

**THE NEW YORK HERALD ESTABLISHMENT.**

The most beautiful printing establishment in the world, architecturally considered, and the most perfect in its equipments, regarded from the mechanical

nothing overpowering to the senses, nothing gigantic to strain the eye in reaching for high sky lines, nothing to weary the mind with enumeration of vertically piled stones and window sills. From a distance one

ness, and perfection of decoration. The exterior of the Herald building is a gem of beauty, a crystallized dream of art. The edifice is a copy, or rather a happy adaptation by architects McKim, Mead & White, of



**THE NEW YORK HERALD BUILDING—GENERAL VIEW**

standpoint, is that of the New York Herald, which occupies the costly square formed by the junctions of Broadway, Sixth Avenue, Thirty-fifth and Thirty-sixth Streets, one of the great foci of business and population in this proud city.

In the dimensions of the Herald building there is

only sees a quiet two-storied, tile-roofed building. But as one draws nearer, the structure changes into an object of varied and surpassing beauty. Sculptured columns and graceful arches occupy the four fronts of the edifice, giving support to walls and cornices that are models of harmonious proportions, elegance, rich-

the celebrated ornate structure known as the Palazzo del Consiglio, which still stands in Verona, Italy, and which was built toward the close of the fifteenth century by Fra Giocondo.

Our first page plate is a photographic representation of the beautiful group of statuary which adorns the



**THE NEW YORK HERALD ESTABLISHMENT—BUSINESS OFFICES AND GRAND STAIRWAY.**

# SCIENTIFIC AMERICAN

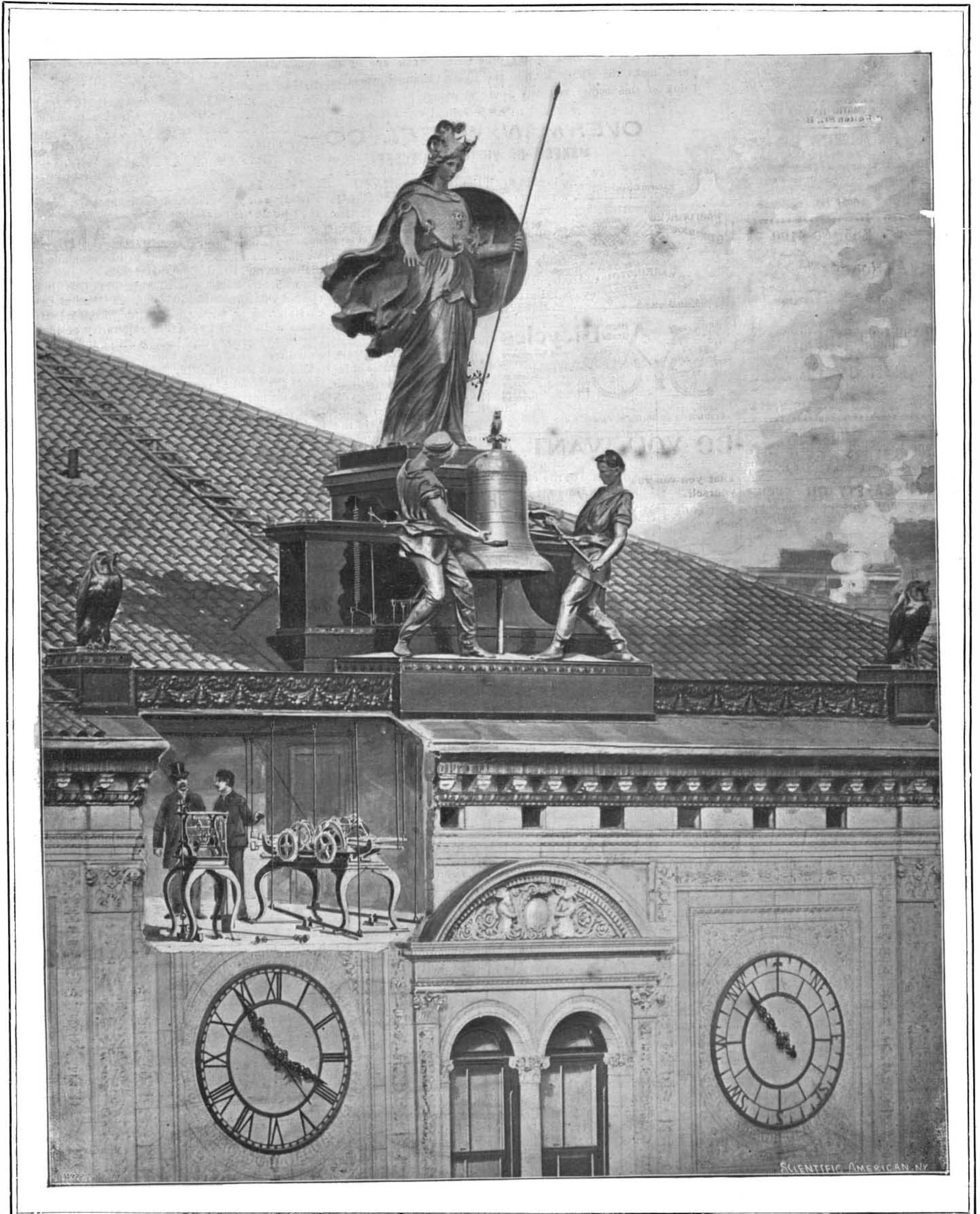
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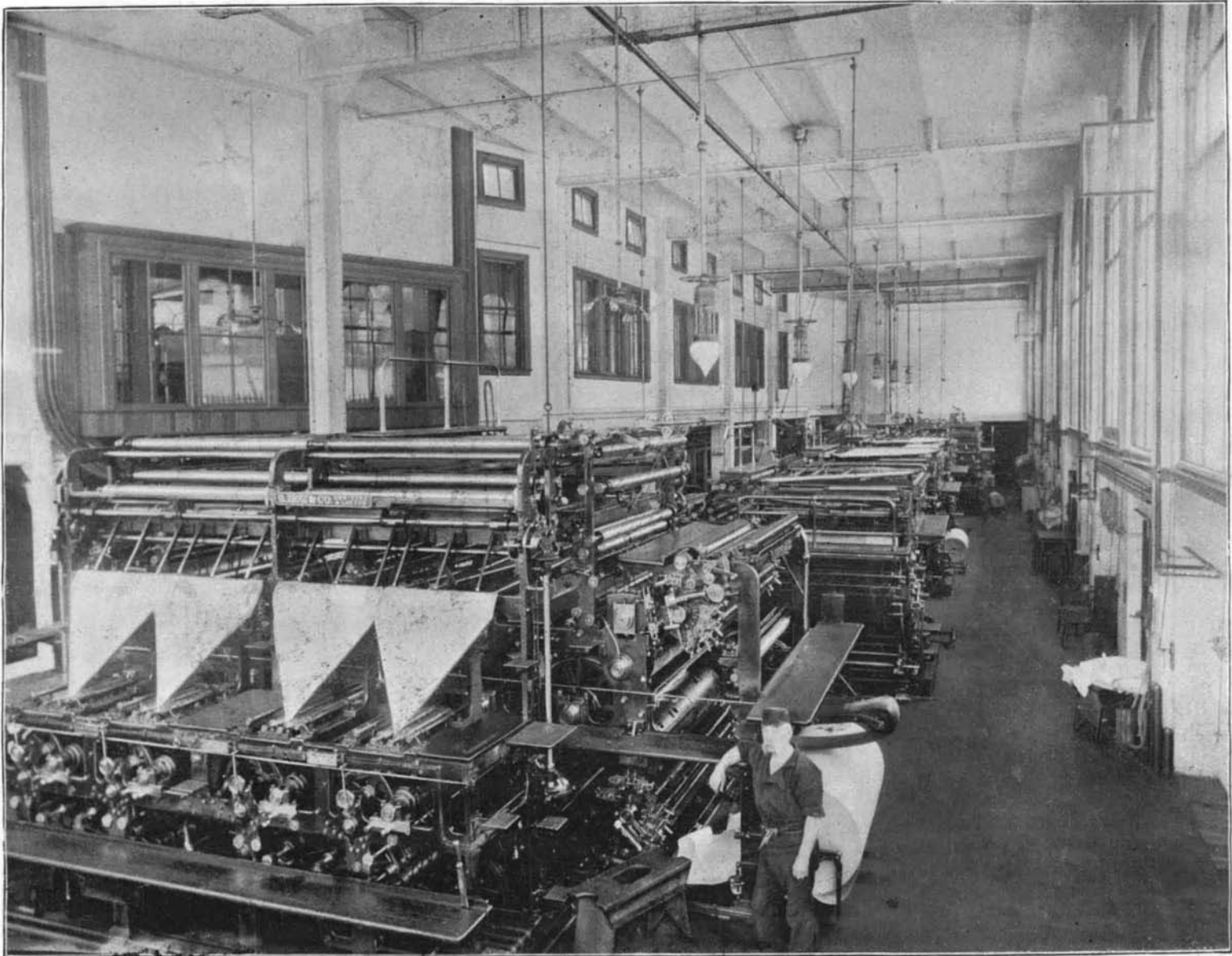


THE HERALD ESTABLISHMENT, NEW YORK—THE STATUE OF MINERVA, BELL GROUP AND CLOCK.—[See page 280.]

entrance front of the Herald building on 35th Street. The statue of Minerva here appears in the attitude of directing the artisans at her feet to sound the great

admirable works are well known, and some of them were exhibited at Chicago. The bronze workmen shown in our group are movable figures, operated by

these moving figures, but by a special hammer located at the back of the bell. The machinery by which the bell is sounded and the

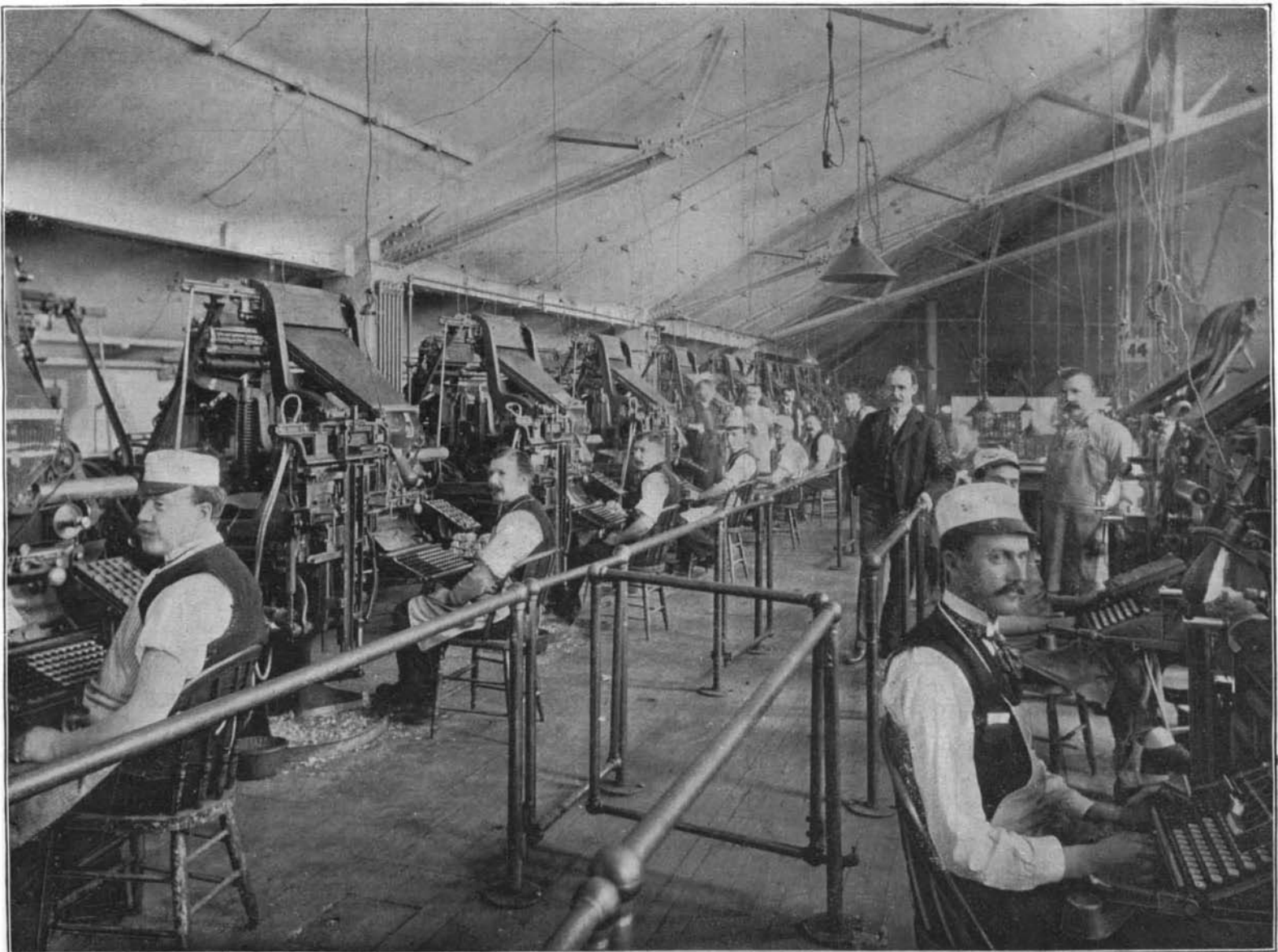


THE NEW YORK HERALD ESTABLISHMENT—A VIEW IN THE PRESS ROOM.

bell and proclaim the onward march of time. This group of statuary is from the chisel of Antonin Jean Carles, the distinguished French sculptor, whose many

machinery, and as the time comes around their bodies sway, the hammers move, and the bell sounds the hour. The bell, however, is not actually struck by

clock mechanism driven is shown in our plate, just above the clock face. One of the machines operates the clock, the other works the figures. The connecting



THE NEW YORK HERALD ESTABLISHMENT—A VIEW IN THE COMPOSING ROOM.

roads can be traced by an examination of the plate. This mechanism is by the Howard Clock Company, of Boston, Mass., and its accurate working gives much satisfaction.

Our next illustration shows a general exterior view of the Herald building as it appears from Herald Square, looking north. The long colonnade fronts on Broadway; the main entrance to the building is on Thirty-fifth Street. The next engraving is an interior view, showing the publication office of the establishment and the grand stairway leading up to the various editorial offices, news offices, reporters' rooms, telegraph and telephone offices, etc.

The decorations of the publication office make it a most attractive apartment. The rim of the counter surrounding the circular edge of the room is surmounted by a brass rail with plate glass set in spacious framework of brass. Rising from the floor at the edge of the counter to the ceiling are handsome marble columns with Corinthian caps and richly ornamented decorations. The ceiling is treated after the style of the Renaissance, and in the most elaborate and finished manner. The floor of this room is set in mosaics of rich pattern, and both at the entrance and at the sides the walls are of marble.

The press room is situated on the Broadway side of the building, occupying about one-half the plot, from a point 66 feet back from the corner of Thirty-fifth Street and reaching to Thirty-sixth Street. It is 149 feet long and 38 feet wide and from floor to ceiling about 30 feet. There is nothing in the building lower than the floor of the press room, which rests at the bottom of the basement. It is also the highest room in the building, filling up the space of two floors, and it thus enables spectators standing on the level of the arcade to see the results of the work done by the presses. The latter are set upon strong, solid foundations and their tops reach about to the level of the street. Those who look on through the windows from the arcade see the white rolls of paper as it enters the press and as it comes out printed, filled with news and folded.

One of our engravings shows the crowds of spectators who at all times fill the press room arcade or corridor when the presses are in operation.

Another plate is a perspective view within the press room corridor, and shows some of the beautiful sculptured columns, arches and pillars of the building.

The view within the press room is a marvelous sight. Here are to be seen a long row of magnificent steam printing presses of the very latest and most improved construction, mostly from the works of R. Hoe & Company, celebrated throughout the world for the excellence and reliability of their mechanism. Old printers regard with wonder the operations of these most remarkable machines, which print, join, fold, count and deliver perfected copies of the Herald at the astonishing aggregate rate of 288,000 eight page copies per hour



THE NEW YORK HERALD ESTABLISHMENT—A VIEW ALONG THE PRESS ROOM CORRIDOR.

Besides the above there is machinery for printing in colors, which has a capacity of 20,000 eight page Herald copies per hour.

The type or composing room of the Herald establishment occupies a large portion of the upper floor of the building, a space probably equal to 163 feet in length by 100 feet breadth. Here again an old printer

ment is one of the most interesting and notable of all the famous objects to be seen and visited in this city.

#### Look Out for Old Oil Barrels.

It may be economy to use old oil barrels for other purposes, but great care must be taken, or an explosion may occur which will cause more damage than new barrels would cost. The importance of carefully cleaning old oil barrels before putting other substances in them is shown by an accident at the Westinghouse Electric Works, Brinton, Pa. Castings were stored in an old barrel, which had contained wood alcohol and been reheated. One of the workmen lighted a match to see what was in the barrel, and the gas which had generated was exploded, throwing the castings in various directions, killing one man, wounding five others, and injuring the building.

#### Opaline Laminee.

A vitrified material, to which the name "opaline laminee" has been given, is made from silica 54 per cent, baryta 39 per cent, and soda 7 per cent. It is stated that the material can be made into plates of any required dimensions, and can be used for all purposes to which glazed tiles are commonly applied.



THE NEW YORK HERALD ESTABLISHMENT—THE PRESS ROOM CORRIDOR.

**The Cocaine Habit.\***

The cocaine habit is a comparatively new addition to the evils by which humanity is beset, and it promises to excel even morphinism in the insidiousness of its growth, in blasting destructiveness and in the number of its victims. Under the influence of cocaine, the subject seems to enjoy a renewal of youth. Capacity for labor is augmented, and the need of sleep much diminished. The occasional use of cocaine leaves a highly illusive impression on the unprofessional mind, producing pleasant sensations, inspiring courage and causing a general feeling of exuberant vitality, with apparently no unpleasant after effects; but while the immediate action of cocaine is more animating and agreeable than that of morphine, it is not nearly so enduring, and the bitter sequelæ are manifested earlier and in a form far more disastrous than in morphine intoxication. Cocaine habitues are utterly unreliable and disregard all personal appearance, going about unkempt, bedraggled and forlorn. While under the influence of the drug they feel equal to any task, forget the past, cherish hopes for the future, are happy in and oblivious to their sad condition. Without it they are nervous, maniacal, morose and even dangerous. The cocaine habit is a swift road to destruction, and leaves in its wake a blight most terrible to behold.

The growing prevalence of this vice is largely due to the greatly reduced price of cocaine, occasioned by improvements in the process of extracting it from the crude drug. Less than ten years ago, cocaine was worth 75 cents a grain; it can now be bought at the rate of two grains for five cents.

Several distinct causes result in the acquirement of this habit. Prominent among these is the pernicious practice of a certain class of druggists (fortunately small in number) who offer cocaine when asked for something that will relieve toothache, neuralgia and countless other aches and pains. It is impossible to estimate the ruinous effect of such recklessness. To the chronic sufferer, cocaine proves at first an inestimable boon; but the first dose breeds an insatiable and almost insuperable appetite, and with this comes all the trickery and depravity of an experienced victim. Misery and the bitterness of remorse would fill the soul of the druggist who is so rashly indifferent as to incur this responsibility, had he sufficient imagination to see before him a panorama of the degradation, suffering and ruin for which he has become chargeable.

In some way the erroneous notion has come to prevail that, in treating the morphine habit, cocaine is of great value, counteracting the effects of the morphine. Proceeding on this principle, numberless quacks have claimed ability to cure the morphine habit. The unfortunates whom they have succeeded in deluding are perhaps cured of the morphine habit, but in its stead they become cursed with a vice far more ruinous than all their former ills. Cocaine may counteract the effects of morphine, but when the action of the cocaine is exhausted the system demands greatly increased quantities of morphine, and this in turn produces a desire for more and more cocaine. To use cocaine for curing the morphine habit is like jumping from the frying pan into the fire.

Another class of victims comprises those to whom cocaine has been administered in minor surgical operations, and who, remembering its exhilarating effects, subsequently obtain and use the drug to their ruin.

Some, ignorant of its possibilities for injury, begin this habit voluntarily; others are led into it by what seems to them a necessity; and others, again, are innocently beguiled into it by the influence of environment and friends.

The cocaine habit is apparently incurable, unless the subject possesses a powerful will and renounces the use of the drug ere its vicious effects are manifest. After the habit is once acquired, the system craves the drug very much as the body craves food. When this drug hunger is not gratified, the habitue suffers all the consequences of natural starvation, until his system recovers its normal condition. With overwork or any mental strain the craving for the drug returns, and is repelled only with the utmost difficulty. Each dose creates a demand for a larger dose the next time, and a point is seldom reached where a constant quantity produces uniform results.

A single instance will illustrate the terrible possibilities of this drug. A prosperous young lawyer, being very much overworked and in great demand, sought renewal of his exhausted energies in cocaine. For a long time this served him remarkably well, stimulating his energies and producing an appearance of renewed vitality. Presently his system failed to respond to the usual quantities of the drug; then began a gradual increase in the dose, with simultaneous reduction in the effect. Finally the drug seemed to lose all potency, and the subject was completely prostrated. Under skillful treatment he recovered after a time and appeared to be restored, but with returning labor and anxiety came the old craving and morbid desire for stimulus. This he resisted with all his energy, but to

\* Extracts from an article in Bulletin of Pharmacy, by Albert N. Doerschuk, Ph.G.

no avail. An extreme hunger prevailed in his system, and he could have no peace until this was satisfied. Notwithstanding his former experience, one night he stole from his home and satisfied his longing with cocaine. Pleasant thoughts and blissful dreams were the result. And thus he sustained himself from day to day. By stealth his wife obtained some of the drug, and, finding exhilaration in its use, continued to administer it to herself, guarding her secret from her husband. To-day one is a raving maniac and the other is behind the bars, clamorous for cocaine.

**An Aluminum Torpedo Boat.**

About two years ago the Messrs. Yarrow, of London, were commissioned to build a small torpedo boat of aluminum, with a view to making a craft that should be very light, and thus be adapted to storage on the deck of a battle ship. The builders adopted an alloy of aluminum and 6 per cent of copper. The plates and frame of the boat were of this material shaped cold and were of medium hardness, of 14 to 16 tons per square inch of tensile strength. The portions subject to sea or bilge water were riveted with aluminum rivets, and the remaining parts, such as the deck, not subject to the action of sea or bilge water, were mostly riveted with soft iron rivets.

With reference to corrosion from sea water, Mr. Yarrow says, we have tried a series of experiments, extending over twelve months, and we find, provided there is no galvanic action due to other metals being in contact with the aluminum, the corrosion may be taken at under 4 per cent per annum for plates about  $\frac{1}{8}$  inch thick, the surface being unpainted. At the same time it must be borne in mind that such a boat as I am describing should be painted, and the paint used should be carefully selected, avoiding any that contains bodies which would have a direct chemical action on the plates. As further evidence of the effect of sea water upon aluminum, I would refer to the Vendessee, a sailing yacht built of aluminum in Paris about eighteen months ago. The report of it as regards corrosion is as follows:

" . . . It has stood very well, excepting in a few places where copper fittings have been fixed in direct contact with the aluminum hull, which has produced a galvanic action. A similar action was produced when the boat was moored to a quay near another boat, the bottom of which was coppered, both being fastened to the same post by means of chains. With the above exceptions, direct contact with salt water has had no deteriorating effect."

The two great enemies to the use of aluminum are heat and alkalis. This material anneals at a comparatively low temperature, thus losing strength, while the alkalis act very rapidly upon it. Consequently any part likely to be subject to a considerable rise of temperature should not be made of aluminum, nor should it be used for a condenser where soda may be required for cleaning purposes. Aluminum at high temperatures oxidizes with exceptional rapidity. At low temperatures it does not oxidize so rapidly, and the film of oxide on the surface protects the metal from further action.

As regards the machinery of this little vessel there is nothing special to note, excepting that aluminum bronze and manganese bronze were used wherever practicable. No aluminum was employed except for the low pressure piston valve, for which purpose it seemed to answer well during the time the boat was in our hands. The engines were of the triple expansion type, and indicated on trial from 275 to 300 horse power. The boiler was of our usual type, with copper tubes.

Our contract with the French government was to construct a boat 60 feet in length by 9 feet 3 inches beam, which, with 3 tons load on board, should have a speed of  $18\frac{3}{4}$  knots during a full speed trial of two hours, and which should not exceed 11 tons in weight, exclusive of the above load. The official trial took place on September 20, 1894, the average speed obtained during two hours, under the above conditions, being 20.558 knots. The boat was carefully weighed and found to be 10 tons. From this it will be seen that a speed of  $1\frac{1}{4}$  knots beyond that contracted for was obtained, and the weight was 1 ton below the agreed maximum. In comparing this aluminum hull with one constructed of steel, the approximate saving in weight by adopting the lighter material cannot be taken at less than  $2\frac{1}{2}$  tons, which it must be admitted is a large percentage in a boat weighing, complete with its machinery, 10 tons. The machinery was found to weigh about 40 pounds per indicated horse power, including the water in the boiler and condenser. The vibration at all speeds was inappreciable. The French authorities are exceedingly pleased with the boat, and have in contemplation the building of several more, on the same plan, of aluminum.

A CEDAR tree 467 feet high and 70 feet in circumference at base has been felled near Ocosta, Washington. It is a pity that all such great giants of the forest, whose age is counted by centuries, cannot be preserved from destruction.

**Infinitely Rapid Motions.**

Lord Rayleigh, in lecturing upon the multitudinous motions of the waves of the sea, and the forces which govern them in their phases, as revealed by the researches of Stokes, Thomson, himself, and others, spoke of waves upon the surface of water too small and rapid to be seen by the eye. These, he explained, can only be made visible, and apparently slowed down so as to be appreciated, by means of instantaneous photography, or by a series of instantaneous optical projections. Each flash of light, such as that of the electric spark, makes the object appear to stand still for a moment in one of its phases, and the flashes must be so timed as to reveal each phase so that they blend slowly, and the whole appears to be moving so slowly that the nature of the motion can be seen. He projected an enlarged image of a vibrating tuning fork upon the screen, and its prongs appeared fuzzy from the rapidity of the motion, but when the projection was performed by properly timed flashes of light, he so slowed down the apparent motion that each prong appeared to make but one vibration in about two seconds, so that the nature of its motion could be seen with ease.

He then projected upon the screen the photographs he took three years ago of bursting soap films, each taken by the light of an electric flash lasting less than one-millionth of a second. The soap films were broken by means of letting a bullet, wetted with alcohol, fall through them; a dry bullet would go clean through them, perhaps, a dozen times without breaking them. The greatest difficulty in the work was in the mechanical arrangements, to so time the flash that it should occur just as the bullet had passed through the film. The photographs were good ones, showing the falling bullet, and the torn and thickened edges of the broken film, as well as some little attached filaments of liquid beads of soap solution.—Photography.

**Military Lyceums.**

With the approval of the Secretary of War the following orders have been issued by Lieut.-General Schofield:

There shall be established at every post in the army, garrisoned by troops of the line, an officers' lyceum, in which captains will form one class and lieutenants another; the instruction of these classes will be given separately. From the work connected therewith no officer of the line shall be excused excepting under such circumstances as would exempt him from any other duty at the post. The commanding officer of the post shall be president of the lyceum, and in that capacity act as director of instruction, subject to the supervision of the department commander. He shall be assisted by a secretary, from the officers of the garrison, whose duty shall be to keep a simple record of the proceedings of the lyceum. The secretary shall not be excused from the same duty that falls upon other members of the lyceum. The commanding officer shall also be assisted by such assistant instructors from officers of the garrison as may be approved by the department commander.

The president of the lyceum will prepare a carefully considered scheme of theoretical instruction, selected from the subjects enumerated in Paragraph I hereof, and assignments to courses of study will be made with special reference to the requirements of examinations for promotion.

Field officers and captains over fifty years of age will not be required to participate as members of the lyceum in this part of the work, excepting as it may be expedient to employ them as assistant instructors.

**Grief from a Medical Standpoint.**

The nervous system requires complete rest after blows caused by sorrow. Recent medical observations show that the physical results of depressing emotions are similar to those caused by bodily accidents, fatigue, chill, partial starvation, and loss of blood. Birds, moles, and dogs, which apparently died in consequence of capture, and from conditions that correspond in human beings to acute nostalgia and "broken heart," were examined after death as to the condition of their internal organs, and it was found that the nutrition of the tissues had been interfered with, and the substance proper of various vital organs had undergone the same kind of degeneration as that brought about by phosphorus or the germs of infectious disease. The poison of grief is more than a name. To urge work, study, travel, the vain search for amusements, is both useless and dangerous. For a time the whole organism is overthrown, and temporary seclusion is imperative for proper readjustment.

Grief cannot be ignored, neither can it be cheered up. It must be accepted and allowed to wear itself away. Readjustment comes slowly. Sorrow, grief, and all great misfortunes should be regarded as conditions similar to acute infectious diseases, which they resemble in result; and later, as convalescence from such diseases. Seclusion, rest, sleep, appropriate food, fresh air, sunshine, interests that tax neither mind nor body, these are requirements in this class of illness.—The Charlotte Medical Journal.