

ment been available several years ago when we were mapping much of this area, a great saving of time would have resulted. From last year's work in this area we anticipate a speeding up of the detailed mapping of the region.

This year it is planned to cover with the airborne magnetometer the area extending roughly from Renfrew and Kingston to Georgian Bay, much of which contains iron-bearing rocks. This is in co-operation with the Ontario Department of Mines, who intend to do geological work in the area.

The maps resulting from all our airborne magnetometer work will be made available to industry as soon as possible.

In the Topographical Survey work our objective is 100 field parties. Last year we had 38. This year we expect to have 70 parties in the field. We have been adding to our staff of topographers as rapidly as men become available and our present staff of 200 engineers and office technicians compares with a staff of only 40 in 1940. Our annual appropriations for this work have shown a five-fold increase since 1940, and in line with these expansions we are now producing close to ten times as many topographical maps as in 1940.

In vertical air photography we covered a total of 340,000 square miles last year. This compares with only 44,000 square miles in 1938. This aerial photographic work is essentially for mapping purposes, but it also serves many other uses in the development of Canada's natural resources. Most of it is done by the R.C.A.F., but as an encouragement to free enterprise, some of it is let out to private companies.

In all our topographical work full advantage is being taken of the use of modern equipment and scientific tools. For instance, we are considering the use of the helicopter in mountainous areas for the movement from station to station of field parties and their equipment. This would enable the covering of much more territory in a field season in such regions and would largely eliminate the use of pack horses.

In the Bureau of Mines we have a staff of engineers and scientists engaged in tests and research on all types of Canadian ores and minerals, and we maintain the most up-to-date facilities and equipment for this work.

It is no secret that the recent war ate heavily into our ore reserves and those of the United States. Moreover, current rates of metal and mineral consumption in both countries are even higher than during the war. Consequently, there is now a greater need than ever before for us to devise ways and means of making full use of our reserves. Ways must be found for the efficient and economical treatment of ores and minerals occurring in refractory deposits, and even more so for the development of low grade ores. There are several large bodies of refractory or low grade deposits in Canada for which there is at present no process by which they can be treated on a profitable basis even with the present high prices of metals. It will be the work of the Bureau of Mines to help to develop processes for the economic working of these deposits.

Among the problems the Bureau now has in hand is the treatment of the refractory gold ores of the Yellowknife and other areas. In this we are well advanced toward a solution though some difficulties still remain to be overcome.