

tinuously on cutting around the shops.

For cutting steel and wrought iron, the oxy-acetylene process has practically no competitor, it being impossible with the carbon point to cut as fast, or as fine and neatly, as the gas torch, although for scrapping fireboxes and frames, the carbon point is cheaper, if time is no object and labor cheap.

The foregoing examples only enumerate a very small fraction of the uses to which the two methods of welding and cutting are being put in locomotive repairing and machine shops and fresh uses are being found for it every day. No locomotive house should be without an oxy-acetylene outfit, both for repair work and as a part of the wrecking outfit, many days are lost by locomotives being tied up through parts having to be sent to the nearest big shops for repair, which could be repaired on the spot with a welding and cutting outfit. All large locomotive houses should have both processes, as they would pay for themselves over and over again. Though there are many different opinions as to which is the best

process, no shop is complete unless it has both equipments, although the gas has really the widest range, but, on the other hand, a heavy piece of steel or iron needs no preheating with the electrode but welding can be commenced as soon as your arc is drawn. Ninety-five per cent. of the failures which occur instead of being laid on the process should be placed on the shoulders of the operators.

Welding should not be treated as a side line of the machinists' or boilermakers' business, but as a trade in itself, as it really is, for it needs the entire concentration of a man's mind, careful study, plenty of practice and a conscientious man to make a welder. Wherever possible a separate building or suitable space should be provided for bench work, and should be equipped with a suitable furnace for heating and annealing castings, and also have plenty of floor room, to allow of charcoal fires being built for preheating cast iron jobs for welding.

The foregoing paper was read before the Canadian Railway Club in Montreal recently.

11, 1863.

Ross Thompson, ex Chief Engineer, and Managing Director, St. John and Quebec Ry., Fredericton, N.B., born at Newry, Ireland, Jan. 1, 1865.

T. H. White, Chief Engineer, Canadian Northern Pacific Ry., Vancouver, B.C., born at St. Thomas, Ont., Jan. 27, 1848.

A. Wilcox, General Superintendent, Central District, Canadian Northern Ry., Winnipeg, born at Kincardine, Ont., Jan. 2, 1865.

Strength of Oxy-Acetylene Welded Joints.

The Illinois University's Engineering Experiment Station has completed a series of tests of the strength of oxy-acetylene welded joints in mild steel plates. The tests were made in the laboratories at Urbana under three conditions of loading: (1) static load in tension, (in a testing machine); (2) repeated load (bending), and (3) impact in tension (in a drop testing machine).

For joints made with no subsequent treatment after welding, the joint efficiency for static tension was found to be about 100% for plates $\frac{1}{2}$ in. thick or less, and to decrease for thicker plates. For static tension tests, the efficiency of the material in the joints welded with no subsequent treatment was found to be not greater than 75%. The joints were strengthened by working the metal after welding and were weakened by annealing at 800 degrees C. For static tests and for repeated stress tests, the joint efficiency sometimes reaches 100%; the efficiency of the material in the joint is always less. This indicates the necessity of building up the weld to a thickness greater than that of the plate. The impact tests show that oxy-acetylene welded joints are decidedly weaker under shock than is the original material; for joints welded with no subsequent treatment, the strength under impact seems to be about half that of the material. In general, the test results tend to increase confidence in the static strength and in the strength under repeated stress of carefully made oxy-acetylene welded joints in mild steel plates.

The results of the tests have been published by the Engineering Experiment Station as Bulletin 98, copies of which may be obtained free by addressing C. R. Richards, Director, Urbana, Ill.

Canadian Northern Ry. Vancouver Station Suit.—Gibb & Co. have secured a verdict for \$4,000 against Canadian Northern Construction Co. and Carter, Hall, Aldinger Co., for breach of contract. The plaintiffs were to supply certain stone for the building of the C.N.P.R. station at False Creek, Vancouver, for which work the other companies were the contractors. The question at issue was whether or not a contract, as contemplated by the Sales of Goods Act, existed. There was a verbal contract, and a document to which was appended the printed name of one of the defendant companies, with the rubber stamped name of the other, and these two names were connected by the written word "and," which the jury found had been written in by the secretary-treasurer of one of the defendant companies before it was handed to the plaintiffs. Justice Murphy, upon the motion to enter judgment for the \$4,000, declined to give a decision upon the sufficiency of the document as a contract. This matter will be taken to a higher court.

Birthdays of Transportation Men in January.

Many happy returns of the day to:—
J. Abrams, Wharf Freight Agent, C.P.R., Vancouver, B.C., born at Manchester, Eng., Jan. 24, 1870.

W. U. Appleton, General Master Mechanic, Canadian Government Railways, Moncton, N.B., born there, Jan. 29, 1878.

R. Armstrong, Superintendent, Souris Division, Manitoba District, C.P.R., Souris, born at Kingston, Ont., Jan. 27, 1865.

L. E. Ayer, General Agent, Canadian Northern Ry., St. Louis, Mo., born at Henderson, Ia., Jan. 11, 1877.

F. X. Belanger, General Freight and Passenger Agent, Temiscouata Ry., Riviere du Loup, Que., born at Chlorydormes, Que., Jan. 20, 1876.

G. McL. Brown, European Manager, C.P.R., London, Eng., born at Hamilton, Ont., Jan. 20, 1866.

F. J. Buller, Cashier and Paymaster, Eastern Lines, Canadian Northern Ry., born at Lindsay, Ont., Jan. 30, 1874.

W. A. Cowan, A.M.Can.Soc.C.E., General Superintendent, Western Lines, Canadian Government Railways, Cochrane, Ont., born at Galt, Ont., Jan. 22, 1877.

J. E. Dalrymple, Vice President, G.T.R., G.T.P.R., and Central Vermont Ry., Montreal, born there Jan. 1, 1869.

A. Davidson, Commercial Agent, Grand Trunk Pacific Ry., and G.T.P. Coast Steamship Co., Vancouver, B.C., born at St. Henri, Montreal, Jan. 29, 1885.

G. J. Desbarats, C.M.G., Deputy Minister of Naval Service, Ottawa, Ont., born at Quebec, Que., Jan. 27, 1861.

J. E. Everell, Superintendent, Montmorency Division, Quebec Ry., Light and Power Co., Quebec, Que., born at Cap Rouge, Que., Jan. 1, 1863.

J. E. Giles, Locomotive Foreman, Canadian Northern Ry., Lucerne, B.C., born at Toronto, Jan. 18, 1882.

Gordon Grant, Chief Engineer, Quebec and Saguenay Ry., Ottawa, born at Dufftown, Scotland, Jan. 2, 1861.

G. F. Hichborn, formerly Agent, Great Eastern Fast Freight Line, New York, born at Boston, Mass., Jan. 13, 1875.

C. Hood, Local Freight Agent, C.P.R., Saskatoon, Sask., born at Edinburgh, Scotland, Jan. 20, 1864.

D. W. Houston, Superintendent, Regina Municipal Ry., Regina, Sask., born at Bathurst, N.B., Jan. 3, 1879.

Carl Howe, Traffic Manager, Michigan Central Rd., Chicago, Ill., born at Berrien Springs, Mich., Jan. 11, 1870.

H. J. Humphrey, Superintendent, Brownville Division, Quebec District, C.P.R., Brownville Jct., Me., born at Berrys Mills, N.B., Jan. 26, 1879.

W. C. Hunter, ex-Manager New Brunswick Coal and Ry. Co., now of Montreal, born at St. John, N.B., Jan. 4, 1865.

H. G. Kelley, President, G.T.R. and G.T.P.R., Montreal, born at Philadelphia, Pa., Jan. 12, 1858.

W. J. Lynch, General Manager, Quebec Ry., Light, Heat and Power Co., Quebec, Que., born there, Jan. 17 1882.

C. R. Mackenzie, General Manager's Assistant, Western Lines, Canadian Government Railways, Winnipeg, born at Toronto, Jan. 10, 1883.

John Macrae, Locomotive Foreman, C.P.R., Swift Current, Sask., born at Springburn, Glasgow, Scotland, Jan. 30, 1879.

P. A. Macdonald, Manitoba Public Utilities Commissioner, Winnipeg, born at Gananoque, Ont., Jan. 6, 1857.

William Phillips, Canadian Representative, Cunard Steamship Co., Montreal, born at Toronto, Jan. 31, 1870.

W. Pratt, General Superintendent, Sleeping and Dining Cars and Hotels, Canadian Northern Ry., Winnipeg, born at Sibbertoft, Northamptonshire, Eng., Jan. 18, 1870.

John Pullen, President, Canadian Express Co., Montreal, born at Shepton Mallet, Eng., Jan. 23, 1863.

Ralph M. Reade, Superintendent, City and Quebec County Railways, Quebec Railway, Light & Power Co., Quebec, born at Llanelly, Wales, Jan. 1, 1868.

L. J. Rouleau, Commercial Agent, G.T.R., Quebec, Que., born at Montreal, Jan. 6, 1879.

C. Senay, Assistant Superintendent, Laurentian Division, Quebec District, C.P.R., Montreal, born at St. Cesaire, Que., Jan. 31, 1873.

A. F. Stewart, M.Can.Soc.C.E., Chief Engineer, Eastern Lines, Canadian Northern Ry., Toronto, born at West Bay, N.S., Jan. 1864.

J. G. Sullivan, M.Can.Soc.C.E., Chief Engineer, Western Lines, C.P.R., Winnipeg, born at Bushnells Basin, N.Y., Jan.