

A DOUBTFUL DEVELOPMENT OF LOCOMOTIVE ENGINEERING.

UNDER the heading of "A New Development of Economical Railway Haulage," the *Times* of February 13 tells us that "we are on the eve of a mechanical revolution such as has never been seen since the introduction of steam," and enters in a general way into a statement of results said to have been obtained from an old Great Northern locomotive fitted with a new type of valve-gear, the use of which is said to reduce the consumption of coal nearly 50 per cent. and increase the hauling capacity of the engine considerably, when compared with a sister engine fitted with the ordinary gear and doing similar work.

Locomotive engineers are becoming accustomed to the rapid advances of electrical science, and seldom doubt what the electrical engineer may claim to have achieved; but with the locomotive things are different; the machine is not new, neither is the valve-gear; the coal consumption has been thoroughly tested and the various gears examined from every point of view, there being no particular variation of opinion as to the most beneficial distribution of steam in the cylinders.

For this reason it is extremely startling to be told that a modified valve-gear will reduce the fuel bill nearly 50 per cent. with an increased load, the boiler pressure being only 140 lbs. per square inch, considerably below the average working pressure of to-day.

The locomotive experimented upon was built in 1882, and was, therefore, of the late Mr. P. Stirling's design, a type of locomotive famous for having a very small boiler in proportion to the cylinder dimensions, and, therefore, one requiring to be forced to keep up the steam, the forcing being done by a very keen draught induced by a small blast-pipe; such engines are famous for throwing fire from the chimney-tops. Yet, besides claiming this abnormal economy, we are told that the exhaust is so soft that the question of fire-throwing is entirely got over and that spark arrestors may be considered things of the past—surely a wonderful result.

The article referred to fills a whole column of the *Times*, but we may be allowed to doubt the results given, for although the name of Mr. H. A. Ivatt, the locomotive engineer of the Great Northern Railway, is quoted more than once, the statements do not appear over his name, and until they do, locomotive engineers may be excused if they continue to hold adverse opinions. The economical working of the locomotive is no new study; it is in the hands of able men who, no doubt, would be highly delighted if they could clearly demonstrate a saving of 5 per cent. even over previous practice.

N. J. L.

NOTES.

SIR WILLIAM ROBERTS-AUSTEN, K.C.B., F.R.S., will deliver the tenth "James Forrest" lecture, on "Metallurgy in Relation to Engineering," at the Institution of Civil Engineers on Wednesday, April 23, the date having been unavoidably altered from that originally proposed.

ARRANGEMENTS have now been made for Major Ronald Ross, Walter Myers lecturer in the Liverpool School of Tropical Medicine, to proceed for the third time to Freetown, Sierra Leone, on the work of the School. The expedition which he will rejoin is the fifth organised by the School, and went out early last year under Major Ross himself with Dr. Logan Taylor.

THE International Congress on the Methods of Testing Materials, held in 1900, decided to offer a prize of 3500 francs to the author who has made the most important contributions to the subjects for the advance of which the Congress was organised. The adjudication of the award of this prize has just

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been placed in the hands of the Comité des Arts mécaniques of the Paris Société d'Encouragement.

ARCHÆOLOGISTS and other students of antiquities will be glad to learn that it is proposed to obtain for Magdalene College, Cambridge, a copy of the head of Mr. F. C. Penrose, F.R.S., honorary fellow of the College, from the portrait painted by Mr. Sargent, R.A., for the Royal Institute of British Architects. The portrait will be presented to the College in recognition of Mr. Penrose's valuable services both to science and art. Among the supporters of the proposal are Dr. J. W. L. Glaisher, F.R.S., Sir R. C. Jebb, Prof. Liveing, F.R.S., Sir J. Norman Lockyer, K.C.B., F.R.S., Mr. A. G. Peskett and Lord Thring, K.C.B. Subscriptions are invited and should be sent (crossed Barclay and Co., Cambridge) to Prof. A. Newton, F.R.S., Magdalene College, Cambridge.

THE president of the Royal Geographical Society has made a special appeal to the fellows of the Society on behalf of the relief ship which must start not later than July next to obtain news of the *Discovery* and render assistance if necessary. It appears from the circular issued by the president that only 150 of the 4000 fellows of the Society have yet contributed to the funds for the relief ship. The council has, however, made itself responsible for the ship, which is now lying in the Thames and will shortly require to be furnished with stores and equipped with officers and crew. A spirit of loyalty should induce fellows of the Royal Geographical Society to provide the funds which will relieve the council of anxiety and ensure that essential precautions are taken for the safety of the members of the National Antarctic Expedition.

THE annual meeting of the Society for the Protection of Birds will be held on Wednesday, February 26, at the Westminster Palace Hotel, Victoria Street, London, S.W. The chair will be taken at 3 p.m. by Sir George W. Kekewich, K.C.B., secretary to the Board of Education. A proposal to establish a Bird and Arbor Day throughout the British Isles will be considered.

ON Tuesday next, February 25, Mr. W. N. Shaw, F.R.S., will begin a course of two lectures at the Royal Institution on "The Temperature of the Atmosphere, its Changes and their Causes." The Friday evening discourse on February 28 will be delivered by Prof. H. A. Miers, F.R.S., his subject being "Gold Mining in Klondyke," and on March 7 Prof. H. Becquerel, Membre de l'Institut, Paris, will deliver a discourse (in French) on "Radioactive Bodies."

A DISASTROUS earthquake occurred in Transcaucasia on February 13. Shemakha, the principal town in the area affected, has been completely laid in ruins, more than 20,000 people having been rendered homeless and 2000 lives lost. The first shock was felt about midday on February 13, and in a few seconds the Orthodox church, the mosques, the public buildings and hundreds of houses had fallen. The shocks were felt over a very wide area, and continued to recur during several days. A writer in the *Evening Standard* points out that in such a region as that affected the shocks may continue for a long time. To the north rises the great chain of the Caucasus, a region of crystalline and sedimentary rocks bent into great folds, not less remarkable than those in the Alps. In such a locality earthquakes are at any time possible. In the latter chain no trace can be found of an extinct volcano, but Elbruz, the highest summit in the Caucasus, and Kasbek, which easily overtops Mont Blanc, are both ruined volcanic cones. Many more, though on a much smaller scale, are scattered over the region south of the Caucasus. In fact, signs of volcanic action are abundant over a very large part of the great upland plateau south of the Caucasus—the region where Turkey, Russia and Persia meet.