

History of the Vacuum Flask

WHILE fully accepting all that Mr. Gabb writes in NATURE of June 1 about matters of fact within his knowledge, I am still of opinion that Lennox made the first vacuum test tubes and flasks by methods of his own. Those I saw on his bench were transparent (unsilvered), and, having watched both him and Muller at work, I consider that he was quite as capable of doing it as Muller.

My father's assistant, Gordon, who was working at the Royal Institution at the time, clearly stated to me that Lennox arrived at his methods by trials which he, Gordon, had witnessed.

Mr. W. J. Green, of the Royal Institution, writes to me (May 2, 1940):

"Mr. Heath [Dewar's second assistant] told me quite definitely that Lennox made the first vacuum vessels in the laboratory, and further that he passed on his methods to outside people who were asked to supply in addition to what the laboratory could make."

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June 2.

Photolysis of Acetaldehyde

In a recent paper on the high temperature (300° C.) photolysis of acetaldehyde¹, it is suggested that earlier work² based on measurements of pressure

change may be unreliable on account of possible polymerization.

We have followed the course of this photolysis by chemical analysis for acetaldehyde at various stages, using the method of Friedemann, Cotonio and Shaffer³. The rate of decomposition of the aldehyde measured in this way agrees exactly with the observed pressure change, as is shown in the following example:

Initial acetaldehyde pressure: 100 mm. Temperature: 300° C.

Time (min.)	Observed pressure change (mm.)	CH ₃ CHO decomposed (by analysis)
0	0	0
1	+ 6.7	6.8
2	+ 12.8	12.7
3	+ 17.3	17.1
4	+ 20.5	21.0
5	+ 25.0	25.0

These results, coupled with the fact that a pressure increase of practically 100 per cent is observed on prolonged irradiation, shows that no appreciable polymerization takes place under these conditions. There is hence no reason to doubt the accuracy of the earlier work.

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¹ Grahame and Rollefson, *J. Chem. Phys.*, **8**, 98 (1940).

² Mitchell and Hinshelwood, *Proc. Roy. Soc., A*, **159**, 32 (1937).

³ Friedemann, Cotonio and Shaffer, *J. Biol. Chem.*, **73**, 342 (1927).

Points from Foregoing Letters

Using a new oil-drop method, T. H. Laby and V. D. Hopper have made a new determination of the electronic charge. They claim for the results a probable error one third of that of Millikan's determination, and state that it agrees with the value of the electronic charge by the X-ray method to the accuracy with which the viscosity of air is known.

A. D. Fokker, after indicating the dynamical variables for a system of two particles in relativity theory, presents Lorentz-invariant definitions for the centre of inertia and for the internal moment of momentum of a system of any number of free particles.

On treating cytochrome *c* with sodium dodecyl sulphate (S.D.S.) D. Keilin and E. F. Hartree find that a derivative is obtained which can be considered as a hæm-protein compound, in which the protein has probably lost its connexion with the iron although it remains still linked with the porphyrin. The effect of S.D.S. on cytochrome *c* is reversible, as after removing this reagent by dialysis cytochrome *c* reverts to its original state.

K. Bailey reports the crystallization of an albumin from rabbit muscle. Although obtained independently, it may be identical with the myogen *B* which Baranowski has occasionally obtained in the mother liquors of myogen *A*.

E. Wollman, F. Holweck and S. Luria have subjected a bacteriophage to the effects of various

forms of radiation. Their results lead to the conclusion that inactivation of bacteriophage by irradiation is a quantum effect, and that the phage is a monomolecular structure.

Referring to recent work suggesting that certain algae, particularly algae from Indian rice fields, are able to fix atmospheric nitrogen, H. Chaudhuri states that his own work leads to the view that bacteria, living in the mucous sheath of these algae, are responsible for nitrogen fixation.

R. N. Robertson, working on salt accumulation and respiration in cut carrot tissue, finds that the ratio of carbon dioxide produced in the presence of salt to the amount of salt absorption varies with concentration of salt absorbed and with time. His work supports Lundegårdh's views in relation to ionic absorption.

L. R. Wager describes a powerful Eocene flexure of the earth's crust which has recently been found in East Greenland. He suggests that it has resulted from variation in thickness of an intermediate layer of basaltic composition under the influence of convection currents.

In the high temperature photolysis of acetaldehyde C. J. Danby finds that the course of the reaction as followed by chemical analysis agrees exactly with the observed pressure change, which therefore gives an accurate measure of the reaction rate.