ready established are astonishing the world with their records of progress and development.

## The Winnipeg Market.

A PART from the government records of imports and manufactured products various efforts have been made to estimate the Western Canada market for manufactured goods, or at any rate the quantity of goods handled annually at Winni-peg, from which centre the larger part of these

is no government record. The following are some of the figures of straight car load lots billed direct

of the figures of straight car load fold billed uncer into Winnipeg: Agricultural implements, 2,120; wire nails, fen-cing, 1,539; cement, 1,180; furniture, 1,090; hard-ware, 1,042; sugar, 972; paper, 868; machinery, 765; carriages and waggons, 712; iron pipe, 682; stoves and ranges, 584; canned goods, 571; brick, 539; barrels, 514; sewer and drain pipe, 667; auto-mobiles, 436; glass (window and plate), 406. Another compilation prepared from the records of Winnipeg iobbing houses, based on the actual

of Winnipeg jobbing houses, based on the actual turnover of one year (1912), gives further interest-ing and instructive information in this connection.

ing and instructive information in this connection. The available records showed that a turnover of as much as \$25,000,000 is credited to the agricultural implement and farm ma-chinery dealers; \$16,000,000 to the hardware trade; \$15,-000,000 in groceries; \$17,-000,000 in groceries; \$17,-000,000 in dry goods and textiles; \$12,000,000 to the iron and building trades; over \$6,000,000 to the boot and shoe trade; \$5,000,000 and shoe trade; \$5,000,000 for the automobile industry, and so on, including large sums for railway and municipal supplies, furniture, drugs, electrical appliances, chemicals, confectionery, metal products, leather lines, stoves, ranges, fur-naces, household necessi-ties, and other less impor-tent commodities

It is true that some cities of this section have made progress along certain lines of manufacture, but the demand is so insistent and

grows so rapidly that there is no hope that the West will be able to supply it for some years at least. It must be true, too, that Western Canada will always be a good customer for the manufac-turer of other parts of Canada.

## The Human Factor in Scientific Management

N recent years scarcely any subject has exercised the mind of employers and employees alike more than that of scientific management.

communication for the Western provinces, will open up a large area of new and un-developed territory to the north. This extensive increase in transportation facilities will, without doubt, increase the acreage cultivated, which will in turn create an ever increasing de-mand for manufactured goods. Not only will the actual necessities of life be required, but the West-ern farmer has money and buys liberally of the luxuries as well. Along the lines of new railways new towns are being, and for many years will be,

new towns are being, and for many years will be, built up to provide for the immediate needs of the agricultural population, and cities and towns al-

Manufacturers have eagerly studied the possi-bilities of this new science of industry, and have predicted great things of it. It is my object in this brief study to direct the reader's attention to some phases of the question which have been, in general, overlooked; namely, the bearing of scientific man-agement upon the work and welfare of the working

But, first of all, something should be said to make clear the meaning of the term "scientific manage-ment." It is generally agreed that Dr. Frederic W. Taylor is an authority on this subject, and therefore his definition of what scientific management actually professes to be may be regarded as authoritative. In giving his testimony before a congressional investigation committee he said:

Now in its essence, scientific management in-volves a complete mental revolution on the part of the working man engaged in any particular establishment or industry-a complete mental revolution inshment or industry—a complete mental revolution on the part of these men as to their duties toward their work, toward their fellowmen and toward their employers. And it involves an equally complete mental revolution on the part of those on the management's side—the foreman, the superinten-dent, the owner of the business, the board of direc--a complete mental revolution on their part as torsto their duties toward their fellow-workers in the management, toward their workmen, and toward all their daily problems. And without this complete mental revolution on both sides scientific manage-

ment does not exist. "The great mental revolution that takes place in the mental attitude of the two parties under scien-tific management is that both sides take their eyes off the division of the surplus as the all-important off the division of the surplus as the all-important matter, and together turn their attention toward increasing the size of the surplus until this surplus becomes so large that it is unnecessary to quarrel over how it shall be divided. The substitution of the new outlook—this new viewpoint—is of the very essence of scientific management, and scientific management exists nowhere until after this has become the central idea of both sides."

## By W. W. SWANSON Associate Professor, Department of Political and Economic Science, Queen's University.

That this is a consummation devoutly to be wished for, cannot be gainsaid. If this ideal were realized it would create, from an industrial point of view, a new heaven and a new earth. And it is en-couraging to note, too, that much has already been done to attain to that ideal. That friction, suffering and financial loss have occurred also, must be conand financial loss have occurred also, must be con-fessed. That has come about when managers have taken the machine point of view, and not that of the interests of humanity. It is of the dangers inherent in this "cash-nexus" standpoint that one should warn labour, and capital as well.

W HEN one gets beneath the human interest ad-vocacy of scientific management, to methods by which it is carried out, what does one find? Emphasis is placed upon it as a device for securing labour efficiency. In a way it is simply a new system of figuring costs. It includes within itself the piece-work system, the hours system and the the piece-work system, the bonus system and the premium system of paying men. It brings the stop-watch into play as a means of speeding up work; of securing the same ends with fewer motions, and or securing the same ends with rewer motions, and greater precision. It means divided or functional foremanship, so that each foreman supervises his own special branch of the work, and co-ordinating foremanship whereby the results of the separate foremen are correlated and unified. It means new and improved a cort because supervises time study of and improved cost-keeping systems, time-study of work, and a scheme of paying men according to the results they separately achieve. In a word, it aims at keeping machines and men at the very

aims at keeping machines and men at the very top-notch of speed and efficiency. Now, that there are grave dangers in this situa-tion is only too well recognized. High tension and intensity of application have become marked features of our industries. We are fast following, in this respect, the example set by the United States. In that country particularly, machinery and men are worked to their physical limit; and when worn out are cast on the industrial scrap heap. As illustra-tive of this tendency may be quoted the testimony of Mr. Harrah, of the Midvale Steel Company,

given before the Congressional Committee on Labour, March 1, 1900. The report reads as follows

follows: Mr. Graham: "I was going to ask whether you thought that you could put your machines so as to accomplish getting out more work in eight hours than you can now in ten?" Mr. Harrah: "No. The machines are worked to their fullest capacity now." Mr. Graham: "You would have to get some kind of improved machinery?" Mr. Harrah: "We have the most improved kind of machinery now; but we make it a rule to run a machine to break. For instance, the life of a ham-mer bar may be two years. If that hammer bar does not break within two years, I go for the forge master, because I know he is not getting the work he ought to out of that forge. It is the same way in the machine shop. If a lathe, the natural life of which might be two years, does not break down before that, I would go to the engineer in charge." Mr. Graham: "Everything is run to its full capa-city now?"

city now?

Mr. Harrah: "Absolutely. Yes, sir; we have abso-lutely no regard for machinery or men."

It is, in this connection, interesting to note that the Midvale Steel Company is one of the plants where scientific management was first applied by

one of the leading exponents of the new system. Now, it appears to me, that the evidence of Mr. Harrah is conclusive in pointing out a fundamental weakness of scientific management. The human factor is too apt to be ignored in those industries which have adopted scientific management, or a system akin to it. To-day the wage-earner is stimulated to greater physical exertion by the con-stant pressure exerted upon him through superin-tendents and foremen. Elaborate cost sheets are prepared monthly by every department. The lowest cost accounts are sent to similar departments which have not done as well, and the foremen are politely requested to state the reasons why they have not achieved like results. The hint is more than suffi-cient. The foremen speed up the men, the machinery and the system, with the result that sooner or later the scrap-heap pile grows higher. factor is too apt to be ignored in those industries

the scrap-heap pile grows higher. Moreover, specialization and subdivision of work tend to make the workmen specialists in some one

A Trainload of United States Traction Engines Arriving at Winnipeg. Illustrating the Magnitude of the Western Market.

goods is distributed. One compilation made in 1912 by the Winnipeg Industrial Bureau, of car lot com-modities billed to Winnipeg during the year 1911, throws interesting light on the enormous interpro-vincial commerce being carried on, of which there

tant commodities.



large

areas

of territory for agricul-tural and commercial development.

The railway extension programme laid down

The railway extension programme laid down for completion this year by the C. P., C.N., and G. T. P. railways is the largest yet at-tempted. Active work is now in progress on the Hudson's Bay railway, which in addition to forming a new outlet and more direct ocean communication for the Western provinces, will open up a large area of new and un-