

to priority were in the end completely established. The machine may be seen amongst the historical apparatus at the South Kensington Museum. His other inventions included a lightning protector for telegraph lines and cables, a polarised needle telegraph instrument, and the time-ball as now used at Greenwich Observatory and elsewhere.

Mr. Varley, following Lord Kelvin, contributed a highly useful paper, in 1858, to the Institution of Civil Engineers on the electrical qualifications requisite in long submarine telegraph cables, as well as another on the same subject to the Society of Arts. In setting forth here the true electrical qualifications for the working of a submarine cable, he showed in a very convincing way that conductor resistance was as much a factor in retardation as induction. He was the son of a famous artist, Cornelius Varley, and was one of a famous family of electricians. C. B.

It is with much regret that we have to record the death of M. JULES CARPENTIER on June 29. M. Carpentier was born in 1851, and received his education at the Ecole Polytechnique. In 1876 he entered the service of the Paris-Lyons-Marseilles railway as assistant constructional engineer, and would probably have developed his genius for machine construction in the service of the railway had not the death of Ruhmkorff directed his attention to the design of electrical apparatus. He took over Ruhmkorff's workshops, reorganised them, and commenced to manu-

facture standard electrical apparatus suitable for the measurement of the heavy currents necessary for the application of electricity to industry. Amperemeters, voltmeters, electro-dynamometers, and other apparatus associated with the names of d'Arsonval, Marcel Deprez, and Baudot were in a large measure developed and made practical instruments by the genius of Carpentier. His activities did not end with electrical instrument-making, for his name is also associated with three-colour photography, while during the war his workshops turned out a number of periscopes for use on submarines. M. Carpentier was elected a free member of the Paris Academy of Sciences in 1907, where he represented the mechanical arts and the manufacture of instruments of precision.

THE death occurred on August 13, at the age of sixty-five years, of SIR ALFRED W. W. DALE, late vice-chancellor of the University of Liverpool. Sir Alfred was educated at King Edward's School, Birmingham, and Trinity Hall, Cambridge. For twenty years he was lecturer, bursar, and tutor of his old college, during which time he established for himself a reputation as an able administrator of university affairs, as well as a classical scholar. In 1899 he was appointed principal of University College, Liverpool, and when Victoria University was dissolved in 1903, and its separate colleges assumed university rank, he became the first vice-chancellor of Liverpool University, retaining this post until 1919, when he was succeeded by Dr. J. G. Adami.

Notes.

THE local secretaries of the British Association for the Edinburgh meeting desire to contradict the statement which appears to be current in some quarters that the hotels and boarding-houses of Edinburgh are fully booked for the period of the meeting. There is plenty of accommodation vacant in certain hotels, in boarding-houses, and in apartments; and in one of the hostels—a modern hall of residence—fifty places are still available for the accommodation of members. The Secretary for Hotels and Lodgings, the University, Edinburgh, will be glad to answer inquiries. Members who write to hotels and boarding-houses direct should enclose a stamped addressed envelope for reply.

THE outbreak of smallpox in Nottingham is at present kept within bounds by the incessant work of the medical and civic authorities. The trouble is that Nottingham has been for some years a hunting-ground of "anti" people. Still, we may be fairly sure that Nottingham will not suffer the fate of Gloucester, where 279 unvaccinated children died of smallpox in 1895-96. But there is always this difficulty, that vaccination in early childhood, though it may fail to give complete protection against smallpox some years later, may so modify the attack that the case is mistaken for chicken-pox. This mistake must be reckoned as well-nigh inevitable, now that

smallpox is so rare that many doctors have never seen a case of it. The annual report (1920) of the Scottish Board of Health contains a good summary of the Glasgow epidemic last year. It is the old story: that the general neglect of vaccination in childhood is bringing about a reversion to the original habits of the disease. Smallpox naturally prefers children under ten years of age: and now it gets them. Of course we all know that vaccination is not a perfect method; we all hope for a perfect method; we all would like to get rid of the calf, to be able to use a non-living vaccine, exactly standardised; a hypodermic dose, and no scratching of the skin. Some day, surely, this perfect method will be worked out. Meanwhile we all know what would happen if it were possible to take a school of 200 small children, to vaccinate 100, to leave 100 unvaccinated, and then to expose the whole school to smallpox. Even the anti-vaccinationists know what would happen. The present writer put this view of the disease to one of them, and he answered that God would interfere in favour of the unvaccinated children: a fool's answer. Two cases of smallpox have just occurred in Huddersfield (*Times*, August 11). Let us hope that vaccination of contacts, quarantine, and other sanitary measures will prevent the spread of infection. Probably we shall