

large dredges is about half of that by the small; dredging rock by the large dredges is as cheap as dredging earth by the small; the large dredges can work well in cur rents or in hard stuff, where the small could do nothing. He recommended that it might be wise to keep one small dredge for special work, but both time and money would be saved if the other two were sold at any price, or simply discarded, and a powerful one built to take their place.

The Department of Public Works was active in the improvement of the ship channel of the St. Lawrence between Montreal and Quebec. This work had been prosecuted in years previous to 1896, and it has been continued during the current season. It is proposed to widen the channel throughout to 500 ft. and deepen it to 30 ft. In order to do this, a new survey will have to be made of the river between Montreal and Portneuf to connect with the survey recently completed between the latter place and Quebec. The principal operations carried out by the Government during 1896 were the widening and deepening of the channel where most necessary between Montreal and Lake St. Peter; the deepening of the Pointe aux Trembles channel to 28 ft. 6 in. at low water and the widening of the curves both above and below the point; the widening of the curve opposite Ile Delorier, at Cap St. Michel, to 350 ft. in its narrowest place. A 400-ft. channel, with a depth of 28 ft. 6 in. at low water, was completed through the Berre a Boulard, near Lotbiniere, in August. When this was done, it was decided to widen this channel to 500 ft., while the plant was still there, so the dredge was placed at work on the south side of the cut and good progress was made before the close of the season. One elevator dredge worked the entire season in the channel in Montreal Harbor. The work of the current year has been the further widening and deepening at Maisonneuve and Lougueuil; the completion of widening and deepening at Pointe aux Trembles; the widening of the channel at Pouillier, Varennes and Cap St. Michel; the deepening of the sand bar at Pointe Citrouille; the widening of the curve at the lower end of Coutrécour channel; the further widening of the 400-ft. channel at Barre a Boulard, looking to its completion, and the commencement of a 500-ft. channel at Cap Santé and Ste. Croix.

Labor-Saving Devices at the Brooks Locomotive Works.

A good example of the advance in the use of tools worked by compressed air and hydraulic power and of machines driven by electricity is afforded in the case of their introduction at the Brooks Locomotive Works, Dunkirk, N. Y. Each of these powers has been applied to the specific work for which it is especially adapted. In this instance we find that tools have been introduced after a somewhat careful estimate of the power required, their cost, etc.; furthermore, the saving in each case is known with some degree of accuracy, and with the electric motors this is very apparent. Before their introduction six horizontal tubular boilers were required for constant service, and after the motors were put in the shops (aggregating in all over 150-H. P.) but five boilers were required. This is unquestionably the most satisfactory manner in which to obtain the actual saving, and it is regarded by many as the only fair test that can be made.

The engine room contains two Buckeye engines, one of 200-H. P. and the other of 100-H. P., both directly connected to Western Electric generators. In addition to the current for the motors, which are located in different parts of the shops, all the buildings are lighted by current from these generators. The motors in the shops include a 25-H. P. Western Electric motor driven rollers, one of 7-H. P. driving punch and shear, and a 10-H. P. Gibbs machine driving punch and shear. A 20-ton crane with a 70-ft. span is driven by a General Electric motor, while in the foundry a 35-H. P. motor drives the blowers, and in this same room two cranes of 10 tons capacity each with a travel of 40 ft. are worked by General Electric motors. So throughout the different departments the electric motors are being used to perform a large variety of work. On the transfer table a 30-H. P. Western Electric motor is now doing the work that was formerly done by two steam engines. Probably one of the most serviceable devices is a 4 H. P. portable motor with a flexible shaft attachment by means of which any part of an engine can be worked upon with but little inconvenience and delay.

Water power has found its place in working two hoists in the machine shop and three hydraulic riveting machines and a hoist for raising material in the boiler-room. Two small cranes are also operated by this power. The water for the hydraulic elevator is pumped by means of an electric motor, so that we have here water and electricity both working to advantage. The pressure in the water pipes leading to the different devices averages about 1,000 lbs per square inch.

Air for the pneumatic tools is furnished by a large compressor, the working pressure being from 70 to 100 lbs. While the pneumatic tools have not been used very extensively, their service thus far has been very satisfactory, especially in chipping and calking.

TECHNICAL.

Manufacturing and Business.

William A. Cauty severed his connection with the screw machine department of the Pratt & Whitney Co., Hartford, Conn., to take the superintendency of the screw machine department of the Davis & Egan Machine Tool Co., Cincinnati, O.

The Standard Paint Co., 81 John street, New York City, has received an order to furnish P. & B. Ruberoid car roofing for the 350 refrigerator cars ordered by Swift & Co. from the Michigan-Peninsular Car Co.

The Carnegie Steel Co., Ltd., of Pittsburgh, Pa., is reported as having received contracts for 12,000 tons of bridge material for the Atchison, Topeka & Santa Fe and 4,000 tons for the Pittsburgh, Fort Wayne & Chicago. Further contracts from the latter road are expected to be placed this week.

The Empire Forge Co., of Lansingburgh, N. Y., denies the sale of its foundry to the Palmer Hardware Co., as reported.

The Davis & Egan Machine Tool Co., of Cincinnati, O., has been awarded a contract by the French government for four heavy 36-in. standard engine lathes, with 22 ft. beds. These lathes are to be equipped with metric lead screw and full set of change gears for cutting a large range of threads of the metric pitch. The lathes will be shipped from Cincinnati about Dec. 1.

The Chicago Railway Equipment Co., of Chicago, Ill., makers of the National hollow brake beam, shipped 200 brake beams on the steamer "Columbia" from Tacoma, Wash., on Sept. 4, for the Chinese Imperial Railway. This is the latest of a number of shipments that have been made by the same company.

The Pneumatic Railway Signal Co. has been organized with an authorized capital stock of \$1,250,000, to put on the market the McCartney pneumatic interlocking signal. The officers and directors are: President, John N. Beckley; Vice-President, Charles M. Everest; Secretary, Thomas A. Smyth; Treasurer, George W. Archer, and Engineer, Frank L. Dodgson. The Board of Directors includes George C. Buell, Jr.; Frederick Cook, Albert H. Harris, George Weldon, William Bartholomay, Bernard Dunn, Adolph Spieher, W. F. Carlton and J. H. McCartney. The office of the company is at 414 Ellwanger & Barry Bldg., Rochester, N. Y.

Maris Bros., manufacturers of traveling cranes, Philadelphia, Pa., are erecting a new machine shop to meet the demands of their increased business. The building will be 55 x 75 ft. Running the full length of the building will be a 10-ton power crane having a span of 30 ft. One side of the building will be arranged with a gallery on which will be placed the lighter machinery. The framework of the building will be steel, and the covering of the sides and roof will be corrugated iron. Contract for the complete building has been let to the Berlin Iron Bridge Co., of East Berlin, Conn., who designed the structure, and will furnish and erect all the material.

The U. S. Metallic Packing Co., of Philadelphia, Pa., reports sales of 109 Dean locomotive track sanders during the month of August.

The entire plant of the Pennsylvania Bolt & Nut Works, at Lebanon, Pa., is running day and night.

The Bethlehem Iron Works Co., of South Bethlehem, Pa., has received a contract to furnish new forgings for the engine of the torpedo boat Rogers (built by the Columbia Iron Works & Dry Dock Co., of Baltimore, Md.), to replace some which broke last week. The original forgings were not made by the Bethlehem Iron Works Co.

Iron and Steel.

Last week the price of Bessemer pig iron at Cleveland was advanced 50 cents a ton, making the price \$10. Mill iron is \$9.25 and Southern iron \$9.90.

The Altoona Iron Co., of Altoona, Pa., is building a new brick and stone boiler-house, 45 x 40 ft. It will be equipped with three 125-H. P. boilers.

At the annual meeting of the Brown-Bonell Iron Co. of Youngstown, O., last week, the following directors and officers were elected: Samuel Mather, Robert McCurdy, H. C. Boughman, Henry Wick, John I. Williams, Daniel Eells and Joseph Forker; President, Samuel Mather; Robert McCurdy, Vice-President; John F. Taylor, Secretary and Treasurer; J. M. Butler, Assistant Secretary, and John I. Williams, general manager.

The property of the Premier Steel Co., at Indianapolis, Ind., will be sold by order of the court, Jan. 15, 1898. It has been in the hands of a receiver since April, 1893.

The Struthers Furnace Co., of Struthers, O., has put its new furnace in blast.

The Ohio Iron & Steel Co., of Lowellville, O., has placed an order with the Wheeler Boiler Co., of Sharon, Pa., for one 325-H. P. Wheeler water-tube boiler.

The following directors of the Thomas Iron Co., at Hokendauqua, Pa., were elected last week: Samuel Thomas, B. F. Fackenthal, Jr., J. S. Rodenbough, J. Samuel Krause, W. H. Hulick, William Hardenberg and Frederick R. Drake. B. F. Fackenthal, Jr., was elected President; William H. Hulick, Vice-President, and James W. Weaver, Secretary and Treasurer. Mr. Krause was elected a member of the board in place of James Fuller, of Catsasqua, and Mr. Rodenbough in place of Charles Stewart.

New Stations and Shops.

The Chesapeake & Ohio has had under consideration for some time the elevation of its tracks in Richmond and the building of a new station there. This work may be done in the near future, but no time has yet been decided upon.

It is reported that the Detroit & Lima Northern Railroad will build a new passenger station at Adrian, Mich.

The Consolidated Traction Co., of Pittsburgh, Pa., is building on Frankstone avenue, between Lang avenue and Collier street, a new general repair shop 576 x 135 ft., a terminal car station 218 x 135 ft., and a storage house for cars 300 x 135 ft. A car station is also being built at the Highland Park terminus. Work has been begun on a new power-house at 20th street and the Allegheny River. It will be equipped with six 2,500-H. P. engines and an equal number of dynamos. The Ft. Pitt Bridge Co., of Pittsburgh, will build the car barns.

The new station of the Boston & Maine, at Beverly, Mass., has been finished. It is 116 ft. 6 in. x 30 ft. one story high with a red slate roof. The main waiting room is 60 x 30 ft. with a ticket office in one corner 15 x 15 ft. The interior and exterior of the building is of white brick with cypress wood finish. The baggage and express room is 30 ft. square and located in the northern end of the building.

The Ohio River Railroad is building a new passenger station at Sistersville, W. Va. The principal dimensions are: Main building, 120 x 27 ft., with wing in rear 68 x 45 ft.; carriage shed at north end, 50 ft. long; platform, 16 ft. wide, extending entire length of building and carriage shed. The baggage-room at the north end is 12½ x 28 ft.; express-room, 10 x 26 ft.; women's waiting-room, 18½ x 26 ft., with toilet-room in rear of waiting-room. Connecting with the women's waiting-room (by a large arch) is the men's waiting-room, of the same dimensions, with toilet off. The ticket offices are between the waiting-rooms. Next to the men's waiting-room is a lunch room, 25 x 21 ft., with entrance from platform through a bay window, corresponding to a bay window in the ticket offices. In rear of lunch-room is kitchen, 16 x 24 ft., and a store-room, 10 x 12 ft. A lunch-room adjoins the main dining-room, and is 44 x 26 ft. There will be five full sized, finished rooms on the second floor with hardwood floors. The roof will be black slate. The contractors are Brown Bros., of Parkersburg, W. Va., and the architect, William Howe, of the same place.

Steam Heat.

The Houston & Texas Central is equipping passenger cars with steam heat.

Rules for Loading Lumber, Etc.

The Master Car Builders' Association rules governing the loading of lumber and timber on open cars, and loading and carrying structural materials, plates, rails, girders, etc., as revised by the convention of 1897, are now ready for delivery, prices as follows: Twenty-five copies, \$1; 50 copies, \$1.75; 100 copies, \$3. A less number than 20 copies at five cents per copy.

Automatic Block Signals.

The Hall Signal Company has contracted to furnish for the Illinois Central 38 semaphore signals to be operated by electric motors actuated by batteries. These signals are to be used in automatic rail circuit block signals on the company's St. Louis line south of Gilman, where a second main track has lately been put in. The Illinois Central has had 16 of these signals in use for several months and they have made very satisfactory records. The motor is placed on a bracket fixed to the post below the semaphore arm and above the balance lever, and pulls the signal to the clear position by means of a chain attached to the weighted end of the balance lever. There will be a starting, a home and a distant signal at each station. With the signals already in service this contract will equip about 20 miles of double track. The signals will stand normally at danger.

The Hall Signal Co. has equipped with its automatic disk signals the new depressed roadway of the Boston & Albany through Newton, Mass. This piece of road is about 5 miles long, from Faneuil to Riverside, and there are four main tracks, making 20 miles of track signalled. The signals stand normally at danger.

Pintsch Gas and the D. & R. G. Accident.

We commented briefly last week on the statement that the Denver & Rio Grande train which was involved in a collision at Newcastle was set on fire by an explosion of the Pintsch gas tanks. An officer of the road informs us that he has seen all of the Pintsch tanks and there is no evidence of an explosion having occurred in any one of them.

The Water Power Project at Richmond.

A plan is being worked out for using some of the power of the James River at Richmond to generate electric power for transmission to consumers in the neighborhood. The General Electric Company has made provisional contracts with consumers to the amount of about 2,500 estimated horse power. It is estimated that they must get contracts for 3,500 to 4,500 horse power before beginning work. The company is now applying for a franchise from the City Council and expects to apply for a charter at the next session of the Virginia Legislature. There is a possible development by using a system of storage of from 12,000 to 15,000 horse power the year through.

Electric Headlights.

The Pyle-National Electric Headlight Co., office Monadnock Block, Chicago, factory Indianapolis, provided itself at the outset with factory facilities for making one complete engine equipment a day, thinking that that would answer the purpose for at least a year. The company is now three months behind its orders and is preparing to multiply the size of its factory several times.

Bezer's Revolving Signal.

One evening last week, while the signal engineers were in New York on the occasion of their club meeting, a party of them and of other railroad men went out to