

on the continued vitality of research by industry in both pure and applied science.

"Our people can justly take pride in the record of the accomplishment by American industry contained in the report on 'Research—A National Resource, Part II, Industrial Research' which I am transmitting for the information of the Congress . . . .

"The report presents a clear record of how successfully we have translated our old time Yankee ingenuity for invention into American genius for research. Our scientists have uncovered and explained the secrets of nature, applied them to industry, and thus raised our standard of living, strengthened our defense and enriched our national life. . . . I commend a careful reading of this report to the members of the Congress.—Franklyn D. Roosevelt."

#### Development of the British Broadcasting Service

THE president of the Institution of Electrical Engineers for the current session is Sir Noel Ashbridge, engineering controller of the British Broadcasting Corporation. In his inaugural address to the Institution given on October 23, Sir Noel reviewed the growth of broadcasting in and from Great Britain from the beginning of the public service in November 1922 up to the present time. Prior to the War, the home broadcasting service utilized transmitting stations operating on wave-lengths in the long and medium wave-bands, agreed upon at various international conferences, for the use of all European broadcasting stations. As these wave-bands would accommodate only 126 transmissions in separate channels, whereas the actual number of stations provided for was 340, it is obvious that a considerable amount of sharing of wave-lengths between two or more stations was involved. As a result of the constant attention, research and development devoted to the subject by engineers and scientific workers, it is estimated that in 1939 the B.B.C. had achieved the position whereby nearly 90 per cent of the public could obtain good reception of two programmes, and something more than 98 per cent one programme. One of the graphs illustrating the address shows that the number of British wireless licences has increased at an almost uniform rate of half a million a year from 1922 until 1939, when some nine million listeners were licensed.

An experimental broadcasting service on short wave-lengths to countries overseas was started in 1927, and continuous development and extension has taken place since then, particularly in the period 1936–39. The value of short-wave broadcasting for the rapid distribution of news, information and propaganda has been rapidly appreciated by all the belligerent countries, and it is of interest to mention that, at the present time, broadcasts in some forty different languages are radiated from Great Britain. In the field of television, Sir Noel reminded his audience that Great Britain was the first to inaugurate a regular service for reception by the public in their own homes. After two or three years of regular working, television in Great Britain is in the almost unique and advantageous position of having to make a new beginning after the War, when the settlement of

some fundamental problems will affect the future of a new industry for many years to come. In the concluding section of his address, Sir Noel commented upon his experience in the recruitment of young engineers from the technical colleges and universities. He expressed the opinion that there is room for improvement in the amount of business and administrative instruction given to technical students, and also in the closeness of collaboration between teaching and industry. Several times during the address, reference was made to the difficulties which have arisen in the past concerning the international aspects of broadcasting. It is to be hoped that, after the War, a sound wave-length plan for Europe and possibly beyond, can be built up on rational principles with due regard for technical facts, and free from much of the politics which have coloured so many of the conferences in the past.

#### The Place of Paracelsus in Medicine

IN a paper on Paracelsus read before the Section of the History of Medicine of the Royal Society of Medicine on October 1, Dr. H. P. Bayon said that it had often been noted that Paracelsus expressed his intense scorn for all orthodox medical learning and tradition, but little had been said about his medical practice, which was that usual in his time (see also NATURE of September 20, p. 332). So far as medicine was concerned, Paracelsus was mainly a destructive fault-finder, not a constructive critic like William Harvey; moreover, much of what he propounded did not stand the test of time. Though he paid lip-service to experience rather than authority, he indulged in profuse theorizing without suitable clinical, anatomical or biological observation. His religious views helped to mould many of his doctrines, and his combination of Christian religious thought, neo-Platonic philosophy and alchemical medicine inspired the formulation of Rosicrucianism. This romantic system caused a great stir in intellectual circles in the seventeenth to the eighteenth centuries, so that the question whether Paracelsus reformed medicine is best answered by deciding whether Rosicrucianism had any part in the evolution of modern medicine, which can claim to have relieved pain, explained and conquered many infectious diseases and also to have prolonged life. Such achievements were the life-aim of Paracelsus, who had a high and noble conception of the possibilities of medicine, but failed in demonstrating how such progress could be obtained. A careful study of Hippocratic and Galenical writings would have taught him that clinical observation, prognosis and diagnosis, together with experimental therapy, would trace the path along which medicine and natural science could and did eventually advance.

#### The Bronze Age in Kent

AN interesting find of Bronze Age material near Canterbury has recently been announced. It appears that a mechanical excavator working at a brick-field brought to light three spearheads, several celts both socketed and winged, part of a knife and fragments of a shallow cauldron together with an ingot of