

her hull appeared only about 3 feet above the water. The whole weight of the vessel and machinery is supported by arched girders. The engines are 200 horse power. The steering apparatus is of a novel character, the stern being divided into two parts, resembling the ends of two canoes lashed together, from which depend two boards or rudders like leeboards in shape, which are raised alternately as the course is required to be changed from starboard to port, or vice versa.

Steam Plowing.—As Spring approaches, great prominence is given to steam culture in England, and a number of lectures have recently been delivered in various places, in which its economy over plowing by horse-power has been pointed out pretty clearly; but it is admitted that it will not pay for a farmer who has a small farm and a limited amount of capital. It requires a farm of about 300 acres in extent to maintain a steam plow in England, therefore, it can only be employed in America, with profit, on farms of about 1,000 acres, such as some of those on the prairies, because horse-power is much cheaper in the United States than in England.

Metals.—English rails are steady at £5 12s. 6d. per ton; Scotch pig iron is selling at £2 18s. 6d; spelter is selling at £21; and Banca tin at £140 per ton. As £1 is valued at \$4.85, the price of pig iron in Scotland is only \$13.08 per ton. The great strike which had taken place among the coal-miners in Glasgow has terminated; the operatives have returned to work at the old wages, but obtained some concessions regarding the hours of labor. The steel trade of Sheffield is very brisk at present, and there has been a great increase of raw unmanufactured steel, but a decrease in the manufacture of steel articles. A great deal of steel is imported into the United States, and manufactured into articles which formerly were manufactured exclusively at Sheffield. All the cutlery now made at Waterbury, Conn., and other places in America, has cut into the Sheffield trade.

INDUSTRY—MANUFACTURES—COMMERCE.

Indiana Coal.—At Cannelton, Ind., there is a tunnel cut 1,600 feet long from the mines, and a double railroad laid in it down to the river. The vein of coal worked is 4½ feet thick; 110 miners are employed, and 8,000 bushels of coal are raised per day. The railroad is on an incline from the mines to the river, and is operated entirely by gravitation. The loaded cars, going down on one track, carry up the empty cars by an endless rope on the second track. The coals drop through the bottom of the cars into boats below in the river, no expense is therefore incurred either for haulage, or loading the boats. The price of coal is about seven cents per bushel. It is used on Ohio and Mississippi steamboats.

Pennsylvania Coal.—On page 201, present volume of the SCIENTIFIC AMERICAN, we stated that many of our coal mines were insufficiently ventilated. This statement was painfully verified by an explosion, caused by "fire damp," which took place near Scranton, Pa., on the 25th ult. Several persons in the mine were severely injured, but none fatally, we believe. Great attention should be paid to the ventilation of our coal mines and the condition of the hardy miners who labor at such an unhealthy and dangerous business.

Coal in Chicago.—The large bituminous coal fields of the West are being rapidly developed. Last year 131,204 tons were received in Chicago, and the best qualities of Pennsylvania and Ohio bituminous ranged in price, in that city, only from £3.50 to \$4.00 per ton. The Illinois coal sold for \$2.25 and £2.75 per ton. The lower veins of this field are much superior in quality to those of the upper series of veins. In a few years hence, therefore, the people of the West will be getting much better coal than they do at present.

Steam on Street Railroads.—Septimus Norris, the well-known engineer of Philadelphia, says he will guarantee to propel each car on the passenger railroads of that city, loaded with 36 passengers, over any road and up any grade, at a cost of 88 cents a day for coal. The saving in the operation of these roads would be very large by using steam. The advantages gained by the substitution of steam, he says, are as follows:—1st. The steam car can ascend any grade without assistance. 2d. The steam car can be stopped much quicker, and propelled at a greater speed. 3d. The saving in the use of steam for 315 cars would be in a year, \$189,675. 4th. The space occupied in the street would be lessened for each car the length of the horses.

The Maple Sugar Crop.—The Grand Haven (Mich.) News says:—"Large preparations are being made for a successful campaign in the sugar woods and, should the season prove a favorable one, an unusual amount of this table luxury will be manufactured within the limits of our country. Michigan is—size considered—one of the greatest States in the Union in amount of maple sugar produced in her forests, exceeding in the aggregate 2,500,000 pounds annually; value at 8 cents per pound, \$200,000.

Adulteration of Articles.—Our merchants must keep a sharp look-out for the articles which they send to Canada. A chemist in Quebec has recently published the result of a chemical analysis of some of the articles of consumption sent to that city by New Yorkers. He found in pickles, which bear the label "no sulphate of copper," not this salt, but sulphate of iron instead. In sherry wine he discovered an immense quantity of salt. In the green tea he found copperas. The gin was nothing but whiskey and essence of juniper. In snuff he found peroxid of iron and other chemicals, to the extent of one-fifth of its bulk. This will soon ruin our character, and trade, also, if persisted in. "Honesty is the best policy" in all things.

NEW YORK MARKETS.

BEEHIVE.—American yellow, 36c. a 36½c. per lb.
BREAD.—Ship, 3¼c. a 4¼c. per lb.
CANDLES.—Sperm, city, 38c. a 40c. per lb.; sperm, patent, 45c. a 50c. wax, paraffine, 50c.; adamantine, city, 17c. a 19c.; stearic, 27c. a 28c.
COAL.—Anthracite, \$4.75 a \$5; Liverpool orrel, per chaldron, \$9; cannel, \$11.
COPPER.—Refined ingots, 23½c. per lb.; sheathing, 27c.; yellow metal, 20c.
CORDAGE.—Manilla, American made, 8c. a 8½c. per lb.; Rope, Russia hemp, 12c.
COTTON.—Ordinary, 8c. a 8½c.; good ordinary, 9¼c. a 9½c.; middling, 11¼c. a 11½c.; good middling, 11¾c. a 12¼c.; middling fair, 12¼c. a 13¼c.

DOMESTIC GOODS.—Shirtings, brown, 30-inch, per yard, 8c. a 7½c.; shirtings, bleached, 36 a 32-inch, per yard, 6c. a 8c.; shirtings, bleached, 30 a 34-inch, per yard, 7c. a 8½c.; sheetings, brown, 36 a 37-inch, per yard, 5½c. a 8½c.; sheetings, bleached, 36-inch, per yard, 7½c. a 15c.; calicoes, 6c. a 11c.; drillings, bleached, 30-inch, per yard, 8½c. a 10c.; cloths, all wool, \$1.50 a \$2.50; cloths, cotton warp, 62c. a \$1.37; cassimeres, 75c. a \$1.50; satinetts, 30c. a 60c.; flannels, 15c. a 30c.; Canton flannels, brown, 8½c. a 15c.; Kentucky jeans, 8c. a 18c.

DYES.—Barwood, per ton, \$18 a \$20; Camwood, \$100 a \$125; Fustic, Cuba, \$38 a \$39; Fustic, Tampico, \$35; Fustic, Savanilla, \$30 a \$32; Fustic, Maracabo, \$19 a \$20; Logwood, Laguna, \$22 a \$23; Logwood, Tabasco, \$21; Logwood, St. Domingo, \$14.50 a \$15; Logwood, Honduras, \$16 a \$17; Logwood, Jamaica, \$13.50 a \$14; Lima wood, \$50 a \$65; Sapan wood \$46; Cochineal, per lb., \$1.08; Bichromate of potash, 20c. a 21c. per lb.; Cream of tartar, 38c. per lb.; Madder, 12c. per lb.; Lac dye, 10 c. a 50c. per lb.; Blue vitriol, 9½c. per lb.; Catechu, 6½c. a 7½c. per lb.; Copperas, 1½c. per lb.

FLOUR.—State, superfine brands, \$5.15 a \$5.25; State, extra brands \$5.25 a \$5.40; Michigan fancy brands, \$4.25 a \$5.45; Ohio, common brands, \$5.35 a \$5.45; Ohio, fancy brands, \$5.50 a \$5.70; Ohio, fair extra, \$5.90 a \$6.10; Ohio, good and choice extra brands, \$6.25 a \$7; Michigan, Indiana, Wisconsin, &c., \$5.30 a \$5.65; Genesee, fancy brands, \$5.60 a \$5.70; Genesee, extra brands, \$5.70 a \$7.55; Missouri, \$5.75 a \$7.75; Canada, \$5.35 a \$7; Virginia, \$6.50 a \$7.40; Rye flour, superfine, \$3.90 a \$4.4; corn meal, \$4.10.

GUMS.—Per lb. Gamboge, 25c.; Arabic, picked, 12c. a 26c., sorts, 8c. a 9½c.; Benzoin, 5½c.; Copal, Cowrie, 4½c. a 5½c.; Damar, 9½c. a 14c.; Myrrh, East India, 10c. a 25c.; Myrrh, Turkey, 25c. a 32c.; Senegal, 6c. a 10c.; Tragacanth, sorts, 17c. a 37½c.; Tragacanth, white flaky, 75c. a 90c.; Shellac, 50c. a 55c.

HEMP.—American undressed, \$120 a \$150; dressed, from \$160 a \$200. Jute, \$100. Italian, \$375. Russian clean, \$190 a \$200 per ton. Manilla, 6½c. per lb. Sisal, 5½c.

INDIA-RUBBER.—Para, fine, a 60c. per lb.; East India, 52c.
INDIGO.—Bengal, \$1 a \$1.55 per lb.; Madras, 70c. a 95c.; Manilla 60 c. a \$1.10; Guatemala, \$1 a \$1.25.

IRON.—Pig, Scotch, per ton, \$25; bar, Swedes, ordinary sizes, \$35 a \$36; bar, English, common, \$42.50 a \$43.50; refined, \$53 a \$54; sheet, Russia, 1st quality, per lb., 11¼c. a 12c.; sheet, English, single, double and treble, 3½c. a 37½c.; anthracite, pig, \$34 per ton.
IVORY.—Per lb., \$1.25 a \$1.30.

LATHS.—Eastern, per M., \$1.50 a \$1.75
LEAD.—Galena, \$5.87 per 100 lbs.; German and English refined, \$5.62 a \$5.67; bar, sheet and pipe, 6½c. a 7c. per lb.

LEATHER.—Oak slaughter, light, 29c. a 31c. per lb.; Oak, medium 30c. a 32c.; Oak, heavy, 28c. a 31c.; Oak, Ohio 29c. a 30c.; Hemlock, heavy, California, 19c. a 20c.; Hem jock, buff, 15c. a 18c.; Cordovan, 50c. a 60c.; Morocco, per dozen, \$18 a \$30; Patent enameled, 16c. a 17c. per foot; light Sheep, morocco finish, \$7.50 a \$8.50 per dozen; Calf-skins, oak, 55c. a 60c. per lb.; Hemlock, 50c. a 60c.; Belting, oak, 32c. a 34c.; Hemlock, 28c. a 31c.

LIME.—Rockland, 90c. per bu.

LUMBER.—Timber, white pine, per M feet, \$17.75; yellow pine, \$35 a \$40, oak, \$35 a \$30; Eastern pine and spruce, \$16.25 a \$17.50; White Pine, clear, \$35 a \$40; White Pine, select, \$35 a \$30; White Pine, box, \$16 a \$18; White Pine, flooring, 1½ inch dressed, tongued and grooved, \$24.50 a \$28; Yellow Pine, flooring, 1½ inch, dressed, tongued and grooved, \$29 a \$35; Black Walnut, good, \$45; Black Walnut, 2d quality, \$30; Cherry, good, \$45; White Wood, chair plank, \$42; White Wood, 1 inch, \$38 a \$35; Spruce Flooring, 1½ inch, dressed, tongued and grooved, each, 21c. a 23c.; Spruce Boards, 1½c. a 16c.; Hemlock Boards, 12½c. a 13c.; Hemlock wall strips, 10c. a 11c.; Shingles, cedar, per M, \$28 a \$35; Shingles, cypress, \$12 a \$35; Staves, W O. pipe, light, \$55 a \$68; Staves, white oak, pipe, heavy, \$75 a \$80; Staves, white oak, pipe, culls, \$30 a \$35; Staves, do. hhd., heavy, \$70; Staves, do. hhd. light,

\$30 a \$35; Staves, do. bbl. culls, \$20; Mahogany—St. Domingo, fine crotches, per foot, 35c. a 45c.; St. Domingo, ordinary do., 20c. a 25c. Honduras, fine, 12½c. a 15c.; Mexican, 13c. a 15c.

NAILS.—Cut, 3¼c. a 3½c. per lb.; American clinch, 4½c. a 5½c. American horse-shoe, 14½c. a 20c.

OLIVE.—Olive, Marsailles, baskets and boxes, \$3.50 a \$3.55; Olive, in casks, per gallon, \$1.20 a \$1.30; Palm, per pound, 3½c.; Linseed, city made, 57c. a 58c. per gallon; linseed, English, 59c.; whale, fair to prime, 46c. a 50c.; whale, bleached 58c. a 60c.; sperm, crude, \$1.40 a \$1.43; sperm, unbleached winter, \$1.47; lard oil, No. 1, winter, 92c. a \$1; red oil, city distilled, 57c.; Wadsworth's refined rosin, 25c. a 35c.; boiled oil for painting, 25c. a 35c.; tanner's improved and extra, 25c. a 30c.; camphene, 49c.; fluid, 47c.

PAINTS.—Litharge, American, 7c. per lb.; lead, red, American, 7c.; lead, white, American, pure, in oil, 8c.; lead, white, American, pure, dry, 7½c.; zinc, white, American, dry, No. 1, 5c.; zinc, white, French, dry, 7½c.; zinc, white, French, in oil, 9½c.; ochre, ground in oil, 4c. a 6c.; Spanish brown, ground in oil, 4c.; Paris white, American, 7c.; a 90c. per 100 lbs.; vermilion, Chinese, \$1 a \$1.10; Venetian red, N. C., \$1.75 a \$3 per cwt.; chalk, \$3.75 per ton.

PLASTER-OF-PARIS.—Blue Nova Scotia, \$2.75 per ton; white, \$3.50; calcined, \$1.20 per bbl.

RESIN.—Turpentine, soft, per 280 lbs., \$3.50 a \$3.55; common, 310 lbs., \$1.65 a \$1.67; strained and No. 2, \$1.70 a \$2.00; No. 1, per 280 lbs., \$2 a \$3; white, \$3 a \$4; pale, \$4.50 a \$6.

SALTPETER.—Refined, 12c. a 14c. per lb.
SOAP.—Brown, per pound, 5c. a 8c.; Castile, 9c. a 9½c.; Olive, 7c. a 7½c.

STEEL.—English cast, 14c. a 16c. per lb.; German, 7c. a 10c.; American spring, 5c. a 5½c.; American blister, 4½c. a 5½c.

SUGAR.—New Orleans, 6c. a 8½c. per lb.; Porto Rico, 6½c. a 8½c.; Havana, brown and yellow, 7c. a 8½c.; Havanna, white, 8½c. a 9½c.; Brazil, white, 8c. a 8½c.; Brazil, brown, 6½c. a 7c.; Stuart's granulated, 9½c.

SUMAC.—Sicily, \$60 a \$80 per ton.
TALLOW.—American prime, 10½c. a 10¾c. per lb.
TIN.—Banca, 31c.; Straits, 30c.; plates, \$6.50 a \$9.25, per box.

WOOL.—American, Saxony fleeced, per lb., 54c. a 58c.; American full blood merino, 42c. a 47c.; extra, pulled, 42c. a 47c.; superfine, pulled, 38c. a 38c.; California, fine, unwashed, 20c. a 28c.; California, common, unwashed, 10c. a 18c.; Mexican, unwashed, 11c. a 14c.

ZINC.—Sheets, 7c. a 7½c. per lb.
 The foregoing rates indicate the state of the New York markets up to March 23th.

These tables are renewed for the past month and show the changes which have occurred in prices since we published the last table (on page 138), for February. There has been very little fluctuation in prices, indeed, the small number and very limited range of changes and prices will afford surprise to many persons who suppose there is a very irregular vibration of the price-pendulum day by day.

City-made adamantine candles have fallen one cent per lb; foreign coals \$2 per ton; refined copper, is one-half a cent lower per lb; ordinary qualities of cotton one cent per lb. Sugar has lowered about one-half cent per pound, on the average; and fine wool two cents per lb. Camwood has fallen \$5 per ton.

It is a better sign of the times to witness a rise rather than a fall of prices. The changes in the advance of prices are greater and more numerous than the declension changes. Linseed oil has advanced about two cents per gallon. Paints are very conservative—no change. Lime has gone up twenty cents per barrel, and yellow pine and spruce have advanced \$2 and \$5 per 1,000 feet—a good sign of activity in building. The metals have been stationary, and leather unaltered.

GREASE AN ANTIDOTE FOR ARSENIC.—M. Blondlot, of Nancy (France), has called attention to a very curious toxicological fact, namely, that greasy matters have the power of diminishing considerably the solubility of arsenious acid, either in pure water or in acid and alkaline liquors. Thus, in contact with grease, the poisonous properties of arsenious acid are very much decreased, and at the same time, it becomes more difficult to render its presence evident by chemical reactions. A very slight quantity of greasy matter, according to M. Blondlot's experiments, reduces the solubility of arsenious acid to 1-15th or 1-20th of what it is when in a pure state. This explains why arsenic, taken in the form of powder, remains sometimes for a considerable interval in the body without producing injury; it explains also how it is that, in cases of poisoning by arsenic, this substance has not been readily detected in such portions of the body or the aliments which contain much grease. It seems to teach us, also, that cream, for instance, is an excellent antidote for arsenious acid. Morgagni tells us, in his writings, that, in his time, the Italian boatmen used to astonish the bystanders by swallowing, without hurt, large pinches of arsenious acid, having taken the precaution beforehand of drinking a quantity of milk or eating some greasy matter. As soon as the public had retired they got rid of the poison by vomiting.—London Photographic News.