Our methods are practically the same over the entire system, but as the Stratford shop was the first to try this system, we will use it as an illustration. The repairs required are designated by a let-ter, which is in itself a symbol and indi-

cates what kind of repairs are necessary, also approximately how many days the locomotive will be in the shop. The fol-lowing are the letters used, with a brief explanation:

B.S.—Boiler to be converted to super-heat and will be 24 working days in the (Spare boiler and cylinders are shop. ready before locomotive comes in.)

B.-New firebox to be applied. 21 working days allowed.

C .- Firebox will receive new half side and possibly new flue sheet. 21 working days allowed.

D.-Boiler to be retubed and machinery given a general repair. 18 working days allowed.

D.C.-Same as D, except new cylinder or cylinders will be applied. 21 working days allowed.

E.—Wheels removed, tires turned, boxes and rods repaired. 12 working days allowed.

L.-Light repairs such as replacing broken rods, light patch in firebox, or any work which locomotive house cannot conveniently handle. S.—Specific repairs. Some special job

which is really locomotive house work, but for some legitimate reason is handled in the main shop.

As each kind of repair is allowed a certain number of days in the shop, the list of locomotives turned out weekly has to bear a certain relationship to this, in order that output may be regular, both as to quantity and weight of repairs. The foremen meet in the master mechanic's office each Friday and incoming locomotives are assigned to their proper places on the outgoing list. A new list is issued each week. The locomotives are booked in, in such a manner that each week's output will represent about the same weight of repairs on the whole, although the number of locomotives may be more or less.

As space is limited, I cannot describe the methods as applied in all departments, but will take it for granted the various parts have been repaired and are in the erecting shop. This department was for-merly handled with nine regular gangs, consisting of approximately 10 men per gang, controlled by a chargehand, who was responsible for three pits. In addition to the nine gangs we had three or four special gangs, such as shoe and wedge, guide bar, and steampipe. Our regular pit gangs carried the locomotive through from the time it was stripped, with the exception of the detailed work above mentioned. Under this system we accomplished good work until our forces became depleted through enlistments, and upon looking carefully into the situation we found where a gang usually had five or six mechanics, it would probably have one or two, the remainder being unskilled. It was, therefore, necessary for us to meet the new conditions in order to keep up the repairs. To do this we re-arranged our men into special gangs, mainly to central-ize our machinists on work that really required mechanics, and use the unskilled labor on the coarser work. With this arrangement, instead of a gang having three pits on which to work, they have the entire erecting shop, therefore delays were reduced to a minimum. The gangs were arranged as follows:

Strippirg gang.—Strip engine com-plete, with the exception of mountings

and pipes. These are taken off by the strippers of the steampipe department.

Frame gang.—Main frame applied and rebolted, front frames applying and rebolting complete (when cylinders are not off) back and front deck castings, waste Furnace sheet and cross tie casting. bearers back, front or side renewed or bolted, furnace bearer brackets on frame, friction casting and wedge, lining up boiler when locomotive is rebuilt when the original cylinders are used, steel running boards and brackets with all necessary studs.

Shoe and wedge gang.—Line up, mark off, machine and fit up all shoes and wedges.

Guide bar gang .- Set all guides, face

all valve seats, apply steam chests and bore cylinders in erecting shop. Brake and spring gear gang.—All brake and spring gear complete, fitting up and applying, including brake hangers, brackets atc brackets, etc.

Motion gang .- Pistons, motion plate and motion plate knees, piston valves, cylinder covers and studs for same, rocker boxes, tumbling shaft and brackets, transmission bars, links, etc., eccentrics, valve

rods and other necessary motion work. Front end gang.—Buffer beams complete, draw casting, coupler and connections, hand railings and columns for same.

Steam pipe gang.—Stripping the mountings and pipes from locomotives and grind throttles, steam pipes, headers

and units, and apply same complete. Trimming gang.—Air pump and other air brake work, inspirators and all small jobs.

Cylinder gang .- Apply all new cylinders.

The foregoing covers practically all operations in the erecting shop. Other work, such as carpentering, tinsmithing and painting, is done by the respective departments.

One special feature of our bonus system, is the key to the success of that system; viz., the demonstrating end of the bonus department. The prices, set by demonstration when possible, are known to be fair and correct. The chief demonstrator and his assistants have charge of this work over the entire system, and travel continuously from shop to shop. These men do not worry a great deal about prices, as this has been efficiently handled by the bonus department of each shop, which sets the prices according to the peculiar conditions surrounding the different plants, but being our most expert men, they concentrate their efforts in bringing each department in all shops to a higher state of efficiency by transferring best methods, and, if necessary, men from one shop to another. As a result of this method, workmen are free from the worry of price cutting, therefore the standard of work has shown a steady im-provement. This department also controls the method of applying the bonus system, with the result that the method of application is the same at all shops. It is needless to say the results obtained from this system have been highly satisfactory, and in spite of the unfavorable labor conditions, we have maintained repairs on our locomotives, and in addition to keeping up the ordinary repairs we have been able to convert 57 locomotives from saturated to superheated steam.

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

The Canadian Ticket Agents' Association will hold its annual meeting at Buffalo, N.Y., Oct. 9.

## The Poor Stores Department.

A railway storekeeper writes as fol-lows:—Canadian Railway and Marine World had the following in its February issue:

"Great Northern Ry.—The old frame building on Pender St., Vancouver, B.C., formerly used by the G.N.R. as a passenger station, and which has been closed since the opening of the new building on False Creek, is to be renovated and used for a stores building."

We do not know at this distance how important the G.N.R. stores at Vancouver may be, how many miles of line they must supply, how many and size of shops, etc. But even so, we ask ourselves, "How long, good Lord, how long?"

Since the first railway came into existence in America, with everything provided, except the place to store its supplies, the story has been the same. First the effort to sidestep the question of supply, then failing that, as they must, the makeshift. "It seems we cannot get along without a store. Here is an old building that cannot be used for anything else. Make that a store." And they do, and go on using it, and waste the value of several buildings.

I met a railway storekeeper at a convention some years ago and he showed me a photograph of his store building. It was an old log and board shanty, that the graders had left standing when they had finished their work. He also told on he finished their work. He also told me he was in trouble, as his people were after him about his stock figures, which figures showed that he had \$200 worth of sup plies per mile of road, and his was a fair ly busy road, though poor. He wanted to know what he should do, and I told him to go home and tell his people that they did not know as much about railway stores and stock figures as a dog knows about his father, and point out to them that some of the railways that were rail ways had good store buildings and their figures were \$1,600 worth of stock per mile of word mile of road, and that there was only on other road in America that could equal his figures, and it was about being sold out I suppose he told them that, or words to that effect, for he had a new job shortly after. And I have always hoped that the gang he left would learn a little about

stores and supplies, before they got an other unfortunate into that old shack. It is a wonderful thing to me that it took the world war to teach the people of the world that of the world that supply is, was, and al ways will be, the greatest question in the world. It must have been a fearful shock to people who had always looked on them selves as of the very greatest importance, to learn that the man who planted a few potatoes and dug them was of more im-portance to their are portance to their country than they were.

But we learn, at a price, and what a rice. Even the weiler but we learn, at a price, and what a price. Even the railways learn, after paying the price. Today, when big rail way people lay out big shops, they lay out the stores, build them first, the boiler shop next, and then build the other units around them. A few do this anyway, and around them. A few do this, anyway, and it always should have been so. And yet we still see now and then such news items as the one at the head of this letter.

Railway Employes Organization. The Systems Federation of the Mechanical Employes of all Canadian Railways, which is united with the American Fed-which is united with the American Interthe Mechanical which is united with the American few-eration of Labor, has elected the follow-ing as its first officers:—President, R.J. Talton, Calgary, Alta.; Vice President, F. McKenna, Cranbrook, B.C.; Secretary, Treasurer, C. Dickie, Montreal. The head quarters of the new organization is to be at Winnipeg. at Winnipeg.