

**IMPROVED BEEHIVE.**

We illustrate herewith an improved beehive, in which the honey boxes are easily accessible for examination or removal. Among other new features are removable shades for excluding rain and sun, and a feeding trough, so constructed that it may be supplied by an attendant without risk of his being stung. Three forms of the hive are here illustrated.

In that marked 3, there is a central box, on each side of and above which are grouped the honey boxes. The bees have access to the latter through openings in the hive, said openings having swinging covers. The hive may be a box, or it may consist of frames composed of slats suitably arranged and held together by clamping bars. The exterior walls of the hive are connected at the angles by hooks. This allows either end, or the front, back, or all sides, to be removed without disturbing the other parts of the hive or honey boxes, so as to inspect, remove, adjust, or replace the latter.

Hive 3, in our engraving, has honey boxes on top and on both sides; hive 2 has them on top and on one side; and hive 1 on top only. Surmounting the hive is a peaked roof, which is lifted off before removing the detachable sides. At A is a screen, consisting of a light frame covered with muslin or paper, which serves to protect the hive from the heat of the sun. The shield, B, protects the entrance from rain or moisture. At C is the feeding trough. The construction is strong, simple, and convenient, and the device generally is one likely to find favor with all apiculturists.

Patented April 9, 1878. For further particulars address the inventor, Mr. Charles R. Macy, Lamington, Somerset county, N. J.

**A Good Act.**

By the act of Congress approved June 6, 1878, "all works of art, collections in illustration of the progress of the arts, science, or manufactures, photographs, works in terra cotta, Parian, pottery, or porcelain, and artistic copies of antiques in metal or other material, hereafter imported in good faith for permanent exhibition at a fixed place by any society or institution established for the encouragement of the arts or science, and not intended for sale, nor for any other purpose than is hereinbefore expressed, and all such articles, imported as aforesaid, now in bond, and all like articles imported in good faith by any society or association for the purpose of erecting a public monument, and not for sale, shall be admitted free of duty under such regulations as the Secretary of the Treasury may prescribe."

**CROSS' IMPROVED GAS CONDENSER.**

We illustrate herewith a new condenser for illuminating gas, the operation of which is as follows: The gas from the retort house is introduced into the bottom of the condenser through the inlet pipe, and by the arrangement of the partitions and apertures is compelled, in its ascent, to pass in succession through all of the chambers, and over and in contact with all of the partitions, which present an extended area of cooling surface. In this way the condensation of the gas and the consequent separation of the tar and ammoniacal liquor therefrom are accelerated. The gas finally escapes from the upper chamber through an outlet pipe, by which it is conducted to the purifier. The condensed matter separated from the gas during this process falls upon the upper surfaces of the inclined partitions, and thence runs down into grooves or gutters, one of which is located at the lower edge of each partition. From these gutters the tar, etc., is drawn off through suitable pipes, one on each side of the condenser, the outlets of which pipes are sealed to prevent the escape of gas. By thus providing each partition with a separate gutter and discharge outlet the impurities deposited in one chamber are quickly carried off and prevented from dropping into the next one below, and consequently the gas in its upward passage is not compelled to pass over large accumulations of the products of condensation, which would

retard the purifying process. The wedge form of the chambers causes the stream of gas to be contracted, so that when it passes through the apertures the particles of tar held in suspension are brought close together. On the gas rising into the chambers above, it suddenly expands, the lighter portion rising quickly and leaving the heavy particles upon the surfaces of the partitions, which thus facilitate the separation of the impurities.

Each of the chambers is provided at its under end with a perforated pipe, each extremity of which is connected with a vertical pipe outside the receptacle. Said pipe is connected with an elevated tank containing water or weak ammoniacal

back pressure is produced. For further information address the inventor, Mr. Robert A. Cross, 9 Bow street, Charlestown, Boston, Mass.

**American Crop Prospects.**

Mr. E. Perkins, of London, now in this country, in a recent letter, dated at Chicago, writes as follows to the *London Times*:

"The question naturally asked by Englishmen, when there is a possibility of a war with Russia, is this: Will there be a great advance in provisions, and where will the wheat usually obtained from Russia come from? As an extensive traveler in the United States—for I suppose I have traveled for at least 75,000 miles on railroads running through the wheat and corn fields of the States within the last 100 days—I will answer this question, and from a disinterested standpoint.

"The winter wheat crop in the United States has never, in the history of the country, looked as well as it does now. It is safe to say that the winter wheat crop will be at least one half greater than ever before produced in America. In traveling over 75,000 miles I have failed to see a single bad piece of wheat. By the time this letter reaches England much of the wheat—that is, all of the crop south of the line of Charleston, Cincinnati, and St. Louis—will be harvested; and by June 30 the remainder of the winter wheat crop will be harvested.

"The winter wheat crop will embrace about 75 per cent of the wheat raised. The other 25 per cent will consist of spring wheat, which will be mostly raised in Wisconsin, Minnesota, Dakota, and the Canadas. Spring wheat will be harvested about the middle of July. It is now all sown. The acreage of spring wheat, on account of rumors of a war in Europe, has also been increased at least 50 per cent.

"What will wheat be worth in Chicago in August?

"The best wheat experts agree that wheat will drop to 75 cents per bushel in Chicago in the autumn; that it will fall to less than a dollar in New York; and that any quantity the English nation may call for can be delivered in Liverpool at from \$1 to \$1.10 per bushel by September 1.

"So you see there can be no bread famine in England if the Crimean wheat should be entirely cut off. The crop of wheat now growing in the United States, if properly distributed, would supply all Europe.

"In regard to other provisions, beef, pork, and lard, they always follow wheat and corn. They are unprecedentedly low in the United States now, and must continue to be still lower.

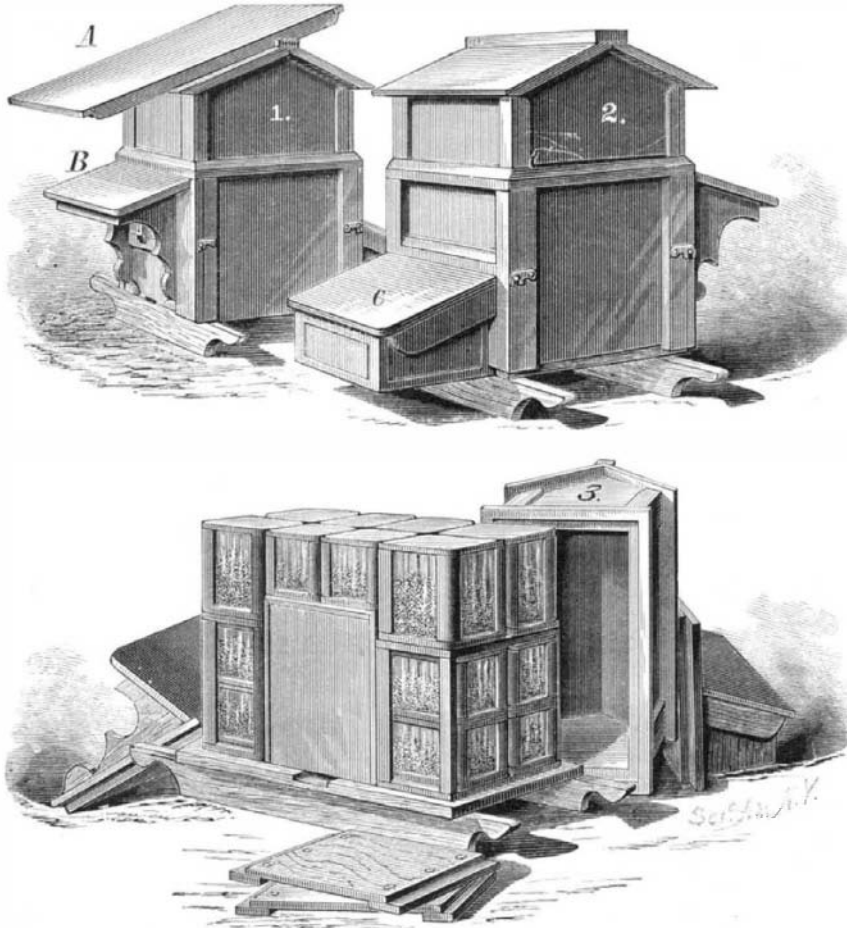
"I write this that you may know where England will get her supplies in case of a war, and that your people may have no cause for alarm if the wheat supply from the Crimean country cease altogether."

[75,000 miles in 100 days is quite complimentary to the speed of American railways, to say nothing of the endurance of the writer. It means a little more than 30 miles an hour, kept up night and day for about three months.]

**The Launch of the Nipsic.**

The United States steamer *Nipsic*, which has been on the stocks in course of construction at intervals for nearly five years, was recently launched at the Washington Navy Yard, in the presence of the President and Mrs. Hayes, the Secretaries of the Navy and Treasury, and a large number of other distinguished and undistinguished spectators.

The *Nipsic* was built to take the place of the old war ship of that name, and was designed by Naval Constructor Hanscom. Her extreme length is 201 feet; length between perpendiculars, 185 feet; extreme beam, 35 feet 5 inches; beam moulded, 34 feet; depth of hold from throat of floors to gun deck, 16 feet 2 inches; timber and room, 2 feet 6 inches; siding of frames, 10 inches; moulding size of frame at throat, 1 foot 2 inches; moulding size of frame at head, 6 inches; thickness of planking, 4 inches. She will be bark-rigged, of 615 tons burden, 1,375 by displacement. The



MACY'S IMPROVED BEEHIVE.

liquor, which thus enters the pipes under pressure, and is discharged through the perforations in the form of spray into the chambers, in such a manner that the gas, in its upward passage, is compelled to pass through the same. By this means it is claimed that the gas is thoroughly washed and the cooling process materially assisted. The pipes are each provided with a stopcock, by which the spray can be cut off at will from any particular chamber desired. A number of the chambers have perforated partitions extending vertically across them, and through perforations in these the gas passes. The gas is thus divided into fine streams, in which state it can be more rapidly and perfectly cooled; and as the combined area of the perforations of each partition is greater than that of the inlet pipe, no

FIG. 1.

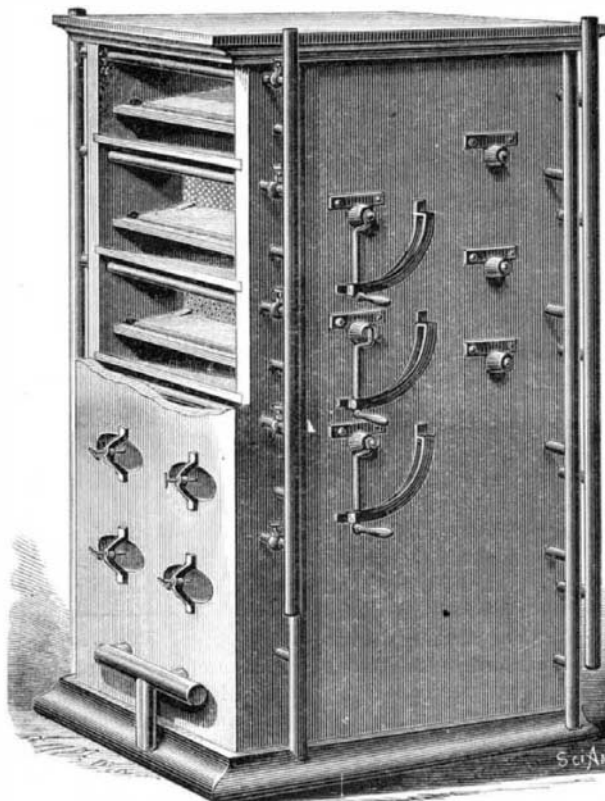
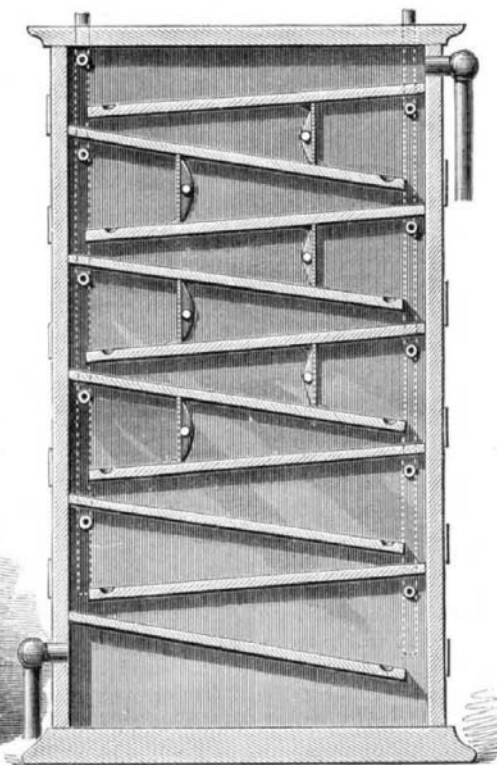


FIG. 2.



CROSS' GAS CONDENSER.

length of main-mast will be 62 feet above deck; length of main-top-mast, 44 feet; main-top-gallant-mast, 23 feet; main-royal-mast, 15 feet 4 inches; gaff, 27 feet; length of fore-mast above deck, 57 feet 2 inches; length of main-top-mast, 41 feet; top-gallant-mast, 21 feet 4 inches; royal-mast, 14 feet 3 inches; gaff, 27 feet; length of mizzen-mast above deck, 55 feet; length of mizzen-top-mast, 31 feet; mizzen top-gallant-mast, 15 feet; gaff, 32 feet; length of bowsprit, 25 feet 6 inches; jibboom, 21 feet; flying-jibboom, 17 feet. The Nipsic will be classed as a third-rate, and will carry four nine-inch broadsides, one eleven-inch pivot, and one 160 pounder; but, should it be thought necessary, four additional guns can be mounted. She will be propelled by compound engines, driving a Hirsch's four bladescrew, of fourteen feet diameter.

**THE SWISS HOUSE AT THE PARIS EXPOSITION.**

Our engraving, which we take from the London *Graphic*, represents the *façade* of the Swiss house on International street, in the Paris Exposition. The building itself is thoroughly Swiss in its construction, being of wood tastefully colored and ornamented with the arms of the various cantons. The front is composed of three arches, that in the center serving as the entrance, and those at the sides being filled with stained glass. Above the center arch is a clock, above which stand two figures of men in armor, who strike the hours, half hours, and quarters. The illustration shows the usual large crowd which gathers whenever the clock strikes, to witness the movements of the automata.

**The Ingenuity of Bees.**

The Cincinnati Society of Natural History has begun the publication of a journal of its proceedings; and, in the first number, just issued, we find the following interesting note, by Mr. V. T. Chambers, on the method adopted by some

bees of reaching the nectary of flowers. That humble bees frequently pierce the corolla of flowers, near its base, with their proboscis, which they then insert into the opening thus made, has long been known, and frequently mentioned. Indeed it is the usual way taken by these bees to reach the nectary when the corolla is too long for the tongue to reach the nectary from the mouth of the corolla, unless, indeed, the flower is a very large one—large enough for the bee to enter its mouth and reach the nectary in that way. Mr. Chambers remarks that if the same practice obtains with hive bees, he does not remember having seen the fact stated, and so records the following observation.

A large bush of *Weigelia rosea* was literally covered with flowers in all stages, from the unopened buds to those that were withered and ready to fall; and great numbers of bees swarmed over them—humble bees, hive bees, mason bees, and sweat bees (*Andrenidae*). The older flowers were each pierced near the base by a longitudinal slit, made by hive or bumble bees, which had previously visited them; and, whenever one of these bees alighted on one of these flowers, it immediately went, without attempting to enter the corolla, to the base of the flower and inserted its proboscis into the slit already made; or, if the flower was a fresh one, having no slit, it proceeded immediately to make one. By the humble bees this was instantly effected without trouble, but to the hive bees it seemed to be more difficult—probably because the blades of the maxillæ, which are used to make the slit, are weaker or more flexible than in humble bees.

Of the numerous hive bees observed, only a single one attempted to enter the mouth of the corolla, and it came out without going further than just within the opening. On the other hand, the mason bees and sweat bees went in every instance straight into the mouth of the flower, and never at-

tempted either to make a slit or to use one that was already made. Yet one of these mason bees (*Megachile*) was fully as large as the hive bees.

**ASTRONOMICAL NOTES.**

BY BERLIN H. WRIGHT.

PENN YAN, N. Y., Saturday, July 13, 1878.

The following calculations are adapted to the latitude of New Yorkcity, and are expressed in true or clock time, being for the date given in the caption when not otherwise stated.

**PLANETS.**

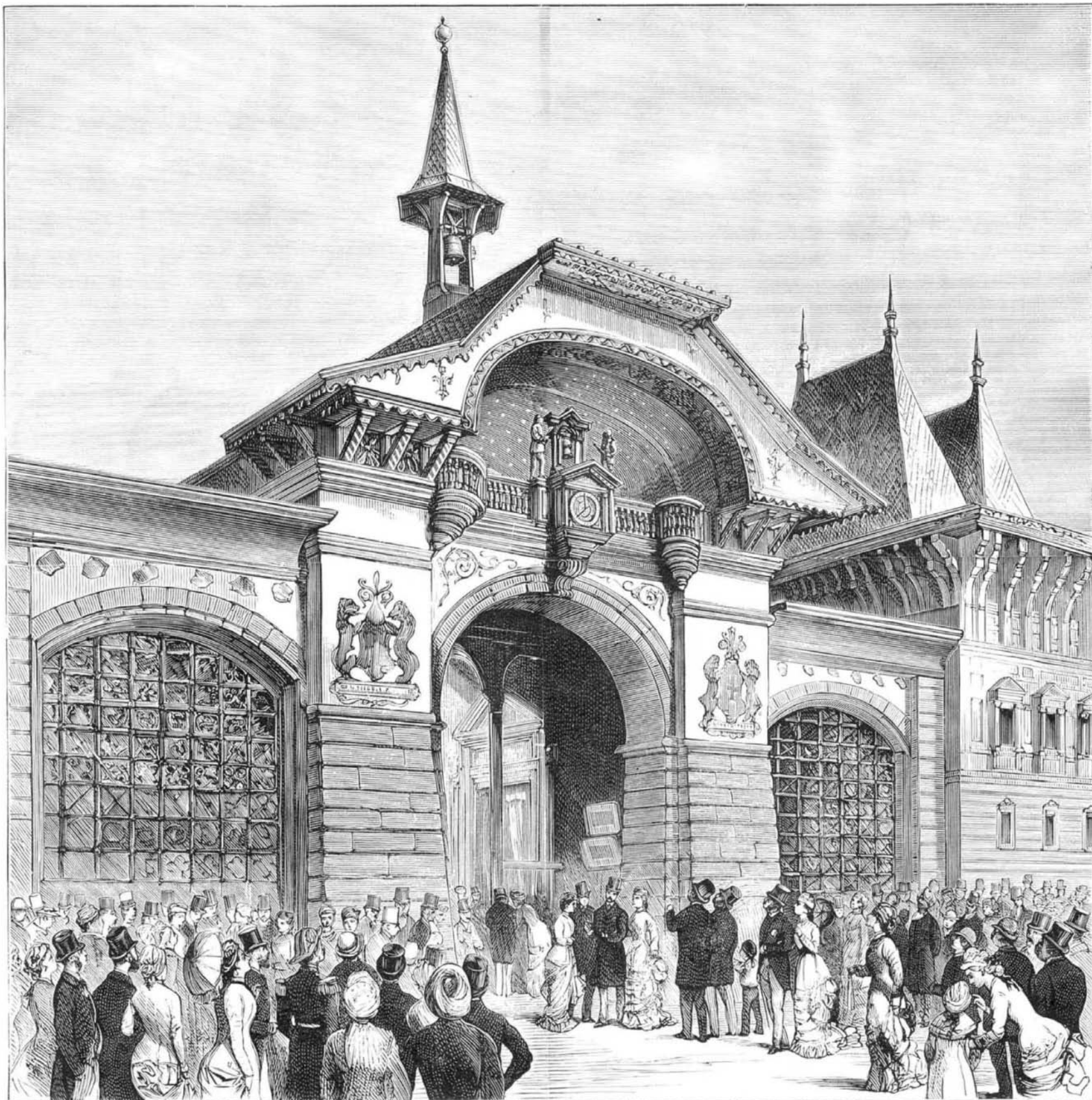
	H.M.	H.M.	
Venus rises.....	2 14 mo.	Saturn rises.....	10 49 eve.
Mars sets.....	8 42 eve.	Uranus sets.....	9 19 eve.
Jupiter rises.....	8 10 eve.	Neptune rises.....	0 20 mo.
Jupiter in meridian.....	1 01 mo.		

**FIRST MAGNITUDE STARS.**

	H.M.	H.M.	
Alpheratz rises.....	8 44 eve.	Regulus sets.....	9 19 eve.
Algol (var.) rises.....	10 24 eve.	Spica in meridian.....	5 52 eve.
7 star (Pleiades) rises.....	0 47 mo.	Arcturus in meridian.....	6 43 eve.
Aldebaran rises.....	2 06 mo.	Antares in meridian.....	8 55 eve.
Capella rises.....	11 30 eve.	Vega in meridian.....	11 05 eve.
Rigel rises.....	4 13 mo.	Altair in meridian.....	0 21 mo.
Betelgeuse rises.....	3 58 mo.	Deneb in meridian.....	1 13 mo.
Sirius.....	invisible.	Fomalhaut rises.....	11 24 eve.
Procyon.....	invisible.		

**REMARKS.**

Jupiter and the moon are in conjunction July 15, 3h. 58m. morning. This will be an occultation on this continent between 16° + and 62° - lat., and here will be a very near approach, Jupiter being a trifle north of the moon. Saturn becomes stationary July 15, after which date it will retrograde, moving westward in the constellation *Pisces*. A line connecting the two eastern stars in the Square of Pegasus (Alpheratz and Algenib) and produced southward 16°, reaches Saturn, situated in a starless region. Algol at minimum July 16, 5h. 59m. morning, and 18, 2h. 48m. morning.



THE SWISS HOUSE AT THE PARIS EXPOSITION.