

## ADVENTURES OF A STRAY KITTEN

The day was cold and dreary. The trees were all bare, not even an oak-leaf lingered to whisper of Indian summer days yet to come before the final setting in of winter.

A delicate little gray kitty, worn to a shadow from hunger, its little feet tired and cold, its little heart aching for sympathy, walked feebly along—not at all after the merry kitten fashion it used to have in former days, when every two steps it would stop to play with its own tail. Ah, no! those days were over now; its master and mistress were both dead, and it was turned out into the cold world; its mother had been a cat of great beauty; but, alas for our little one, she had gone to that land where there is no more suffering for cats, no more dogs, no cruel boys to torment or molest.

Kitty was willing to earn her own living, to turn an honest penny by catching mice, or even rats, if she were bid; but it really seemed as if there was no place on earth for her; rats and mice were scarce, and her chances for domestic happiness, or even a bare subsistence, were very small.

Just as our little waif was giving up in despair, she spied a little cottage, and, thinking perhaps here she might find some crumb of comfort, she tottered up to the door, giving a feeble little "mew." A hard-faced woman opened the door, and, seeing only a kitten in place of the visitor she expected, said roughly, "Go away!" enforcing her words with a cruel kick; then a little girl ran out, seized the poor little thing, tossed it over the fence and left it.

It did seem then as though our kitten's heart would break; every man's hand and child's too was against her; she was too tired to move, and sat all huddled up in a heap on the ground; then the hens came and pecked at her, and some well-fed, overbearing old cats and dogs in the neighborhood came and worried her, till she thought there was no more kindness left in the world. Oh! what bitter tears she shed inside (you know kittens can't cry outside) and how she longed for one purr and caress from her dear old mother.

After a while kitty thought she would make one more struggle for life; so with great difficulty she got upon her feet and tried to drag herself along, stopping every few minutes to rest. She just succeeded in reaching the steps of a pleasant looking square house, with a nice yard in front, and a garden stretching out at the back, when she fell, utterly powerless even to mew. Poor little thing! must she die after all! But just then, as good fortune would have it, a lady, whose face was beaming all over with good nature, opened the door.

"Why, what is this?" she said. "Oh, you poor, darling little kitty!" tenderly lifting up the forlorn little creature. "Why, she is as light as a feather, she is so thin. Poor little thing! how she must have suffered! Run, Sallie, run quick and get some milk—a little warm, you know!"

Ah, how the poor kitty felt the kindness through and through; she gave a grateful little purr, but was too weak to express all she felt; but the good lady took her to the fire, caressed her, warmed her and fed her, and before night the kitten purred her loudest and happiest thanks; and in a week had grown into plumpness and prettiness, and was the pet of the household, where she found a lasting home, and grew into a handsome cat, the fond, happy mother of many beautiful children, and lived many happy years; indeed, is alive now, for aught I know to the contrary.

**THE METROPOLITAN ELEVATED.**—The Metropolitan Elevated Railway Company, of New York, on Jan 21st, awarded the contract for the construction of its East Side line from the Battery to Harlem.

## MOUNTAIN MAKING—HOW THE ALPS FORMED—GEOLOGICAL THEORY.

Prof. Judd, of the Royal School of Mines, London, gave recently an interesting explanation of the formation of the Swiss Alps. The results of geological observations, he said, show that four stages can be recognized in the history of these Alps. First, the existence of a line of weakness in the earth's crust nearly coincident with the line of the present mountains. This is evidenced by the fact that along this line of weakness there were volcanic outbursts, the result of which can still be traced. Secondly, there followed along this line of weakness a depression, and in this huge "trough" of miles in extent there accumulated sands, limestones, and clays by various forms of water agencies, and by animals living in the waters. Thirdly, there followed the consolidation of these soft and loose materials. There is evidence that the accumulation was of from six to seven miles in thickness, and the mere weight of the superincumbent material on the lower strata would have a share in effecting consolidation. But this was not all. Under this vast covering heat had led to crystallization from fusion. There was, too, the crushing in from the sides



AN EAST INDIAN IRRIGATING APPARATUS.

of the trough. This was illustrated by a model of the late Sir H. de la Beche, where lateral pressure was employed on layers of different colored cloth, showing how crumpling resulted, with uplifting of parts of the accumulated mass. Fourthly, there had been the sculpturing of all this into its present form, which was the work of rains and frosts. Some of the existing peaks, even 3,000 feet high, were composed entirely of the disintegrated material resulting from the action of the water, either as ice in glaciers or as rain and streams. The amount of material removed in this was so stupendous that it was almost staggering to try to grasp the facts. The sculpturing of the contours is still going on. This fourth stage was of quite recent date, speaking geologically; but the whole history involved a lapse of time which at the beginning of this century philosophers would not have been prepared to grant, even if the since-acquired knowledge of facts had been presented to them.

The great undertaking of penetrating the Alps with a tunnel at St. Gothard has now progressed 40,443 feet, or 7.65 miles. There still remain 9,000 feet, or 1.74 miles to be bored, which it is hoped to complete in a year, making the tunnel nearly nine and a half miles long, by far the most gigantic work of the kind. The original estimate for the work was \$17,000,000, but it is now expected to cost no less than \$45,000,000.

## IRRIGATION IN INDIA.

In the time of the Patriarchs, various contrivances for watering the earth were resorted to, which had the effect of rendering fertile many spots that would otherwise have remained barren and desolate.

Western nations have gradually modified their irrigating apparatuses, but, among the Orientals—the very people among whom this artificial watering originated—but very little progress has been made in the form of their water wheels and irrigating wells since the days of Abraham.

The process of which we present an engraving on this page is in great use in India, and is the machine which Archimedes invented while in Egypt. It is a cylinder, which is made to revolve on its axis by bullocks or asses yoked to a handle that is connected with the cylinder. Around this cylinder is twisted spirally a pipe, the lower end of which is immersed in water; and, as soon as the bullocks commence to walk,

the water is raised, bend by bend, until it overflows at the top.

**IRON GALVANIZING FURNACE.**—In galvanizing iron the main point to ensure a uniform coating of zinc is the maintenance of a thin bath of metal. Unfortunately the zinc absorbs iron, thickens, and as the temperature must be rapidly raised, when it does so this absorption goes on increasing until the metal is unfit for further use. This is aggravated by the fact that the metal is melted in cast or wrought-iron vessels heated from below. Iron says that in order to avoid the disadvantages of iron vessels, and yet retain ample working space above the surface of the metal, F. A. Thum, of Laubach, Germany, has constructed a furnace resembling somewhat a reverberatory furnace. It has a fireplace and a chimney at each end, the part of the hearth connecting the two being arched over. The rest of the rectangular hearth is perfectly open above, so that the heat-conducting power of the metal is relied upon to keep it at the proper temperature in that part of the hearth. The slabs of fresh zinc are introduced through doors communicating with the hot ends. The staying of the furnace has to be very strong, in order to prevent any accidents to the arching over the ends of the hearth.