The distribution of the two forms of ergotism has long been a mystery, which Prof. Barger has now solved by the light of the recent work of E. Mellanby in Sheffield. For example, about 1770 there was an epidemic of gangrenous ergotism in Sologne on the left bank of the Rhine, while in Hanover on the right bank there was an epidemic of convulsive ergotism. Why should there have been so sharp a difference in the symptoms in the two localities? Now Mellanby has shown that convulsive ergotism is readily produced in dogs which are given one or two grams of ergot daily, provided that the diet is free from vitamin A; but the same amount of ergot produces no harmful effect if vitamin A is added to the diet. Prof. Barger points out that the difference in the 1770 epidemics in Sologne and Hanover fits in admirably with this work; Sologne was a dairy-farming district where the inhabitants had milk and butter; the vitamin A present in the diet prevented the appearance of nervous symptoms. In Hanover, on the other hand, the soil was very poor and unable to support cattle, so that the peasants had little save rye to eat; in consequence the nervous type of ergotism appeared.

Records of gangrenous ergotism go back to A.D. 857, when the "Annales Xantenses" state that a great plague of swollen blisters consumed the people by a loathsome rot, *so that their limbs were loosened and fell off before death*. The early approach of the disease is marked by a feeling of intense heat in the part affected, and this was responsible for the name 'holy fire', which during the twelfth century became associated with St. Anthony, when many sufferers began to visit the saint's relics preserved in an abbey near Vienne in Dauphiné. There was a hospital attached to the abbey, and the sick either died within seven days of their arrival or were 'miraculously' restored to health by the wholesome food they received there. The historical details which Prof. Barger has collected make fascinating reading of a kind which is only too rare in modern scientific monographs; we learn how ergotism even prevented a military campaign in Russia in 1723.

The history of the introduction of ergot into medicine is also surprising; the earliest mention of its use as a drug is in the 1582 edition of Adam Lonicer's "Kreuterbuch", but its real entry into official medicine took place in the United States! "In the Medical Repository of New York there appeared in 1808 an 'Account of the Pulvis parturiens, a Remedy for quickening Child birth', in the form of a letter from Dr. John Stearns of Saratoga county to Mr. S. Akerly." The method of administration was either in decoction or in powder. "It expedites lingering parturition and saves to the accoucheur a considerable portion of time."

Prof. Barger's monograph includes also botanical, chemical, pharmacological and clinical, pharmaceutical, and forensic sections. While Tanret in 1875 was the first to isolate one of the ergot alkaloids in crystalline form, this substance, ergotinine, is inactive, and Prof. Barger himself, together with Dr. F. H. Carr, was responsible in 1906 for the isolation of ergotoxine, which is almost certainly the more important of the two active alkaloids. All four alkaloids, ergotinine, ergotoxine, ergotamine, and ergotaminine, have recently been obtained in crystalline form by S. Smith and G. M. Timmis, and are known to be separate chemical individuals. Ergotinine has the formula $C_{35}H_{39}O_5H_5$, while ergotamine and ergotaminine are isomers having the formula $C_{33}H_{35}O_5N_5$. Only the formula of ergotoxine remains in doubt, the probability being that it is also isomeric with ergotamine. There remains the puzzle of the occurrence of ergotamine, the active alkaloid isolated by Stoll; for no other worker has obtained ergotamine from ergot *of rye*, the claims of Forst to have done so being open to doubt. Smith and Timmis readily obtained ergotamine from the ergot of *Festuca elatior*, but failed to do so from any of the many samples of ergot of rye which they examined. Stoll's statement that ergotamine is present in ergot of rye is, therefore, lacking in confirmation.

Prof. Barger's book, in its completeness and in the care taken in its presentation, is a work of art; it is a model which should inspire others, particularly those interested in pharmaceutical science, to attempt to do the same for other drugs. One imagines that among the pharmacists the book has created a sensation, which will provide them with eager discussion for some months to come.

Obituary

PROF. E. WILSON

THE sudden death on Feb. 17 of Prof. Ernest Wilson, emeritus professor of electrical engineering and fellow of King's College, London, came as a shock to his many friends and caused a widespread feeling of loss in scientific and engineering circles. Though frail in appearance, he possessed a vitality which was the envy of his numerous friends, together with an engaging personality and a devotion to duty exhibiting the utmost selflessness, which endeared him to students and all with whom he came in contact.

Born in Lincolnshire, on Nov. 25, 1863, he joined the works of Messrs. Greenwood and Batley, Leeds, where he served his time as a six-o'clock lad, learning some of life's lessons, as well as laying a solid foundation for his life's work. It is interesting to note that while at this works he was engaged on the construction of the first Brush machine and the first Ferranti alternator made in England.

Making the most of his opportunities and attending technical classes at the Yorkshire College, Wilson secured a Whitworth scholarship, which enabled him to proceed to Germany, 1886–87, and take up further studies and gain engineering experience. During his study of electro-technology in Germany, he assisted Prof. Kohlrausch

in making elaborate tests on an early Lahmeyer dynamo with the object of verifying Dr. Frölich's theory of the dynamo.

Afterwards, Wilson became a draughtsman in the Woolwich works of Messrs. Siemens Brothers, where he was largely responsible for much of the pioneer electrical work and progress of that firm. While at Woolwich, he attended evening classes at Finsbury Technical College, where he came under the influence of John Perry and Silvanus Thompson. He was appointed assistant to Dr. John Hopkinson at King's College in 1890, and, following the tragic death of Hopkinson, in 1898 he was appointed to the chair of electrical engineering, from which he retired in 1930, after forty years of devoted service as a teacher and friend of hundreds of students.

Early in his career Wilson encountered a multitude of problems which then confronted electrical engineers, such as the design of the electric motors to be used on the three-wire system for the first locomotives for the City and South London Tube Railway. This experience led him to write "Electrical Traction", published by Edward Arnold in 1897. The second edition of this book, long recognised as a standard work on the subject, was written in collaboration with Mr. F. Lydall and appeared as two volumes in 1907.

Although engineers are slow, as a rule, to take up the pen, Wilson proved to be an exception, for he was a prolific writer. From 1892 on, he contributed no less than eighty papers of his own, and about thirty of joint authorship, to the *Philosophical Transactions* and *Proceedings of the Royal Society*, *Proceedings of the Physical Society*, numerous technical journals, and to the British Association. His first paper to appear in the *Journal of the Institution of Electrical Engineers*, vol. 26, 1897, dealt with the "Relative Size, Weight, and Price of Dynamo Electric Machines", and his first contribution to *Engineering*, in 1891, dealt with the electric lighting of the Royal Naval Exhibition (1891), where his control switch for the manipulation of searchlights was shown in use.

Besides assisting in joint experimental work with Hopkinson, Wilson engaged in many researches; he worked in the fields of alternating current instruments, radio telegraphy in its early phases, the magnetic properties of iron and various alloys, and especially studied the properties of aluminium and its alloys with reference to conductivity and deterioration. He published a number of papers on magnetic shielding and the susceptibility of feebly magnetic materials. One of his earliest inventions was that of the laminated-field single and polyphase alternating-current commutator motor in 1888 (British Patent 18,525), and his original machine is to be seen at the Science Museum, South Kensington. On being requested to do so by Sir William Preece, he carried out the first tests of Marconi's wireless apparatus on the terrace at King's College, and, so far as the writer is aware, gave a favourable report on the possibilities of the new device.

The Institution of Electrical Engineers awarded Wilson the Kelvin Premium in 1921, and, so recently as last year, a premium for his paper, "The Electrical Conductivity and Tensile Properties of Light Magnesium-Aluminium Alloys as affected by Atmospheric Exposure". He was elected a member of the Council of the Institution in 1929, thereafter taking an active part in the proceedings of its committees.

Wilson took a leading part in the development of the faculty of engineering of the University of London, and was a member of the various boards of the University until his retirement.

Possessing a retiring and modest nature, Wilson made little effort to bring himself or his work before the notice of the public or even of the engineering profession, but, on the other hand, few teachers could claim so large a circle of friends or so sincere a regard as that in which he was held. He had known many of the pioneers of electrical engineering and he had an almost unrivalled store of information about early experiments and the whereabouts of original pieces of apparatus, and his advice was always sought whenever such information was wanted.

Since his retirement from the William Siemens University chair of electrical engineering at King's College, London, in 1930, Wilson devoted himself whole-heartedly to the arduous task of advising engineer students, both past and present, as to their best way of securing employment. In this he was highly successful, and last year he assisted so many as one hundred young men to obtain posts in engineering work. Wilson leaves a widow, a son, and a daughter. J. K. C.-S.

DR. W. D. DYE, F.R.S.

AFTER a very short attack of pneumonia following influenza, there passed away on Feb. 18, at the early age of forty-four years, an unusually brilliant experimenter in the person of Dr. W. D. Dye. After being educated at Portsmouth and the City and Guilds Technical College, Dye was appointed a student assistant at the National Physical Laboratory. At that time, Mr. Albert Campbell had completed his well-known standard of mutual inductance and was engaged on very precise comparisons of resistance with mutual inductance. Other work engaging Campbell's attention was an evaluation of the ohm by an alternating current method, and a study of experimental methods for the measurement of the length of wireless waves.

In this atmosphere of high precision alternating current measurement, Dr. Dye soon became at home. He noted, with some surprise, Mr. Albert Campbell's love of making, with his own hands, small and delicate instruments like thermocouples and galvanometer suspensions, and quickly acquired similar skill. Indeed, in this direction, he delighted to do what many others thought to be impossible. He made up his mind very quickly, and when an experiment failed to give results of immediate service, he abandoned it rather than modify small details. Alternative methods for achieving results came to his mind very quickly, and not infrequently he would scrap one method