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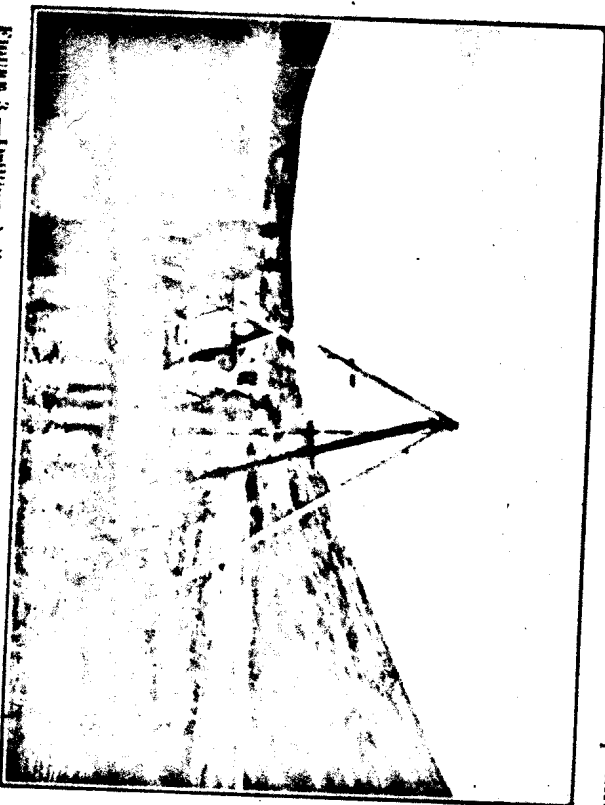


FIGURE 3.—Drilling shallow ground with 4-inch drill driven by gasoline engine.

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WATER SUPPLY

In placer mining the water supply is of utmost importance, as it must be ample for the required output and be available at the property under conditions best suited to the system of mining used. Water supply is governed by different factors; aside from economic factors, the most important are precipitation, temperature, topography, vegetation, and evaporation. Although all forms of placer

mining require water, to obtain water for small mines that do not use water under pressure is generally not especially difficult. The problem of a water supply for use under pressure is therefore discussed in more detail here.

On the south and west slopes of the Alaska Range conditions are most favorable for comparatively large, steady supplies of water. Most of the drainage basins are above the general level of the mines, so that water for mining may be made available by comparatively short ditches or pipe lines. Annual precipitation is heavy, and seasonal temperature variations are seldom extreme. In the Nizina, Chistochina, Girdwood (fig. 1, 47, 44, and 49, respectively), and other districts many streams are fed by glaciers or snowcaps and maintain a constant or increased flow during the dry summer months, when most Alaska water supplies are low.

The Yukon-Tanana or interior regions are dissected uplands, and the predominating features are series of long branching ridges of uniform elevation. Natural storage basins are generally lacking, the drainage basins or catchment areas above the diversion point of the stream are small, and the streams have uniformly low gradients. As a rule, the precipitation is considerably less than in other parts of Alaska and the summer temperatures are higher. Rapid melting of the snow, frozen ground, and sparse timber cause a rapid run-off and a widely fluctuating stream flow that depends almost directly on the precipitation. Conditions in the interior districts, therefore, are not generally favorable for obtaining satisfactory water supplies.

Most of the Seward Peninsula is rugged and much dissected by streams. The precipitation is greater and the temperature lower than in the interior of Alaska. The mountains in the central part of the peninsula receive the heaviest precipitation, and many peaks are covered with perennial snow. Catchment areas are generally large and are situated at elevations well above the point of diversion; there are some good natural storage basins. Most of the important placers, however, are far from the diversion point; hence long expensive ditches and pipe lines are necessary.¹⁴

METHODS OF MEASURING FLOW OF WATER

MINER'S TACK

The unit of water measurement ordinarily used for all classes of work is the "second-foot," and from it the quantity expressed in other terms may be obtained. It is the unit for the rate of flow

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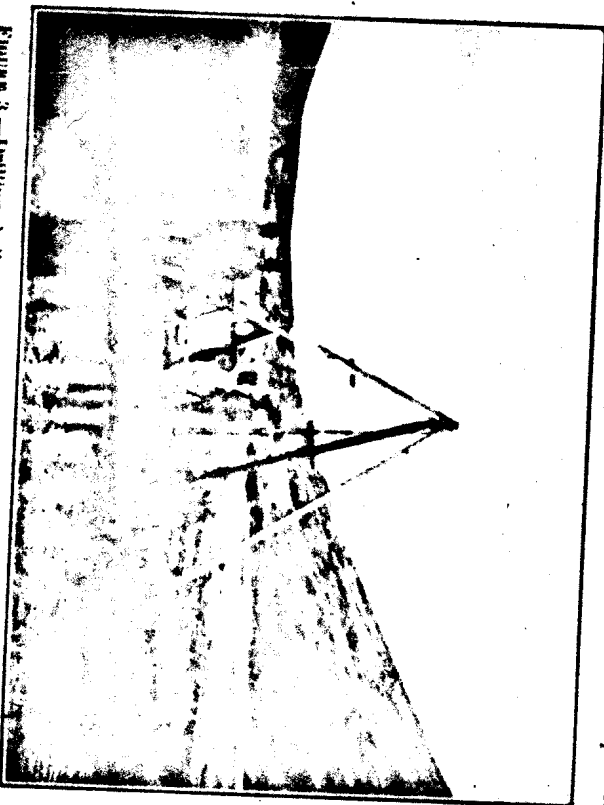


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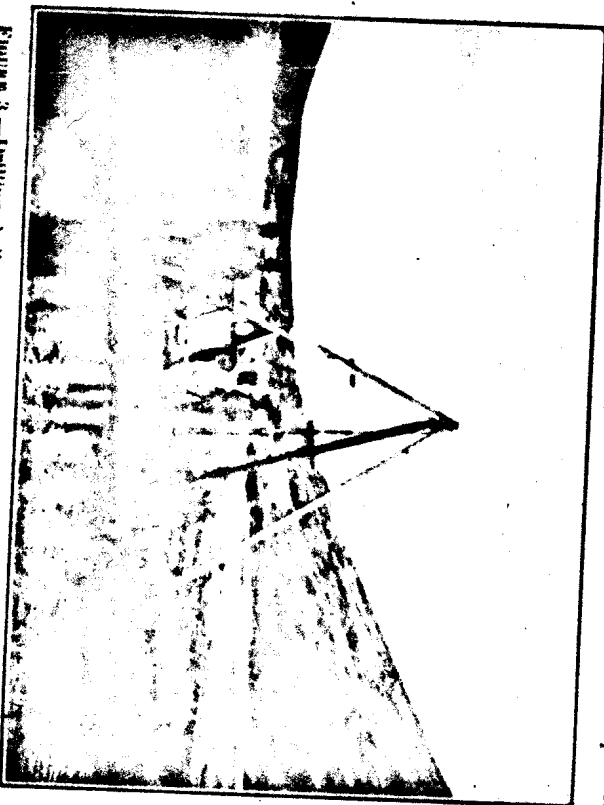


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