

# The Coming of the Fifty-Story Building.

By JOSEPH THOMPSON,

THIRTY years ago, if a stranger visited New York, and desired to see the office district of the city, he found that it extended over a comparatively small part of Manhattan Island, a space ten blocks in length and two or three across. He found that the typical office-building was a stone and brick structure from six to eight stories in height. In the whole office district there were perhaps half a dozen so-called fire-proof buildings; in reality these did not deserve the name, for a good deal of wood was used in their construction.

If our visitor had entered even the most complete of these structures and desired to call at one of the upper offices, he would have been conveyed upward by a slow and jarring steam elevator. He would not have had to ascend very high, for the top floors in these buildings were little used for office purposes, the means of access being so inadequate that business men would not ask their clients to meet them there if they could help it. In many cases the janitor and his family occupied the top floor.

Let us suppose that this same visitor comes to New York again, say a dozen years later—in 1889. He now finds a marked change. The office district has spread out in all directions, and now is on both sides of Broadway, and both north and south of Wall-street. Stone and brick structures have proved unable to answer the demands of the city's increasing business, and the era of the steel-frame structure has entered. The new buildings are twice as high as those he saw before, running up to twelve or even sixteen stories. If he enters one of them, he will find that its elevators are both speedy and comfortable. No longer are top-floor offices undesirable. On the contrary, the fact now is, as it has since remained, that they are in special demand. Not only in the matter of elevators, but in all internal conveniences and appliances, tenants are supplied with comforts unknown a few years earlier.

And after a lapse of another dozen years, let us suppose that our stranger makes a third visit to the metropolis. In 1901, he finds that practically the whole of Manhattan Island south of the City Hall is given over to offices exclusively. No longer do people point out to him, as the standard of building perfection, some of the sixteen-story structures which seemed so splendid at his former visit. His city friends take him to Park Row, and tell him, with pride only half concealed, to let his gaze rest on the Park Row Building, the latest and greatest of local architectural marvels. He now beholds a mammoth structure whose soaring towers rise no less than thirty-two storeys from the curb line, whose cost was in the neighbourhood of £500,000, whose roof covers nine hundred and fifty rooms, and whose elevators have a daily passenger traffic of some twenty-five thousand people.

And truly, when this enormous structure was completed and opened, about nine years ago, it seemed as if a limit had been reached. But no limit can be set upon human power and ingenuity. Above the topmost roofs of Manhattan Island there are now rising huge towers of steel that dwarf the height of the older edifices, and that mark a veritable new era in the construction of skyscrapers. The new Singer Building, at the corner of Broadway and Liberty-street, measures no less than 612ft from the sidewalk to the top of the lantern that crowns it, with 47 stories of offices and nine and a-half acres of floor space.

Several other buildings are projected or in course of construction in the downtown district, which are to surpass existing ones both in size and in the completeness of their equipment.

These enormous structures are being erected in response to a well-defined economic demand. During the last 30

years the business affairs of New York have been continually increasing in their magnitude and scope. There has been, moreover, much consolidation of interests. The quarters which served the small partnership and the small corporation will not do for the large trust. Furthermore, it has become more and more necessary for important concerns all over the country to have their New York offices, in order to be represented at the commercial and financial centre of America. And while the de-

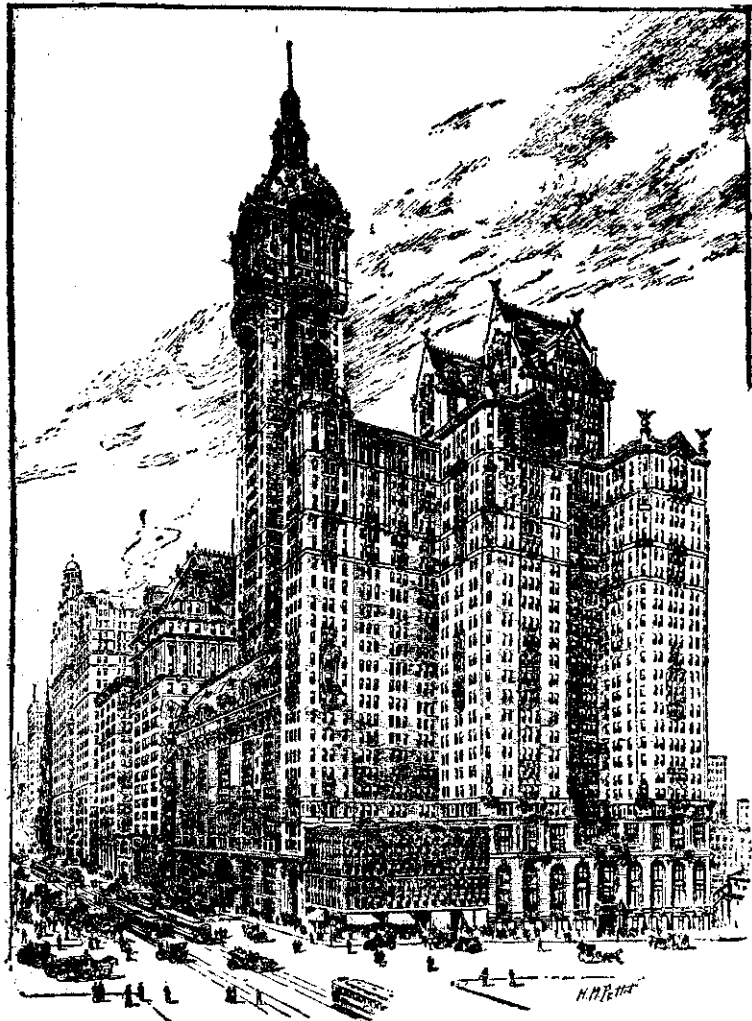
a structure to be erected on a small and irregularly shaped plot; and not an inch of this high-priced land must be wasted.

Next comes the problems of engineering and construction; and here again many of the striking features of these great buildings are not apparent to one who casually inspects them. Look first at the elevator service. Its insufficiency may finally thwart the success of the whole building. It must not take up too much rentable room, yet it must fully satisfy the demands of the tenants, for no New Yorker will consent to walk up even a single flight of stairs. It is estimated that between the hours of 9 and 11 in the morning no less than 10,000 people enter some of these huge structures. That is, enough people to form a considerable town must be transmitted to their respective floors within the space of two hours.

To accomplish this with the greatest efficiency, and with the greatest economy of space, a carefully devised elevator system is necessary. That the same

order, under the direction of a starter; and it is claimed that the system can handle passengers as fast as they can crowd to or from the street. In other words, if any general alarm should send all the occupants of the building rushing for safety, the elevators could bring them down in successive loads so rapidly that before the passengers of one car could reach the sidewalk, those of the next car would be treading on their heels in the doorway.

Then there is the very important question of protection from fire. With flames rising from below, a large office population, many stories above ground, would, of course, be in a position of extreme peril. The experiences of Baltimore and San Francisco shows that the ordinary "fireproof" building, with wooden floors and trimmings, will burn quickly in a general conflagration. Accordingly, no wood or combustible material enters into the construction of the modern skyscraper. The door frames and window frames are of pressed steel, the floors of steel beams, tiles, and



A GROUP OF SKY-SCRAPERS IN DOWN-TOWN NEW YORK.

In the foreground is the building of the City Investing Company, at Broadway and Cortlandt-street; above this rises the tower of the Singer Building, six hundred and twelve feet high.

mand for accommodation is increasing, the number of square feet on Manhattan Island remains precisely the same. There is, therefore, but one thing to be done. Following the example of the man in the parable, the small buildings must be torn down, and in their place must be erected structures which shall ascend higher and yet higher into the air.

The necessary capital having been secured, the next task—no light or easy one—is for the architect. He must draw the plans for the building, both externally and internally. The shape and the size of the ground on which it is to be erected constitutes the first chain that binds him. Where a single inch of land is so valuable that legal battles are waged over its ownership, it must needs follow that the architect is not infrequently called upon to plan

"lifts" should serve the whole of 30 or 40 floors would manifestly be highly unsatisfactory. A fortieth-floor tenant would justly complain if, to reach his office, he had to take a car that might be obliged to stop 39 times on its upward journey. The difficulty is met by dividing the service into "express" and "local," as on the railroads.

For instance, in a typical New York office building of 32 stories there are 22 elevators. Seven are locals running from the ground floor to the ninth, and no farther; seven more run express to the ninth floor, and then local to the seventeenth; seven more, express to the seventeenth, and hence local to the twenty-fifth. The remaining elevator is a special one for the seven topmost stories, running from the twenty-fifth to the thirty-second. The cars of each group ascend and descend in regular

ce ment. Where wood seems to appear it will be found to be metal painted and stained to imitate wood. For all that alarmists have said, the tall office buildings of New York would defy almost any sort of a conflagration.

It is true that fire-engines cannot lift water high enough to reach the topmost floors, but on each story the structure has its own hydrants and hose lines, supplied from great tanks.

The effect of high winds is another factor that must be taken into account, especially in structures of the tower type, whose extreme height not only exposes them to great wind pressure, but makes vibration more dangerous. The architect must, therefore, so brace his steel frame as to keep it rigid, even against the most violent gales.

The danger of an earthquake is akin to that of a hurricane; and here again,