

the acid, has been followed by determining changes in the values of copper number, alpha cellulose content, and viscosity of solutions of the cellulosic material in cuprammonium hydroxide.

The degradation, caused by the acid used, seemed much greater than the known degradation taking place in a commercial sulphite digester and the probable effect of traces of air was pointed out.

PH. D.

CHEMISTRY

FERDINAND LUTZ MUNRO

THE RELATION BETWEEN PARTICLE SIZE AND
LIGHT ABSORPTION BY SUSPENDED ARTICLES.

Previous work relating to the absorption of light by suspensions of particles above the colloidal range is described and discussed. An apparatus and experimental method are described by means of which values for light transmission can be determined and at the same time, any constants of the apparatus can be eliminated, thereby giving results which are in a sense absolute.

Data have been obtained relating the light transmitted by suspensions to depth, concentration, and particle size for various types of inorganic materials and for different varieties of pulp. Particle sizes of inorganic materials range from 3.4×10^{-4} sq. cm. to 8.7×10^{-8} sq. cm. in projection area, with concentrations from 0.01% to 9.0% by weight. Particle sizes of pulp range from 1×10^{-4} sq. cm. to 6×10^{-4} sq. cm. in projection area, with concentrations from 0.005% to 2.5% by weight.

A theory has been developed relating the variation in particle size, concentration, and depth to light transmittance for all types of material investigated, and this theory has been applied quantitatively to the data obtained.

PH. D.

CHEMISTRY

AUBREY FARNHAM PRICE

AN INVESTIGATION OF THE REACTION BETWEEN UNSATURATED
HYDROCARBONS AND THE HALOGEN HYDRIDES.

The reaction between propylene and hydrogen chloride has been investigated. Its relation to the discontinuity in reaction velocity at the critical temperature has been pointed out.

A device has been developed for eliminating the presence of vapor phase in the examination of liquids at temperatures above their normal boiling points.

A method of analysis by conductivity measurement has been developed which serves as an independent check on the method of titration.

The homogeneity of the reaction in glass vessels has been rigorously established; the probable order of primary and secondary reactions have been indicated, and the temperature coefficients of each, evaluated.

The olefine-halogen hydride reactions have been investigated in toluene, ether and chloroform solutions. In chloroform the propylene hydrogen chloride reaction is found to be homogeneous and identical, in behaviour, with that taking place in the pure liquid mixture. This reaction is to be employed for investigations above the critical temperatures of the reactants.

PH. D.

GEOLOGY

PETER PRICE

THE GEOLOGY AND ORE DEPOSITS OF THE HORNE MINE.
NORANDA, QUEBEC.

The regional setting is described in a general way. Detailed descriptions are given of the local rocks, their structures, age relations and typical alteration processes. The ore deposits are described in detail with regard to their relationships to structure, type of rock replaced, alteration and age relations. The mineralogy is described in detail, and the paragenesis is worked out. The textures, associations and types of the gold and tellurides have been subjected to a thorough investigation, and the location, structure and causes of the gold and copper grades are discussed.

Eighty-five plates of polished and thin sections accompany the report, together with four geological plans and one isometric projection of the orebodies.