

the Science Library in London, where they can be consulted. If at a later stage it should be found possible to compile a new Russian-English technical dictionary, these glossaries will form a valuable basis to work on. A location list of Russian technical dictionaries is also being compiled, and scientific workers are asked to assist in this by sending to the Secretary of the Committee a list of dictionaries in their possession. Several scientific societies and individual men of science have approached the Committee concerning the provision of a panel of Russian scientific translators. The Committee has already collected together the names of several qualified Russian translators, and is prepared to receive names of reliable translators for inclusion in the list.

### What Constitutes a Nation ?

WHAT constitutes a nationality is as hard a question to answer as the allied one of what is denoted by the word race. J. R. Swanton, in *Smithsonian Institution War Background Studies*, No. 2, has presented the problem clearly in a manner the non-expert can readily grasp. Obviously many factors go to the formation of a nation: common physical type, geographical background, governmental unity, language, religion, economics, etc. But when the major cultures of the world, both past and present, are considered it will be found that no one of these is a dominant factor. There are true nations where the physical types are hopelessly mixed, as well as other factors which one would have thought vital to unity. On the other hand, even one of the more important criteria, namely, language, can fail to be a binding element—as witness England and the United States. Here, though the language is the same, no one can deny that there are two distinct nations. On the whole, the author seems to be driven back to the idea of the importance of voluntary associations of folk living under a government desired by the majority. This is, of course, difficult to test in the case of past civilizations, but seems to be applicable to modern nations. But if so it cannot be too much stressed, indeed it is the keystone of the theory, that what one nation may desire, in fact what may be the cement that makes it a nation, may not be at all what appeals to other agglomerations of men and women whose nationality will be determined by a totally different outlook on life.

### Industrial Health Research Board

THE Medical Research Council has appointed the following to be the members of its Industrial Health Research Board during the period 1942-45: The Rt. Hon. the Earl De La Warr (*chairman*), Prof. F. C. Bartlett, Brig.-Gen. A. C. Baylay, Dr. J. C. Bridge, Dr. A. N. Drury, Dr. T. Ferguson, Dr. M. W. Goldblatt, Dr. A. Bradford Hill, Dr. Donald Hunter, Prof. Esther Killick, Air Vice-Marshal Sir David Munro and Mr. J. L. Smyth. Prof. A. W. M. Ellis, director of research in industrial medicine under the Council, will also attend all meetings. Dr. R. S. F. Schilling, one of H.M. medical inspectors of factories, has been seconded to the service of the Council by the Ministry of Labour to act as Secretary of the Board. The terms of reference of the Board have recently been revised and are now as follows: "To advise and assist the Medical Research Council in promoting scientific investigations into problems of health among workers, including occupational and environmental factors in the causation of

ill-health and disease, and the relation of methods and conditions of work to the functions and efficiency of body and mind; and in making known such results of these researches as are capable of useful application to practical needs."

### Jean-Baptiste Van Mons (1765—1842)

ON September 6 occurs the centenary of the death of the once famous Belgian chemist and horticulturist Jean-Baptiste Van Mons who died at Louvain in 1842 at the age of seventy-six after a life entirely devoted to science. Born in Brussels on November 11, 1765, when Belgium was under foreign domination, he lived to see Austrian rule give way to French and French to Dutch, and then in 1830 to see his country gain her independence. But under every regime Van Mons steadily continued his work and it was largely through his labours that discoveries made in France became known in the countries with which she was so frequently at war. By profession Van Mons was a pharmacist, but when twenty years of age he wrote an essay on the new principles of chemistry and he subsequently corresponded with Lavoisier, Fourcroy, Monge Hachette and others. By the French authorities he was entrusted with a survey of the Belgian mines and in 1797 was made a professor at the central school of the department of Dyle. On the invitation of the French chemists he assisted in editing the *Annales de chimie* and in 1801 founded the *Journal de chimie et de physique*. By his own contributions to these and to the periodicals of Gren, Crelle, Brugnatelli, Nicholson and others he spread abroad a knowledge of the work of such as Volta, Vauquelin, Fourcroy and Chenevix. He was the first to introduce vaccination into Belgium, and all his life he experimented on the improvement of fruit trees. When the Belgian Academy was revived in 1816 Van Mons was nominated to a seat and the following year he was made professor of chemistry and agriculture in the restored University of Louvain. This post he held until 1836. Of his sons, Louis-Ferdinand Van Mons (1796-1847) was one of the chief artillery officers of Belgium and Charles-Jacques Van Mons (1798-1837) was professor of pathology in the University of Brussels.

### Francis Adams (1796-1861)

UNDER the title of "A Great Country Doctor", the June issue of the *Bulletin of the History of Medicine* contains a lively article by Prof. Charles Singer on Francis Adams of Banchoory, the son of a village labourer who rose to be one of the greatest medical scholars of his age. His principal achievements were a translation of "The Genuine Works of Hippocrates" (1849), which Prof. Singer describes as "probably the most widely read of any work on medical history in the language"; "The Seven Books of Paulus Aegineta" (1844-47), which "retains to this day its position as far and away the finest venture in pure historical medical research in the English language"; and "The Extant Works of Aretæus the Cappadocian" (1853), which unlike the other two works contains the Greek text as well as the translation. His minor publications include articles to medical journals, translations of Horace and Musæus into English verse, of Gray's "Elegy" into Latin, and of Wolfe's poem on Sir John Moore into Greek. He also collaborated with his son, Dr. Leith Adams, F.R.S., in a paper read before the British Association at Aberdeen in 1859 entitled "On Ornithology as a Branch of a

Liberal Education", and contributed to Dunbar and Barker's "Greek and English Lexicon" (1831), Lemprière's "Classical Dictionary" (1838), and Greenhill's "Theophilus" (1842). Adams was not only a great scholar but was also an excellent doctor. "His first love and his last", says Prof. Singer, was his practice, his patients and the poor." His devotion to his profession was best shown by his declining the chair of Greek at the University of Aberdeen, which afterwards gave him an honorary doctorate. He paid several visits to Oxford and London, where he made friends with many learned men, particularly James Quain and William Sharpey, the founders of the modern academic teaching of anatomy and physiology in England. Dr. Singer ends his fine essay by saying that though the ranks of general practitioners in Britain have produced many eminent men of science, such as J. A. Lockhart, Sir James Mackenzie and J. A. MacMunn, none of equal distinction as a scholar practised in so isolated a locality as Adams.

### A Pilot-Channel Regulator for the K-1 Carrier System

VARIATIONS in attenuation of the cable conductors used for the K-1 carrier system are compensated by corresponding changes of gain under control of a pilot-wire regulating system. Since these changes in attenuation are due primarily to temperature changes, and since all pairs in the same cable are approximately at the same temperature, a pilot regulation system—in which the gain over the various pairs is adjusted to conform to the temperature of one pair of wires in the cable—is a simple and satisfactory way of handling the regulation. There are, however, certain minor deviations from pair to pair for which such a system will not provide, and with long circuits over, say, some five hundred miles, some additional regulation will be needed to take care of these residual deviations.

An article by J. H. Bollman (*Bell Lab. Rec.*, 20, No. 10; June, 1942) describes a regulator using thermistors as controlling elements, supplementing the normal regulating system. The new regulator operates on pilot channels rather than on a pilot-wire. Currents of single-frequency are transmitted over a pair of conductors, the gain being regulated in accordance with the attenuation changes of these pilot channels. Regulation is thus directly associated with the carrier system operating on that pair. The change in gain is the same at all frequencies. Regulation as designed is used not only to compensate for the residual regulation errors of a 300-500 mile circuit, but also to take care of the flat regulation of the previous repeater section (12-20 miles) and also the slope and bulge regulation of the previous twist section (50-300 miles), obviating the necessity for pilot-wire and twist regulators. Measurements over a four-monthly period, using continuous recorders, showed that variations in the net losses of the twelve channels due to changes in line loss were not more than 0.5 db., an improvement of more than two to one as compared to the performance previously available without the deviation regulator.

### Overheating of Electric Motors

An article on this subject in the *Electrical Review* of July 31 opens with a brief survey of overheating due to dirt or other foreign matter obstructing the ventilating pipes, ducts and passages of motors. Mention is made of the lagging effect which waste

materials may have on the motor casing, and useful suggestions are given for the improvement and maintenance of ventilation. Since the rate of heat generation is proportional to the square of the load, protection against overloading is advised. It is suggested that motors be protected by a tripping device operating at 25 per cent sustained overload, or thermostatically controlled if subjected to large rapid load fluctuations. The liability of cotton insulation to char at about 100° C. is mentioned in stressing the safe temperature rise of a winding as being about 72° C. above that of the surrounding atmosphere.

The author then outlines the effects of accidentally sustained starting currents, mentioning in this connexion the mal-operation of star-delta starters. Warnings are given against running D.C. variable-speed motors at abnormal speeds; series connecting the windings of small A.C. motors intended for use on two voltages when on full load; prolonged connexions of the starting windings of split-phase single-phase motors; and the running of polyphase motors with one phase of the supply open-circuited. The remainder of the article is devoted to interesting points in maintenance, attention being directed to worn bearings, lubrication, short-circuited windings, short-circuiting of commutators by carbon dust, and the careless handling of dismantled machines as possible causes of overheating. Attention to the many points referred to will doubtless minimize the risk of overheating, rapid deterioration and breakdown of the plant.

### Rats and the War

ACCORDING to the *Medical Officer* of August 15, Dr. Charles White, medical officer of health for the City of London, has recently issued a report to the effect that while the devastation caused by enemy action has undoubtedly reduced the rat population, particularly in the Cripplegate area, in other districts there is still severe infestation by these vermin. Premises previously more or less free now suffer constant infestation, especially buildings in which the upper floors only were damaged by fire or blast. The hundreds of sandbag blast walls have formed a safe harbour for rats, but many have now been replaced by brick structures. Infestation by rats has been aggravated by the introduction of fire-guarding and consequent indiscriminate feeding, as well as by leaving doors open throughout the buildings to facilitate fire-guards access to rooms. Dr. White recommends that when structural reconstruction is considered adequate steps should be taken to construct rat-free buildings.

### The National Trust

It is satisfactory to learn from the forty-seventh annual report of the National Trust for Places of Historic Interest or Natural Beauty that progress is being made in spite of the War. The recent outstanding addition to the Trust's properties is the Wallington estate in Northumberland, but while this is the largest (13,000 acres) there are many other interesting and beautiful places now saved for the nation in no less than twelve counties. The report, which is also concerned with problems of future upkeep, preservations of buildings and amenities, and of the plant, fish and even bird life of Ullswater, can be obtained at 7 Buckingham Palace Gardens, Westminster, and is a cheering document to turn to in this time of strife and destruction.