

fibre of suitable grade, the company will proceed to erect a large and modern treatment plant. With an all-weather motor road completed to the mine and with electric power available from the Cobb River scheme, the company is now in an excellent position to erect and operate such a plant should the prospecting work justify the same.

Mica.—Operations in the newly discovered mica field in South Westland have now shifted to an extension of the pegmatite sills located at a comparatively low altitude. Even at the lower altitude weather conditions have been on occasion severe and much time has been lost owing to heavy rain. However, the radio company opening up these deposits has been successful in obtaining 292 lb. of dressed mica suitable for the construction of condensers. Mining costs have been high and the percentage of usable mica recovered from the crude books has been low, so that the overall cost has been high. However, the mica produced has been invaluable in allowing the fulfilment of important war contracts. Mica is, of course, another mineral the demand for which has been increased by war conditions, and the future of our New Zealand deposits under peace conditions is obscure.

Phosphate.—Operations were continued by the British Phosphate Commission at Clarendon, and 4,317 tons of medium-grade material, valued at £10,792 10s., were produced. This, however, exhausted the reserves of this material, and as the drilling campaign had not disclosed additional supplies that could be produced economically operations then terminated. In addition, 15,614 tons of low-grade phosphatic sandstone, valued at £9,758 15s., were produced from the Kapiti Block, where the drilling operations on account of the Department of Agriculture had disclosed reserves of this material. In all, 19,931 tons of phosphate-bearing material was produced of a total value of £20,551 5s.

Bentonite.—While production increased somewhat above 1943 owing to a substantial overseas order, it has not approached the level of 1942, when an oil prospecting company was a large consumer. However, the possibilities of increased production after the war appear good.

Serpentine.—Production of serpentine in North Auckland declined from 61,645 tons in 1943 to 37,711 tons in 1944. This was due mainly to difficulties in transport and not to lack of demand. A deposit has recently been located at Te Kuiti which seems capable of supplying the needs of the North Island for some considerable time.

Limestone.—The production of limestone for agriculture was 903,808 tons, a record. It is of interest to note that during the last ten years production has increased more than threefold, and that the saturation point has not even been approached.

LABORATORY INVESTIGATIONS

The following is a brief summary of the work carried out in the Dominion Laboratory during 1944 in connection with mining industries.

A large number of examinations and analyses of samples of minerals and ores forwarded by prospectors and other members of the general public was carried out during the year.

The continuation of the war maintained the demand for tungsten, and approximately 150 analyses of samples of scheelite concentrates for export were made.

Work on the systematic survey of the clay resources was carried on in conjunction with the Geological Survey.

Other samples examined included mine airs and gases, serpentine for the manufacture of serpentine-superphosphate, phosphate rock, feldspar, chalk, bentonite, flints, and glass-sand.

GEOLOGICAL SURVEY

During the year ended 31st March, 1945, the only detailed mapping undertaken was what was necessary to facilitate the evaluation of deposits of economic interest. The palæontologists identified many faunas for the field officers, especially those engaged on coal survey, where the interpretations of sequence, correlation, and structure depend on palæontological determinations. The work of the petrologists also had a definite economic trend; sands and clays used in industry were examined, rocks for concrete aggregates were determined, the cause of the deterioration of building stones investigated, and heavy residues of possible value separated from gravels and sands.

The Grey and Ohai Coalfields have now been mapped in elaborate detail. The report on the latter is written, but the maps and plans have still to be drawn for publication. The report and drawings of the former are being prepared. The detailed examinations of the Kaitangata and Reefton Coalfields have now been put in hand. A reconnaissance survey of the Gore-Wyndham district was begun in order to obtain information about the extent and thickness of the low-grade lignite so extensively mined in Southland. Other work on coal deposits included the examination of opencast prospects on the North Island, West Coast, and Southland fields, and explorations in the upper Wanganui basin and a headwater branch of the Oreti in Southland.

The geologist who directed the prospecting of the phosphate deposits at Clarendon estimated the amount available and made his report. Limestones in North Auckland, Marlborough, the West Coast, Otago, and Southland were investigated. The prospecting of serpentine masses in North Auckland, near Te Kuiti, and in Southland was directed, and quantities available were estimated. A visit was made to the asbestos claim in the upper Takaka basin and prospecting suggested. A geologist was fortunate in locating a mica deposit in South Westland at a lower elevation and handier to the road than that originally worked; it has yielded good-grade material in substantial amount. Masses of feldspar occur in the same deposit and elsewhere in the same district. Another deposit of feldspar, near Charleston, was reported on, and the beds of feldspathic clay worked at Kaka were again visited. Pottery clays near Kaikohe, North Auckland, were prospected and sampled, and other clay beds near Takaka examined. A quartz sand near Ross may be useful in foundry work. The ironsands at Fitzroy and about Wanganui were estimated and sampled.

There are increasing demands for subsurface water, and geologists advised on conditions, possibilities, and well sites in the North Auckland, Waikato, Taranaki, Wanganui, and Marlborough districts. Visits were also made to Ngawha, Rotorua, and Te Puia in connection with supplies of hot mineral water.