

TRANSPORTATION OLD AND NEW.

BY REV. R. E. CHAMBERS, CANTON, CHINA.

The transformation that is slowly, very slowly, taking place in the industrial condition of the Chinese is suggested in the strongly-contrasted methods of transportation illustrated in the accompanying group of pictures. From time immemorial the Chinese have depended upon draft animals and man-power for the haulage of passengers and freight, when the transportation was to be done by land. For transportation by water they have been favored by the presence of navigable rivers, with which the country is abundantly supplied. It is to the vested interests of the river boatmen, indeed, that much of the opposition to the introduction of steam railroads has been due. One of our illustrations is reproduced from a photograph that was taken about 30 miles north of Canton, and represents the transporting of goods on wheelbarrows, a method of transportation by which a large amount of freight is carried annually to China. The outfit is distinctly a family affair, the man wheeling the barrow, and the woman going ahead and helping by pulling on a rope attached to the front of the barrow.

service on the Manhattan elevated railways before the introduction of electric traction. These little engines, which, in spite of their long service, were in excellent condition, have been scattered all over the world, and eight of them are now used for hauling passenger trains between Canton and Fatshan, a distance of twelve miles. Twelve trains are run each way daily, and when it is remembered that Fatshan has a population of between one and a half million and two million people, it can be understood that the traffic is very heavy.

Production of Galalith.

Consul-General Hughes, of Coburg, furnishes the following additional information regarding "galalith, or milk stone," on which subject the SCIENTIFIC AMERICAN published an article.

Galalith is of about the same hardness as horn, but it is a little more brittle. In order to bend it, it is necessary to place the material for about ten minutes in cold water; then it is put for five, ten, or even fifteen minutes—depending upon its thickness—into boiling water, or, better still, into mineral oil at a tempera-

las, combs, cigar holders, various ornaments for ladies and gentlemen, etc. Quite recently galalith has also been employed in the manufacture of furniture; on account of its beautiful shades, particularly marble colors, galalith is used for framing the valuable and very delicate iridescent glass; it being also furnished in tubes, it can be used in the manufacture of parlor or onyx lamps.

The manufacture of galalith takes from two weeks to three months, depending on the required thickness; at present it is rolled in plates of a thickness of 2 millimeters (0.078 inch), and 50 centimeters (19.68 inches) by 80 centimeters (31.2 inches) in size; staves of a thickness of 3 millimeters (0.12 inch) and more, and tubes are not rolled, but drawn. This is done in the works at Wimpossing and Harburg on the Elbe. In the latter place a large factory for the production of galalith is in course of construction.

Remarkable Hoisting.

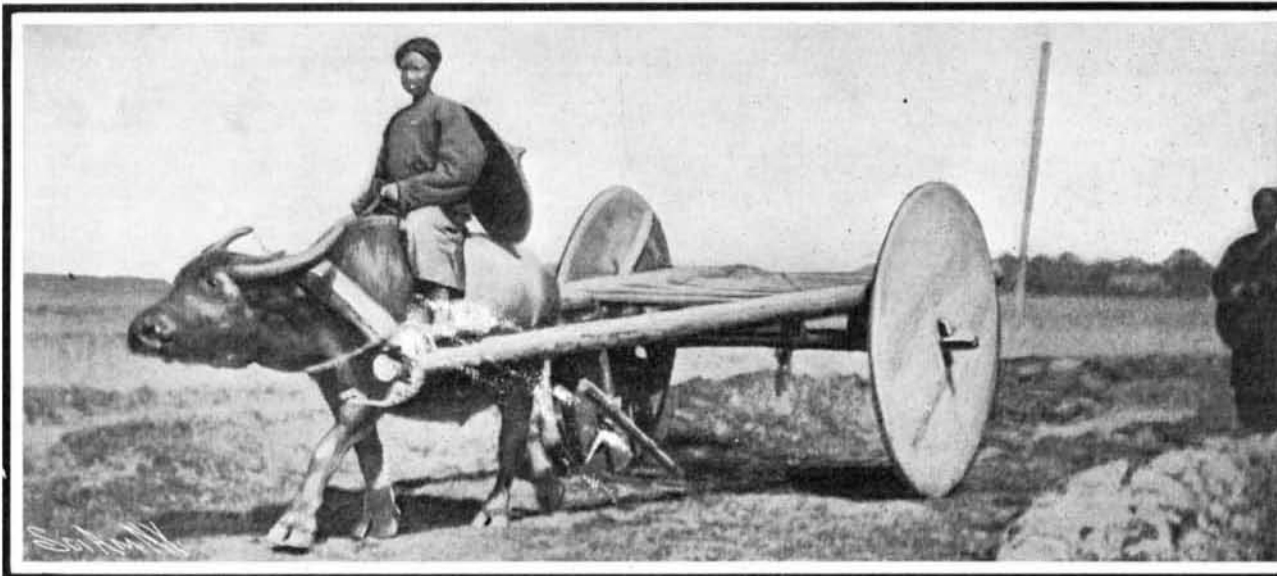
At the De Beers Mine in Kimberly, some very remarkable work has been done in the hoisting line; establishing a wonderful record in the way of capacity



Modern Steel Cross Ties



Transportation by Wheelbarrows. Each Man Pushes: His Wife Pulls.



A Primitive Chinese Method of Hauling Sugar Cane.



A New York Elevated Railway Engine Now Used in China.

METHODS OF TRANSPORTATION IN CHINA.

Another illustration shows a cart of the kind used in hauling sugar cane from the fields to the factory. It will be noticed that the construction of the cart, as of the barrow, is of the most primitive kind, the shafts of the cart being unhewn poles and the wheels apparently built up of planks of wood.

Two of the photographs were taken on the Canton-Hankow Railway, a branch of which is now nearly completed from Canton to Sam Shui, a treaty port on the West River, 30 miles west of Canton. One of the views shows a pile of steel cross ties, of the kind which are used in the track from Canton to Fatshan. The flag which floats over the ties bears the name of the Chinese colonel of the soldiers that protect the railway from injury by the natives. A peddler of sugar cane was plying his trade just in front of the ties, but fled when he saw that his picture was about to be taken. His scanty wares may be noticed in the foreground.

Perhaps the most interesting view of all, at least to New Yorkers, will be that showing a locomotive attached to a train of cars; for they will recognize the well-known outline of one of the three or four hundred engines which, for so many years, did good

ture of from 80 deg. to 100 deg. C. After that the galalith can be bent easily, but this must be done gently and not by jerks. When heated, the finest impressions can be made on it. It is polished in the same way as horn—i. e., after having carefully smoothed its surface with the help of sandpaper, it is polished by the application of plenty of water, some oil, fine pumice stone, and gray tripoli. After this it is dried by rubbing with a coarse cloth, and then with the help of a pad a little green soap and Vienna chalk is rubbed on. The brilliant polish thus obtained is glassy and nicer and more durable than that of horn. Galalith is of about the same weight as celluloid; it is lighter than hard rubber of a poor quality, but slightly heavier than articles made of hard rubber. Unlike celluloid, it cannot be chipped with a knife; but, the same as horn, it must be cut by means of a fine saw.

Like tortoise shell, it can be soldered, and by means of a specially-prepared glue it can be fastened on celluloid, wood, tiles, and metal. A great variety of articles are manufactured out of this new material by the Vereinigte Gummiwaarenfabriken at Harburg and Vienna, as, for instance, handles for canes and umbrel-

for hoisting from a single shaft. The hoisting engine consists of a pair of vertical, tandem, compound, condensing engines, operating with 120 pounds of steam, hoisting from the 1,200-foot level, making a total lift of about 1,260 feet. Two automatic dumping skips, 5 feet x 3 feet and 6 feet deep, are used, each weighing 4,400 pounds and holding 9,600 pounds of rock. The skip is loaded at the bottom by tipplers worked from the chute by a hand lever, and the rapidity of handling is shown by the fact that as high as 92 skip trips have been made in 1 hour. On one occasion during a single shift of 11 hours and 43 minutes the weight of rock hoisted was 3,665 tons, or at the rate of 7,400 tons in 24 hours. This record was broken by the same plant a year or two later by hoisting 5,300 tons in 12 hours, and on May 17, 1899, 9,261 loads of blue ground, equal to 7,400 tons of 2,000 pounds each, were hoisted 1,260 feet by this engine, working in two compartments, in 24 hours. Of course this is not their regular everyday working, but special running to show what can be done. The skips are loaded at the bottom so quickly that the engineer sometimes receives the signal to hoist before he has completely stopped the engine.—J. S. Lane in Mines and Minerals.