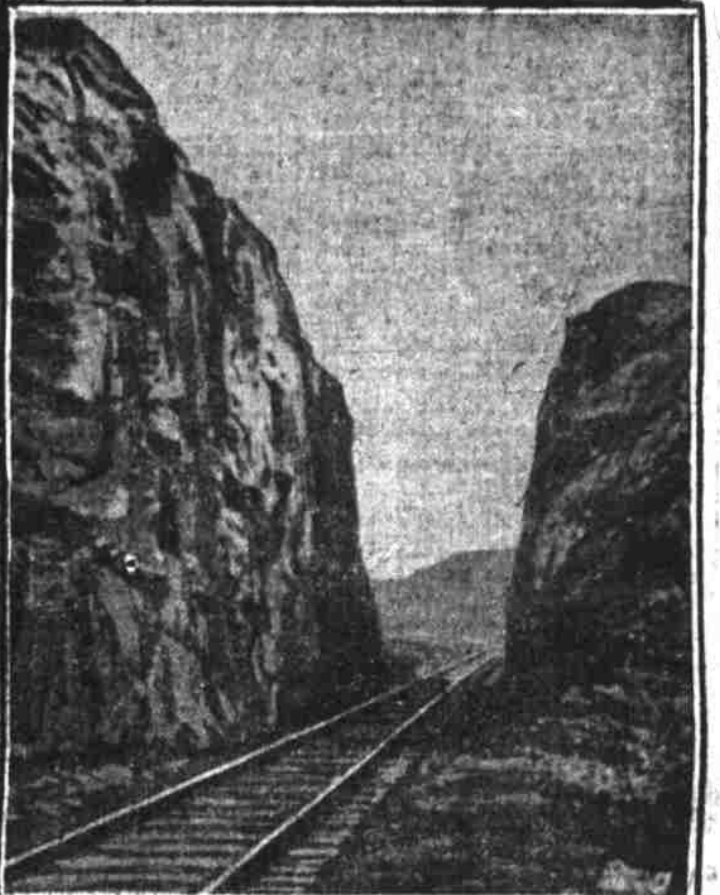
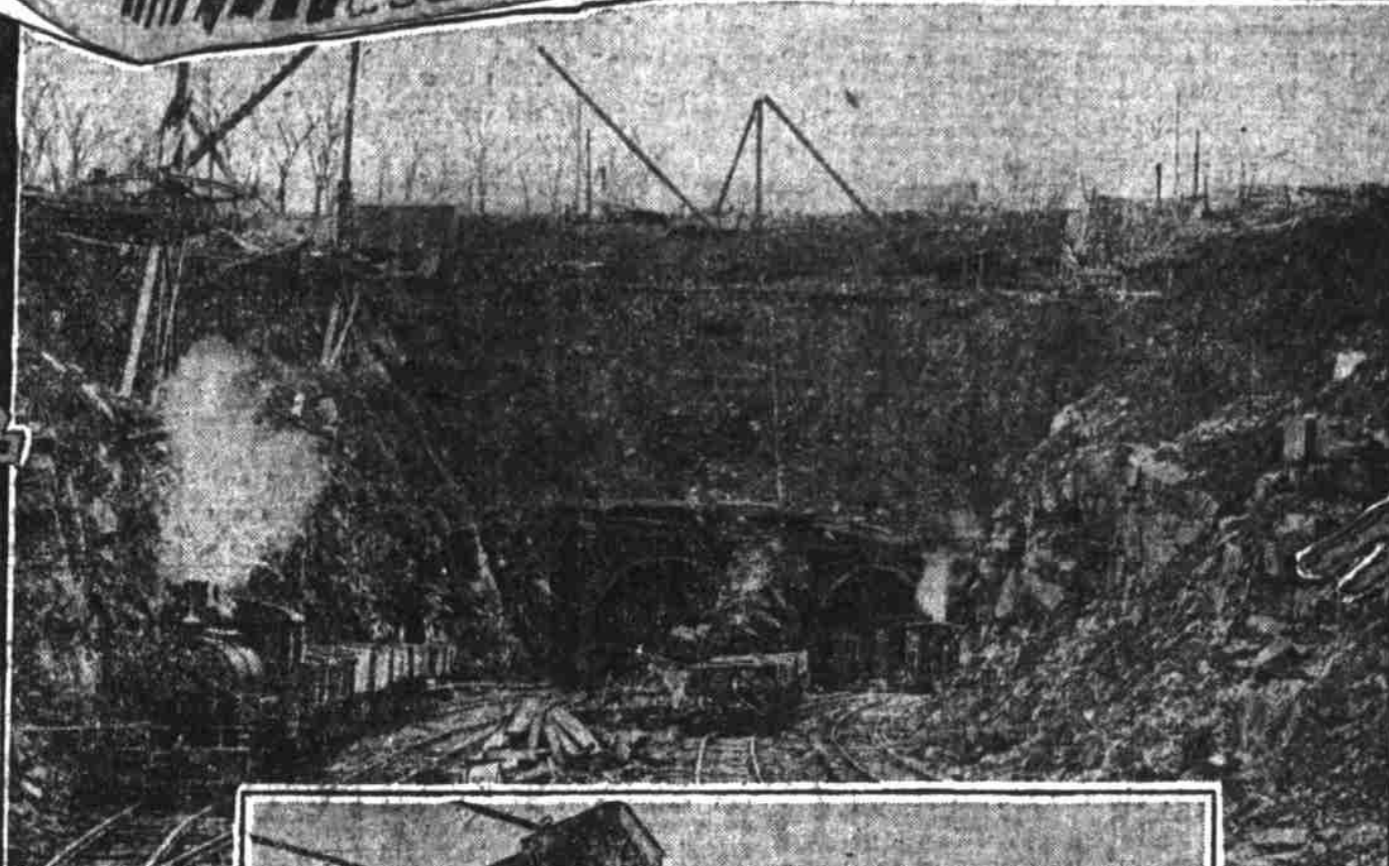


PORTLAND, OREGON, SUNDAY MORNING, FEBRUARY 23, 1908



\$1,000,000 of a minute of time

Global
Time
Quickly
Paid for
the Guar-
antee of
Speed



Through Solid Rock to Straighten a Curve on the Northern Pacific

WHAT is the value of a minute of time? Do you think \$1,000,000 too extravagant a figure?

Considerably more than this is being paid by some of the big railroads of the country in their efforts to vanquish Father Time. In order to save about thirty minutes in reaching the heart of New York, the Pennsylvania Railroad is spending about \$60,000,000 to burrow under the Hudson river. That is paying \$2,000,000 for a minute.

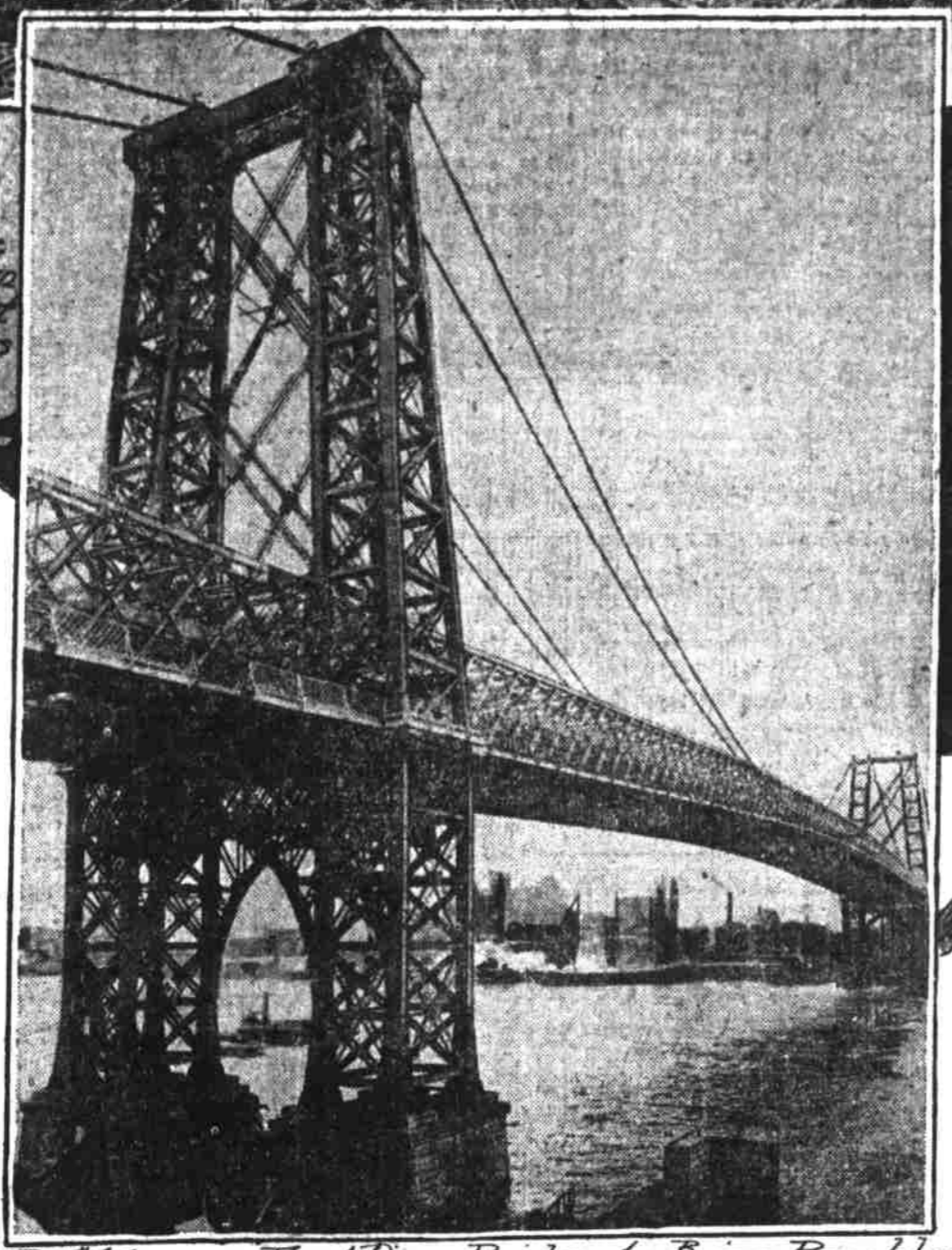
When the New York Central's plans, involving an expenditure of \$70,000,000, are completed, engineers figure that the running schedule of each train will be reduced six or eight minutes. Not all of this vast sum for improvements can be charged to a desire to save time, however. Still, every minute lopped off will cost very near the high-water mark.

Leading railroads of the country, in the last ten years, have spent more than \$800,000,000 in their determined fight against time. It is figured that the gain, in all, amounts to something like thirteen or fourteen hours on schedules.

Almost as startling is the assault made upon Father Time by great steamship lines. No sooner does a Deutschland eclipse the ocean record than rival owners set out to build a Lusitania and a Mauretania; when they have captured the blue ribbon of the seas eager competitors plan even a mightier vessel with which to wrest from them the prize. Millions are lightly regarded in the scales as against a few minutes clipped from the record.

NOT long since a genius for statistics figured that, based upon the earnings of the people of New York city, each minute of the working day is worth \$30,000. Doubtless the average holds good elsewhere.

This illustrates forcibly the old adage that "Time is money." Minutes are viewed as dollars in the great game of making money. Everywhere the demand is for haste, and then more haste. If millions must be spent to gain minutes—why, spend them.



The \$16,000,000 East River Bridge to Drive Brooklyn a New Minute nearer to New York

Walking, except for exercise, became too slow many years ago; then the horsecars appeared in the cities. After a time the trolley took up the burden in response to the demand for greater speed.

Congestion often impeded the surface trolley lines, and so feverish humanity built elevated roads and scooped out costly subways.

Ferryboats plying between large centers of population proved too slow in time, and great bridges were flung across the intervening water gaps. For bridges, tunnels and their equipment and terminals, \$500,000,000 is now being spent in and around New York.

Most striking of the many assaults on time have been those made of recent years, or now being made, by the great railroad systems of the country. They have poured out money like water in improving physical conditions and enlarging terminals.

There is a reason for it all. From a terminal having, say, 120 trains a day, a minute

saved on each train means just two hours saved in each twenty-four; this is 720 hours a year, or a month gained. And the income capacity of an additional month is something devoutly to be wished by any business enterprise.

If the actual value of the time thus saved to one company be multiplied by all of the many transportation concerns of the country, one may readily see why all are striving to economize the minutes.

A pioneer in the tunnel-to-save-time movement was the Baltimore and Ohio Railroad. Some fifteen years ago engineers and public alike were discussing with more or less wonder its bold project to dig a way for its trains under the city of Baltimore instead of taking a longer route around.

True, the Pennsylvania—at least a line friendly to the Pennsylvania—had already tunneled under Baltimore; but this enterprise was necessary in order to get into the city. The Baltimore and Ohio already had its terminal

within the city, on the southern side, and this sufficed as long as the road was not directly competing for northern business.

When the Baltimore and Ohio, then more antagonistic to its formidable rival than now, extended its lines to Philadelphia and made arrangements to continue on to New York, it was obliged to skirt around Baltimore and to cross the Patapsco river by ferry.

This seriously interfered with schedules intended to compete with the running time of the Pennsylvania between New York and Washington.

So the plan to tunnel under the city originated, and was promptly put into execution. John B. McDonald, who was to come into wider fame later by constructing the New York subway system, undertook the work, which was to cost something like \$7,000,000.

This was considered an immense sum to spend in the race for time, especially as it was estimated by many that only about fifteen minutes would be saved. Still, the work was completed and the straightened line placed the Baltimore and Ohio on a much better basis in bidding for through traffic.

Paralleling in percentage this cost was an engineering feat in New Mexico—known as the Belen cut-off on the Santa Fe line. There formerly trains had to climb a steep grade of over 180 feet to the mile.

A modern engine with old-fashioned cars could negotiate this grade without great trouble, but as traffic and competition increased the size and carrying capacity of cars grew proportionately.

There was nothing to be done but avoid this grade, hence the costly cut-off. For the

construction of seven miles of new track about \$10,000,000 was expended. The time saved is something like twenty minutes—a cost of half a million dollars a minute. The gain is counted as greatly exceeding the cost.

This isn't the limit of money the Santa Fe is prepared to spend in order to increase its rapidity of train service. Already it is putting many more millions into tunnels through the Raton range in improving its long miles of trackage.

In order to gain a point on Father Time, the longest bridge in the world was constructed by a railroad. This is the famous Lucin bridge across Salt Lake, in Utah. It consists of twelve miles of trestlework, and is well known to travelers between the East and the Pacific slope. This bridge saves about two hours' time. While it did not cost as much as some more recent enterprises, still the expenditure represented a charge against time of about \$35,000 a minute.

A railroad has constructed the largest concrete bridge in the world. It spans the Santa Ana river near Riverside, Cal., is 60 feet high, 1000 feet long, and contains 13,000 cubic yards of concrete. Its cost was great, but it saves the minutes that count for so much in the making of train schedules.

One of the most remarkable of latter day romances of millions has to deal with the freight subway system of Chicago—a marvel of enterprise requiring a staggering expenditure.

While this great enterprise was not intended primarily to economize in time, its purpose was to facilitate the local receipt, shipment and exchange of freight to prevent congestion of streets and in this way to insure a more prompt transaction of business in the second largest city in the country.

A swifter transaction of the business of the great city has been the result, so that this expenditure of \$30,000,000 for forty-five miles of tunnels beneath Chicago's streets may be charged up to the world-wide fight to gain time.

In its simpler commercial aspect this subway system is a forty-five-mile network of underground conduits to facilitate the movement of freight from depot to depot, from warehouse to warehouse, from factory to store and from merchant to consumer.

Every street within an area nearly two miles square is duplicated—except as to buildings—at a depth of from 25 to 40 feet underground, each street intersection, name and direction below corresponding to the same on the surface.

That such underground facilities will

(CONTINUED ON INSIDE PAGE)