

LABOR AS A FORM OF ATHLETIC EXERCISE.

Open-air labor is the most effective cosmetic, an almost infallible panacea against all kinds of bodily deformity. But the remedial virtue of labor, *i. e.*, sound bodily exercise, is greater than that of open-air life *per se*; for among the rustic population of Scandinavia, Scotland, and Northern Germany, who perform a large portion of their hard work in-doors, we frequently find models of health and vigor; far more frequently than among the inhabitants of Italy, Spain, etc., who pass the greater part of their indolent lives in the open air.

But besides all this, athletic exercises have a moral value, which our social reformers have strangely failed to recognize; they afford a diversion and a vent to those animal energies which otherwise are sure to explode in debauch and all kinds of vicious excesses. The sympathetic thrill by which the mind accompanies a daring gymnastic feat, and the enthusiasm of athletic contests, form the most salutary, and perhaps the only normal gratification of that

worse: the brutalizing, *i. e.*, soul-hardening spectacles of bloodshed of the Roman arena, or the soul-destroying poisons of the liquor shops? —*Dr. F. L. Oswald, in Popular Science Monthly.*

INVENTIONS.—F. M. Wilson, of Tekamah, Nebraska, has invented an improvement in windmills, consisting of an arrangement of an eccentric and double-crank shaft, by which it is claimed a much larger percentage of power is realized than in the ordinary mills. An improved wharf for rivers, harbors and lakes is a new invention of Mr. S. Howell, of New Orleans. It consists in the combination of metal straps with the mortised cross pieces and stringers of a wharf, and other novel features of construction, which render it possible to build wharfs of any desired length and size in a shop or enclosure and afterward to put them up very quickly. An improved oscillating pump has been devised by Daniel Palacios, of New York city. The pump cylinder is connected at its lower end with a hollow rock shaft or pipe, which communicates with the pump valves.

NOTES ON GEYSERS.

Intimately connected with volcanic phenomena and in fact forming subordinate volcanic phenomena, geysers command the attention and study of the scientist, as well as excite the wonder of the ordinary beholder. Caused for some important purpose in the economy of nature, we should say vent holes for the relief of over-burdened mother earth, the true geyser should not be mistaken for the fumaroles, the so-called geysers of California. The true geyser is found only in Iceland, in the Yellowstone Park of the United States and in New Zealand. Iceland is an essentially volcanic plateau, elevated about 2,000 feet above the sea level, with only a narrow marginal habitable region sloping gently to the sea. Upon this elevated plateau exists every sort of volcanic action, *viz.*: lava eruptions, solfataras, mud volcanoes, hot springs and geysers. These last exist in great numbers; more than 100 are found in a circle of two miles



FIG. 1. GEYSER, SHOWING ORNAMENTAL CHARACTER OF BORDER.

love of excitement which is either the legitimate manifestation of a healthy instinct, or else a wholly irremediable disease of our nature. The soul needs emotions as the body needs exercise, and the exciting sports of the palaestra met both wants at once. We try to suppress these instincts, but their motives remain, and if thwarted in their normal manifestations they assert themselves in some abnormal way, chemically instead of mechanically, as Dr. Boerhaave would say, by convulsing the organs of digestion, since the organs of motion are kept in unbearable inactivity. In times of scarcity the paupers of China and Siam silence the clamors of their hungry children by dosing them with opium; and for analogous reasons millions of our fellow-citizens seek relief in alcohol; they want to benumb a feeling which they cannot satisfy in a healthier way.

After finishing his day's work the Grecian mechanic went to the gymnasium, the Roman to the amphitheater, and the modern European and American goes to the next "saloon," to satisfy by different methods the same instinct—a longing for a diversion from the dull sameness of business routine. There is no question which method was the best—the only question is which of the two bad substitutes may be the

The piston rod is connected with a crank on the pump-driving shaft.

PETROLEUM FUEL FOR STEAMBOATS.—On July 15th, the first known attempt to use petroleum as fuel on board a steamer was tried at Pittsburgh, and the result was very satisfactory. The *Telegraph* says: "The little steamer *Billy Collins*, lay in the Allegheny river this morning with 80 pounds of steam in her boilers, and not a bit of smoke in her stacks, ashes in her pans or clinkers in her fire-box. A few gallons of 63 cent crude oil had run out of a barrel on her guards, and was converted into a waving flame 10 feet long under her boiler, by a little device recently patented." The trip was made a few days ago, and everything passed off satisfactorily. The patent is the invention of a Pittsburgh man.

An English showman's version of the story of King Darius, Daniel and the lions, was as follows: "At him," says the king. "We won't," says the lions. "At him again," says the king. "Blowed if we will," says the lions—which was a sell for the great King Darius, and very wexations."

diameter. One of these, the Great Geyser, is well known to our readers.

In magnificence of geyser displays, Iceland is far surpassed by the geyser basin of Fire-Hole river, in the Yellowstone region. This basin is only about three miles wide. Around it are abundant evidences of prodigious volcanic activity in former times, and secondary volcanic phenomena are developed at the present day on a stupendous scale, and of every variety. More than 10,000 vents of all kinds are found in this vicinity. On Gardiner's river, the hot springs are mostly lime depositing; on Fire-Hole river the geysers deposit silica, containing an enormous quantity of diatomaceous formations, some of them of a marine species mixed with all the varieties usually common to fresh water.

The geysers are generally surrounded by hive-like elevations, ornamented in some cases in the most exquisite manner by a snowy deposit from the hot geyser waters, in the form of scalloped embroidery set with pearly tubercles. The illustration in Fig. 1 will show the appearance of these surrounding deposits.

In some places the silica is deposited in large quantities, three or four inches deep, in a gelatinous condition like starch paste. Trunks and branches of trees immersed in these waters