

BUILDINGS AS BIG AS A TOWN

DID it ever occur to you that if one of New York's modern skyscrapers, say the Metropolitan Life or the Singer Building, with its cloud-piercing tower, could be picked up bodily and dropped on some prairie there would be practically everything needed to start a little city, including the population? asks the New York Sun. In fact, when it came to building materials there might in some instances be stuff left over for use in neighboring towns.

Take the Singer Building, for instance. It contains 130 miles of various kinds of metal piping. The telephones, elevators, electric lights, fans, and clocks require 3,425 miles of wire, which if stretched out would extend from the Singer Building to the top of the Eiffel Tower in Paris, with 300 miles left over.

The steel used in the construction of the Singer Building, if made into 3/4-inch wire cable, would reach from New York to Buenos Ayres, a distance of 7,100 miles. The total length of the steel bearing columns in the building is about ten miles.

The terra cotta floor blocks in the building if spread out on a plane, would cover 8.36 acres. Placed end to end they would extend 97 miles, or further than from New York to Philadelphia. The fireproof blocks in the partitions placed end to end would reach from New York to Saratoga.

The new skyscraper contains 5,033,800 bricks, and these laid end to end would reach 635 miles, from New York to Detroit. They would pave a footpath 12 inches wide from New York to Boston.

This modern skyscraper contains 101 tons of sheet copper, enough to cover 4.64 acres. The copper combined with the statuary bronze in the building would yield a metal similar to that used by the United States Government in making cents, and that prairie town would certainly have money to lend to its neighbors if the combined metals were put to that use. It would be possible to turn out 46,208,000 cents, or \$462,080.

If the concrete in the foundations of the building were all loaded on two-horse trucks it would make a continuous line of 10,180 trucks, thirty-eight miles long, or twice the distance from the Singer Building to Yonkers.

The steel in the building would make 125 large type model locomotives, that is a continuous line of engines for a mile and a half. It would make a seventy-four mile stretch of

heavy modern track, rails, spikes and tie-pieces. Made into elevator cables it would extend 7,100 miles, and if the total lengths of all the strands of wire in the cable were put together they would reach from the earth to the moon three and one-third times, or 809,400 miles.

If the steel were rolled out into a plate a quarter of an inch thick it would cover an area of fifty acres. In other words, Broadway from Liberty street to Seventy-second street could be paved with steel plate of that thickness.

There is 13.3 miles of picture moulding in the building. If all the mouldings for the doors, pictures and windows were put in a straight line they would reach sixty miles, or from New York to Bridgeport, Conn.

More than 5,541 tons of mortar was used in the masonry. This would make a path 14 inches wide and one inch thick from New York to Washington, a distance of 240 miles. About 197 tons of paint was used on the various surfaces. That is enough to cover 90 1/2 acres with one coat. It would cover a board fence six feet high from New York to Springfield, 126 miles, with one coat.

There are 25.4 acres of wall area in the new skyscraper. This is plaster enough for about 200 good sized dwelling houses. It would make a line of plaster 12 inches wide from New York to Boston.

The glass in the building, 85,203 square feet, would make a continuous window six feet high on one side of Broadway from Liberty street to Thirty-fourth street. There are 256,000 square feet of metal lath, or 5.9 acres. To support these laths 49.1 miles of structural angle irons were required, together with 130 miles of tying wire and 110,000 bolts.

There are 8.25 miles of elevator cables in the building, and nine fans capable of blowing 6,820,000 cubic feet of air an hour, which would make it possible for an ordinary sized town almost to generate its own tornado.

Almost any little city would be satisfied with the lighting plant in one of New York's modern skyscrapers. In the Singer Building there are 14,500 incandescent lamps, while on the outside of the tower there are 1,800 more.

These, together with the searchlights which play on the tower from the roof of the main building, make the sky-scraper visible in bold relief at night for a distance of twenty miles. The rays of the searchlight in the lantern-crowning the tower are visible seventy-five miles away.

The lighting system of the Singer Building represents a capacity of 278,800 candlepower. The boilers of the building, to generate light, heat, power, etc., must yearly generate 150,000,000 pounds of steam pressure. This will take 18,000,000 gallons of water and 8,000 tons of coal.

The tower elevator cars travel about 600 feet a minute. With the building fairly well filled the cars will travel 370 miles daily and make a yearly total of 68,270 miles, or about four times the distance around the earth. The length of the highest elevator shaft is 546 feet 9 inches, the tower from curb to roof being 612 feet.

There have been expended in the construction of the Singer Building about \$60,000,000 of labor. One man would have a job lasting 2,350 years if he cared to tackle it alone.

The Metropolitan Life Building when it is completed will afford much larger figures than these. The tower will not only be 83 feet higher than the Singer, but is of larger proportions all through.

Its gross weight will be 84,000,000 pounds, or 38,000 tons, which is about twice as much as the gross weight of the Singer tower. The Singer tower is 65 feet square, whereas the new Madison Square structure is 75 by 85 feet. The Metropolitan tower walls will be of marble from top to bottom, while the Singer tower has corners of brick and terra cotta and central panels of metal and glass. This will, of course, account in part for the difference in gross weight.

The new Metropolitan tower will be 700 feet high from curb to pinnacle. The steel work is nearly all up. The highest look-out in the Singer tower accessible to the public is the lantern balcony, which is 589 feet above Broadway. The highest point for observation in the Metropolitan tower will be a window over the look-out, 660 feet above the sidewalk.

One of the chief features of the Metropolitan tower will be a huge clock with a face on each side of the tower 224 feet above the sidewalk. The face of the clock will be two storeys high, 25 feet 6 inches in diameter on the dial. It will have figures 4 feet and hands 12 feet long.

Two storeys above the clock will be a line of projecting balconies; and above this a series of Ionic loggias showing five arch-like openings on each face of the tower. The height of these loggias will be fifty feet.

The highest office floor in the tower will be 637 feet above the sidewalk. The observa-

tory will be a room 20 feet in diameter. The structure will be capped with a lantern 50 feet high, which will be of steel and copper gilded.

This lantern will contain an arc light of great power which will be used to designate the time after nightfall. It is proposed to do this by giving one red flash for the quarter, two for the half and three for the third quarter, and a white flash for the hour.

Extraordinary precautions have been taken in the Metropolitan skyscraper both to guard against wind pressure and also to insure extreme durability. Engineers have figured a wind pressure of thirty-five pounds to the square foot as ample for most big skyscrapers. In the case of the Metropolitan the allowance has been increased from thirty-five to sixty pounds to the square foot, which is ample allowance for a higher wind than has ever been experienced in New York.

To protect the steel framework against oxidation or rusting it was treated first to a priming coat of cement paint. All the abraded corners have been carefully repainted, and when put in place the steel beams have been subjected to a second coating of waterproof paint.

Besides this, the columns, the knee braces, and the exposed portions of the floor beams are enveloped in a two-inch coating of sand and cement. The Singer tower steel beams are protected in practically the same way. With the danger of rusting and destruction from fire removed, engineers can see no reason why the Metropolitan tower should not last for ages.

The massive corner columns of this immense structure are two feet square and weigh over one ton to the lineal foot.

When the tower shall have been completed there will be more than 8,135 tons of steel in it, enough for seven or eight twelve-story buildings, with the same ground area as the tower. The estimated cost of this marble tower is placed at about \$3,000,000, the ground representing an investment of about \$1,000,000.

The new City Investing Building, next to the Singer Building, is another of the city's most modern skyscrapers, the third highest. It possesses no tower, but has ornate gables of 480 feet above the curb.

The City Investing Building is thirty-three storeys high and is said to be the largest single office building in the world, providing twelve acres of rentable space. If this build-

ing were slapped down on the prairie there would be a city of 10,000 inhabitants.

There is 13,500 tons of steel in this building, which would make a rod one inch in diameter 2,000 miles long. In putting up the building 4,410,000 holes were punched in metal, and the weight of the metal punched out and thrown away was alone 135 tons, or 297,000 pounds.

The blue prints required for the plans of the building if laid out on a flat surface would cover two acres. The bricks used in the building, if laid end to end, would stretch 1,151 miles, or further than from New York to Chicago. The plaster in the building, if spread out, would cover an area bounded by Fifty-ninth street on the south, Central Park West on the north and Columbus avenue on the west. Or one might plaster Broadway with it from the Battery to 125th street.

There are 100 miles of electric wire in the building, twenty-two miles of conduit, eighty tons of copper, seventeen miles of piping. The three pumps which supply the water for the building have a combined capacity of 4,320 gallons a day, which is enough to supply a city of 40,000 inhabitants.

There are 22,000 tons of tile fireproofing in the building. This would make 5,000 truck-loads, reaching from Liberty street to Haverstraw, N. Y., twenty-nine miles. If loaded on barges it would take 170 barges or a continuous tow two miles long.

It took 22,000 yards of clay to manufacture this material. Each block was handled about twenty-six times from the clay bank to the building. This is equivalent to one man handling one block 32,000,000 times. The marble in the building would cover Broadway from curb to curb from the Hotel Astor to Twenty-third street. It would take one man 479 years of continuous work to prepare the marble alone.

There are 21,759,500 cubes of mosaic in the building. The 8,170,000 pounds of marble in the building would make a column one foot square 98 times as high as Washington Monument.

Next to the City Investing Building, for height comes the Park Row building, which runs up 380 feet, and then the Times building, which is 362 feet high.

The old sketch of New York in 1679 presents a study in contrasts. It shows Manhattan from what is now Fulton street to the Battery. The original drawing is in the possession of the Long Island Historical Society.

Milner on Tariff Reform

SPEAKING before the Constitutional Club in London the other day, Viscount Milner delivered a vigorous speech on Fiscal Reform. The London Standard thus reports him:

Lord Milner, who was received with loud cheers, said: I will make no apology for not attempting to cover the whole field of political controversy, and for confining myself to a single matter. I mean fiscal reform. It is a subject about which I do not know that we are all agreed, but in which, at any rate, we are all interested. But if I do confine myself to it, do not let me be supposed to regard it as all-sufficient. There is one thing which ought always to have the highest place in the thoughts of those who are responsible for the government of the country, and that is the national security. No object, however good in itself, ought ever to be pursued to the neglect or the detriment of this supreme end. But Tariff Reform, so far from being detrimental to a policy directed to increasing our national strength, is calculated to subserve it, and to do so in more ways than one. In the greatest of all its aspects—I mean in its relation to the development of the man power of the whole empire—it seems to me essential to the only ultimate solution of the problem of Imperial defence. And in the field of social reform there are few important movements which are not connected at some point with a modification of our fiscal system. I am not thinking merely of our need of fresh sources of revenue, though that need is becoming daily more apparent.

But take such a question as the re-peopling of the country districts. We are all, I take it, anxious to see more small landholders, and I may say, speaking for myself at any rate, landowners. But it is not enough to throw a few acres of land at the head of a man, even of a well-qualified man, and expect him to live by them. A great deal more is required than the provision of land in order to make the thing a success. It will require organized co-operation between groups of small holders or owners. It will require, as I believe, a certain measure of protection, it may be only of temporary protection, to give the groups of small landowners a start. I am not thinking of protection of the type of the old high duties upon wheat, but rather of moderate duties on those other agricultural employments, in which small owners are likely in this country to find the most profitable scope. Or take again such a question as the reform of our Poor Law. We are all agreed in desiring to see a better form of provision than the workhouse for the aged and deserving poor. But indiscriminate old age pensions after 70, even if that is the best use for so many millions of money in the in-

terests of the poor themselves, are not going to solve the problem of the relief of poverty in its many aspects, still less to strike at that most fertile source of poverty—unemployment, or irregular employment and the resulting demoralization. Other concurrent remedies, such as better industrial training, and the organization of labor registries, are, indeed, necessary.

But we shall never reduce the evil within a tolerable compass as long as we continue to show our present disregard for the undermining of great industries, like the hop-growing industry, and the pouring of the people engaged in them into the already over-filled ranks of casual labor. It is, indeed, the vast mass, and the I fear, increasing mass of that body of casual labor which seems to me the gravest of all our social problems. It must be attacked, as I have said, in many ways; but however you attack it, however hard you pump out this reservoir of casual labor, you will always have leaks in the wall through which it will fill again, as long as you cling blindly to a system which prevents your defending your present industries—ever against unfair attack or starting new industries like beet sugar cultivation for instance, which need to be shielded at the outset. Orthodox Free Traders like Mill used to defend the protection of infant industries in new countries. Some of his modern followers, seeing where the argument leads, have now abandoned it on the ground that you cannot choose or feed your infants wisely. I maintain that you can both choose them wisely and that, so chosen, they need to be shielded in an old country just as much as in a new one.

My point is this, that whatever way I turn I find the road blocked by our desperate clinging to an antiquated theory. And so it is that I come to put Fiscal Reform first, though you must not regard me as identifying first with highest. Fiscal Reform is, after all, only a means, one of the means, to greater ends. But on practical grounds there is very good reason to put it first; because it can ill afford to wait. It can ill afford to wait because there are a number of industries, sound in themselves and suitable to the natural conditions of this country, which are being undermined today, and which we shall bitterly regret when we have lost them. And it can even less afford to wait, because, unless it comes soon, it may come too late for us to use it, or, at any rate, to use it as effectively as we might today, in laying the foundations of a commercial system which shall constitute a link between the different States of the Empire.

We need Tariff Reform in any case for our own sake, here at home, and, in any case, we shall get it. (Cheers.)

He must be blind indeed to the signs of the times who does not see that it is coming fast. It does not need much imagination to hear the very phrases in which Radical orators will presently explain that there is nothing in the reasonable protection of native industry which is inconsistent with the sacred principle of Free Trade (cheers).

But whether we shall get it in time to establish a system of preferential trade within the Empire is another question. Continuing, Lord Milner said he owned that he was alarmed at the prospect of a series of commercial treaties between the British dominion and foreign countries cutting the ground from under our feet. He was alarmed also at what might happen on our side, at what the Government of the United Kingdom might do in the direction of concluding commercial treaties with foreign nations.

We ought to draw up our own tariff first, to come to terms with the other nations of the Empire next, and then only should we be able to see our way to treating with foreign nations. (Cheers.) Any other order of procedure threatened to involve us in the greatest difficulties.

Lord Milner went on to call attention to a report recently issued by the British Consul-General at Berlin, in which that official stated that while the rise of prices in Germany was partly due to duties, the rise in wages was proportionately higher (hear, hear), and that German industry in its entirety had been strengthened both technically and financially, so as to render it capable of weathering any future periods of depression without serious harm (cheers.) And that, too (added his lordship), in a country where duties on foodstuffs were carried to a point far in advance of anything which anybody contemplated in this country. Germany gave the lie direct to opponents of fiscal reform in this country—her imports of raw material had shot ahead, and her exports of manufactured articles had doubled in ten years. The deposits in the savings banks of Prussia in 1875 (four years before the introduction of a protective system) were 50 millions, and in this year of grace they were 439 millions, after a protective system had been "making the poor poorer and the rich richer" (laughter). The time was fast approaching when the people of this country would no longer be withheld from trying a little dose of that poison which had had so unreasonably an invigorating effect upon the constitutions of other States (laughter and cheers).

The passionate rhythms of "The Merry Widow" waltz floated through the office, and the boss looked up from his desk impatiently. "Fredric," he said, "I wish you wouldn't whistle at your work." "I ain't workin', sir," the office boy replied calmly. "I'm only just whistlin'."—New York Press.

A Russian View of Life

ANTON TCHEKOV is chiefly known in Russia as a writer of short stories," says Hon. Maurice Baring in the New Quarterly. "He is a kind of Russian Guy de Maupassant without the bitter strength of the French writer, and without the quality which the French call 'cynisme,' which does not mean cynicism, but ribaldry.

"Tchekov's stories deal for the greater part with the middle classes, the minor landed gentry, the minor officials and the professional classes. Tolstoy is reported to have said that Tchekov was a photographer, a very talented photographer. But Tchekov has one quality which is difficult to find among photographers and that is humour. His stories are frequently deliciously droll. They are also often full of pathos, and they invariably possess the peculiarly Russian quality of simplicity and unaffectedness. He never underlines his effects, he never nudges the reader's elbow. Yet there is a certain amount of truth in Tolstoy's criticism.

"Tchekov does not paint with the great sweeping brush of a Velasquez, his stories have not the great broad coloring of Maupassant, they are like mezzotints, and in some ways they resemble the new triumphs in subtle effects of light and shade, in delicate tones and half-tones, in elusive play of atmosphere, which are seen in the latest developments of artistic photography.

"Tchekov represents the extreme period of stagnation in Russian life and literature. Tchekov's work represents the reaction of flatness subsequent to a transitory ebullition of activity; it deals with the very class of men which naturally banker for political activity, but which in Tchekov's time were naturally debarré from it.

"The result was that the aspirations of these people beat their grey wings ineffectually in a vacuum. The middle class being highly educated, and, if anything, over-educated, aspiring towards political freedom, and finding its aspirations to be futile, did one of two things. It either moped, or it made the best of it. The moping sometimes expressed itself in political assassination; making the best of it meant, as a general rule, dismissing the matter from the mind and playing viand. Half the middle class in Russia, a man once said to me, has run to seed in playing viand. But what else was there to do?

"Tchekov, more than any other writer, has depicted for us the attitude of mind, the nature and the feelings of the whole of this generation; just as Turgenieff depicted the preceding generation; the aspirations and the life of the men who lived in the Sixties, during the

tumultuous epoch which culminated in the liberation of the serfs. And nowhere better is the quality of this frame of mind and the perfume, as it were, of this period to be felt and apprehended than in the plays of Anton Tchekov, for in his plays we get, not only what is most original in his work as an artist, but the quintessence of the atmosphere, the attitude of mind, and the shadow of what the Zeitgeist brought to the men of his generation.

"The atmosphere of Tchekov's plays is laden with gloom, but it is a darkness of the last hour before the dawn begins. His note is not in the least a note of despair; it is a note of invincible trust in the coming day. The burden of his work is this—life is difficult, there is nothing to be done but to work and to continue to work as cheerfully as one can; and his triumph as a playwright is that for the first time he has shown (in prose, for the great poets have done little else) behind the footlights what it is that makes life difficult.

"Life is too tremendous, too cheerful, and too sad a thing to be condensed into an abstract problem of lines and alphabetical symbols, and those who in writing for the stage attempt to do this achieve a result which is both artificial and tedious. Tchekov disregarded all theories and all rules which people have hitherto laid down as the indispensable qualities of stage writing; he put on the stage the things which interested him because they were human and true; things great or infinitesimally small; as great as love and as small as a discussion as to what are the best hors d'oeuvres; and they interest us for the same reason."

GERMAN EMPEROR'S REIGN

The German Emperor completed twenty years as emperor on June 15, his father dying in 1888. The political record of these twenty years is being surveyed," says the Berlin correspondent of the London Times. "The almost tragic circumstances of the Emperor's accession are recalled, and the actual situation is being compared with the hopes and fears which agitated the German nation twenty years ago. It is pointed out that the predictions according to which the present reign was to have been characterized by a warlike policy have, happily, not been fulfilled, and in many quarters it is claimed for the Emperor that, although he is a soldier by profession and by inclination, he has, in circumstances of occasional temptation, preserved peace for his own country and has powerfully contributed to secure it for the rest of Europe.

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