Cathode

Fig. 2. Visibly pink amounts of the factors after ionophoresis in 0.5N acetic acid for 16 hr. at 270 V. Movement of vitamin B₁₂ was due to electro-osmosis

techniques, which are more selective than those of chromatography, are used for their resolution.

As these vitamin B₁₂-active compounds are formed by microbial synthesis in the rumen or in the large intestine or in both, it is probable that the relative amounts of each that appear in gut contents depend on the composition of the microbial flora. This is known to be, to some extent, governed by the composition of the diet, so that even within one species it is likely that the relative amounts of each of these factors will vary with the nature of the diet.

We should again like to thank Dr. Pfiffner and Dr. Wijmenga for their generosity in allowing us to examine their compounds, and to publish our findings. The interpretation of the results is solely ours; the conclusions may not represent the views of Dr. Pfiffner or Dr. Wijmenga and do not bind them in any way.

[Dec. 3.]

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OBITUARIES

Prof. M. G. Evans, F.R.S.

PHYSICAL chemists all over the world will have learned with sorrow of the untimely death of Prof. M. G. Evans. A graduate of the University of Manchester, Evans was appointed to the staff of the University in 1926, and after spending a year with a Rockefeller fellowship at Princeton, he was appointed to the chair of inorganic and physical chemistry in the University of Leeds in 1939. While at Leeds he established an international reputation for his work

on the fundamental processes occurring in chemical reactions, and was elected a Fellow of the Royal Society in 1947. In 1948 he returned to Manchester to the chair of physical chemistry, and had already established a flourishing research school there when his scientific work was so tragically brought to its close.

Evans occupied a unique position in English physical chemistry. His versatile and flexible mind endowed him with a remarkable capacity for grasping the essentials of any scientific problem which was presented to him. All those who had the opportunity of working with him were astonished at his ability to state their problems for them in clear, exact and illuminating

language, and there was no better cure for the all too common complaint of 'getting stuck' than to go and have a chat with 'M. G.', as he was known to all his friends. Evans's inspired common sense was the secret of his scientific success, both in his own work and in guiding the research of others.

Evans was one of the early pioneers of the transition state theory, applying it to quite complicated chemical reactions; and it was largely his inspiration which led to the modern theory of unimolecular reactions. His work on the initiation of polymerization led to important technical advances, and in more recent years he clarified in an elegant way the nature of the electronic processes occurring in oxidation and reduction. The papers of Evans and his school on the so-called electron-transfer reactions are classics in that field. Possibly less well known but no less penetrating were his contributions to applied wave mechanics and the statistical mechanics of surfaces, and one of his most important contributions to the theory of bond dissociation energies was made only just before his death. The 1953 Jubilee Discussion of the Faraday Society on "Solutions of Non-electrolytes" was originally conceived by Evans.

Outstanding as a physical chemist, M. G. Evans was equally outstanding as a person. His industry and great ability were matched only by his extraordinary modesty and a personal charm which won him the affection, as well as the admiration, of all those who had the good fortune to meet him. He combined without affectation the hard-headedness of a scientific administrator and the subtlety and sensitivity of a creative artist. His nomination to the Government's Advisory Council on Scientific Policy and to the Scientific Advisory Council of the Ministry of Supply imposed on him a heavy burden of additional responsibility. Nevertheless, in spite of the severe strain to which he undoubtedly subjected himself, Evans was always ready to help those who came to see him with scientific or personal problems, and there will be many of his friends who will sadly miss his wise and sympathetic counsel.

H. C. LONGUET-HIGGINS

Prof. V. N. Ipatieff

PROF. VLADIMIR NIKOLAEVICH IPATIEFF died in Chicago on November 29, 1952, just one week after his eighty-fifth birthday. Few men of science in our times have had more remarkable careers.

Born in Moscow in 1867, he attended a series of military schools and graduated from the Michaelovsky

Artillery School in 1892. He had developed an interest in chemistry several years before this and established a private laboratory from his small earnings; because of the nature of the curriculum and the instruction, most of his chemistry was self-taught. He remained at the Michaelovsky Artillery School as an instructor in chemistry and later became its first professor of chemistry. During 1896-97 he was sent to Western Europe, where he studied with von Baeyer in Munich and with Vielle and Sarraut in Paris, and in 1907 the chair of chemistry in the University of St. Petersburg was added to his duties.

During the First World War, Ipatieff was a lieutenant-general in charge of the Russian chemical industry, and because of his distinction he continued to hold high office during the Soviet regime. From 1921 until 1926 he was a member of the Supreme Economic Council of the Soviet Union, and in 1927 an institute for the study of high-pressure reactions was established for him. However, the scientific climate was increasingly distasteful to him and, in the company of his wife, he managed to leave Russia. After a short stay in Germany, he went to the United States in 1931 to become a lecturer in chemistry at the Northwestern University, Evanston, Ill., and director of research at the Universal Oil Products Co. In 1938, in order more easily to pursue purely academic research and to be able to teach his techniques to students, he established the Ipatieff High-Pressure Laboratory at the Northwestern University with the support of the Universal Oil Products Co., and he was actively engaged in his positions at the University and with the Company until two weeks before his death.

Commencing his career in the United States at an age when most men retire, Ipatieff published thereafter about a hundred and fifty scientific papers and obtained more than two hundred patents. He had already published some two hundred papers before he left Russia, starting with one in 1892, "Chemical Investigation of the Structure of Steel". The many honours that he received are too numerous to enumerate here, but mention should be made of the fact that he was the only man to have held regular membership in the national academies of science of both the U.S.S.R. and the United States (though his membership in the former, along with all other Russian honours, was cancelled by the Soviet Government in 1936 following his repeated refusal to return to the U.S.S.R.). His wife, Barbara Demitrievna, with whom he had celebrated in 1952 their sixtieth wedding anniversary, survived him but a few days and died on December 9. Of their children, a son and a daughter still live in the U.S.S.R., one son was killed in the First World War and another lost his life while fighting tropical fevers in the Belgian Congo.

Ipatieff was a man of charm and kindness who enjoyed social contacts. He was always ready with encouragement and assistance to anyone interested in advancing science. He was an indefatigable worker who set himself a hard schedule, any disturbance to which upset him, and in particular his rare illnesses especially outraged his sense of order. While his life was primarily devoted to science, he had a number of other interests. He was a devout member of the Russian Orthodox Church, though no narrow sectarian, and he read widely in literature. In his earlier days he was an expert rider; fishing and swimming mainly occupied his vacations until a few years ago, and he was a great walker.

After some work of interest in ordnance and some in classical organic chemistry, of which that on the structure and synthesis of isoprene was particularly notable, Ipatieff became interested in heterogeneous catalysis, for he thought that high pressures of hydrogen would facilitate the hydrogenation of organic compounds. In testing this hypothesis he had to develop equipment for working at high pressures, in which task he was helped by his training as an artilleryman, and in 1903 he developed the first practical experimental autoclave for working at high pressures. He devoted much of his life to the exploitation of this discovery in a wide field of catalytic reactions, particularly hydrogenation. His pioneer work in high-pressure hydrogenation had revolutionary effects upon laboratory and technical procedures in many fields of chemistry. He was the first to recognize the use of promoters in heterogeneous catalysis. His work in the United States is notable for the discovery of the 'solid phosphoric acid' catalysis for the polymerization of olefines, for the discovery of the alkylation of olefines by isoparaffins and for work in the isomerization of alkanes. His research was one of the main sources of the revival of interest in hydrocarbon chemistry and of aliphatic chemistry in general and may be considered as the origin of much of modern petroleum technology.

Several months ago the Universal Oil Products Co. entered into negotiations with Northwestern University to establish the Vladimir Ipatieff research professorship, by which the Company will grant the University 25,000 dollars annually for the salaries of the professor and an assistant and for other expenses. It is a source of much gratification that Ipatieff had been informed of the final details of this professorship a few days before his death.

ROBERT L. BURWELL, JUN.

Dr. K. G. Blair

KENNETH GLOYNE BLAIR, who at the time of his retirement was a deputy keeper of the Department of Entomology of the British Museum (Natural History), died at Freshwater, Isle of Wight, on December 11. Born at Nottingham on December 22, 1882, he was educated at Highgate School and Birkbeck College, London. After a brief period spent in other government offices, he transferred in 1910 to the Natural History Museum, being appointed assistant in the Department of Zoology, which then included entomology.

Under Dr. C. J. Gahan, Blair was put in charge of a large section of the Coleoptera comprising principally the Heteromera, which had perforce been largely neglected for many years. His systematic overhaul of these collections resulted in the publication of numerous papers concerned with the critical revision of genera and species, the description of new ones, the elucidation of the work of the early authors, a catalogue of the Pythidae and Pyrochroidae, and so on. Concurrently he published many papers of faunistic interest, based largely on collections made by various expeditions. These ranged from Mt. Everest, Krakatau, Samoa, Fiji, the Mentawi Islands, Christmas Island and the Marquesas in the East, through southern Arabia and South Africa to the Galapagos Islands.

But it would be wrong to base any estimation of Blair's contributions to entomology solely on the