

those high explosives upon which her artillery depends. We stated further that Germany's stock of the materials which are required to produce oil of vitriol is very limited, her sources of internal supply being almost negligible in comparison with the huge amounts demanded by her industries. An article by Dr. Reusch in a recent issue of the *Chemiker Zeitung* (vol. xxxviii., pp. 1241-43) is interesting at the present moment as showing that Germany is beginning to feel the pinch of necessity as regards this substance, and that, in view of the "reprisals" with which she is now threatened, as a consequence of her policy of "piracy and pillage," this necessity will become increasingly stringent.

We learn from Dr. Reusch's article that all export of sulphuric acid, sulphuric anhydride, and sulphurous acid from Germany is now prohibited. Before the war began she was a large importer of oil of vitriol—the imports in 1913 exceeding the exports by 65,289 metric tons—most of which came from Belgium. The total German production in 1912 is given as 1,649,681 metric tons, mostly made from pyrites, of which more than 80 per cent. was imported, mainly from Portugal, Spain, and France. Germany possesses deposits of this mineral, but they are of poor quality, and their working would present difficulties owing to scarcity of labour and other causes. She is now looking to Norway as a possible source, but if the policy indicated by Mr. Asquith is to be effective it should not be difficult to checkmate her action in this direction.

Another source of supply consisted in the working-up of zinc-blende, largely carried on in Silesia, principally on imported material, of which about 60 per cent. came from Australia alone. The only other main source would be natural sulphur imported through Italy, and principally of Sicilian origin, but here again, if the policy of "reprisals" is efficiently maintained, it should be readily possible for us to deal with this means of supply. It is interesting, in this connection, to note that in this respect, history repeats itself. During the Napoleonic wars the French occupied Sicily mainly with the view of cutting off our supply of sulphur for the manufacture of gunpowder in retaliation for our blockade of Pondicherry, upon which the enemy depended for his supply of nitre.

The sulphuric acid required for the manufacture of explosives is mainly employed in the production of nitric acid from nitrates, and from the point of view of hampering Germany in providing herself with the munitions of war it would be equally, if not more, effective to cut off her supplies of nitrates. As regards imported nitrates, and particularly Chile saltpetre, this may be practicable, and, indeed, cargoes of this material have already been stopped by our vessels on the high seas. But she has still certain internal sources of supply, as have most continental nations, and we now see that it is not for nothing that for some years past German chemists and engineers have, under the fostering influence of persons in high places, been straining every nerve to perfect possible synthetic

processes of making ammonia and of converting it into nitric acid and nitrates, largely by the aid of the water-power of Norway.

Luckily for the Allies at the present juncture, certain of these processes, such as that of Ostwald, have turned out to be hopeless commercial failures, but there are others which would appear to have in them the promise of eventual and permanent success. We learn that the German Government has just introduced a Bill into the Reichstag providing for a State monopoly of the trade in nitrates for a period of seven years. The preamble explains that, at great expense, the Government has succeeded, in consequence of the stoppage of imports of Chile saltpetre, in establishing a chemical industry for the fixation of nitrates from the air, and that this industry is to be protected absolutely from all competition. Meanwhile, the price of nitrates, as of sulphuric acid, has steadily risen in Germany, and the shortage is becoming more and more pronounced. The process of depletion of sulphuric acid may be delayed by the action of the Government, which may be driven ultimately to commandeer all supplies in the interests of national defence. For the moment a certain amount is liberated in consequence of the diminished activity of various branches of chemical industry, as, for example, the dyestuff factories, and owing to the economy which has been enjoined in the manufacture of superphosphate manures, partly in consequence of the increased production of basic slag, due to the expansion of the iron industry. T.

PROF. H. W. LLOYD TANNER, F.R.S.

PROF. H. W. LLOYD TANNER, whose death on March 5 we announced with regret last week, was born at Burham, in Kent, on January 17, 1851. He received his school education at Bristol Grammar School, from which he proceeded to Jesus College, Oxford. At Oxford he came under the stimulating influence of Mr. John Griffiths, the mathematical tutor of his college. After leaving Oxford he held some educational appointments until the year 1883, when the University College of South Wales and Monmouthshire was founded at Cardiff. Of this college he was appointed Professor of Mathematics and Astronomy, and he occupied the chair at Cardiff until his resignation in 1909.

Cardiff University College now forms one of the constituent colleges of the University of Wales, but the Charter of the University was not granted until ten years after the opening of the college at Cardiff. In the interval the students of the college were prepared for the degrees of the University of London, and the courses of lectures in mathematics and other subjects were necessarily framed to meet the requirements of that University. After the foundation of the University of Wales the professors in the Welsh colleges enjoyed a degree of freedom in the choice and scope of the subjects they taught which had been denied to them when their students were reading for the

degrees of an external university. Prof. Tanner took an active part in the arrangement of the mathematical work of the Welsh University in the early days, and the courses of study in pure mathematics still show the great influence he exerted on the general character of the mathematical teaching in Wales.

At Cardiff Prof. Tanner made a reputation for himself as an inspiring teacher and an excellent administrator. When the British Association visited Cardiff in 1891 he acted as one of the local secretaries, and the success of the meeting was in a large measure due to the thoroughness with which the secretaries carried out the necessary arrangements. After the death of Principal Jones he filled for some time the position of Acting-Principal of the college. In the year 1909 his health broke down, and he resigned his appointment as professor. In recognition of his services as head of the department of mathematics for twenty-six years, the Council of the college appointed him Emeritus Professor of Mathematics and Astronomy.

Amid all his varying activities in connection with his work in college, Prof. Tanner found time to engage in mathematical research, and he published in the Proceedings of the London Mathematical Society a series of valuable papers. His early papers, the first of which was written in 1875, dealt with the solution of partial differential equations, but his later papers were mostly concerned with the theory of numbers. These later papers were remarkable alike for grasp of principle, clearness of exposition, and elegance of method. The Royal Society recognised the value of his research work by electing him a Fellow of the Society in 1899. The University of Oxford also honoured him by conferring on him the degree of D.Sc., and by appointing him on one occasion an examiner for mathematical scholarships.

R. H. P.

NOTES.

THE fifth annual May lecture of the Institute of Metals will be given on Wednesday, May 12, by Sir J. J. Thomson.

A SPECIAL lecture on the septic infection of wounds will be delivered before the Royal Society of Medicine on Tuesday, March 30, by Sir Almroth Wright, who will deal with the results of his investigations and research with the Expeditionary Force.

A CORRESPONDENT in Moscow informs us that the Imperial Society of Naturalists has removed the names of Prof. Haeckel and Prof. Ostwald from its list of members on account of their having signed the address, "To Civilised Nations," containing libels upon the Russian people.

THE death is announced, at eighty-six years of age, of Dr. W. M. Dobie, who was associated with Charles Kingsley in founding the Chester Society of Natural Science, Literature, and Art, and was president of the society during the sessions 1893-94 and 1894-95.

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THE Board of Trade announces that in order to mitigate the effects of the dearth of indigo for dyeing purposes caused by the present war, and also to prevent any speculative holding up of natural indigo, the Government has acquired the greater part of the crop of natural indigo now coming forward for the use of dye-users in the United Kingdom.

THE *British Medical Journal* has received a communication from a distinguished Scandinavian colleague in which he expresses the opinion that the reception accorded to foreign medical visitors in this country compares unfavourably with that they habitually receive from the medical profession in Austria and Germany. In these countries the practice of the large hospitals is placed at the disposal of foreign visitors without fee, whereas here fees more or less large are generally charged. This doubtless depends partly on the fact that our hospitals are voluntary and the staff is unpaid, whereas abroad the hospitals are Government institutions. The Germanic countries are also indefatigable in flooding the Scandinavian countries with their medical literature, while England and France, on the other hand, send scarcely a book for review to the Scandinavian countries. Here seems to be another opportunity for the extension of British enterprise.

DR. BATSCHINSKI, of the University of Moscow, informs us that Prof. Nicolas Oumoff, whose death on January 15 was announced in these columns on January 28, was born at Simbirsk, East Russia in 1846. After passing through the University of Moscow he became lecturer and afterwards professor of theoretical physics at the University of Odessa. In 1903, after twenty-two years at Odessa, he was appointed professor of physics at the University of Moscow. Here, with the late Prof. Lebedew as his colleague, a large new physics institute was designed and erected. Prof. Oumoff was one of the Russian representatives at Lord Kelvin's jubilee, and received the honorary degree of LL.D. from the University of Glasgow. Along with many other Moscow professors, he resigned his position in 1911, and devoted himself to the Ledenzoff Society for assisting discoveries and inventions useful to humanity. He was very successful both as a university and as a popular lecturer. Of his published papers those on terrestrial magnetism are probably best known in this country.

THE death is announced, at seventy-nine years of age, of Sir George Turner, whose researches relating to rinderpest, leprosy, and other diseases in South Africa are of high importance. Sir George Turner entered the Civil Service of Cape Colony as medical officer of health in 1895. The year after, rinderpest broke out in the Cape Colony. Koch had just devised a system of inoculation against this disease of cattle, and after three weeks' collaboration with him, Sir George continued the work, and before long devised a method of producing a lasting immunity by simultaneous inoculation with virus and serum. Within a year rinderpest in Cape Colony was stamped out; later, the same method was adopted in Egypt and Natal. In the South African war, on the outbreak of