

of the atoms of mercury. Information has been secured which is very useful in connection with the problem of determining the energy required to be expended in disrupting atoms and releasing atomic energy.

A grant to assist in a study of the gap in ether rays between ultra-violet light and X-rays was awarded to Professor A. L. Hughes of Queen's University. Radiation of wave length between that of the softest X-rays and that of the most extreme ultra-violet light undoubtedly exists, but hitherto has not been produced; it is the purpose of the investigation to explore this region. There are certain fundamental differences in the method of the production of light and X-rays, and it is important, therefore, to investigate whether or not these differences merge into each other in the unexplored region.

For the purpose of making a thorough study of the cause and treatment of acidity in the soils of Quebec and New Brunswick, a grant was made to Principal F. C. Harrison of Macdonald College. This condition, which is common in the soils of eastern North America, interferes seriously with the growth of alfalfa, red clover, and, probably, to some extent, with the majority of useful crops.

Professor H. E. T. Haultain of the University of Toronto received a grant to continue a research carried on during the past two years in an attempt to analyse the paths of balls in ore crushing tube mills by means of photography. Some 500 photographs were taken and a definite advance was made.

To investigate the causes of soil corrosion of iron piping and other iron structures in Canada, a grant was made to Professor John W. Shipley, University of Manitoba. This corrosion, which causes a very large annual loss in these provinces, is due to the action of soil waters, but the chemical reaction concerned must be ascertained before methods of treatment of the iron used in such structures can be found to prevent such corrosion. Professor Shipley has been engaged on this problem for more than a year and from the results he obtained, is confident that the causes of the corrosion can be definitely ascertained.

A few years ago the destructive effect of the alkali soil waters of the west on concrete was brought forcibly to the attention of the engineering profession, when structures of great importance and magnitude situated in the prairie provinces, were found to be disintegrating under this destructive agency. A brief survey showed that structures involving millions of dollars were endangered, and that the problem was so serious that certain engineers of standing had decided that until more was known of the action, concrete could not be safely used under conditions where alkali ground water would be encountered. In view of the importance of this problem, the Research Council awarded a considerable grant to a committee of the Engineering Institute of Canada under the chairmanship of Professor C. J. Mackenzie of the University of Saskatchewan, which was formed to investigate this problem. The investigation has been divided into two phases, (a) physical field tests and (b) chemical research.