



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 B<sub>12</sub> was due to electro-osmosis

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

As these vitamin B<sub>12</sub>-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. Pffifner 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. Pffifner or Dr. Wijmenga and do not bind them in any way.

[Dec. 3.]

- <sup>1</sup> Wijmenga, H. G., "Onderzoekingen over vitamin B<sub>12</sub> en verwante factoren", thesis, University of Utrecht (1951).
- <sup>2</sup> Ford, J. E., and Porter, J. W. G., *Biochem. J.*, **51**, v (1952).
- <sup>3</sup> Pffifner, J. J., Calkins, D. J., Peterson, R. G., Bird, O. D., McGlohon, V., and Stipek, R. W., *Amer. Chem. Soc.*, 120th meeting, abstr. of papers, 22c (1951).
- <sup>4</sup> Lewis, V. J., Tappan, D. V., and Elvehjem, C. A., *J. Biol. Chem.*, **194**, 539 (1952).
- <sup>5</sup> Hausmann, K., *Lancet*, **257**, 963 (1949).
- <sup>6</sup> Ford, J. E., and Holdsworth, E. S., paper read before the Biochemical Society, December 19, 1952, *Biochem. J.* (in the press).
- <sup>7</sup> Kunkel, H. G., and Tiselius, A., *J. Gen. Physiol.*, **35**, 89 (1951).
- <sup>8</sup> Abramson, H. A., Moyer, L. S., and Gorin, M. H., "Electrophoresis of Proteins", 161 (Reinhold Pub. Corp., New York, 1942).
- <sup>9</sup> Ford, J. E., *Brit. J. Nutr.*, **6**, 324 (1952).
- <sup>10</sup> Burkholder, P. R., *Science*, **114**, 459 (1951).
- <sup>11</sup> Bessell, C. J., Harrison, E., and Lees, K. A., *Chem. and Indust.*, 561 (1950).
- <sup>12</sup> Cuthbertson, W. F. J., Pegler, H. F., and Lloyd, J. T., *Analyst*, **76**, 133 (1951).
- <sup>13</sup> Harrison, E., Lees, K. A., and Wood, F., *Analyst*, **76**, 696 (1951).
- <sup>14</sup> Skeggs, H. R., Nepple, H. M., Valentik, K. A., Huff, J. W., and Wright, L. D., *J. Biol. Chem.*, **184**, 211 (1950).
- <sup>15</sup> Ford, J. E., Kon, S. K., and Porter, J. W. G., *Chem. and Indust.*, 495 (1952).

## 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