# SCIENCE

FRIDAY, MARCH 9, 1888.

THE ADDRESS OF Maj. J. W. Powell on evolution in civilized man, delivered before the Anthropological Society of Washington on Tuesday evening, a full abstract of which is given in our Washington letter, will be found interesting and important. It will be seen that Major Powell rejects the doctrines of evolution as applied to the development of civilized man by the Spencerian school of philosophers. He presents his argument in his usual lucid and forcible manner, and illustrates each point copiously. This address is more popular in its character than either of Major Powell's previous papers on the same subject, but as a scientific discussion of an important scientific question, it is, in our estimation, the best of the series.

THE LATEST REPORTS received by the Hydrographic Office about the logs of the great raft abandoned south of Nantucket about two and one-half months ago, prove, that, though they are now widely separated, their general drift has been in an east-south-east direction, the logs being found a little to the southward of this line. That they were not carried more to the northward and eastward by the Gulf Stream, as would be expected, was probably due to the strong north-west winds which prevailed during the latter part of December and the first part of January. Fortunately, no vessel has been disabled by collision with them, although the German bark 'Bremen,' which was in company with the logs for five days, in latitude 39° north, longitude 62° west, had her sheathing torn and rudder injured.

THE NEW YORK ACADEMY OF SCIENCES was organized in 1817 as the Lyceum of Natural History. It is fourth in point of age among American scientific societies. The name and constitution were changed in 1876. 'The Annals,' begun in 1824, have been distributed in all lands, and have given world-wide reputation to the society. The Transactions, begun in 1881, give a record of the meetings, papers, and discussions, are published in monthly or bi-monthly numbers, and make an octavo volume each year. The library now numbers over eight thousand titles, and is especially rich in sets of the publications of foreign societies. It is now on deposit in the Library Building of Columbia College, and is accessible to the public from 8 A.M. to 10 P.M. every day of the year except Sundays. The cabinet was destroyed by fire in 1866. Previous to that date it was the principal collection in the city, and did a noble work. The academy has long looked forward to the time when it could secure a building of its own, such as the corresponding societies in Boston and Philadelphia have long enjoyed. It is not to the credit of New York that its oldest scientific organization, after nearly three-quarters of a century of steady and persevering activity, should be still unprovided with a building, while many other cities can show noble monuments of scientific interest and public spirit. Why should not the recent meeting of the American Association in this city be permanently commemorated by the erection of a fire-proof building for the accommodation of the academy, or perhaps of several other societies under the same roof, — a building which should be at once a benefit and an honor to the metropolis of America? The interest of the community has been aroused and quickened in the direction of science by the meeting of the association, and the Academy of Sciences would now invite the citizens of New York to take a greater interest in its work.

## THE NATIONAL ELECTRIC LIGHT CONVENTION.

THE National Electric Light Association met in Pittsburgh on Feb. 21, and continued in session for three days. The association is mainly made up of representatives of the various arc lighting companies and of the alternating system of incandescent lighting. As Pittsburgh is the headquarters of the Westinghouse Company, and as the Westinghouse Company practically represents just at present the alternating system of electrical distribution, the investigation and discussion of the system occupied a considerable part of the time of the convention, although a couple of papers were read on underground electrical conductors, and other subjects were discussed which will be mentioned below.

The most important paper was by Mr. T. C. Smith, the title being 'The Distribution of Electricity by Alternating Currents.' The alternating system, briefly, consists in distributing the alternating currents at high potential, reducing to the low potential necessary for safety and for the running of incandescent lamps, by means of 'transformers,' — that is, induction-coils working backward, — changing high-potential to low-potential currents. Mr. Smith's paper gave the practical experience he had gained in working with the system, and very frankly told some of the difficulties he had met. With regard to the best way of running the circuits, he says, "The general question as to whether it is better to use separate circuits for separate machines, or to couple them into a general set of 'bus' wires and distribute from them, is too large to be lightly decided; as also is the question as to whether it is best to run separate circuits for separate districts, or to run into a general system of high-pressure mains outside of the station, feeding into these mains at different points, and again distributing from them. . . . There seems to be no doubt that in underground systems the network of high-pressure mains would be best, but for over-head work we have adopted the system of separate circuits from separate dynamos. . . . I now come to the question of the placing of the converters; and for this I think that you may safely lay down the general rule, that, wherever you are simply carrying current, do it at a high potential, and keep your low pressure for purely local distribution. With proper precautions, I do not see that there is any real danger in carrying the high-pressure wires into and through the building. . . . We started in with the idea that it was better, in cases where we had from the number of lights in a building to use more than one converter, to bank them; that is to say, connect all the primaries and all the secondaries in parallel, . . . but two or three peculiar experiences have led us to change our plans, and never to do so if it can be easily avoided."

Following Mr. Smith's paper was one by Mr. Shallenberger, on 'The Energy of Alternating Currents.' The first part of this paper was a description of the ordinary and well-known phenomena of alternating currents: they have been sufficiently described in a former paper in this journal.[1] The following, however, is suggestive: "The question naturally arises, What effect does this new element of self-induction have on the possibilities of practical measurements of alternating currents for commercial work?" The two cases in which the effect is negligible are, 1st, the measurement of the current through an incandescent lamp; and, 2d, the current supplied to lamps through converters with cores far below saturation, and carrying a fair proportion of their full normal load. "There is a third case, however, which arises in practice, in which central station instruments give a somewhat false notion of the actual energy transformed to the circuits; and this is the one in which a large number of converters are connected to the primary circuit, but with the secondaries open." In this case we may have no energy transformed, "while at the same time a considerable reading might be shown on the current instruments."

Now, I have quoted from these papers principally because I wish

[1] Abstract of paper on alternating current motors, *Science*, Feb. 24, 1888.