

A Common Crystal.

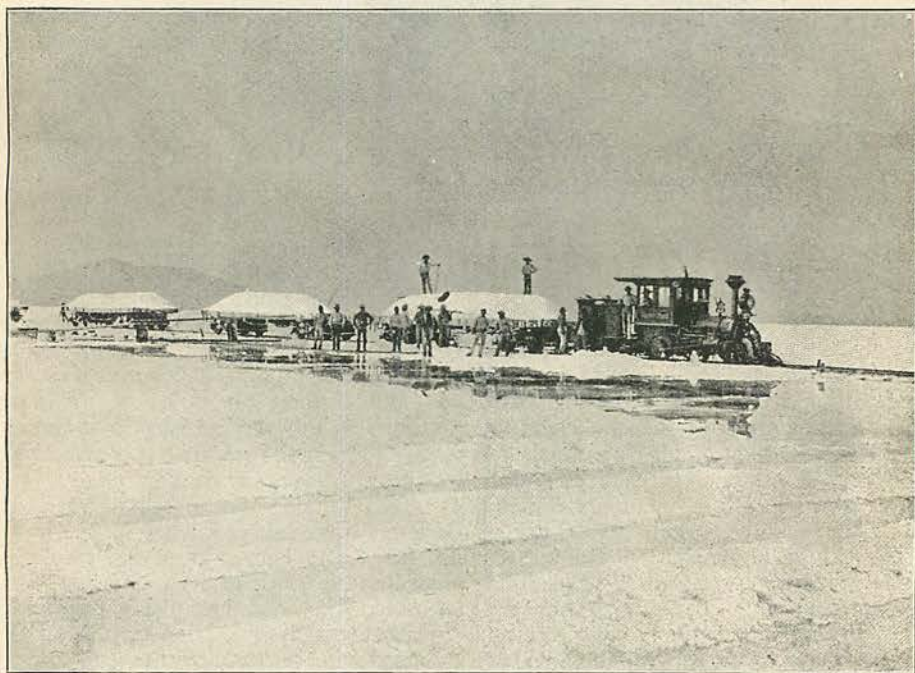
By JOHN R. WATKINS.



HARD to believe, but true. The locomotive shown in the illustration below rests and runs upon a lake of salt—a surface almost as solid as the road-bed of a great passenger system. The engine puffs to and fro all day long on the snow-like crust, while a score of steam-ploughs make progress with a rattling, rasping noise, dividing the lake into long and glittering mounds of salt, which are shovelled by busy Indians on to the waiting cars. The sun shines with almost overwhelming

Here in Salton, striking sights may be seen in the full light of day. One gets some little idea of them from the photographs, but the general effect of this huge natural store-house of commercial salt, its enormous crystal lake, and its massive pyramids of white awaiting shipment, can be but partially conceived from our pictures.

To enter into a complete description of the remarkable industry which transfers a common crystal from a lake of brine to the working-man's table would be beyond the limits of our magazine. It would



From a

LOADING A TRAIN ON A LAKE OF SALT, IN SOUTHERN CALIFORNIA.

[Photograph.]

power, and the dazzling carpet of salt stretches away to the horizon, where it disappears.

The scene is in Salton, in far-off Southern California. Two months ago we described a wonderful city of salt which for centuries has existed below the surface of the earth.

involve a discussion of chemical symbols and formulæ which would make the printed page a cryptograph. Better is it, briefly, to say that much of the salt found in the domestic salt-cellar comes from the water of the sea, which, by evaporation, is turned from liquid into snowy powder. In Salton

Lake, which lies 280ft. below the sea level, the brine rises in the bottom of the marsh from numerous springs in the neighbouring foot-hills, and, quickly evaporating, leaves deposits of almost pure salt, varying from 10in. to 20in. in thickness, and thus forming a substantial crust. The temperature ranges from 120 to 150 degrees, and all the labour is performed by Coahuilla Indians, who work ten hours a day, and seem not in the least to mind the enervating heat. In fact, these Indians are so inured to the fatiguing work

The interesting history of the salt industry in California is largely associated with the name of Plummer Brothers, who in 1864, in the person of the late Mr. J. A. Plummer, made the first genuine attempt to produce a first-class domestic salt. The extensive and striking premises of this noted firm in Centreville, California, are shown in the two illustrations on the next page. Situated as the district is close to the bay, the industry is dependent to a certain extent upon the tides. The early spring tides have little effect in drawing away the



From a

A SALT-PLOUGH AT WORK.

[Photograph.]

that they are not affected by the dazzling sunlight, which distresses the eyes of those unaccustomed to it, and compels the use of coloured glasses. One of these Indians may be seen sitting on the steam-plough shown on this page. He is one of a tribe of large and well-developed men—peaceable, civilized, sober, and industrious, living in comfortable houses built by the New Liverpool Salt Works, with tables, chairs, forks, spoons, and many of the necessary articles of domestic civilization. He guides his plough over the long stretches of salt, running lightly at first over the surface to remove any vestiges of desert sand blown from far away, and then setting the blade to run 6in. deep in furrows 8ft. wide. Each plough harvests daily over 700 tons of pure salt, which is then taken to the mill to be ground and placed in sacks. Scores of men assist in the harvest by loading small “dump-cars,” or trollies, on portable rails, the cargo being finally dumped on the large train or else carried direct to the manufactory.

impurities which the river-floods bring into the bay; but the tides of June and July, rising as they do to a height of 6ft. or 7ft., fill the marshes with a water fairly pure. The salt-makers have prepared for this influx of water by making reservoirs in large clay-bottomed tracts of marsh land, and have cleared them of weeds and grass. The water flows in and fills the reservoirs to a depth of from 15in. to 18in., and the gates are then closed.

Like a large family, descending in size from father to youngest son, the six or seven evaporating ponds of a salt works appear. The large reservoir, being the father of this series of ponds, contains the gross amount of brine, the last two or three being called lime-ponds, owing to the amount of gypsum, lime, etc., precipitated at this stage of evaporation. Not to go too deeply into chemistry, it may be said that the brine lingers in the last of these ponds until a density of 106 degrees is obtained. The surface of the liquid is now dotted by small patches of white which



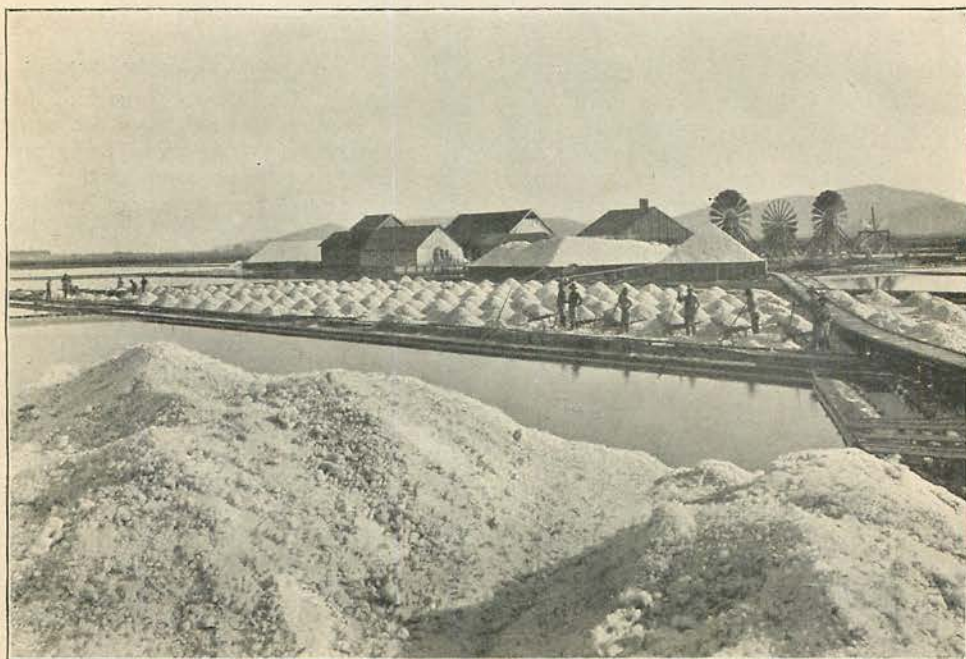
From a Photo. by]

TRANSPORTING SALT IN WHEEL-BARROWS.

[Mr. C. A. Plummer.

accumulate into streaks of drift-salt. This interesting development is shown in the illustration above, the streaks of salt looking like patches of surf on the sands of the sea-shore. The liquid is now run into crystallizing vats,

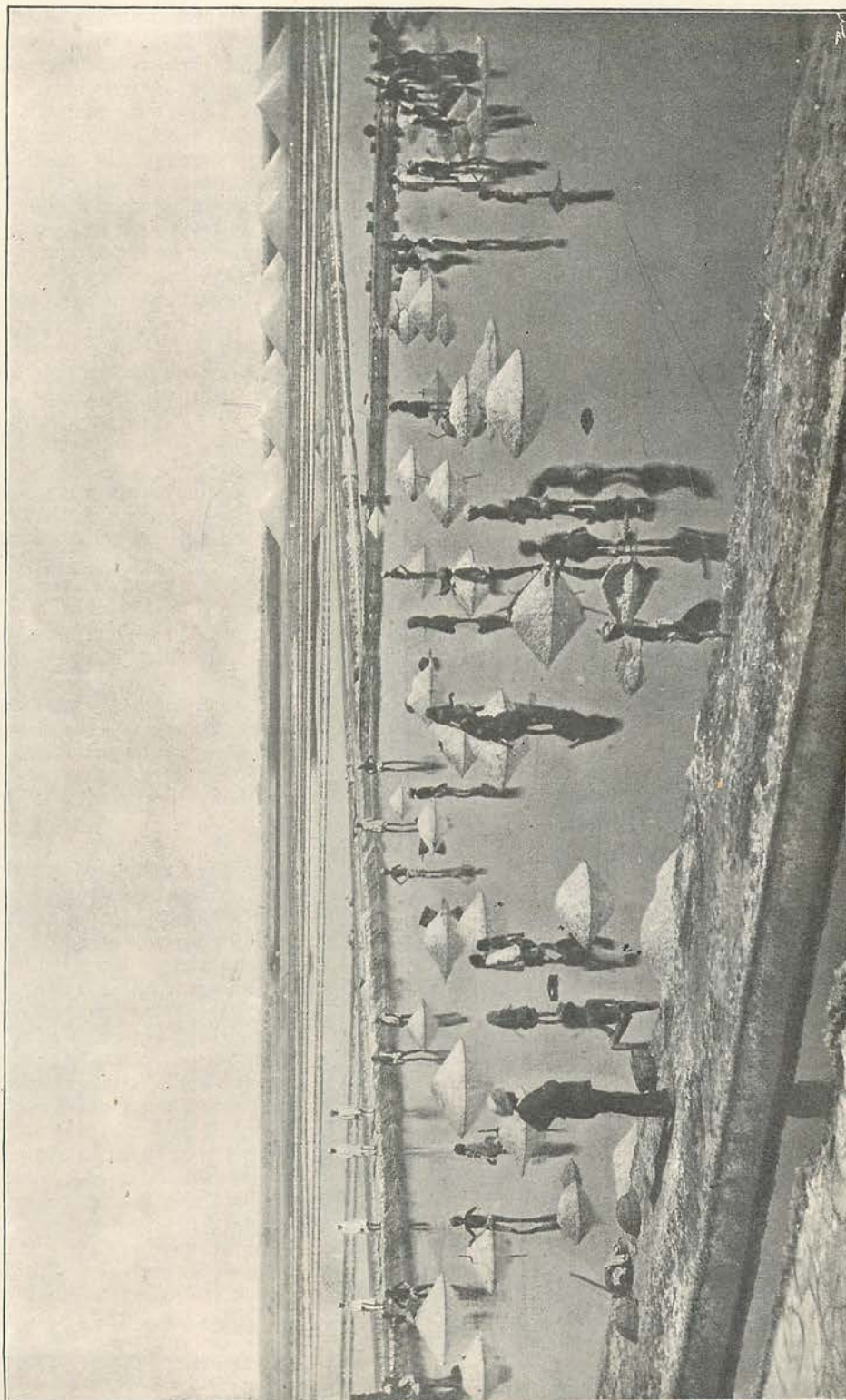
where it remains until the salt crystals have formed at the bottom. It sometimes takes two months for a crop of salt to develop. In harvesting, the workman, donning large, flat sandals of wood, enters the vat with a galvanized



From a Photo. by]

SALT CRYSTALLIZING PONDS.

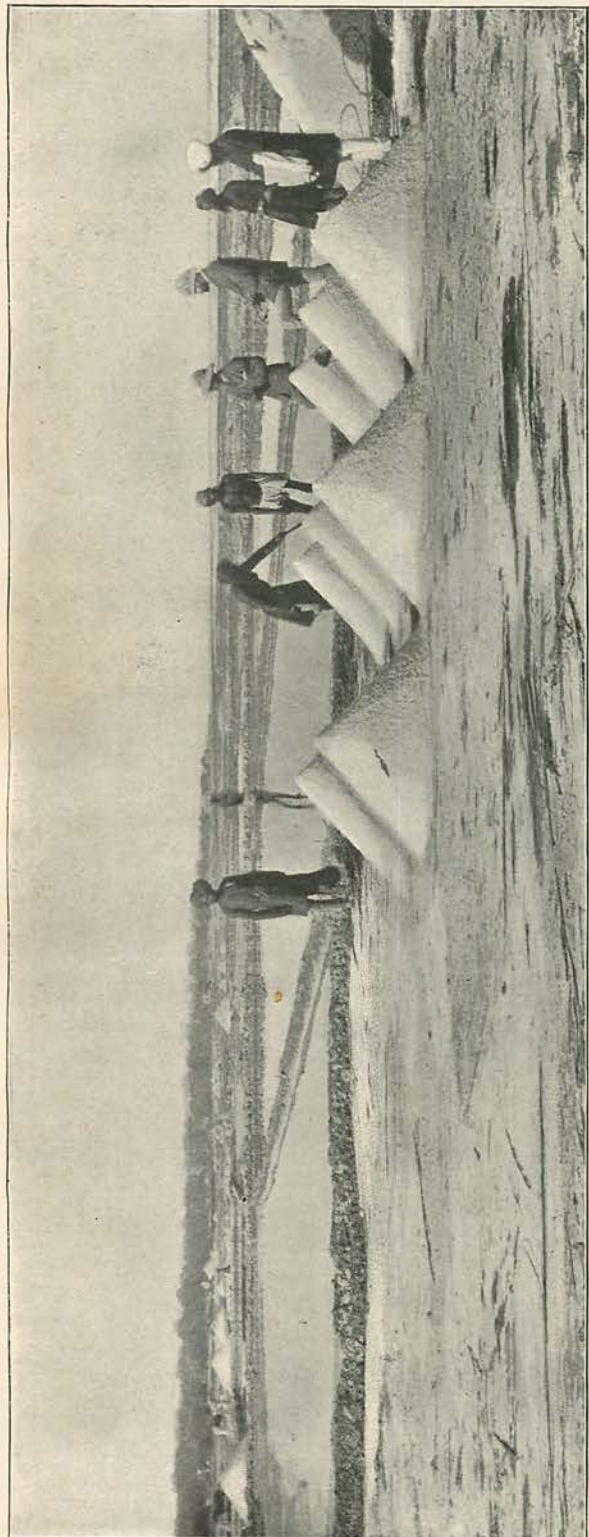
[Mr. C. A. Plummer.



Photo, from]

SALT-MAKING IN RAJPUTANA.

[Rev. Henry Lauselt, D.D., Blackheath.



[Rev. Henry Lawdell, D.D., Blackheath.

MEASURING SALT-HEAPS IN RAJPUTANA.

Photo. from]

shovel, and marks off on the surface of the salt a series of parallel lines. This process enables the labourers to toss the lumps into uniform piles. A strict examination is made of every shovelful, in order that impurities may be eliminated. Our illustrations show these conical mounds of salt, and the transfer of the salt by means of barrels to large platforms, where the crystal product is thrown into huge pyramids, sometimes 25ft. high. Here it remains, bleaching and solidifying for a year. It is, indeed, a picturesque sight to see these ghost-like pyramids grow in their might from day to day.

Into the processes by which these massive mounds of hardened salt are crushed and distributed to the markets, we need not enter; nor need we name the varieties of salt which are so distributed. We find something more interesting in turning from California to Central India, where in Rajputana a tremendous industry in salt is carried on, and where we may see the same little piles of salt that we have noted in the previous illustrations.

In the background of the large full-page picture, which we have just passed, may be seen colossal heaps of salt, and in the foreground scores of men, women, and children wading in the vat of sluggish brine, from which, by dint of constant effort, emerge the little cones of white. The overseers stand by to direct, and the scene is one of tremendous interest and activity, punctuated by babble of voices. We get a closer view of these cones in our last illustration, in which we find the coolies measuring the height of the cones. One thing we miss in these vistas of barren whiteness—the sight of the labour-saving machinery so noticeable in our early illustrations. Is it an object-lesson in the differences between East and West?