

MORNINGSIDE PARK, NEW YORK CITY.

Naturally, one of the most picturesque and attractive portions of New York city is that bordering the Hudson River for a considerable distance south of the Harlem. Along the water front at Riverside Park—made famous as the final resting place of Grant—is a high bluff, beyond and to the east of which is a rolling, elevated country, plentifully covered with large trees. The high land abruptly terminates at Morningside Avenue, where a comparatively low and flat section commences. This level portion has been selected by the city to form Morningside Park, which will be, when the present plans of the Park Department shall have been fully carried out, a most pleasing pleasure ground.

The park is bounded by 123d Street on the north, by New and Ninth Avenues on the east, on the south is 110th Street, and on the west Morningside Avenue. Separating the park from the more elevated country is the wall that forms the subject of our frontispiece. Our artist, while faithfully depicting the general characteristics of the wall itself, has availed himself of that license for which artists, as well as poets, are cheerfully forgiven, and has slightly drawn upon his imagination for the pleasing features seen in the adjoining landscape.

The massive retaining wall was built by the Department of Public Works. Beginning at 110th Street, the wall is straight to a point near the northern extremity, where it curves, as shown in the center view, closely following the contour of the land to 123d Street. The wall is built of gneiss rock, obtained from the excavations. It has a batter of 1 in 12, and the face is broken ashlar. In some places it is over 20 feet thick at the bottom, and at the highest point, at 116th Street, it is 40 feet from the surface of the ground to the top, the foundation extending some distance below. The entire face of this wall will ultimately be covered with clinging plants.

Four bays and two entrances, which may be said to comprise the strictly ornamental branch of the work, combined, of course, with the useful, have been erected by the Department of Public Parks, whose jurisdiction may be said to begin at the face of the wall. There are two approaches to the main entrance or steps at 116th Street, shown in the upper view. The stairways measure $24\frac{1}{2}$ ft. from out to out; the first platform is 22 ft. long by 7 ft. wide, and the other two are 15 ft. in length. The extreme width of the top, illustrated in the lower view, is 62 ft., and the front is broken by a large semicircular bay. The steps, coping, and caps of the columns are of granite, all the rest of the work being of gneiss. On top of the wall there will be placed stone columns and bronze railings.

The steps at 110th Street present similar features, as will be seen from the middle left hand view, and there will be like ones at 123d Street.

Located at 111th, 113th, 115th, and 117th Streets are four bays, semi-octagonal in form, and built in a style in keeping with the entrances. At the intervening streets it is expected to erect additional steps. The bays are designed to serve as outlooks and resting places from which the park may be viewed.

The tops of the bays are formed of iron channel beams resting upon the outer and inner walls, transverse partitions being erected in the larger entrances to support the ends of the beams. Between the beams are thrown brick arches, covered with asphalt. The chambers thus formed are entered through doors in the outer wall, and will be used for keeping tools, etc.

In this entire work no attempt has been made at profuse ornamentation; the whole is quiet, rich, and massive, and will be in harmony with the park upon one side and residences upon the other, and will form an appropriate division mark between the two.

The cost of the walls of the bays and entrances was \$53,500; the steps, platforms, balustrades, and coping of the bays and entrances cost \$75,000, making the total cost of the improvement as far as carried out about \$250,000.

Improved Fire Extinguishing Apparatus.

A novel system of fire extinguishing has just been introduced in London by Mr. William Glenister, chief of the Volunteer Fire Brigade, Hastings, and Mr. J. C. Merryweather, of London. The apparatus forms the subject of a patent. The new fire and life saving machine consists of a tricycle with which are embodied the following: 1. A hose reel carrying a large quantity of specially constructed hose for winding in a small compass, with all the attachments for working on to a fire from the street hydrants. 2. A light double-pump fire engine in collapsible cistern, capable of throwing 25 gallons per minute, to be worked by two pumpers. 3. A simple fire escape, with descending ropes and bag. 4. Jumping seats formed from the riders' seats. The machine is run at full bicycle speed by two men, and if desired the treadles can be so disposed as to work the fire pump, but for this a special gearing is required. For country districts and suburban towns, this improved machine will doubtless be appreciated.

Correspondence.

The Island of Malta.

To the Editor of the Scientific American:

In the May number of your Export Edition is a short article, in which it is stated that the island of Barbados, with an area of 166 square miles, contains a population of over 175,000 souls, that is to say, an average of 1,054 people to the square mile, and that therefore the Barbados is the most densely populated part of the earth.

Permit me to present the claims of this historic island of Malta for the peculiar honor of being even more densely populated than Barbados. The total extent of the land (or, more properly, rock), surface of Malta is about 95 square miles, and the proportion of the population (exclusive of the British war forces and of the visitors or non-residents) is, as near as can be estimated at this date, 1,500 to the square mile.

The city of Valetta contains the greatest plethora of population—its area being 0.318 of one square mile and its population 24,854, a proportion of 78,157 persons to the square mile. There is one specially populous quarter of Valetta known as the *Manderaggio*, whose area is 0.004 of a square mile, or 2.56 acres, wherein dwell 2,544 persons—a proportion of 636,000 souls to the square mile.

Excluding the one-third of the island which is unsuitable for cultivation, and the area occupied by buildings, and the population of Malta reaches the bigish number of 2,000 persons per square mile.

The island raises enough to support about one-third of its inhabitants. Nevertheless, the people are contented and fairly prosperous. There are no direct taxes levied of any kind, nor any insurance, for the buildings are absolutely fireproof; there is no fire department to support. The buildings are of the soft Malta stone, and the builder scarcely needs any other tools than a hatchet and a square, for the material is worked almost as easily as cheese. The island has no debt; *per contra*, it has upward of £250,000 invested in English funds. Honesty and economy distinguish the administration of this model little government. It is a so-called free port, but its custom house receipts are upward of £140,000 annually, and £50,000 or £60,000 of that total is derived from the import duties on wheat, and £40,000 from the duties on wines and spirits. The laboring classes pay these duties, but they don't seem to know it!

Malta is one of the busiest and most important ports in the Mediterranean, and in one year I have known 6,675 vessels to arrive in the harbor.

The following countries are represented in Malta by Consuls or Consuls-General: United States, Austria, Belgium, Brazil, Denmark, France, Germany, Greece, Italy, Morocco, Netherlands, Persia, Portugal, Roumania, Russia, Spain, Sweden and Norway, Turkey, and Tunis.

The real property of the island is, as near as possible, thus owned: One-third by the Church and her priests, one-third by the wealthier inhabitants, and one-third by the British government, the latter succeeding to the property formerly owned by the Knights of Malta.

The franchise has lately been extended, so that now about 10,000 of the inhabitants are privileged to vote for members of council. The franchise is based on a money qualification, not on the intelligence of the voter. For instance, my Maltese cook, who pays not less than £6 per year for his house, but who cannot read or write, is a voter, whereas my intelligent friend Mr. Giovanni Vella, who is a gentleman and scholar, cannot vote because he lives with his father and pays no rent.

Education is, however, on the increase, for in 1842 there were but 3,833 scholars in the schools, and 12,390 in 1881. This year the scholars number upward of 15,000. About £20,000 is expended annually by the educational department. In 1881 the percentage on the native population of those able to speak, read, and write their own language was 16.50, leaving 83.50 illiterate or only able to speak their own tongue.

The Maltese is a most peculiar language. It is of Oriental origin, Arabic in its chief characteristics, but sprinkled all through with Italian incorporations. It has no grammar. It is phonetic and idiomatic. I will give you a sample. It is from a Maltese love song:

Tridu tafu shbeiba sh taghmel,
Min fil ghodu sa fil ghashia,
Taghmel il bokli f' rasa,
U tokghodlok fil gallaria.

The translation of which is:

Would you know what a maiden does
From morning until evening?
She adorns her head with curls,
And seats herself in the balcony.

JOHN WORTHINGTON, U. S. Consul.
U. S. Consulate, Valetta, Malta, July 10, 1886.

THERE are in Germany 630 paper mills, 437 wood pulp mills, 42 straw pulp mills, and 39 mills making chemical fiber.

PHOTOGRAPHIC NOTES.

Reducing Over-intense Negatives.—Farmer's well-known method of using a fresh 5 per cent solution of hyposulphite of soda in which is dissolved a few grains of red prussiate of potash (ferridcyanide of potassium), for reducing intense negatives, needs no further description here, since it is now generally used by both amateur and professional photographers.

Quite recently, Mr. Edward Leaming, a member of the New York Amateur Society, experimented with this process, using a 5 per cent solution of hypo and a 10 per cent solution of ferridcyanide of potassium; and noticed that while the reduction took place very uniformly, yet, when the operation was finished, a yellow tinge was left on the negative, which in a measure counteracted the effect of the reduction, as it slowed the printing on silvered albumenized paper.

His remedy was to change the color of the negative, which was accomplished by putting it into a saturated solution of common alum. In a short time it was changed from yellow to a bluish color, making it well adapted for quick printing.

The reason of the change is due to the fact that commercial potassium alum contains iron as an impurity, and when it comes in contact with a mixture of a ferrous salt and the ferridcyanide of potassium, a bluish precipitate of ferrous-ferridcyanide results. This precipitate is known under the name of Turnbull's blue.

Sulphurous Acid for Developers.—In experimenting with this acid, we have found that the samples to be purchased from leading manufacturing chemists are not as powerful as they should be, and we lately were led to prepare a fresh solution by the simple method described in SUPPLEMENT, No. 460. We were much surprised to note the better keeping qualities of this freshly prepared solution. The pyro solution in which it was employed retained its full strength and kept perfectly clear, being very nearly colorless. As the sulphurous acid may be very easily and quickly prepared, we believe using it fresh is of much utility in preserving the pyro solution intact.

DECISIONS RELATING TO PATENTS.

U. S. Circuit Court.—Northern District of Illinois.

DRUMMOND *et al.* vs. VENABLE *et al.*

PLUG TOBACCO.

Blodgett, J.:

A claim reading "As a new article of manufacture a plug of tobacco one or both faces of which are marked off by indented lines, which serve to secure the wrapper to the filling, and also as guides for cutting up the plug into small pieces of definite size and weight," is void for want of novelty, in view of the fact that it was common prior to the date of the alleged invention to mark cakes, candies, chocolate, etc., with indented lines to indicate measured quantities.

A feature of utility which is merely incidental to the main purpose of the invention is not of itself sufficient to sustain a claim where it is shown that the main purpose has been accomplished prior to the date of the alleged invention.

Patent No. 200,133, of February 12, 1878, to James Drummond, for an improvement in marking plug tobacco, is void for want of novelty.

U. S. Circuit Court.—District of New Hampshire.

JENCKS vs. THE LANGDON MILLS *et al.*

Colt, J.:

This bill in equity is brought for infringement of Letters Patent No. 168,644, granted the complainant for improvement in spindle bolsters. The suit is between citizens of New Hampshire, and the first question to be determined is whether there is a subsisting license between the plaintiff and the defendant corporation covering the patented bolster in controversy.

The plaintiff was in the employ of the defendant corporation as overseer or superintendent from June, 1861, to 1877. During this time he made several improvements in the machinery used in the mills. His patented adjustable rings were put into the mills in 1866 and 1870, and his patented traveler cleaner in 1868 and 1870. The patented bolster, upon which suit is now brought, was put in between 1875 and 1877. The date of the patent is October 11, 1875. The defendants contend that Jencks agreed to give the company the free use of his inventions as an advantage to him in introducing them elsewhere; that he was to make no charge for royalty, and that no royalty was ever paid; that he took the time which belonged to the company to devise and experiment with his improvements, used the tools, workmen, and materials of the company in making the improvements, and tested them in the machinery which was run by the company.

Held, When complainant was an employee of defendant company, and used the time it paid for, and its tools, workmen, and materials in experiment and perfection of the invention, and put it, when completed, in use in defendants' mill, and made no contract as to compensation or royalty, the law will infer a license to the defendant to use the invention in the particular mill without royalty during the term of complainant's patent.