

SCIENCE:

A WEEKLY NEWSPAPER OF ALL THE ARTS AND SCIENCES.

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Attention is called to the "Wants" column. All are invited to use it in soliciting information or seeking new positions. The name and address of applicants should be given in full, so that answers will go direct to them. The "Exchange" column is likewise open.

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IN THIS NUMBER we print the extracts from recent letters of Stanley that have reached this country. They show, that after getting back to the shores of the Victoria Nyanza, after his long journey back to the Kongo, after his first meeting with Emin Pacha in the early part of 1888, he found that the Pacha's authority had been considerably impaired; in fact, that at one time he had actually been a prisoner in the hands of his own troops. But, in spite of this, Emin showed some signs of hesitation about leaving the Sudan, which resulted in considerable of a strain on Stanley's patience. The rebellion was checked by a southern movement of the Mahdist forces, and Emin was once more free. The country, however, was in so disorganized a state, that Stanley finally set a date on which he must start for the coast, and is now on his way, with Emin as a doubting and reluctant companion. Whether Emin's vast stores of ivory and valuable collections are being brought out to civilization seems doubtful; but it seems likely that this long-lost army of southern Egypt will soon be a thing of the past, and that the region will be given over to barbarism till stronger forces are brought to bear.

THE OPINION EXPRESSED by the eminent engineer Mr. Towne, quoted in another column, as to our ability to properly prepare for an international exposition in 1892, because of the limited time at our disposal, will not be shared by many who have given attention to the subject. Ample time is, of course, necessary; but one or two years' time, in the present highly developed state of the architectural and engineering arts, and in what may be termed "the art of promoting expositions," is ample for doing what could not be done in double that time when the exposition of 1876 was planned. The opinion of Mr. Towne is worthy of consideration, but we think it is also worthy of reconsideration.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.

THE tenth annual meeting of the American Society of Mechanical Engineers was held in this city on Nov. 18, 19, 20, and 21. The meeting was opened by an enjoyable evening reception at the society's rooms, at 64 Madison Avenue, on Monday, the 18th; and the business sessions began on Tuesday at the rooms of the Academy of Medicine, 12 West 31st Street, about a hundred and thirty members being present. Mr. Henry R. Towne, the retiring president, delivered the opening address, which consisted mainly of an account of the recent engineers' excursion to Europe, with some remarks on the Paris Exposition and the projected world's fair in this city, followed by an account of the present condition of the society. He briefly compared the time which had been found necessary to prepare for the Paris Exposition with that now left in which to prepare for an exposition in this city in 1892, and expressed the opinion that at least a year's postponement would be found necessary, and perhaps two years, if the fair was to be at all adequate to the occasion. Four years and a half were given to preparations for the Paris Exposition, while we have but little more than half that time in which to get ready. He congratulated the society on its vigorous growth, from a membership of 189 at the end of the first year (1880), to 1,049 at present. Mr. Towne concluded his address by hoping that the many local societies of mechanical and civil engineers would in time be converted into chapters or sections of a national society, and that there would be some one organization soon formed to include the best portions of all the societies.

The address, which was well received and heartily applauded, was followed by the reading of reports of the various officers and committees, and the discussion and adoption of resolutions on securing legislation to provide a government bureau of record, "wherein may be entered respectably recognized and approved standards, for the promotion of uniformity in the products of the arts, in technical customs, and in nomenclature." Other resolutions concerning the management of the society were also adopted.

The reading and discussion of papers were then taken up. The first paper was on "Properties of the Vapor of Water," by V. Dwelshauvers-Dery, which was followed by a paper on the "Theory and Design of Chimneys," by Horace B. Gale; one on the "Philosophy of Multiple Cylinders or Compound Engines," by R. H. Thurston; "Flow of Steam through Orifices," and "Experimental Study of the Different Types of Calorimeter," by C. H. Peabody; "Cost of Lubricating Car Journals," by L. S. Randolph; "Steam-Pipes for Collieries," by E. F. C. Davis; "Rolling Steel Rails," by D. K. Nicholson; and "Methods of reducing the Fire Loss," by C. J. H. Woodbury. In the evening many of the members, accompanied by ladies, discussed a subscription dinner.

Wednesday was devoted by the members to their annual excursion, in the course of which they visited the government instruction and proving ground at Willet's Point, as well as other places of interest. At Willet's Point, sight-seeing commenced by a visit to the torpedo laboratory. Every thing was investigated, and obliging officers were found ready to explain the workings of the intricate apparatus used in the experiments.

The instruments attracting the most attention from the visitors were a Thomson galvanometer, a galvanometer with a reading telescope, a Thomson electric-current balance, a Thomson multicellular electrostatic voltmeter, a British post-office standard galvanometer, and an English "shutter" apparatus for operating and exploding torpedoes from shore. The general use of electricity in all these systems interested the observers at once. If our naval officers wish to fire a mine, they employ the electric spark. If they desire to drive a fish torpedo, they transmit to a motor within it a current of electricity. In steering it so as to strike the object to be destroyed, they employ the same means. If they wish to find a torpedo of their own which was lost, or to discover one concealed by an enemy, they make use of inductive effects as illustrated in the telephone, and actually use the telephone, which informs them of their approach to any metallic mass; also when they set torpedoes in channels to be defended, or have arranged submerged mines, electricity enables them to determine whether they are in order for use, or when they have been injured by accident or decay.

The museum and batteries at the Point were then visited in turn, and thoroughly examined and even criticised; but the general impression was that the apparatus and museum were a fair exposition of the progress of the art of modern warfare in this country, and well adapted to the teaching of practical work in torpedo defences. The station at Willet's Point is almost an advanced engineers' school, where young engineers graduating from West Point are sent for a course of engineering instruction, particularly in relation to torpedo-work.

Before leaving the Point, three torpedoes were exploded about three hundred feet distant from the shore for the benefit of the excursionists. The first one, containing about fifty pounds of mortar-powder, shot a column of water about one hundred feet into the air; but the second, containing fifty pounds of dynamite, not only doubled the distance, but seemed to reach bottom, judging from the discoloration of the surrounding water. The third and last, containing one hundred and fifty pounds of mortar-powder, caused a terrific report, and the flame which showed above the surface seemed to indicate that the torpedo had not been submerged deep enough.

In the evening, after the return of the excursionists, a reception and collation were tendered the visiting members by the Engineers' Club.

At the Thursday session the following papers were read and discussed: "Indicator Rigging for Compound Engines," by Fred. W. Parsons; "A New Recording Pressure-Gauge," by W. H. Bristol; "General Solution of the Transmission of Force in a Steam-Engine," by D. S. Jacobus; "Street-Railway Car Gear for Modern Speeds," by S. J. MacFarren; "The Comparison of Indicators," by J. Burkitt Webb; "The Cards from the Pawtucket Pumping-Engine with and without Jacket," by James E. Denton; "How to use Steam Expansively in Direct-Acting Pumps," by J. F. Holloway; "Cost of Steam and Water Power," by C. T. Main; and "Graphical Analysis of Reciprocating Motions," by Oberlin Smith. After the reading of these papers, the following resolution was unanimously adopted: "*Resolved*, That the American Society of Mechanical Engineers cordially indorses and heartily urges the holding of the proposed great international exhibition in this country in the near future to celebrate the four hundredth anniversary of the discovery of America."

In the evening the society's guests and members visited the American Institute Fair by invitation.

On Friday the engineers visited Elizabethport, N.J., where they examined the works of the Singer Manufacturing Company and the Babcock and Wilcox boiler-works.

President Towne, in closing the session, made a proposition concerning the world's fair; to the effect that the society had approved of his statement that additional time was needed to make the fair a success, and that his proposition was to have a grand celebration and the unveiling of a monument of Columbus on the date of the four hundredth anniversary of the discovery of America, and then open the world's fair in May, 1893.

The officers elected for the ensuing year are as follows: president, Oberlin Smith of Bridgeton (N.J.); vice-presidents, Joel Sharp of Salem (O.), George W. Weeks of Clinton (Mass.), De-Volson Wood of Hoboken (N.J.); treasurer, William H. Wiley of New York; managers, J. E. Denton of Hoboken (N.J.), C. W. Nason of New York, H. H. Westinghouse of Pittsburgh (Penn.).

STANLEY AND EMIN.

MR. MARSTON of Sampson Low & Co., London, has received a letter from Henry M. Stanley, dated South End Victoria Nyanza, Sept. 3, from which the following extracts are taken:—

"The rebels of the Emin government relied upon their craft and on the wiles of the 'heathen Chinese,' and it is amusing now to look back and note how punishment has fallen on them. Was it Providence, or was it luck? Let those who love to analyze such matters reflect on it. Traitors without camp, and traitors within, were watched, and the most active conspirator was discovered, tried, and hanged.

"The traitors without fell foul of one another and ruined themselves. If it is not luck, then it is surely Providence in answer to good men's prayers.

"Far away, our own people, tempted by their extreme wretchedness and misery, sold our rifles and ammunition to our natural enemies, the Manyema, the slave-traders' true friends, without the least grace either of bodies or souls. What happy influence was it that restrained me from destroying all concerned in it? Each time I read the story of Nelson's and Parkes's sufferings I feel vexed at my forbearance, and yet again I feel thankful for a higher power than man's which severely afflicted them with cold-blooded murders by causing them to fall upon one another a few weeks after the rescue and relief of Nelson and Parkes.

"The memory of those days alternately hardens and unmans me. With the rescue of Emin Pacha, poor old Casati, and those who preferred Egypt's flesh-pots to the coarse plenty of the province near Nyanza, we returned; and while we were patiently waiting, the doom of the rebels was consummated. Since that time of anxiety and unhappy outlook I have been at the point of death from a dreadful illness. The strain had been too much; and for twenty-eight days I lay helpless, tended by the kind and skilful hands of Surgeon Parkes. Then little by little I gathered strength, and finally gave orders for the march for home.

"Discovery after discovery in this wonderful region was made,—the snowy ranges of Ruevenzeni, the Cloud King or Rain Creator, the Semliki River, the Albert Edward Nyanza, the plains of Noovgora, the salt lakes of Kative, the new peoples of the Wakonju or Great Mountains, the dwellers of the rich forest region, the Awamba, the fine-featured Wasonyora, the Wanyoro bandits, and then Lake Albert Edward, the tribes and shepherd races of the eastern uplands, then Wanyakori, besides the Wanyaruwamba and Wazinja, until at last we came to a church whose cross dominated a Christian settlement, and we knew we had reached the outskirts of blessed civilization."

Mr. Mackinnon, the chairman of the Emin relief committee, has also received a letter from Stanley. It is dated Aug. 5, and was written at Kafurro, an Arab settlement on the Karagwe. It begins, "My last report was sent off by Salim Ben Mohammed in the early part of September, 1888. Over a year full of stirring events has passed since then. I will endeavor to inform you what has occurred." Stanley goes on to recount the arrangements made by him to meet Emin, and, after describing how he hunted up the missing rear column, continues,—

"I have already told you that the rear column was in a deplorable state; that out of the one hundred and two members remaining I doubted whether fifty would live to reach the lake; but, having collected a larger number of canoes, the goods and sick men were transported in these vessels in such a smooth and expeditious manner that there were remarkably few casualties in the remnant of the rear column. But wild natives, having repeatedly defeated the Ugarrowwas raiders, and by this means discovered the extent of their own strength, gave considerable trouble and inflicted considerable loss among our best men, who had always to bear the brunt of the fighting and the fatigue of paddling. However, we had no reason to be dissatisfied with the time we had made.

"When progress by river became too tedious and difficult, an order to cast off canoes was given. This was four days' journey above the Ugarrowwas station, or about three hundred miles above Banalaya. We decided, that, as the south bank of the Ituri River was pretty well known to us, it would be best to try the north bank, although we should have to traverse for some days the despoiled lands which had been a common centre for the Ugarrowwas and Kilongalangas bands of raiders. We were about one hundred miles from Grassland, which opened up a prospect of future feasts of beef, veal, and mutton, and a pleasing variety of vegetables, as well as oil and butter for cooking."

"On Oct. 30, having cast off the canoes, the land-march began in earnest, and we two days later discovered a large plantain plantation in charge of Dwaris. The people flung themselves on the plantains to make as large provision as possible for the dreaded wilderness ahead. The most enterprising always secured a fair share, and twelve hours later would be furnished with a week's provision of plantain flour. The feeble and indolent revelled for the time being on an abundance of roasted fruit, but always neglected providing for the future, and thus became victims to famine after moving from this place.