

## DEATH GULCH IN YELLOWSTONE PARK.

EXTREMELY rugged mountains occupy the eastern portion of the National Park of the Yellowstone, their snowy summits reaching an altitude of from 10,000 to 11,000 feet, and the streams which run down from their melting snows have their courses through canyons whose precipitous walls of rock reach a height of from 2,000 to 3,000 feet. On a branch of the Lamar river has been found a remarkable spot that has been named "Death gulch" by Walter H. Weed, of the United States geological survey, who thus relates his experiences in that deadly place:

"Even at first sight there appears to be something unusual and peculiar about this little opening in the pines; in the center is a shallow depression that is bare of verdure, the surface white with an encrustation that proved to be salt, while the converging and deeply worn trails leading to it, and the numerous game tracks, show it to be what in the hunter's vernacular is called a "lick." It is the dried bed of an ancient hot spring that is now a shallow alkali pool in the early spring. Crossing this little meadow, we found the creek cutting its further edge, while the white slopes on the opposite side, and the smell of sulphur in the air, suggest at once to those familiar with "Geyserland" the presence of hot springs. Picketing our horses where they might graze upon the salty grasses that grow about the "lick," we descended the bank to the border of the creek, and found its waters flowing between white walls of polished marble, and an expansion of the stream bordered by this creamy white rock forms a natural bath reservoir that even the luxuriousness of ancient Rome could not have equalled. In the center the water is boiling furiously, the bubbling mass rising several inches above the surface of the creek; but the water is quite cold, the commotion being due to the copious emission of gas from some vent in the bed of the stream. Over this spring a stranded log reaches from bank to bank, and served as a foot-bridge, which we crossed with that sure-footedness born of the knowledge that our clothes could no longer be spoiled by a wetting should we fall in.

On the further side of the creek we first notice a low mound of red material evidently iron ochre, and just beyond is a spring now depositing this substance. The water, clear as crystal and icy cold, issues from the center of a little bowl of ochre, surrounded by the brightest of green moss. We were curious enough to taste this water and found it slightly acid, highly charged with gas and tasting like our soda water. But it is the surface of the little basins and pools, filled by the overflow of this spring, that interests us most, for the surface of the water is covered with an ever varying iridescence whose brilliant tints put to shame the hues of the pe-

cock's tail and surpass the changing fires of an opal. This feast of color, with its kaleidoscopic changes, fascinated us, and many minutes were spent watching it, before ascending to the summit of a little platform overlooking this spring. The slope is formed of a gray rock, whose rifled surface at once suggests the terraces of travertine, the so-called "formation" of the Mammoth hot springs. It is indeed the same deposit from hot springs, but altered and crystalline, the material nearer the stream resembling a coarse moss, petrified into white, nearly transparent crystals. The lower crystals are, however, nearly as dense and hard as flint, and it is this material that forms the marble banks of the creek, where its surface is polished, until it is as smooth as glass, by the stream itself.

But it is neither this deposit nor the bank of sulphur a few yards further up the creek that distinguished this place from all others in the park, though the sulphur contains cedar logs embedded in it that are ready for lighting, the wood being so impregnated with sulphur that a splint of it will burn like a match, while the black water oozing from under the bank would make a really "jet black" ink. It is an innocent-looking little gulch that runs down the slope at right angles to the creek, that makes the place worthy of this notice. This little ravine, scarce fifty feet deep, has steeply sloping sides of chalky white decomposed rock, as soft and loose as sand or clay. A little water runs down the narrow bed of the gulch, cold and sour, puckering the mouth with the peculiar astringency of alum. Turning aside to explore this place, we ascended the ravine, finding it rather difficult walking in the little stream bed, and hard work getting up several drops where the steam forms miniature falls of five or six feet. Above one of these tiny cataracts we first noticed a white, or rather creamy, seductive-looking substance in the stream bed. This was so like genuine country cream that it was hard to believe it a purely mineral substance, but such it is, and formed about the minute oozing springs, which issue from the bottom and sides of the gulch. It was here too that we first noticed a sulphurous odor and a slight oppression of the lungs—the irritating effect of the fumes of a sulphur match accompanied by a choking as if from lack of air. We paused a moment to rest, and found ourselves strangely fatigued for so short a climb; but several gusts of the fresh northwest wind filled our lungs with new vigor, and we continued our clamber up the gulch.

With heads bent and eyes eager to note the curious deposits in the ravine bottom, it was not until quite close to him that we noticed an immense grizzly bear but a few yards ahead of us. Startled by so sudden and so close an encounter, we instinctively gave a leap up the steep slope, well knowing that the up-hill side is the safest when a bear is near and no trees handy. But