

pigeons in his laboratory. He suffered regrettable indignities at the hands of the military authorities and his wife was removed to Germany as a hostage. During this unhappy period, he occupied himself writing an interesting book on the pathology of tuberculosis, in which he presented his observations and developed his theory of the nature of acquired resistance to the disease.

On the death of Metchnikoff in 1917, Calmette was elected sub-director of the Pasteur Institute but did not undertake the duties of this office until after the War. At Paris he continued his researches on protection against infection by the tubercle bacillus with increased fervour and enlarged opportunities.

To understand the subsequent progress of these researches it is necessary to epitomise his conception of the means by which individuals acquire their resistance to the tubercle bacillus. Both evidence from post-mortems and the results of the skin reaction of von Pirquet to tuberculin indicate that the majority of individuals by fifty years of age have at some time in their life been infected, although they may not have shown symptoms of tuberculosis. Calmette believed, and had experimental evidence to support his belief, that a very small number of infecting bacilli is not, in most individuals, followed by manifest tuberculosis and is recovered from, leaving the body more capable of resisting a subsequent dose. In this manner by a succession of small infections an immunity is acquired.

Immunisation by chance is, however, a highly dangerous way of attaining resistance, for, at any time, the dose may be sufficiently large to break down the individual's resistance and tuberculosis ensue. Calmette therefore advocated that the wise procedure would be to accustom the body to resist invasion by the tubercle bacillus by giving its immunological mechanisms opportunities to obtain practice with an innocent tubercle bacillus before the nearly inevitable inroad of a virulent one took place, much as it is well to acquire expertness as a toreador with de-horned cattle. To do this he suggested that young babies should be given minute doses of his attenuated B. C. G. culture by mouth before they have had an opportunity to ingest virulent bacilli, a procedure he calls 'premunition'.

In 1922 Dr. Weill-Hallé treated 314 infants, the progeny of tuberculous mothers. The treatment was inoffensive and a comparison of the tuberculosis rate amongst treated and untreated infants from similar environment was deemed to be promising. The treatment was begun 3 days after birth to minimise the chances of the infants being infected by virulent bacilli from their mothers prior to receiving the strain B. C. G. Since then upwards of a million babies have been treated in France and elsewhere, and apart from the tragedy at Lubeck, where by carelessness at the hospital, some 250 infants were fed a dose of a culture of virulent human tubercle bacilli by mistake and 73 died, no untoward happening has

been recorded. At the present time some 150,000 infants are treated annually in France alone and the council of the Pasteur Institute has erected a vast building for the preparation and distribution of cultures of B. C. G. all over the world.

Unfortunately, the resistance obtained from one treatment is not permanent and has to be repeated after one or two years. This makes it more difficult accurately to assess the results of the treatment for some years to come. The figures recorded are susceptible of statistical criticism, but the numerous practitioners who have employed the treatment are very generally convinced that it is followed by a decline in the incidence of tuberculosis and also by a diminution of the general mortality during the early years of life. To what extent this promise is justified will emerge in a few years, when the after-history of the million infants already treated is known. Whatever this verdict is, Calmette's endeavours to mitigate the ravages of tuberculosis will remain the magnificent effort of a man who devoted his life to the pursuit of science for the service of mankind. C. J. M.

#### MR. J. B. HOBLYN

By the death on December 24 of John Bright Hoblyn, in his fifty-fourth year, the automobile engineering industry has lost one of its best known scientific personalities. During his eighteen years' association with Messrs. Vauxhall Motors Ltd., of Luton, he had become a prominent figure in the fields of metallurgy and petroleum technology, and his ready flow of witty and pungent speech—and, on occasion, of scathing criticism—made him an attractive lecturer and debater.

An old student of the Royal College of Science, Mr. Hoblyn was for eleven years science master at Luton Modern School. In 1915 he accepted an invitation to join Vauxhall Motors Ltd. as chief chemist and metallurgist, and he promptly applied himself to the chemical and metallurgical problems of automobile engineering. His publications included three papers of outstanding importance to the industry, dealing respectively with the heat treatment of steels, the oxidation of lubricating oils and the development of aluminium alloys for automobile construction. His work on lubricating oils opened up a new avenue in the testing technique of these products.

For several years past Mr. Hoblyn had been chairman of the committee set up by the Institution of Automobile Engineers for the rationalisation of automobile steel specifications, and at the time of his death he had almost seen the completion of his labours in this field. L. B. H.

WE regret to record the death of Prof. J. E. G. de Montmorency, Quain professor of comparative law in the University of London in 1920–32, whose studies of primitive law formed valuable contributions to anthropology, on March 9, aged sixty-seven years.