborhood affords, a sufficient presentation of those that are understood, and a suggestion of inquiries thereafter to be made. This should be printed, and would serve for a local guide for the use of the association, and as an incentive to local workers. Then, if it seems well, the association should offer some small prize to those students on the ground who would carry farther the inquiries that this report has shown to be desirable. If the conditions permit, the association would do well to see that some local society, such as the field-clubs that were recently advocated in these columns, should be created, to remain as a successor to its objects and a fosterer of its work. In the inspiration that these meetings generally

arouse, such a society might even secure a small fund for its maintenance.

Last, and if such a work be possible, best of all, the association might, through a proper committee, do much to promote science-teaching in the schools of the cities where it each year bides. Every meeting of the association has among its attendants those who have the much-needed skill in the matter of teaching science. There is hardly a public school in the land where there is not a crying need of such help as could best be given at such times. There should be a committee, or even perhaps a section of the association, devoted to the promotion of sound teaching in natural science; for the gravest danger before this branch of learning is to be found in the radical imperfection of the methods of science-teaching in use in our schools. These suggestions may seem to lay heavy burdens of advice on the association, but none of them seem beyond the promise of its strength.

RECENT EXPLORATIONS IN THE REGION OF THE GULF-STREAM OFF THE EASTERN COAST OF THE UNITED STATES BY THE U. S. FISH-COMMISSION.¹

4. Nature and origin of the deposits.

ALONG part of the Gulf-Stream slope examined by us, the bottom, in 65 to 150 fathoms, 80 to 110 miles from the shore, is composed mainly of very fine siliceous sand, mixed with a little clay, and containing always a considerable percentage of the shells of Foraminifera and other calcareous organisms, and frequently spherical, rod-like, and stellate sand-covered rhizopods, sometimes in large quantities. Among the Foraminifera, Globigerina is abundant; but many other forms occur, some of them of large size and elegant in form. Grains of green sand (glauconite) were frequently met with, but were not abundant. Large quantities of the tubes of annelids frequently occur. Some of these are made of cemented mud, fine sand, or of gravel; others, of parchment-like secretions. On the inshore plateau, and also in the deeper localities on the slope, there is usually more or less genuine mud or clay; but this is generally mixed with considerable fine sand, even in 300 to 600 fathoms. The sand, however, is often so fine

as to resemble mud, and is frequently so reported when the preliminary soundings are made. In several localities the bottom was so 'hard,' in 65 to 125 fathoms, that the bulk of the material brought up consisted of sponges, worm-tubes, shells, etc., with some gravel, but with neither mud nor fine sand. Such bottoms were very rich in animal life. In many instances, even in our deeper dredgings (about 700 fathoms), and throughout the belt examined, we have taken numerous pebbles, and small, rounded boulders of all sizes, up to several pounds in weight, consisting of granite, sienite, mica schist, etc. These are abundant in some localities, and covered with Actiniae, etc. Probably, while frozen into the shore-ice in winter and spring, they have been recently floated out from our shores and rivers, and dropped in this region, where the ice melts rapidly under the influence of the warmer Gulf-Stream water. Probably much of the sand, especially the coarser portions, may have been transported by the same agency.

Another way, generally overlooked, in which fine beach-sand can be carried long distances out to sea, is in consequence of its floating on the surface of the water after it has been exposed to the air, and dried on the beaches. The rising tide carries off a considerable amount of dry sand, floating in this way. In our fine towing-nets we often take more or less fine siliceous sand which is evidently floating on the surface, even at considerable distances from the shore. The vast sand-beaches, extending from Long Island to Florida, afford an inexhaustible supply of this fine sand.

The prevalence of fine sand along the Gulf-Stream slope in this region, and the remarkable scarcity of fine mud or clay deposits, indicate that there is here, at the bottom, a current usually sufficient to prevent, for the most part, the deposition of fine argillaceous sediments over the upper portion of the slope, in 65 to 150 fathoms. Such materials are probably carried along, for the greater part, till they eventually sink to greater depths, nearer the base of the slope, or beyond in the ocean-basin itself, where the currents are less active. Doubtless, there are also belts along which the northern current meets and opposes the Gulf Stream, causing less motion, and favoring the deposition of fine sediments. It is probable that motion of the water along the upper part of the slope may also be caused by tidal currents, which would modify the north-eastern flow of the Gulf Stream, both in direction and velocity. Currents produced by protracted storms might have the same effect. In depths

¹ Continued from No. 19.