1926/61-64

GEOLOGICAL SURVEY OF TASMANIA.

History

The earliest appointment foreshadowing the present service was that of Mr. Chas. Gould in 1859 as Geological Surveyor. Mr. Gould continued in office until 1869, but for some years after his retirement the position was not filled. In 1882, Mr. G. Thureau was appointed Geological Surveyor and Inspector of Mines, and continued in office until 1889 when he was succeeded by Mr. Alex Montgomery. Mr. Montgomery filled the dual position until 1896 when he resigned. Mr. J. Harcourt Smith was appointed in 1897, but met with an untimely death in 1899.

The late Mr. W.H. Twelvetrees was appointed as Government Geologist and Chief Inspector of Mines in 1899, and acted in the former capacity till his death in 1919, the work of the inspectorial branch being separated in 1914.

The staff was increased in 1901 by the appointment of Mr. G.A. Waller as Assistant Government Geologist. On Mr. Waller's resignation in 1904, Mr. L.K. Ward was appointed and continued in office until 1911, when he resigned. His successor was Mr. L.L. Waterhouse, who continued in office until 1915, when he retired through ill-health.

Additional staff was required in 1912, and Mr. Loftus Hills was appointed and continued in the service until 1923. During the period 1916-1919 he served with the A.I.F.

Mr. Hartwell Conder served one year (1917) as Acting Assistant Government Geologist, and Mr. A. McIntosh Reid was also appointed in the same year.

On the death of Mr. Twelvetrees in 1919, Mr. Loftus Hills was appointed Government Geologist, Mr. A. McIntosh Reid being assistant Government Geologist. Increases in staff were made in 1920, Messrs. P.B. Nye and H.G.W. Keid being appointed as Assistant Government Geologists. In 1921 the above titles were altered to Director of the Geological Survey and Government Geologists respectively. The office occupied by Mr. Keid was abolished in 1922.

In 1923 the office was transferred from Launceston to Hobart. Mr. Loftus Hills resigned in 1923, and since then the staff has consisted of Messrs. A. McIntosh Reid and P.B. Nye. Mr. Reid was appointed to the newly-created position of Director of Mines in 1926.

Objects of a Geological Survey.

The fundamental purpose which Geological Surveys in civilised States are designed to accomplish is to so survey the country as to produce maps which show its geological structure, and shall give useful information with respect to questions of drainage, water-supply, soils, etc. and above all, deposits of ores, coal, shale-oil, building stones, underground water, and other raw materials of industrial value. It is a work which does not reach finality. With fresh discoveries, old areas are re-examined; old standing problems are ever pressing for solution; an immense amount of detail work remains to be done; and there is the continual effort to cover the whole of the surface even once.

In recent years the tendency has been to neglect the actual survey of the State, and to concentrate rather on economic work, the surveys being incidental to the economic work. This is, in a sense, the wrong order, as

all economic work is based on the geological structure, and the survey of the State in the first place would be a most desirable objective.

Past Policies of the Geological Survey of Tasmania.

During the period in which Gould acted, the policy was the carrying out of aerial surveys in conjunction with exploring and prospecting parties. As a result a number of excellent maps were produced.

This policy was not continued by Messrs. Thureau, Montgomery, and Harcourt Smith, all these officers carrying out short visits of inspections to mines and mining districts without any aerial surveying.

With the increased staff after the appointment of Mr. Twelvetrees, aerial surveys were again undertaken. This applies particularly to the period after the advent of Ward, and the same policy has been carried out up to the present as far as possible. During this period an important series of bulletins, reports, mineral resources, records, underground water supply papers etc. were produced in conjunction with the above surveys.

Present Policy

The present policy of the Geological Survey is to continue that of the past, and to carry out as much aerial survey work as possible. This has, however, been greatly affected by the revived interest in mining during the past few years, and the constant requests for short and urgent visits of inspection.

Even in the case of aerial surveys, the real objective is economic, the areas selected being mineral fields, coal, or oil-shale fields, or those in which underground water may be expected to exist.

Utility of the Geological Survey.

The geological survey is useful in many ways in connection with the numerous functions of a State, and the activities of the people thereof, and the industries in which they are engaged.

(a) Geological Map - The geological map of a country indicates, in a general way, the primary and, to a certain extent, the secondary industries which can be established, particularly as regards different districts. Thus by the knowledge of the rocks of the several systems, and the igneous rocks which occur, it is possible to distinguish mineral producing districts from non-mineral producing ones, and further, to indicate the nature of the minerals likely to be found there. Further, it is possible to indicate areas which will be useful only for pastoral purposes, and others on which agriculture etc. may be carried out.

(b) Mining Industry - The greater part of the subject of economic geology is, of course, devoted to problems connected with the metallic and non-metallic mineral deposits, and the mining industry connected therewith. The assistance which can be rendered is now fully recognised, and the services of economic geologists are always in great demand. The importance and far-reaching effects of such assistance is so well-known that it need not be further enlarged on.

(c) Agricultural and Pastoral Industries - The geological survey is of use to these industries in many ways, all of which are not fully appreciated at present. The functions of soil surveys are such that they can be best controlled by geologists, as the soils are, in the first place, dependent on the underlying rocks. The soil survey is of the same importance to the agriculturist and pastoralist as the actual rock survey is to the miner. The knowledge and mapping of the different types of soil is of the utmost importance to the men on the land. It is also equally important to the State when Crown lands are being alienated, and Closer Settlement is being carried out.

A very general soil survey has already been indicated in some of the Survey's publications.

Of great importance to the man on the land, there is also the provision of supplies of underground water. Four areas have already been geologically surveyed in this connection, and eight bores put down as a result of these. The provision of permanent supplies of water for stock is of great value to the pastoralists, especially in the raising of lambs, yield of wool, and provision against drought, and actually represents considerable monetary gain to them.

(d) Secondary Industries - Many of the secondary industries require minerals or substances obtained from the ground for use in their processes. The Geological Survey is often called on to locate particular deposits; and also as to the use of such materials.

(e) Engineering Undertaking - In many ways the Geological Survey is called on to advise in connection with engineering undertakings. This applies especially to foundations for dams, areas for water conservation, foundations for wharves, buildings, bridges etc.

Progress of the Geological Survey of Tasmania

The total area of the State is approximately 26,200 square miles. The actual area covered by geological survey is 6,000 to 7,000 square miles, and it may be assumed with a reasonable degree of accuracy that approximately 25% of the State has been geologically surveyed.

On the greater part of this area, sketch contours have been drawn, and the other topographical features indicated with the accuracy possible by the method of survey in operation. The geological boundaries have been placed on the above with the same degree of accuracy.

These are the only topographical maps of the districts concerned. Though useful for all practical purposes, it must be borne in mind that they are not as accurate as plans which would be prepared as a result of a proper topographical survey.

Present needs of the Geological Survey.

(a) Increased Staff - With the present staff of two geologists, the Survey is fully occupied attempting to cope with the current demands for short visits of inspection to mining properties etc. Nevertheless, it has been found possible to carry out an average of two (2) aerial surveys a year. With this rate of progress, the general survey of the

State makes no appreciable progress. An additional two geologists are necessary to enable the progress to be somewhat approaching what it should be, and to enable the production of the Geological Map, which, as already stated, really forms the basis of the various activities of the State.

(b) Topographical Map.- The Geological Survey works under considerable difficulty in the preparation of its geological maps owing to the absence of reliable topographical maps. The only maps available for use are the land charts of the Lands Department. These charts deal only with blocks of land, and the addition of topographical features is merely a secondary consideration, and depends upon what useful information the surveyors may supply in connection with the surveys of the blocks.

These charts are a great help, but even with them, the topography has to be largely added to, and in many cases corrected. In every case the work of contouring any district has to be wholly carried out by the Government Geologists. In districts where charts of the above type do not occur, either a purely sketch map has to be prepared, or a chain and compass survey undertaken, which has had to be done in many cases. With reliable topographical maps of the State available, the geological survey could be carried out much more efficiently and expeditiously.

Conclusions

In order to meet the above needs it is desirous that:

(a) Two additional Government Geologists should be appointed. This is a matter which might be well considered by the Commonwealth Government which, through the Development and Migration Commission, is undertaking an economic survey of the State. The existence of a complete geological map of the State would be of the greatest value during this economic survey. Indeed, considering that only 25% of the State has been geologically surveyed, and that of the remainder about one-third (equal to 25% of the State) is without roads and practically unknown, it is difficult to conceive such a survey can be efficiently performed.

The Government geologists could work in conjunction with the Geological Survey of Tasmania, their salaries, allowances etc., being provided for by the Commonwealth Government.

(b) Topographical Map - As already stated, there is no topographical map of Tasmania, or plans of the different districts in existence, and no organisation exists in the State for the carrying out of surveys to enable such map or plans to be prepared. The necessity of initiating a topographical map of Australia has been stressed by numerous conferences, and it has been recommended that the Commonwealth Government should undertake this work.

A commencement might appropriately be made during the economic survey of Tasmania, not only because of its own value, but also because of the assistance it would be to the Geological Survey.

DIRECTOR OF MINES.
(A. McIntosh Reid)

October 9th, 1926.