THE NEW "TIMES" BUILDING.

Many of the old readers of the SCIENTIFIC AMERICAN, in all parts of the world, still remember its home in Park Row, New York, for so many years, and will not fail likewise to call to mind the handsome adjoining structure of the New York *Times*. The two buildings were erected in 1857, and the building occupied by the *Times* was one of the noticeably beautiful structures of the city at the time it was built. That it was also well built, and substantially fireproof, was demonstrated by the fact that it was unscathed by the fierce fire which so suddenly destroyed its neighbor, in February, 1882, and necessitated our removal to Broadway offices. This substantial and beautiful five-story structure is now, however, practically demolished, and in its place is rising one which will be thirteen stories high, our first page illustrations showing the decidedly novel method which has been followed in the demolition and rebuilding, with a view in perspective of the completed structure.

The ground space measures 96 feet on Nassau Street, 60 feet on Spruce Street, 102 feet on Park Row, and 104 feet on the line of the Potter building, which was put up with an extra thick wall on this side, to serve as a party wall between the two buildings. The "Potter," it should be noted, is the name of the recently completed building now occupying the site of the one where our offices were so long located, and is a thoroughly well built and fire proof brick structure, twelve stories high. Besides this space occupied by the *Times* building on the street line, a basement and sub-basement extend under the sidewalk 16 feet on Nassau Street and 20 feet on Park Row, while on the Spruce Street front there is a single basement, 30 feet wide by 90 feet long, of which the stone floor is 25 feet below the brick and iron arched ceiling which separates it from the sidewalk and street above. This is the *Times* press room, and has been maintained substantially intact, so that operations on the new building have but little interfered with the work done in this department.

The manner in which the outer walls, and sufficient of the interior, of the old building were removed, to make way for the walls of the new structure, while the floors were strongly supported to allow of the occupancy of the building, without interruption, for all the uses necessary in the publication of a great daily newspaper, are shown in one of the views, and the successful prosecution of this work without interfering with the business of the *Times* has furnished a novelty in the building line occasioning general comment. But it had been decided that it would be impracticable to move the business of the paper into new quarters, and therefore this novel plan of building was adopted, the work being undertaken by Mr. George B. Post, architect, and Mr. D. H. King, Jr., contractor and builder.

Work was commenced Jan. 23, the building being then fully occupied, and not to be vacated by any of its numerous tenants till May 1. Operations were therefore necessarily confined, at the first, to the laying of the new foundations, the walls of the old building being sufficiently shored up for this purpose. These foundations consisted of twelve piers on the three fronts and ten interior piers on the lines of three partition walls, which had formerly extended from Nassau Street to Park Row. The foundations of the piers on the street line are in each case nine feet wide, and in the case of the central one on Park Row, above which is the main entrance, the foundation is also 15 feet long. The site is a natural sand bed, and the piers, which are built of brick up to just below the sidewalk level, were each started on a bed of cement and broken stone three feet thick. The central piers, on the line of the partition walls in the old building, were to be used in the new building as foundations for iron columns carrying girders, the new structure not having any partition walls. These central piers, in three lines from Nassau Street to Park Row, are connected at their base by inverted arches, and they were extended sufficiently on both sides of the foundation of the former partition walls for each one of them to form the base for two iron columns, to be extended up, one on each side of the old interior walls, these columns being thus carried up in pairs, tied together with stiff plates on each floor, to the fifth story.

The work of building the new foundations, up to about the sidewalk level, had been substantially completed by the 1st of May, without apparently affecting the stability of the old building, or interfering with the regular business done in it. At this date, all of its numerous tenants removed to other quarters, but leaving about one-third of the building still occupied for the work of the daily business of the *Times*. For this purpose the whole of the fifth story had been used for typesetting and making up the forms, while the editors and reporters required the greater portion of the fourth story, the publication offices being on the ground floor.

On the 1st of May, work was first commenced in the public view, on the outside of the building, by the construction of a stout wooden bridge on its three fronts, the bridge being capable of holding several derricks, a hoisting engine, the heaviest blocks of stone, etc., and at the same time derricks were placed on the top of the building for use in removing and lowering the stone of the old walls. These had been built of an excellent quality of Nova Scotia freestone, and the stone was in almost perfect condition after its thirty years' exposure to the atmosphere. Some of the single stones weighed as much as 3½ tons. The old walls had been entirely removed by the 19th of May.

At the same time that the workmen commenced the removal of the roof and the old walls, a temporary roof was being provided inside the building, over the southern half of the fifth story and the entire fourth story, which were to afford the working rooms for the compositors, editors and reporters while building operations were in progress. This roof was of timber, covered with tarred paper and tin, and temporary board sidings, also covered with roofing paper, inclosed the various floors on the sides toward the street. The temporary accommodations thus provided, although not very inviting in appearance, and not so readily accessible as might be desired, have been quite sufficient for the carrying on of the daily work of the paper.

The floors of the old building were of arched brick and iron, but the iron beams did not rest on either the Nassau Street or Park Row walls, being supported on the south by the party wall of the adjoining building, and in the interior by the partition walls, resting on an outer wall only at the Spruce Street front. The removal of the side walls, therefore, and one or two of the brick arches and floor beams nearest them on the several floors, to give room for building the heavier walls of the new structure, did not immediately endanger the stability of the building. But, before the Spruce Street wall was removed, which formed the outer support of the last course of floor beams, the weight thereon had to be carried by supports from the interior. These consisted of a double line of shoring, 12 inches square, of Georgia pine, carried up from the basement, and built in form of a truss, in order that the weight upon it might be evenly distributed, and to prevent swaying. On each of the other floors were also double lines of heavy wooden columns, resting on beams laid from east to west, to act as floor supports, there having been from forty to fifty of these wooden columns on each floor. The interior of the old building was thus for a time entirely supported by the partition walls, themselves shored up by vertical lines of shoring from the basement up, and by the party wall on the south, independent of its three former outside walls.

The new building is of granite for the first two stories and of Indiana sandstone above. Commencing on the granite piers at the top of the second story, a heavy wrought iron hexagonal segment column is carried up in each pier opposite the old partition walls, on the Nassau Street and Park Row fronts. These columns form anchorages in the side walls, to which are secured cross girders, resting on the three rows of pillars extending from side to side in the interior, these girders forming the floor supports in place of the old partition walls. The floors of the new building being of the same height, respectively, as those of the old, it has been a simple matter, as the outside piers were carried up, and the vertical columns in line therewith on the inside, to transfer the load sustained by the shoring and the old partition walls to the girders designed to carry the interior weight in the building. The floor beams are similar to those used in the old structure, and most of these have been used in the new building, but, instead of the brick and mortar arches, a hollow brick is used to make a flat arch and corresponding flat finished ceilings.

The double iron columns resting on the central piers are only carried to the fourth floor on the line of piers nearest the Spruce Street front, while on the two other lines of piers these double columns reach to the fifth floor, single columns being carried up therefrom, in each case, for the several stories above. These columns, made of six plates each, rolled to shape as segments of a circle, with longitudinal flanges and solidly bolted together, are all exceptionally heavy, as are also the cross girders resting upon and strongly bolted to them and to the anchorages in the side walls. This plan of building also leaves each floor free from any obstruction, except such as made by the columns, affording ample light from the windows on three sides, while giving opportunity for the most advantageous subdivision of the room into various sized offices and business apartments.

The thirteenth story of the new building will be 23 feet from floor to ceiling, its windows looking out above the highest structures of the city on all sides, and its slate and iron roof pierced with several skylights. This story will be occupied, as was the top floor of the former building, by the composing room of the *Times*, and the 100 or more printers and proof readers there employed have reason to expect that, in the new structure, theirs will be the finest workroom of its kind in the world.

There will be three hydraulic passenger elevators, which, with the stairway, will be on the line of the party wall on the south, midway between Nassau Street and Park Row. The building will be always open, as work in a great newspaper office never ceases. A large proportion of the leading newspapers of the country also have offices in the immediate neighborhood of Printing House Square, the new structure being at the very focus of, perhaps, the most pronounced and most constant activity of any portion of New York City.

The rapidity with which the work has been pushed, from the day on which its prosecution first became apparent to the public, has been quite remarkable. The design is to have the new structure completed and ready for occupancy next spring. Work on it has, therefore, been continuous, with different sets of workmen, day and night, except on Sundays. The contract for cutting the freestone was not let till March, but there has been no apparent failure to keep the builders busy, although some of the stones have been very heavy, several of those in the granite piers weighing six to seven tons each. The iron work is all furnished by the Cornell Iron Works, of New York City. The possibility of accomplishing the work at all, however, and carrying on the publication of the paper on the premises at the same time, was due principally to the fact that the press room, under the sidewalk and street of the Spruce Street front, was substantially undisturbed by the building operations.

The *Times* is printed on five Walter presses, each printing from a continuous roll of paper, and each press occupying a floor space of about 8 by 12 feet. The power had been supplied by one engine, through the necessary belting and shafting, but this was found to be in the way of the builders, and in place thereof a small, incased, upright engine was placed near and geared to each press, a small pipe furnishing steam at about 70 lb. pressure, giving ample power, and the engines taking up so little room in each case as to seem almost a part of the press. These presses are capable of printing 20,000 copies per hour each, and this capability has been constantly maintained in the press room, notwithstanding the aspect of chaos prevailing above. The *Times* newspaper, therefore, has in no particular borne evidence of the somewhat remarkable conditions under which it has been produced while its old quarters were undergoing demolition and the walls of its handsome new structure rising above those of all its neighbors.

Wide Span Cables.

The plan for a great suspension bridge across the Hudson River, twenty-seven hundred feet in span, which is now under consideration before a government commission, and will probably be carried into execution if the commission does not disapprove it, is, it appears, far surpassed, at least in span, by certain telegraph cables, which have only their own weight to bear. In the Madras Presidency, in India, the River Kistna is crossed by a cable swung between supports five thousand and seventy feet apart, and one has just been put up in China, forty-six hundred and forty-eight feet in span. The versed sine of the curve formed by this cable is five hundred and fourteen feet. The whole weight of the suspended portion is only six and one-half tons, and the breaking resistance fifteen thousand pounds, so that there would seem to be no great difficulty, by building the supports high enough, in bridging almost any chasm by similar ropes, and establishing footways between them.—*Amer. Architect.*

New Line between Peru and Panama.

H. M. Brent, United States Consul at Callao, reports the establishment by Chili of a new line to Panama. The South American Steamship Company is a Chilian organization, based on a capital of $3,500,000 (silver), and receives a subsidy of $225,000 from the government of Chili on extending the service to Panama, and for carrying the mails. By a special understanding with that government, the larger vessels belonging to the company are to be placed in the national service in the event of war. The fleet of the company numbers eighteen large steamers, measuring 33,000 tons register, and provided with all improvements of the most modern class. The commanders are principally American and English, and men of recognized skill and experience. This company will make special efforts toward furnishing prompt communication and passage between Peru and the United States.

Cast Steel Shells.

The Pittsburg Steel Casting Company has produced at their works a cast steel shell, conical in shape, six inches in diameter at the largest end and tapering to a point two and three-quarter inches, including the opening at which the cap is placed. It has an elongation of twenty-one and one-fourth inches and weighs ninety-five pounds, requiring five pounds of powder for a charge, making the total weight 100 pounds. Fifty pounds of powder will throw the projectile a distance of six and one-half miles, and it will travel at the rate of 2,000 feet per second. The company has received an experimental order for 500 shells, which will be followed by one for 2,000.