

United States the compound locomotive is not generally regarded as satisfactory or successful.

In other countries, especially in France, Austria and Bavaria, it is rapidly getting into general use. There is one reason apart from fuel and water economy which will soon cause the compound to be built in larger numbers in the United States, and that is the constant demand for heavier and more powerful machines. The four-cylinder balanced compound and the Mallet compound articulated types permit of the development of the locomotive to large proportions which cannot be operated with satisfaction if built in the simple type. A prominent locomotive builder recently said he would not hesitate to use with the four-cylinder balanced type a load of 75,000 pounds per axle or 37,500 pounds per driving wheel, while 30,000 pounds is now regarded as excessive for simple engines on ordinary track. With the Mallet type the number of driving wheels can be so increased that rail pressures are not excessive in the heaviest locomotives ever built. These two features in compound locomotives are likely to secure for them larger orders in the future.

THE ST. PAUL'S COAST EXTENSION.

To meet the cost of the Pacific Coast extension, branches and equipment the Chicago Milwaukee & St. Paul Railway will receive \$99,480,830 from its new stock. This amount represents the outside estimate of expenditure for the improvement. It is calculated that the cost, including terminals, will be well within that sum, but as prices of labor and material continue to advance and contingencies may arise in so great an enterprise, the board of directors made sure of providing sufficient money to cover all emergencies. There is no need for application to the St. Paul road of the Scriptural warning: "For which of you, intending to build a tower, sitteth not down first, and counteth the cost, whether he have sufficient to finish it? Lest haply, after he hath laid the foundation, and is not able to finish it, all that behold it begin to mock him, saying, this man began to build, and was not able to finish."

The new capital will be represented by the issue of stock in the proportion of two-thirds preferred and one-third common. It will affect the stock capitalization of the company as follows:

	Now Outstanding	To Be Issued	Total
Preferred	\$ 49,654,400	\$ 66,320,553	\$115,974,953
Common	82,986,709	33,160,277	116,146,986
Total.....	\$132,641,109	\$ 99,480,830	\$232,121,939

Payments on account of subscriptions for the stock will not be completed until March 1, 1909, and on the installments the company will allow interest at the rate of 5 per cent per annum. During the construction period, therefore, the company secures its money on a 5 per cent basis, which is a moderate rate of interest, especially when no mortgage is given. The excellent credit of the company makes possible these favorable terms. The partial payments will be due on the following dates:

	Per Cent	Amount
December 31, 1906.....	10	\$ 9,948,083
June 1, 1907.....	15	14,922,124
December 1, 1907.....	20	19,896,166
June 1, 1908.....	20	19,896,166
December 1, 1908.....	20	19,896,166
March 1, 1909.....	15	14,922,125
	100	\$99,480,830

The company will receive by December 1, 1907, a total of \$44,000,000. Unless present plans miscarry, the road will be built to Butte, Mont., January 1, 1908, and traffic will be received in large volume from the Amalgamated Copper and its subsidiary companies, which are controlled by the principal owners of the St. Paul. The contingent interest charges will, of course, increase rapidly. The ability of the company to meet the burdens it has assumed can be judged by its past showing. The latest statistics are contained in the report for the fiscal year ended June 30, 1906. During that year

there was outstanding \$107,838,300 common and preferred stock. Earnings above all charges were \$13,323,230, which is equivalent to 12.35 per cent on the stock. From this amount there was appropriated to replace equipment of small capacity \$2,540,466. The balance after that deduction was \$10,782,764, or substantially 10 per cent on the stock.

For the current year dividend requirements will be larger, as \$25,000,000 additional common stock was issued in October last.

Dividend requirements on \$132,838,300 stock will be.....	\$9,298,681
Interest on stock subscriptions.....	310,877

Dividend and stock interest requirements in current year..\$9,609,558

Assuming the continuance of 7 per cent dividends during the two ensuing years disbursements for dividends and interest on partial stock payments will be as follows:

Year to June 30, 1908.....	\$11,205,397
Year to June 30, 1908, allowing 6% to March 1, and 7% on new stock from then till close of fiscal year.....	14,024,017

The coast line will be in complete operation so that its earning capacity can be tested successfully before a dividend is declared on the enlarged capital. Seven per cent dividends on the entire stock would call for \$16,248,535. The full 7 per cent on the preferred and 6 per cent on the common would require \$15,087,065.

The length of the extension is 1,500 miles and branches aggregating 500 miles will be built. Figuring the capital to be expended at \$100,000,000 would make an average cost of \$50,000 a mile, not allowing for terminals or equipment. In the last fiscal year an average of 6,961 miles of road was operated. The stock per mile was \$15,310, and the bonded debt \$17,299, a total of \$32,609. Interest charges per mile were \$839 and dividend disbursements were \$1,071. Gross earnings per mile were \$7,961 and net earnings \$2,726.

If the new line can be operated as successfully as the present property, gross earnings for the system, on the basis of the results of last year, would be \$71,338,521, while net earnings would amount to \$24,427,686. This computation provides for dividends on the \$25,000,000 stock issued last October, but no allowance is made for the earnings which that investment will yield. They should improve materially the showing of the road in the current year. The strength of the enlarged company will lie in its low fixed charges. Bond interest last year was \$5,913,850. Between July, 1908, and July, 1910, some \$27,000,000 5, 6 and 7 per cent bonds will mature, which can be refunded at a saving in interest of about \$600,000.

The new mileage, if operated as profitably as is the present plant, will enable the company to earn sufficient above fixed charges to maintain dividends on the existing basis. Immediately following the construction of the extension the outlay for maintenance of way should be light. Although the expense of building is now high, there is no construction company to absorb a margin between cost and capital. The terminal properties, bought wisely, should increase constantly in value as the northwest develops.

Public ownership enthusiasts frequently hold the alleged results of Australasian railways up to the public view and claim that they show the folly of permitting private control of railway facilities in this country. Yet one of the most prosperous of the Australasian colonies, New South Wales, reported for 1905, a deficit of \$18,000,000 in the returns from railway operation and last year there was a surplus of barely \$2,000,000. This would not be so bad if it were not for the high rates charged. These are so high that goods are actually carried by wagon into Sydney over 150 miles of mountain roads, parallel to railways owned by the state, cheaper than they can be sent by rail. The average rate per ton per mile, in a country in which most articles are much lower in price than in America, is 2.28 cents or about three times the American average. Such facts from actual experience are worth a world of academic theorizing.