between India and the Pacific. In 1894 he visited the Ameer of Afghanistan—then an undertaking entailing some considerable risk—after tracing the Oxus to its source in the Pamirs. Behind his preoccupation with races and people as factors in international politics, Lord Curzon had a fund of sound geographical knowledge, and in fact, as was shown by essays in his often amusing "Stories of Travel," published in 1923, he was a scientific geographer of no small attainment. In geography and in the study of peoples, as in his work as an administrator, it was characteristic of him to pursue exhaustive inquiry and to master the available data relating to his subject before arriving at any conclusion on his own observations. The result would then be expressed with a lucidity which reflected his clarity of judgment. His contributions to geographical science were recognised in 1895 by the award of the Royal Geographical Society's gold medal, an honour which he prized highly.

As Viceroy of India Lord Curzon did much to promote science in that country. Apart from his lasting reforms in education and his efforts to improve the conditions of agriculture, both being placed under trained officers, he reorganised the archæological service, which had fallen into neglect, reviving the office of Director-General. In 1904 he passed a Monuments Act, and he saved from profanation and decay innumerable temples, tombs of kings, mosques, and other buildings throughout India, including the native states. Native arts and industries were fostered, and he created the Imperial Library in the Metcalfe Hall and was responsible for the Victoria Memorial on the Maidan, Calcutta, a gallery of Indian art and history. His own researches into the history of his predecessors in the Viceregal office were on the point of publication at the time of his death.

It may be recalled that Lord Curzon and Lord Kitchener were the principal guests of the Royal Society at its anniversary dinner in 1898. Within a few days both were due to leave England to take up their new Indian appointments. In a letter to Lord Lister, the president, a few days prior to the banquet, Lord Curzon wrote: "It is the instinct of the hunted animal to fly, but your invitation to me has been expressed so gracefully that I cannot but accept." Lord Curzon made an interesting speech at the dinner, referring, among other matters, to a Viceroy's horoscope. An outgoing Viceroy, he said, is fêted and dined and toasted before he has gone out to his work, and, indeed, before he has done anything at all. Five years later, upon his return, he slips back into Great Britain almost unperceived, and retires, very likely, into an obscurity which may or may not be merited, but is, at any rate, in striking contrast to the plaudits which attended his departure. Happily, in Lord Curzon's case, such prophecy was unfulfilled.

Lord Curzon's interest in the relics of antiquity were not confined to India. It was through his efforts that Tattershall Castle, Lincolnshire, was saved for the nation when about to be demolished, and through him the castles at Bodiam in Sussex, and Montacute in Somerset, were also preserved.

Lord Curzon was the recipient of many honours bestowed by the learned and scientific world. He was president of the Royal Geographical Society from 1911 until 1914. He was elected Chancellor of the University of Oxford in 1907, when he took a prominent part in the movement for "reform from within." He was Lord Rector of the University of Glasgow in 1908, Romanes Lecturer at Oxford in 1907, and Reed Lecturer at Cambridge in 1913. He was an honorary fellow of Balliol, and held honorary degrees from the Universities of Oxford, Cambridge, Glasgow, and Manchester. He was a fellow of the Royal Society and British Academy, and had accepted the presidency of the English Association not very long before his death.

LORD CURZON IN INDIA.

EXCEPT in so far as it had a direct influence on economic development or on humanitarian problems, Lord Curzon, during his Indian Viceroyalty, showed no marked interest in scientific research. Science did not appeal to him as a branch of culture comparable to history and literature. It is true that, four years before he was appointed Viceroy, he had made a distinct mark as an explorer in the Pamirs, when he solved the problem of the source of the Oxus; but this diversion to physical geography was rather an accidental by-product in a journey mainly devoted to the political aspects of geography and sport. Still, the recognition of this work by the Royal Geographical Society left him with the impression that geography at any rate was a science, and, so far as one could guess from his official and personal activities in India, it gave him the impression also that science was geography. Workers in other branches he seemed to regard as having a limited usefulness in solving political and economic problems, and sometimes in assisting his remarkable work in restoring respect for India's unappreciated relics of archæological and historical value. His action in dispersing the fine collection of fishes (which had been prepared by Col. Alcock in the Calcutta Museum), to provide an opportunity for a preliminary display of the historical collections designed for the Victoria Memorial, revealed his want of appreciation of the claims of those forms of culture that had had no part in his earlier education. Fortunately, no other science workers offered obstacles to his activities, and so they could not share to the full the resentment displayed by the zoologists.

Nevertheless, when Lord Curzon realised that science was necessary for economic progress, he recognised the value of laying sound foundations in research which could offer no prospect of definite results in his own time. In this matter he was fortunate in having as members of his Government two Ministers—Sir Denzil Ibbetson and Sir John Hewett—who realised that the development of pure science was essential to solid advancement in its application. Lord Curzon's institution of the Imperial Agricultural Department, by recruiting into one service a strong staff of chemists, botanists, plant pathologists, entomologists, and other specialists devoted to agricultural problems, has already brought to the Indian cultivator direct returns in increased output annually, many times more than the total cost of the new service from its start.

Although most science workers in India during the years 1898 to 1905 remained outside the Viceroy's wide range of active interests, the wiser among them realised that their position was not without some advantages; his zeal for reform was dominated always by a desire for centralised control and symmetry in system of administration—conditions which may have conduced

to increased efficiency, but were never accomplished without trespass on local sentiment or without interference with individual liberty in research work. Fortunately, he found urgent problems in other fields, even more than enough for his apparently unlimited energy and never-failing sense of duty.

In the *Sunday Times* of March 22, Mr. Newman Flower mentions the fact that the night before his operation, which he knew might be fatal, Lord Curzon wrote minute instructions about his forthcoming book on "British Government in India," and this incident reminded me of a somewhat similar illustration of his remarkable regard for small things in spite of greater distractions. In 1905, when the controversy with Lord Kitchener, which led to his resignation, was at its height, Lord Curzon sent me long notes from Simla about certain marble pedestals in Government House which he had asked me, during the previous Calcutta session, to take a personal interest in and to have erected before the arrival of the Prince of Wales.

It was not until after 1916, when war conditions forced upon one many duties of an unfamiliar nature, that one saw further direct evidence to show the great depth as well as width of Lord Curzon's marvellous activities in railway extension, in university education, in public health, in town-planning, in industrial developments, in army administration, and, most remarkable of all, in the complex problems of land revenue which not even an experienced member of the Civil Service professed to understand for any but his own province. His views were expressed in reasoned notes that left one with the impression that each file in turn covered the one subject in which he had specialised. Five years' experience with the Government of India, where the records of his previous work are filed, left me with two outstanding impressions—first, an inexpressible admiration for his energy, thoroughness, and conscientious devotion to India; and secondly, an equally strong feeling of thankfulness that geology was not one of the subjects in which he had occasion to specialise between 1898 and 1905. T. H. HOLLAND.

PROF. A. VON WASSERMANN.

WE regret to record the death on March 16, at sixty years of age, of August von Wassermann in Berlin. He was born in Bamberg, and having studied in Strasbourg, Vienna, and Berlin, early became associated with the Institute for Infectious Diseases under Koch, and it was here that most of his work was done. He ultimately became Director of the Serum department of Koch's Institute, and in 1913 Director of the large Institute of Experimental Therapy of the vast Kaiser-Wilhelm Gesellschaft zur Forderung der Wissenschaft in Dahlem, Berlin. He was also honorary professor in the University of Berlin and was ennobled in 1910.

Von Wassermann's scientific life-work was done in the domain of immunity; he saw its rise and zenith and contributed in no small degree to its development. He was an exceedingly clever man, untiring in his diligence, and in the highest degree efficient if lacking in imagination when compared with the greatest workers in his science. Throughout the development of immunity problems he was constantly on the alert, and felt almost every pulsation of advancement of knowledge with extraordinary acumen. Although rarely the first on the field, he was almost invariably among the first to take full advantage of anything new, and he always added something fresh and clever to work already done. He was a typical "Prussian," somewhat arrogant to his inferiors, but withal a man that was liked. He was a brilliant speaker, and a great star at medical gatherings and congresses, where he was always listened to with attention. As an example of his diligence we may cite the "Handbuch der pathogenen Mikroorganismen" which he edited with W. Kolle. This monumental if somewhat uncritical work appeared in two editions, the first in six volumes between 1903 and 1909, the second in eight volumes with nearly nine thousand pages, all of which was published within two years (1912–1913).

From 1906 Wassermann attained world-wide fame, and his name became almost a household word through his discovery of the so-called Wassermann reaction in the diagnosis of syphilis. In its altered form, this test is practised in every pathological laboratory the world over, and is perhaps the most accurate laboratory test applied to the clinical diagnosis of disease. Wassermann's test was the practical application of a fundamental principle discovered by Bordet and Gengou (1901) of Brussels, and it was characteristic of him that he saw almost immediately how Bordet's work could be utilised for human medicine. Wassermann's name will live long in the annals of bacteriology and immunology. W. B.

DR. WILLIAM F. HILLEBRAND, chief chemist of the United States Bureau of Standards, died on February 7 at the age of seventy-one years, and an appreciative account of his life and work by a colleague at the Bureau of Standards has been published in a recent issue of *Science*. William Francis Hillebrand spent two years at Cornell University before taking up chemistry, most of his training in which was received in Europe. In 1872 he went to Heidelberg to study under Bunsen and Kirchhoff, and from there, he and T. H. Norton published in 1875 their paper on the preparation of metallic cerium, lanthanum, and the mixture then called didymium. Hillebrand's later work showed these metals were trivalent and belonged to the rare earth group. He also discovered the pyrophoric properties of cerium filings. From Heidelberg Dr. Hillebrand went to Strassburg under Fittig, and from there to the Mining Academy at Freiburg. Returning to the United States, he was appointed to the staff of the Geological Survey in 1880, and until 1885 was stationed at Denver. Here was plenty of mineral material to exercise his growing skill as an analyst, and the work was continued after his transfer to Washington. In 1908 he became second chief of the Bureau of Standards. Dr. Hillebrand devised general analytical procedures suitable for different types of mineral and rock, and also special methods for the determination of individual elements, which were placed on record in various issues of the Bulletin of the Geological Survey; silicate rocks were dealt with in 1897, carbonate rocks in 1907, both of which were quickly translated into German. Dr. Hillebrand was a member of the National Academy of Sciences, and in 1906 was president of the American Chemical Society; for many years he served as an associate-editor of this Society's Journal and also of the *Journal of Industrial and Engineering Chemistry*.