C being a constant, individual for each liquid; being taken at 8.7 for water and m at 18 the last equation yields

$$T_x = \frac{m}{1.49}(p_x v_x - 8.7) = 12.1(p_x v_x - 8.7).$$

Since we calculate from tables of properties of saturated vapor of water that *pvat* 273° absolute amounts to 31 calories per kilogram the above equation for T_x gives

$$12.1\ (31\text{–}8.7) = 270°\ \text{absolute}$$

at 313 degrees at which pv is 34.6 cals. we find

$$12.1\ (34.6\text{–}8.7) = 313.3°\ \text{absolute.}$$

At 473 degrees absolute pv is equal 47.9 calories and

$$12.1\ (47.9\text{–}8.7) = 473.5°\ \text{absolute.}$$

Similar agreement is found for other vapors by inserting the correct valve for constant as long as no psolymerisation in the liquid takes place.

(1) *Molecular state of water vapor;* (2) *Vapor pressure depression equation for dilute aqueous solutions:* James Kendall.

Size and behavior of suspended smoke particles: R. E. Wilson.

Influence exerted by antagonistic electrolytes on the electrical resistance and permeability of emulsin membranes: G. H. A. Clowes.

The exact determination of molecular weights by the boiling point method: E. M. Washburn.

Solubility of strontium nitrate in anhydrous alcohol in alcohol containing small per cent. of water: C. W. Foulk.

(1) *Influence of the age of ferric arsenate on its peptization;* (2) *Syneresis of silicic acids gels:* H. N. Holmes.

A study of the lowering of vapor pressure of water produced by absorbed KCl: B. F. Lovelace, J. C. W. Frazer, V. B. Sease.

A study of the lowering of vapor pressure of water produced by absorbed mannite: J. C. W. Fraser, B. F. Lovelace, T. H. Rogers.

The volume and surface of the pores in charcoal and the compression of adsorbed substances: W. D. Harkins and D. T. Ewing.

An electromagnetic and valence hypothesis of heterogeneous equilibrium in adsorption: W. D. Harkins.

DIVISION OF WATER, SEWERAGE AND SANITATION

Robert Spurr Weston, *Chairman*

W. W. Skinner, *Secretary*

Determination of bromid in mineral waters and brines: W. W. Skinner and W. F. Baughman. Colorimetric methods for the determination of bromin give satisfactory results only when small quantities of bromin are to be determined. The method proposed for the determination of bromids in the presence of chlorids is the oxidation of the bromids and removal of the liberated bromid by steam distillation or by aspiration. The method depends upon the use of chromic acid for oxidation of the bromid. Chromic acid in concentrated solution liberates bromin from bromids quantitatively at room temperature and the bromin may be removed by aspiration. It liberates only a trace of chlorin from chlorids, forming probably chromic chlorid which remains in solution. When chromic acid acts on a solution of chlorids and bromids, some chlor-bromid is formed which is removed with the bromin by aspiration. The liberated bromin and the chlorin in the first aspiration is collected in a solution of sodium sulphite and sodium carbonate, which is evaporated to dryness and again submitted to the treatment with chromic acid and aspirated the second time. The double aspiration gives very accurate results.

Certain war gases and health: Charles Baskerville. Evidence has been collected from all the chlorine producing plants and many works and arsenals where chlorine was used. Preponderating evidence favors the conclusion that chlorine exerts a preventative influence against influenza. The evidence is not conclusive, however, as contrary data were obtained from some plants. The contradictions may possibly be harmonized on the basis of concentration, the more dilute up to limits the more effective. Small amounts of bromine in the air appear to prevent influenza completely.

Charles L. Parsons,
Secretary

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