

the British Empire at his command as well as the general market of the less civilised nations of the earth. Where the United States has gone ahead has been in the special business of iron and steel, a development required by the more special conditions of industry in the United States, and not in every business requiring large markets. *Pace* Mr. Carnegie, also, it does not appear that the protectionist policy of the United States has favoured the development of great manufacturing. In iron and steel especially, the advance was favoured by naturally high prices attending the great demand for iron and steel, which was always producing a shortage in the old countries of Europe, especially Great Britain, such as we now witness in the United States itself. This recurring shortage, apart from the United States tariff, must infallibly have developed naturally the iron and steel industry of the United States, though Mr. Carnegie and others might have realised smaller fortunes than they have done in the process. As to Europe being over-weighted in any way by military armaments, there is an obvious want of connection between the effect and the alleged cause. Extravagant expenditure is, of course, one reason why one community or individual should accumulate wealth at a lower rate than another community or individual, but extravagant expenditure on military objects has precisely the same effect, and no other, as any other kind of extravagance. Overbuilding, excessive outlay on dress or carriages, outlay on churches or theatres, are, or may be, forms of expenditure in which nations or individuals may indulge to their hurt as well as in armies and navies. Nor can the American community throw stones at any other community in this matter, as extravagance is one of the American's special vices, and there is one conspicuous case of this extravagance in the remarkable pension list which has grown up since the Civil War, and affects them economically much as a great debt or great expenditure on army and navy would affect them. Besides, when analysed, however great the outlay may be, the maintenance of armies and navies does not add to the cost of production in other industries in any country. The expense of these "luxuries," let us call them, is a deduction from the earnings of the community, so that there is, *pro tanto*, less to spend on other things; but the cost of producing these other things is not concerned.

While making these observations on Mr. Carnegie's theories, we cannot but agree with his view that the primacy of Great Britain as an economic unit is passing to the United States. The economic force of the United States is obviously the greatest single force of that kind; and the preponderance of the United States is increasing. This is no new idea. Mr. Gladstone and many others long ago pointed out how modern industrial forces were tending. People should weigh well, however, what Mr. Carnegie has to say in his own department as to the approaching exhaustion of the iron ores of Great Britain, a matter of common knowledge to those interested. Great industrial changes must follow this impending change. More interesting and surprising even is Mr. Carnegie's anticipation as to the exhaustion of the United States supplies themselves. "Even the United States," he says, "has a proved supply of first class ore only for sixty to seventy years, and a reserve of inferior grades which may keep her supplied for thirty years longer, say for a century in all, unless the rate of consumption be greatly increased. The enormous extent of territory in the republic over which ore can hopefully be looked for encourages the belief that new deposits are sure to be found." Germany, it is added, has the most enduring supply, although its ore is not nearly so rich as the American. All this points to great economic changes even more far reaching than what is implied by the exhaustion of iron ore in Great Britain only.

With many other observations, there must also be

agreement, especially as to the importance of home markets, the diminishing importance of foreign trade and the like. There is, in truth, no distinction in essence between home and foreign markets. The proper distinction is between near, less near and distant markets which are all in their nature the same, the availability and accessibility in each case varying with every variety of goods and every variation in the conditions of transportation. Other things being equal, there is, of course, more exchange between near than between distant markets, and there are many goods and services where the exchanges are necessarily local.

The one weak point in the address is really what is said about the effect of European armaments, upon which comment has already been made. It may be admitted that, so far as there is insecurity and fear of invasion, Europe is politically less advantageously placed than the United States, and European business is, *pro tanto*, checked. But in itself, military expenditure is no worse than any other expenditure, and so far Europe is not handicapped in the race. We should like to throw out also for the consideration of Mr. Carnegie and other Americans whether they are not living in a fool's paradise so far as their supposed safety from invasion is concerned. If the United States fleet were to be defeated by a European Power, say by Germany, and circumstances were otherwise favourable, the territory of the States would not be safe from invasion. Descents upon the coast such as England was able to make in the War of Independence and in the war of 1812 might be repeated, and even a more serious invasion attempted. The American boast of their freedom from European militarism is one which it is not quite wise or safe to make.

R. G.

THE JUBILEE OF LORD LISTER.

ON December 9, 1852, just fifty years ago, Joseph, now Lord, Lister passed his examination and was admitted a Fellow of the Royal College of Surgeons, thereby becoming a member of the medical profession. The jubilee of such an event abroad would have been made the occasion of a congratulatory address and of the compilation of a notable "Festschrift" to the honour of the great master of antiseptic surgery. Here we do things differently, and it has been reserved for the *British Medical Journal* to issue a Lister Jubilee number, in which eminent men of various nationalities give their appreciation of Lister's life-work.

Von Bergmann, of Berlin, contributes some remarks upon the use of iodoform gauze in operations upon the cavities of the body; Lucas-Championnière, of Paris, writes on Listerian methods of the present and of the future; and Oscar Bloch, of Copenhagen, upon the antiseptic system in Denmark; while von Mikulicz-Radecki, of Breslau, gives a contribution upon the treatment of fractured patella. Among the British contributors, Ogston, of Aberdeen, and Hector Cameron, of Glasgow, discuss the influence of Listerism upon military surgery and upon the evolution of modern surgery respectively, Watson Cheyne, of London, discusses Listerism and the development of operative surgery, while Annandale, of Edinburgh, writes pleasantly of early days, and Chiene, also of the Scotch capital, gives an account of the Edinburgh Royal Infirmary from 1869 to 1877—that is to say, during the time Lister held the chair of clinical surgery there. It is a notable number devoted to a notable man.

Although it is as the founder of antiseptic surgery that Lister's name will descend to posterity, his other achievements must not be forgotten. Into surgery he introduced many valuable methods of operative procedure and also the use of the catgut ligature, and his contributions to the

pathology of inflammation, the nature and mechanism of blood coagulation and the bacteriology of fermentation would alone entitle him to a place among the "Scientific Worthies." A characteristic trait of a great personality must have struck all those who had the privilege of working under Lister; this was his intense regard for the welfare of his patients. The writer well remembers Lord Lister's distress at some mishap which befell a patient, unforeseen at the time, but which, in the light of after events, might have been preventable.

Lord Lister's great experience has been called into requisition at least twice in recent years to aid the deliberations of those in whose hands the health of His Majesty the King has been entrusted, once when he was Prince of Wales and secondly in his recent severe illness. Lastly, as chairman of the King's Hospital Fund, he still continues his benefits to humanity. His various contributions to science and the honours bestowed upon him have already been detailed in NATURE, but it may be mentioned that this year he has been the recipient of the Copley medal of the Royal Society and of the Order of Merit.

R. T. HEWLETT.

NOTES.

THE First Lord of the Treasury has appointed a committee to inquire and report as to the administration by the Meteorological Council of the existing Parliamentary grant, and as to whether any changes in its apportionment are desirable in the interests of meteorological science, and to make any further recommendations which may occur to them, with a view to increasing the utility of that grant. The committee will consist of:—the Right Hon. Sir Herbert E. Maxwell, Bart., M.P., (chairman), Mr. J. Dewar, M.P., Sir W. de W. Abney, K.C.B., F.R.S., Sir F. Hopwood, K.C.B., Board of Trade, Sir T. H. Elliott, K.C.B., Board of Agriculture, Dr. R. T. Glazebrook, F.R.S., Mr. T. L. Heath, Treasury, and Dr. J. Larmor, F.R.S. Mr. G. L. Barstow, of the Treasury, will act as secretary to the committee.

ANNOUNCEMENT has now been made of the Nobel prize awards this year. The awards include the following for science:—Medicine, Major Ronald Ross, School of Tropical Medicine, Liverpool; chemistry, Prof. Emil Fischer, Berlin; physics, divided between Prof. Lorenz, Leyden, and Prof. Zeeman, Amsterdam.

DR. BORDAS, assistant-director of the Paris Municipal Laboratory, has been awarded the Lacaze prize for his investigations in connection with typhoid fever. The prize is worth 400*l*.

DR. T. K. ROSE has been appointed chemist and assayer in the Royal Mint, in succession to the late Sir W. C. Roberts-Austen, K.C.B., F.R.S.

DR. SVEN HEDIN delivered an address before the Royal Scottish Geographical Society at Edinburgh on Tuesday. Sir John Murray, who presided, announced that the council had awarded Dr. Hedin the Livingstone memorial gold medal for the distinguished services which he had rendered to science by his explorations in Central Asia.

WE regret to see in the *Athenaeum* the announcement of the death of Prof. J. Wislicenus, professor of chemistry at Leipzig University.

COLONEL SIR T. H. HOLDICH has been appointed Knight Commander of the Order of St. Michael and St. George for services in connection with the Chile-Argentine Boundary Tribunal.

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ACCORDING to the Paris correspondent of the *Times*, Prof. Lacroix, the head of the French Scientific Mission at Martinique, has reported that owing to the undermining of the point of the cone formed in the crater of Mont Pelée, masses of material have rolled down in the direction of White River, completely choking it. The ashes which filled the lower valley at a distance of six kilometres from the crater had still a temperature of more than 100° C. a week after they had been projected from the volcano.

WE regret to have to announce the death of Dr. Antonio d'Achiardi, of Pisa, in his sixty-fourth year. Dr. d'Achiardi was born and educated at Pisa, and had occupied the chair of mineralogy and geology in the University there since the year 1876. He was the author of treatises on both mineralogy and petrology, and published numerous memoirs, many of them relative to the mineralogy of Tuscany. Prof. d'Achiardi was an honorary member of the Mineralogical Society of this country.

THE following announcements of deaths, from yesterday's *Times*, will be read with regret by many men of science:—Prof. Millardet, professor of botany, first at Nancy and afterwards at Bordeaux, where his researches checked the ravages of the phylloxera.—Privy Councillor von Kupffer, professor of anatomy at the University of Munich.—Major Walter Reed, one of the foremost bacteriologists and pathologists of the United States. During the Spanish war he was a member of the board to investigate typhoid fever in the army. Later, he made several trips to Cuba and was on duty in Havana studying the diseases of the island as a member of the board to investigate the causes of yellow fever. As the result of investigations, the conclusion was arrived at that yellow fever is conveyed by a certain variety of mosquito, which, by its bite, introduces the disease into the blood of non-immunes. Sanitary measures for the destruction of the insect and for the screening of infected persons were at once put into effect in Havana, with the result that for more than a year no case of yellow fever has been developed there.

THE thirtieth annual dinner of the old students of the Royal School of Mines will be held on Tuesday, February 3, 1903, at the Hotel Cecil. The chair will be taken by Mr. A. C. Claudet. Tickets can be obtained from Mr. D. A. Louis, 77 Shirland Gardens, London, W.

THE fifth International Congress of Applied Chemistry will be opened in Berlin on May 31, 1903. Prof. Clemens Winkler will be honorary president, and Prof. Otto N. Witt, the president of the German committee, will occupy the chair. Dr. H. T. Böttinger is now actively engaged in securing the cooperation of British men of science. There will be twelve sections in all, at which every branch of pure and applied chemistry will be discussed.

THE annual meeting of the Geographical Association will be held on Friday, January 9, 1903, at 3.30 p.m., in the College of Preceptors, Bloomsbury Square, London, W.C. The president, Mr. Douglas W. Freshfield, will be in the chair, and will give an address. There will also be an address on the Australasian Commonwealth, by Sir John A. Cockburn, K.C.M.G., and an exhibition of maps, views and diagrams by lantern projections, illustrative of the Ordnance Survey maps, by Mr. A. W. Andrews.

THE success of the general meeting of the American Philosophical Society, held last April, established most satisfactorily the claim that the interests of useful knowledge in the United States may be greatly promoted by holding an annual general meeting of the Society. It was therefore decided to hold a second meeting, and in accordance with this resolution the meeting will take place on April 2 and 3, 1903. A strong and