

collected in a water-filled "panning-off" dish.

Sluicing—merely an extended application of the principles of the cradle—gave a spectacular though less romantic twist to the quest for gold after the first rush period had ended. This gave rise to numerous remarkable engineering feats in difficult country, as the miners, needing water with sufficient force to break up the soil, had to construct dams and frequently lead the water from them many miles in open "races" to their claims. Even more expensive and difficult was quartz-mining, in which the gold-bearing rock was crushed by "stampers" or "rollers" and the gold extracted by chemical means. The Hauraki goldfield in the Auckland province was New Zealand's chief centre of this type of mining.

Modern dredging methods entail the use of geo-physical surveys and prospecting by boring. Feverish speculation, in which large sums were made and lost by people who never saw a dredge, attended the boom period of dredging, about 1900, and disappointments and the exhaustion of the richest deposits caused interest to slacken until well after the 1914-18 war, when the increased price of gold again attracted investments in gold-mining.

Goldmining still continues as one of the minor industries of the country, with nearly a score of productive dredges in operation in different parts of the Dominion. But it is a far cry from mining methods of today to the tin-dish and cradle era of the glamorous 'sixties.

HOT WATER ALWAYS ON TAP

Rotorua may add to its unique character by reticulating thermal water for household and industrial purposes. The municipal block and the primary school already have heating systems which employ hot water drawn from bores, but both the local authority and the Government are interested in the possibilities of piping springs which would give a permanent and sufficient supply of hot water for the whole borough. Geological and engineering surveys are being undertaken.

The piping of hot springs and the use of the water in farmhouses and for the heating of glasshouses has been introduced in Iceland. In the town of Reykjavik, which has a population of 30,000, about sixty institutions and buildings are heated from a supply nearly two miles distant. The municipality is now planning to increase the supply to 4,000 gallons a minute from a source ten miles away,

to permit of the heating of the whole town, including 3,000 dwellings. The area of the thermal springs which it is proposed to tap is 1,000 yards by 500 yards. The temperature of the water at the springs is 185 degrees Fahrenheit, and it is anticipated that the loss in reticulation will be only about six and a-half degrees, although the distribution system will comprise twenty-seven miles of pipe.

The principal problems of the Reykjavik scheme are the insulation and expansion and contraction of the pipes. Advocates of the Rotorua project maintain that no such problems would exist there, as the water would be much hotter when drawn off, and there would be no extremes of temperature against which to guard. One particular advantage at Rotorua would be the nearness of the source of supply. It will prove an important factor in keeping the capital costs within reasonable limits.