

A Spool of Thread.

Few people ever stop to think of the twisting and turning and the various processes that cotton fibre goes through after it is taken from the pod before it is wound on a spool and ready for the house-wife's needle. The whole story is told, however, in a small space in one of the cases in the hall in the National Museum given up to an exhibition of textile fabrics. This one of the many object lessons in the museum which, combined, are intended to tell the story of a man as he exists on the earth. First is shown a specimen of cotton in the pod just as it is picked, without having the seeds removed. Next is shown a specimen of the same cotton after it has been ginned and the black seeds have been removed. The Sea Island cotton is used for thread on account of the length of the fibre. A sample of the sacking in which the cotton is baled is also shown. Then the cotton is supposed to have been baled and snipped to the thread factory. Here the first thing that is done with the cotton is to subject it to the "picker" process, by which the cotton from several bales is mixed to secure uniformity. During the picker process much waste, in the form of dust, dirt and fibres is separated from the good fibres by the picker. Next the "picked" cotton is wound on a machine, in sheets or laps, into a roll. The next process illustrated by a practical exhibit is the carding, by which the sheets of cotton are combed or run out into long parallel fibres. The cotton is next seen drawn through a trumpet-shaped opening, which condenses it into a single strand or "silver." Then eight such silvers are run together into one; six of the strands thus produced are drawn into one, and again six of the strands from the last drawing are combined into one. Then comes the slubbing or fast "roving" process which consists of winding the strand and bobbin. Two strands are twisted and again wound on a bobbin. After a number of other twistings and windings, during which the strand is gradually reduced in size until it begins to assume a thread-like appearance, two strands of this fine "roving" are run together and twisted, under considerable tension, on a bobbin that makes 7,000 revolutions a minute. Two of the cords thus produced are then wound together on a spool and then twisted from that to another spool. The two-cord thread thus produced is transferred thence to another spool, and then three threads of two cords each are twisted together, forming a six-cord thread. One who has followed the process sees the cotton gradually transformed from a wide band or sheet of loose cotton to a compact thread that will pass through the eye of a needle. The six-cord thread is at last taken from a bobbin and reeled into a skein from which it is bleached or dyed. Then it is wound back from the skein upon a big spool, from which it is supplied to little white birch spools, upon which it is wound in regular courses, and is then ready for the market. The machine that regulates the last winding measures the number of yards wound on each spool. The spools are made of various sizes to hold from 200 to 12,000 yards of thread. The labels that decorate the ends of the spools when they are sold are last put on. They are cut and pasted on by machinery with great rapidity. — *Washington Star*.

The Second Growth of Mining.

While many of the early theories entertained in regard to the auriferous deposits of California have been exploded, the soundness of others have been confirmed by experience. The deep, still pools along the rivers have not proved to be the repositories of gold, as was at one time expected. Neither the quartz nor the beach sand have paid according to early expectation, nor has the dredging of the river-beds been found practicable. But the trouble with the most of these theories has been, not so much that they were fallacious as that the attempts to carry them out were premature, these having been made at a time when the business of mining was in its infancy, and when everything, labor included, was extremely dear, the placer diggings yielded from \$6 to \$10 per day wages. If failure under these circumstances occurred in the attempts made to work certain classes of deposits, it is not at all strange; nor is it cause for wonderment, that the miners, disappointed with these, their first endeavors, relaxed their efforts and for a time almost abandoned some of these lines of mining. Thus, not for a long time was anything done with the beach sands, first brought prominently into notice in the spring of 1851, through the discoveries made at Gold Bluff. Both river-bed and drift mining, after the impetus they received in the early fifties, met aftwards with a considerable setback, the same having been also the case with quartz operations.

There occur in the mining regions of California many basin-shaped flats known to be rich in gold. These flats were exploited in former times by means of shafts sunk to bed-rock, although which the auriferous earth, waste rock and water were hoisted to the surface, generally with a hand windlass. As these flats contained much water it was found difficult, and often impossible, to free the shafts of water by this method of drainage. In some instances tunnels were driven through which to drain and work them. But as these tunnels required usually to be of great length, not always, nor indeed in more than a few cases, were they ever completed. And when completed, it sometimes happened that they were run on levels too high to answer the purpose intended. Occasionally they were found to be too low, thereby necessitating additional trouble in getting out the gravel. Skillful engineers were rather scarce in those times, nor were the altitudes of these basins as well understood then as at present.

For the past ten or twelve years each of these branches of mining has been undergoing gradual enlargement. The river-beds and the old Pliocene channels, the latter the sites of drift operations, are being worked on a scale far more extensive than was ever attempted or even dreamed of in early days; while many of the gold-bearing basins, with which so little was then done, are being made to yield up their treasures abundantly, the tunnels formerly projected and partly completed having since been finished, or new ones driven for opening up the deposits.

Quartz mining from occupying a secondary growth of the business; nor is it certain that other forms of our auriferous deposits now overlooked, and, in fact, considered well-nigh worthless, will yet be handled with profit. The beach sands and the vast quantities of hydraulic tailings accumulated along the rivers and canyons, to say nothing of our low-grade ores, though now neglected, are simply held in reserve for future experimentations. We foresee a day when they will all be handled with profit, creating new demands for labor and adding largely to our bullion product. They are things that will keep and things that will serve a good end in after times. — *Mining and Science Press*.

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