

Some manufacturers know quite well that their industries are dependent upon scientific knowledge; but they have got into the way of saying that they do not want people around them knowing too much, and that when they want a scientific man they can send for him. But a man of science called in on such occasions is not always able to prescribe the exact remedy for the particular disease concerning which he is consulted. This is not to be wondered at, considering that industry has done her best so long to keep science at a distance, that science has pursued her own path independently with small direct reference to the needs of industry.

Prof. Tilden seconded the resolution, and took the opportunity of pointing out that, though in the past there had been much prejudice in the minds of British manufacturers against a University training, because they had been disposed to regard it as all very well for clergymen and schoolmasters, but useless in practical affairs; nevertheless a University rightly organised and rightly conducted might be made a most practical kind of thing.

He urged upon the meeting the importance of noting what is being done in other countries, especially the United States of America and Germany, and pointed to the fact that in these countries not only are Universities numerous, but are influential and richly endowed; while the directors, managers, and even foremen in manufacturing concerns are almost entirely men who have received a complete scientific education, and have taken a degree in one of the Universities, or if not in the University in one of the polytechnics or technical schools. The polytechnics of London and the municipal technical schools in this country are institutions which have done, and are doing, good service; but there are indications that the public do not realise how different they are from their prototypes on the Continent, partly in consequence of the inferior quality of the teaching staff, and partly by reason of the fact that the instruction given in such institutions in this country is only partial, and does not demand the devotion of the whole time and energy of the student. As to the influence of the Universities in England, it was obvious that the ancient Universities, though perhaps partly alive to the question, are incapable of providing what is wanted by industry. A great opportunity is now at hand for creating a University of a new type, in which all that is best of the old and the new can be associated together; not merely a large public school, but a place for men and women, a place for study and also eminently a place for research, and a place where that predominance of examinations which unfortunately prevails so generally in most British universities would be got rid of. In constituting her University Birmingham would do well to emphasise the claims of science in its application to industry by establishing a faculty of "technics" in which "applied science" should be put on an equality, so far as honours and rewards are concerned, with the faculties of arts and of pure science. Mr. Chamberlain supported the motion in a speech which passed in review the course of events which had led up to the movement then inaugurated, and made a strong and effective appeal to local patriotism which had done so much in the past, which had made Birmingham what it was, and which he believed would now set the crown upon their educational work.

The Bishop of Hereford, in moving for the formation of a general committee, made an interesting speech which was listened to with all the more attention that the Bishop of the diocese had endeavoured to throw cold water on the scheme by pointing to the spiritual destitution of the district, and indicating his opinion that this ought to be remedied before other schemes were brought forward. The Bishop of Hereford, however, pointed out that not only was it impossible to put a stop to a great tidal movement which arose out of civic patriotism, but that the work in which they were engaged was actually

more likely than any other to help the growth of that spirit in every denomination in the city which would never rest till the spiritual needs of the community were adequately supplied. The Bishop in concluding referred to Bristol and its University College, of which he is President.

At one time it seemed probable that the Birmingham project would take the shape of a federation of colleges among which Bristol would be included. That idea seems now to be abandoned. But the success of movements of this kind seems to be dependent chiefly upon financial support; and if Birmingham brings her scheme to completion it may be hoped that this will serve as a stimulus to other cities to follow her example, so that at some future, not far distant, time, not only will London have a University worthy of her great position, but every large centre of population will be occupied by a seat of learning at once the guide and helper of local industry and a focus of the light and culture of the world.

THE NATIONAL MUSEUM OF NATURAL HISTORY.

THE imminent retirement of Sir William Flower after his long and extremely efficient service as Director of the Natural History Museum, is an event of very serious importance to the progress of natural science in England. At one time the national collection, like any little country museum, was a jumble of curiosities and antiquities, the stray result of capricious generosity. As knowledge grew, the various departments became specialised, and in the middle Victorian period, thanks to the prescience of Owen, and the active interest of the Prince Consort, a prodigious dichotomy was effected. The collections relating to what are called by a well-known if illogical term, the Natural Sciences, were separated from the sculptures of Assyria and Greece, from the papyri and coins, the remains of the arts and manufactures of earlier civilisations, and were lodged in the magnificent palace in South Kensington. They were placed under the care of a small army of specialists—zoological, botanical, geological and mineralogical—and these were directed by a single controlling general, directly responsible to the nation through the Trustees and the Treasury. The great abilities of Owen, and the coordinating genius of Sir William Flower, rapidly made the British Museum of Natural History an institution of world-wide importance. Scientific men from provincial England, from Scotland and Ireland, from the Colonies and from other nations, came to regard it more and more as the greatest of centres for the elaboration of all knowledge in natural science depending on the presence, classification, and display of material specimens. As the reputation of the Museum has grown, so also has grown the work done and to be done in it. Collectors from all parts of the world lavish on it or offer to it for sale the best of their specimens; naturalists bequeath to its care their treasured collections from a thousand sources, and so material for scientific work accumulates. The members of the staff become specialists of extraordinary knowledge; many of them, junior and senior, are experts of European reputation in their own departments. Among all the activities of our great nation, the scientific activity of the Natural History Museum takes a great and increasingly great place.

It is obvious that as this organism grows in activity and specialisation, the position of its Director becomes more arduous and important. The Director of the Natural History Museum should be the leader of the natural sciences in the Empire. He has the opportunity of influencing both society and the Legislature by personal contact and intercourse. He should be the channel through which the scientific workers of the nation make known their needs and aspirations. He should have

attainments of the widest possible description, and scientific sympathies that are wider than possible attainments. Not only is such a man advisable for the general advancement of science—he is necessary for the particular post. An almost inevitable association with specialisation is limitation of outlook, and as the various members of the staff of the museum become more efficient in their own departments, they require more and more the assistance of a controlling and coordinating chief. Precisely as they become more distinguished in their own branches of exact knowledge, it becomes more necessary that an officer in whose wide powers they have the fullest confidence, and for the dignity and responsibility of whose post they have the highest respect, should be at their head.

There is no possible mode by which the election of a person with these high qualifications may always be secured, but at least it is certain that he should be sought for in the widest field. Britain and the Colonies, the whole Empire should be passed in review before choice is made of one to hold this arduous, dignified and supreme post. We need not doubt that the Trustees will rise to the level of their responsibilities, and we are glad to know that the President of the Royal Society is numbered among them.

NOTES.

IN honour of the centenary of the establishment of the Physical and Agricultural Society at Königsberg, Dr. Walter Simon has given the Society the sum of four thousand marks to be offered as a prize for a work on the subject of plant or animal electricity, presenting either fundamentally new aspects, or dealing with the physical cause of organic electricity, or its importance upon life in general, or upon certain functions. The competition is open to every one. The works presented may be printed or written in German, French, English, or Italian, and must be sent in before December 31, 1900. Works which are published before the end of next September will not be admitted to the competition, as the intention is to give the prize for works which are comparatively recent at the time of the award. Should no work of sufficient merit be presented the prize may be withheld, or two prizes of five hundred marks each may be awarded. The Committee appointed to make the award consists of Profs. W. Pfeffer, B. Frank, W. Kühne, E. Hering, and L. Hermann, with power to add to their number. Further information concerning the prize may be obtained from the President, or the Secretary, of the *Physikalisch-ökonomischen Gesellschaft*, Königsberg.

THE fourteenth annual general meeting of the Marine Biological Association was held on June 28; Prof. E. Ray Lankester, F.R.S., President, being in the chair. The Report of the Council dealt largely with the work done at the Plymouth Laboratory during the year. Reference was made to Mr. Garstang's investigations of the habits and migrations of the mackerel, to Mr. Holt's researches on the reproduction and development of fishes living in the neighbourhood of Plymouth, and their distribution at different ages, as well as to the experiments with floating bottles for determining the surface drift in the English Channel, and to the systematic investigation of the dredging and trawling grounds between the Eddystone and Start Point. Twenty-two naturalists and eight students were reported as having worked at the Laboratory since the last annual meeting, in addition to the members of the regular staff. The following were elected members of Council for the year:—President, Prof. E. Ray Lankester; Hon. Treasurer, J. A. Travers; Secretary, E. J. Allen. Council: F. E. Beddard, Prof. Jeffrey Bell, G. C. Bourne, Sir John

Evans, G. H. Fowler, S. F. Harmer, Prof. Herdman, Prof. Hickson, J. J. Lister, Sir John Murray, P. L. Sclater, D. H. Scott, Prof. C. Stewart, Prof. W. F. R. Weldon.

ON June 30 the Senate of the Dublin University conferred the honorary degree of Sc.D. on Mr. R. H. Scott, Secretary to the Meteorological Council. In a humorous Latin speech the Public Orator referred to the fact that many people believed the recipient to be not only the interpreter, but also the author of the weather. Last year the French Government conferred on Mr. Scott the Order of Officer of the Legion of Honour, in recognition of valuable services rendered during many years to the French Marine, by the transmission of timely notices of impending bad weather.

MR. JOHN MILNE, writing from Shide, Isle of Wight, says:—At 6h. 48m. 37s. p.m. on June 29, preliminary tremors with a duration of nine minutes heralded the commencement of a large earthquake. The movements extended over three hours. The maximum change in inclination of the surface of the ground was between nine and ten seconds of arc. From an open diagram the period of the E.W. movements which were the most pronounced was thirteen seconds. Assuming a velocity of 2.5 km. per sec., then the length of the earth-waves would be about 32 km., and their height about 30 cm. Records were obtained at Kew, Laibach, and probably at all observing stations in the world.

THE annual general meeting of the Society of Chemical Industry will be held in Nottingham on July 13-15.

THE latest *Verhandlungen* of the Berlin Geographical Society (1898, Nos. 5 and 6) contain the addresses delivered at the special meeting held at the end of May to celebrate the seventieth anniversary of the foundation of the Society. The medals presented at the meeting were as follows:—The Humboldt medal to Dr. Nansen; the Karl Ritter medal to Dr. E. von Drygalski, for his work in Greenland and the monograph upon it; the gold *Nachtigal* medal to Dr. G. Schweinfurth, for his explorations in Africa; and the silver *Nachtigal* medal to Captain Ramsay, for his geodetic and cartographic work in German East Africa. Prof. W. M. Davis, Prof. G. K. Gilbert, M. A. de Lapparent, and Prof. Mohn were elected honorary members; and the following were elected corresponding members of the Society:—Dr. Sven Hedin, Lieut. Johansen, W. Obrutschew, Dr. Fritz Sarasin, Dr. Paul Sarasin, Captain Sverdrup, and Dr. Eduard Freiherr von Toll.

FOR several years the Royal Geographical Society, latterly in co-operation with the Royal Society, has been making strenuous efforts to influence the Government to equip an expedition for the exploration of the Antarctic, the greatest unknown area on the face of the earth. It will be within the recollection of our readers that at an enthusiastic meeting held at the Royal Society last February, at which Dr. Nansen and Prof. Neumayer, besides many distinguished British men of science, were present, the great value of the results to be derived from an Antarctic expedition was clearly explained. Previous to this, in October last, the President of the Royal Geographical Society wrote to the Prime Minister urging that an Antarctic expedition should be undertaken either by Her Majesty's Government or with the aid and sanction of the State. The President pointed out in strong terms that it was the duty of England to undertake the further exploration of the greatest unknown region of the globe, and so complete the work done by Ross fifty years ago. The reply received at the time was sympathetic and gave reason to hope that the final reply, which was to be sent at a later date, would be favourable. The final reply has just been received from Lord Salisbury, and in it