

Bleak winds, drifting and blinding snows, temperatures ranging day after day 40, 50 to 70 degrees Fahrenheit below zero, and no shelter beyond the creeks, were conditions to be met which appalled the stoutest hearts, while the remains of many a brave fellow fallen on the trail evidenced the hardships of the country and the severity of the Arctic climate.

Underlying Rocks.—Granite, granitic schists, and metamorphic slates underlie the auriferous wash of the Klondike. The Klondike placers so far as developed have presented no novel geological features.

Origin of the Placers.—Their origin, judging from their composition and positions may be ascribed to erosions occurring at different geological periods in which submergence and elevation were the most important factors. The silts which cover the gravel wash indicate lacustrine origin, and according to the Canadian (Vid. Geological Survey of Canada Annual Report 1887, pp. 42, 43, 46,) geological investigations those of the Upper Yukon appear to have been largely derived from material ground out of the rocks by glacial action. The Klondike fields can be compared to those described by Murchison as occurring on the flanks of the Ural. There are no gold-bearing river channels like those existing in California, nor is there any evidence of gold placers of glacial origin.

Occurrence.—These placers are found along the lines of natural drainage, the topographical features indicating the general direction of the gold alluvions. This does not imply that the miner sinking on a stream flowing in its present course will strike, on first attempt, the channel, but refers to the general course of the wash as indicated by the enclosing ranges.

Depth of Gravel.—The depth of the gravel varies with the waves in the bed rock and its position in the line of wash, ranging in places from only a few inches up to eight or ten feet. This must not be confounded with the "pay streak" which varies in the gravel from a few inches to four feet in thickness and in some instances more, but they are exceptions.

Pay on Bed Rock.—On Dominion creek, 35 miles distant southeasterly from Dawson in the Indian River district, so far as ascertained, the pay is confined chiefly to the bed rock, and it is in such localities that fabulously rich pans are obtained which are misleading.

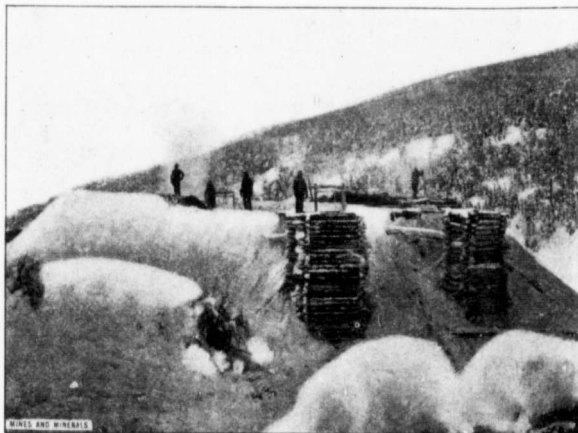
Location of Pay.—The location of pay gravel can only be determined by explorations and, when struck, it requires development to predetermine economical results. These subterranean creeks or gulch channels will be found to follow along between the encompassing ranges in conformity with the bed rock and the shifting of the flow, not in any way indicated by the present surface conditions. (The old channel deposits, where developed, are found to have followed a direct course with large curves, but no sinuosities). Corroborative of this can be cited an instance where, on a Bonanza creek claim, ten shafts were sunk without striking pay, the eleventh shaft finding it. This is not an exceptional case.

Pay Dirt.—The term "pay dirt" is meant to include so much of the gravel and bed rock as can be profitably mined. Pay dirt with this definition is a variable quantity, dependent not only on its gold contents, but on the depth of the gravel and on the cost of labour and supplies. These identical conditions fix the workable width of the wash, even within the restricted lines of the rim rock.

Hill Deposits.—Prospectors in the summer of 1898 discovered by means of shafts, sunk along the hills bordering Bonanza and Eldorado creeks, an upper line of auriferous alluvions several hundred feet above the creek bottoms. The course of this deposit skirts the top of French hill, running down Eldorado to Gold hill, thence to Cheechaco hill, along Bonanza creek across Adams gulch, following Bonanza creek considerably farther down, finally crossing it and debouching near the Klondike. This upper deposit consists of masses of quartz carrying gold. This quartz mass bears every evidence of its reef or vein origin, and as far as developed is from 200 to 300 feet in width.

Value of Hill and Creek Gold.—The gold it contains is worth from \$10.50 to \$12 per oz., whereas the creek gold, which is well water worn, varies from \$15 to \$17 per ounce.

Wherever a break in the hillside line occurs, the claims on the creek immediately below are invariably rich. This has been proven notably at No. 17 Eldorado and on the "Dick Lowe Faction," and on No. 2 below Discovery on Bonanza creek, where the working of



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these claims showed the local enrichment of the placers, not only by the increased bullion yield, but by the presence also of the two distinct classes of gold obtained in the "clean-ups."

These local enrichments are in marked distinction to deposits found on the line of the junction of two flowing streams, which are here proven to follow the same course as experienced in Australia, the rich ground being below the junction on gently undulating bed rock.

The Lower Klondike.—The Lower Klondike region is very rugged and has been described as "hill crowding hill, mountain jostling mountain, on and on they sweep to the uttermost reach of the vision. (Page 31, Appeal of Yukon miners to the Dominion Government). The remote situation of the mines, the difficulties of travel with attendant privations, high prices of labour and supplies, apart from questions of legislation, have here made mining unique.

The season of 1897-8 found the miner in this bleak district with a general scarcity of provisions staring him in the face, with few tools and appliances for mining at his command. That gold existed in many of the creeks had been definitely ascertained, but how to extract it and mine at a profit taxed his ingenuity. There was no powder at hand, no machinery or steam power