THE JAMES WATT CENTENARY COMMEMORATION AT BIRMINGHAM.

THE arrangements for the James Watt centenary commemoration are now practically complete, the general scheme being set forth in a pamphlet issued by the Centenary Committee. The form which the memorial is to take is threefold:—(1) To endow a professorship of engineering, to be known as the James Watt chair, at the University of Birmingham, for the promotion of research in the fundamental principles underlying the production of power, and the study of the conservation of the natural sources of energy; (2) to erect a James Watt memorial building to serve as a museum for collecting together examples of the work of James Watt and his contemporaries, Boulton and Murdock, as a meeting place and library for scientific and technical societies, and as a centre from which engineers could co-operate in spreading scientific knowledge; and (3) to publish a memorial volume.

The success of the memorial will depend upon the response to the appeal for funds, and we are glad to note that assurances of support have come not only from all parts of the British Isles, but also from France and America. As indicated in our issue of May 15, we attach special importance to the foundation of the James Watt chair of engineering, and we can imagine no better memorial to the great engineer than the creation of a school of research so endowed as to attract both a professor of exceptional ability and also the most brilliant students, of whatever class. Such a scheme would require an endowment on a scale altogether greater than that which is usually associated with chairs in universities, but it should be possible to raise the necessary money—especially with the sympathetic help of America, which of recent years has shown not only a ready appreciation of the value of scientific research, but also a generosity in its endowment which has been more admired than imitated in this country. It must always be remembered that the vital factor in research is the *man*, and every possible inducement should be offered to secure the best men, both as directors and students.

The commemoration ceremonies are to extend over the three days, September 16–18, and the official programme includes a garden-party at Watt's house (where his workshop can be seen in the state in which he left it in 1819), and visits to Soho Foundry and to two of his engines (one of which, the first pumping engine built for sale by Boulton and Watt in 1776, will be seen at work). A degree congregation is to be held by the University at which honorary degrees will be conferred on distinguished engineers and men of science.

The committee has issued a short pamphlet (by Prof. F. W. Burstall) in which an appreciation is given of the salient facts in the life of Watt, and of his epoch-making association with his colleagues Boulton and Murdock.

All who desire to attend the commemoration are asked to communicate not later than August 31 with the Hon. Sec., James Watt Centenary Committee, Chamber of Commerce, Birmingham.

ANDREW CARNEGIE.

MR. ANDREW CARNEGIE, the munificent benefactor of popular education in this country and in America, died on August 11, at Lenox, Massachusetts, in his eighty-fourth year. The son of a Chartist weaver in Dunfermline, Mr. Carnegie emigrated to the United States in 1848. From the humblest beginnings he rose during the Civil War to an important charge in the department of military transport and telegraphs. Then, by way of subserving his railroad and bridge-building plans, he created vast iron and steel works at Pittsburgh, carried on by means of a company the capital of which reached 25 millions, and which employed 40,000 men. He was bought out for some 50,000,000*l.* by the Steel Trust in the early 'nineties.

Mr. Carnegie thenceforward retired from business, and gave himself up to the wise disposal for public objects of his immense fortune. He was a convinced democrat; he proclaimed his conviction that "to die rich is to die disgraced"; and he consistently set himself to discover ways of applying his wealth for the uplifting of the people. In Pittsburgh he founded institutions for higher education, art and music, and popular culture, on a princely scale. To his native Dunfermline he gave libraries, parks, baths, and schools of hygiene and domestic science. For the Universities of Scotland he founded a Trust with a capital of two millions, the income, in equal shares, being assigned respectively to their better equipment in all modern subjects (he characteristically excluded classics, theology, and law), and to the payment of class-fees for all Scottish students of any faculty who asked for this help and were qualified to profit by it. The fund has provided not only for great extensions in the university staffs and buildings, but also for an endowment of advanced study and research in science, economics, modern languages, and history, which has largely transformed Scottish university activities. The well-meant fee-fund has doubtless been of great benefit to individual students, but as Scottish fees are not high, and never really deterrent, the direct effect in increasing the student population has not been striking. The indirect effect on the schools, due to the requirement that beneficiaries shall have completed a sound secondary education before entering the university, has been wholly advantageous.

Shortly before the war Mr. Carnegie established a United Kingdom Trust with an endowment of two millions, the income to be expended in providing public libraries, encouraging popular music, and generally in aiding or initiating schemes for the welfare of the "masses of the people." The Trustees took over the numerous promises pro-

visionally made by the founder as regards library buildings and church organs; but while they are fulfilling these they are starting on their own initiative inquiries and operations in other directions that are likely to bear good fruit. The elaborate investigations and reports they have subsidised and published on the library system, urban and rural, on plans for the physical well-being of mothers and children, on public play-centres and playgrounds, on municipal baths and wash-houses, etc., have been real contributions to knowledge. During this time of reconstruction a Trust that is thus accurately informed as to public needs, and able to aid in meeting them, is bound to render valuable service to the community. In this country already something like 700 Carnegie libraries, costing some 2½ millions, have been provided.

In the United States and Canada Mr. Carnegie's benefactions have been even more generous and more wide-reaching. Altogether they are more than 60,000,000*l*. One endowment provides pensions and retiring allowances for professors in approved American colleges and universities. Here again the indirect effect has been more important than the direct. To be "approved," an institution has to fulfil conditions as to government, efficiency, and standing laid down by the Trustees, with the result that many radical reforms in organisation have been induced, and a general raising of the educational standard has taken place. Another endowment—that of the Carnegie Institution of Washington—is professedly for the encouragement of scientific research in the widest sense of the term. Elaborate institutions in all parts of the United States, and for all branches of scientific inquiry, have grown up under its fosterage. Expeditions have been subsidised, equipment of a costly kind has been supplied for observatories, laboratories, and biological and other experimental stations, and also for individual workers everywhere who prove their competence to use it fruitfully. The Mount Wilson Observatory, of which Dr. G. E. Hale is director, is one of the most notable of these institutions. The grant to this observatory last year exceeded 30,000*l*., and the total amount expended upon the observatory since its foundation is more than 250,000*l*. There is also in New York a central Carnegie Trust, charged to assist the others as need arises, and generally to do for America what the United Kingdom Trust does for this country.

The difficulty of so applying his wealth as to avoid doing harm was always present to Mr. Carnegie's mind. Critics of his schemes did not let him forget it. In establishing here, and in other countries, Hero Funds for the recognition of individual deeds of self-sacrifice in the saving of life, and in founding a wealthy organisation for the express purpose of propagating peace and international goodwill, he thought that he had succeeded in safeguarding the principle of *nil nocere*. The war caused him to forgo some of his most cherished prepossessions, particularly as regards Germany and the ex-German Emperor, and the prospect of building up a world-wide peace based upon democratic solidarity. In spite of his hatred of warfare and the spirit associated with it, he came to see that only by the military victory of the Allies could the future of true civilisation be assured, and he willingly assented to a large grant from the Peace Fund for the relief of Belgian distress. In general, it may truly be said that Mr. Carnegie's ideas were based on sane visions of human progress, that he backed them lavishly, and that he enlisted the best men of his time in their working out. Their fruition, if it comes more tardily than in his eagerness he hoped, will come surely in some fashion, even if it be other than he pictured. He "builded better than he knew."

WALTER GOULD DAVIS.

MR. WALTER GOULD DAVIS, director of the Meteorological Bureau of Argentina for many years, died at his birthplace, Danville, Vermont, U.S.A., on April 30 in his sixty-eighth year. His early training was that of a civil engineer, especially in railroad surveying through the White Mountains. When in his early twenties, he went to Argentina as assistant to his uncle, Dr. B. A. Gould, founder of the Cordoba Astronomical Observatory. On the resignation of Dr. Gould in 1885, the National Meteorological Service, which was then a branch of the Cordoba Observatory, was reconstituted and Mr. Davis appointed director at the early age of thirty-four.

The organisation of such a service in a new country where voluntary observers are few was a matter calling for great energy, tact, and perseverance, but so successful was Mr. Davis in his efforts that by 1901 the seventeen meteorological stations to which he fell heir in 1885 had increased to eighty-eight, and 240 extra rainfall stations had been established. Thereafter the service developed with ever increasing rapidity, and on his retirement in 1915 there were forty-two stations of the first order, 152 of the second order, while rainfall was being observed at 1930 other places. The removal of the central office from Cordoba to Buenos Aires in 1901 enabled the long-cherished scheme of a daily weather map to be realised, and effective co-operation with other South American Republics resulted in the production of a daily weather map which covers 53° of latitude from Para, near the Equator, to Punta Arenas, in Magellan Strait. Mr. Davis established the hydrometric branch of his service in 1902 and was responsible for the dispatch of expeditions to investigate conditions in the Rio Parana, Paraguay and Pilcomayo, and other rivers in Matto Grosso and near the eastern Bolivian boundary. In 1904 he established a magnetic section with a central observatory at Pilar, near Cordoba, from which magnetic surveys of the whole country were organised in 1908 and 1912. In the latter year the systematic measurement of the level of the subterranean waters by means of gauges at twenty-three places was initiated. In February,