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NAPHTHA EXPLOSIONS IN BOCHESTER AND JERSEY in conjunction with Uranus, being 1° 10' north. Mars CITY.

tha, took place in Rochester, N. Y., on December 21. and he is in the constellation Virgo. The Municipal Gas Light Company of that city uses one of the modern gas making processes, in which

the bed of the canal. Fourteen thousand gallons of the 1st at 6 h. 53 m. A. M. On the 31st he sets at 5 h. the inflammable fluid had been pumped into the line 48 m. P. M. His diameter on the 1st is 48", and he is to be carried by it to the works. One or more leaks in the constellation Sagittarius. existed in the pipe line, and, in consequence, a quantity of the naphtha escaped and found its way into the is morning star. On the 7th, at 7 h. P. M., he is in

sewers. At 3:25 P. M. it caught fire and exploded near half a mile. Other explosions rapidly followed, and Virgo. soon Mr. Poole's mill was in flames. Three flouring mills were completely destroyed before the firemen had the flames under control at half past eleven at night.

A leak has been found in the pipes near the Atkinson Street sewer. This is thought insufficient to account for the extent of the disaster, and the whole line will be tested by hydrostatic pressure. The loss of life is not yet known with certainty, but several people have probably perished. The sewers are badly damaged in places, and windows were broken everywhere.

Immediately following the news of this occurrence comes the tidings of another similar accident, though, fortunately, of far less extent. In the office of the Jersey City Gas Light Company, in Jersey City, N. J., a naphtha leak existed in the cellar. The heat of the steam pipes, it is supposed, vaporized the fluid, and about noontime on December 22 two explosions followed each other in quick succession. the second being the worse. The front of the building was blown out, but the occupants escaped with more or less serious injuries. One of them is not yet pronounced out of

These two accidents emphasize the need of extreme care in dealing with naphtha. It is more dangerous than gas, because when a leak occurs it takes far longer for the last traces to disappear. Its comparatively stable nature makes it a fearful adjunct to a conflagration, as it burns and when mixed with air explodes. The first explosion only disposes of a part of the danger; some will almost always be left to prolong the trouble. Water acts ineffectually in extinguishing it, as it floate and burns upon the surface.

In this city vast quantities are used, probably over a thousand barrels a day in the gas works alone. But, fortunately, these establishments are all situated on the edge of the water. The oil is brought in tank barges to the dock and then pumped through a short line into tanks, whence it is taken to the works. Yet, in the light of what has occurred, it would seem that given are true to the letter. more stringent regulations should be applied to its use. No line of pipe used for its transfer should be buried. The greatest element of safety in handling naphtha is exposure. Hidden pipes and tanks are a perpetual menace. Ventilation is also an important security. Everything connected with its storage and transporta-

# POSITION OF THE PLANETS IN JANUARY. VENUS

# is morning star. An interesting event in her course occurs on the 2d, at 11 h. A. M. She is then in conjunction with Jupiter, the planets being only 1° 51' apart, hours before the sun. Venus rises on the 1st at 8 h. 54 voir being some centimeters higher than in the vessel tion Libra.

# JUPITER

during the month by his meeting with Venus on the dry. It is gray or black, but a number of soluble color-2d. He makes also a close conjunction with Beta ing matters may be introduced into the ethereal solu-Scorpii on the 24th, at 6 h. P. M., being at that time tion, thus obtaining threads of all colors. -M. De only 8' south of the star. At the close of the month he Chardonnet. rises four hours and a half before the sun. Jupiter rises on the 1st at 4 h. 4 m. A. M. On the 31st he rises at 2 h. 30 m. A. M. His diameter on the 1st is 31", and he is in the constellation Libra.

rises on the 1st at 0 h. 15 m. A. M. He rises on the 31st A very serious explosion, due to an escape of naph- at 11 h. 13 m. P. M. His diameter on the 1st is 74",

#### MERCURY

naphtha is employed for enriching the gas. The gas is morning star until the 18th, and then evening star. works receive large quantities of naphtha from the He is in superior conjunction with the sun on the 18th, Vacuum Oil Works, and the two establishments are at 3 h. P. M., passing beyond the sun, and changing connected by a pipe line, part of which is placed in from his western to his eastern side. Mercury rises on

#### URANUS

quadrature with the sun. Uranus rises on the istat John H. Poole's mill. The roof was blown off the mill 0 h. 37 m. A. M. On the 31st he rises at 10 h. 35 m. P. and the street was torn up at intervals for a distance of M. His diameter is 3.6", and he is in the constellation

# NEPTUNE

is evening star. He sets on the 1st at 4 h. 4 m. A. M. On the 31st he sets at 2 h. 4 m. A. M. His diameter on the 1st is 2.6", and he is in the constellation Taurus. At the close of the month, Mars, Uranus, Jupiter, and Venus are morning stars. Neptune, Mercury, and Saturn are evening stars.

# Saved by the Scientific American.

Mr. J. J. Stranahan is the editor of the Exponent, a bright paper published at Chagi in Falls, Ohio. In a recent issue of his journal he gives the following :

"Those wishing to be well up in scientific and mechanical matters cannot afford to be without the SCIENTIFIC AMERICAN. It has been a constant visitor at our sanctum for fourteen years, and the other half of our family says that it is nip and tuck between the Bible and the SCIENTIFIC AMERICAN so far as we are concerned. We, however, have a double interest in the SCIENTIFIC AMERICAN, for, but for it, a new man would be behind the editorial quill of the Exponent. When we came near crossing the dark river, when taken by cramps while swimming across Mark Neice's pond in Newbury last summer, the first thought that entered our mind in that awful moment was an article which we had read about two weeks before in the SCIENTIFIC AMERICAN, on how good swimmers are drowned by becoming frightened, when by coolness and deliberation they could save their lives. Although ten rods from shore, in twenty or thirty feet of water, with severe promps in neck and thigh, we swam to shore, and spoiled a nice funeral and cheated some other fellow out of a seat in the sixty-eighth general assembly. And there are doubtless those who wish that the SCIENTIFIC AMERICAN was in Hades before that article was published."

Mr. Stranahan further states that the facts above

# Artificial Silk.

The author dissolves 3 grms. of nitro-cellulose in 100 to 150 c. c. of a mixture of equal parts of alcohol and ether. He adds 25 c. c. of a filtered solution at onetenth of the dry ferrous chloride of commerce in alcotion should be open both to inspection and ventilation. hol; or of stannous chloride, and further 15 c. c. of a solution of tannic acid in alcohol. The whole is filtered in a closed apparatus to prevent loss by evaporation. The liquid is placed in a vertical reservoir, having at its bottom a blowpipe nozzle of glass or platinum. This pipe forms an acute cone with an orifice of from 0.10 to 0.20 mm., the thickness of the margin not exceeding 0.1 mm. This aperture opens Venus being that distance farther north. The planets into a vessel of water acidulated with one-half per cent rise on the morning of the conjunction about three of mono-hydrated nitric acid. The level in the reserm. A. M. On the 31st she rises at 4 h. 47 m. A. M. Her of water, the outflow proceeds easily. The fluid thread diameter on the 1st is 188", and she is in the constella- hardens at once in the acidulated water, and may be drawn out by a uniform movement. The thread thus formed must be dried rapidly by traversing a current is morning star. He signalizes his progress in the sky of dry (not hot) air, and may be wound up as soon as

excavating machinery and general plans of the structure.--7illus-9993 trations.

The Erection of an Obelisk -Mr. Arondeau's theory of the method used by the Egyptians, is setting up their monoliths.-1 illustration 9994

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VII. TECHNOLOGY.-Wool Hat Making.-A full account of the manufacture of woolen hats: the machinery and manipulation employed.-7 illustrations.....

# SATURN

9991 is morning star until the 23d, and then evening star. On the 23d, at 9 h. A. M., he is in opposition with the sun. He is then at his nearest point to the earth, and is visible under the most favorable conditions, rising at sunset and continuing above the horizon all night. Saturn rises on the 1st at 6 h. 26 m. P. M. On the 31st he sets at 6 h. 49 m. A. M. His diameter on the 1st is 19.2'', and he is in the constellation Cancer.

# MARS

is morning star. On the 5th, at 7 h. A. M., he is in twenty-eight hundred and forty-nine. Every issue of quadrature with the sun, rising at that time about the ARCHITECT AND BUILDER contains views of midnight, and is easily visible as a small ruddy star, modern houses printed in colors, accompanied with northwest of Spica. On the 9th, at 2 h. P. M., Mars is scale drawings of plans in detail.

#### How to Invest Nine Dollars.

By remitting \$9 for the SCIENTIFIC AMERICAN, SCI ENTIFIC AMERICAN SUPPLEMENT, and the ARCHITECT AND BUILDERS EDITION of the SCIENTIFIC AMERI-CAN for 1888, the subscriber will surely have the latest and best scientific, engineering, mechanical, architectural, and building information to be had, and it is only in these three publications that a great deal of the information they will contain can be had at all.

The number of engravings of new inventions, engineering works, scientific experiments, the elevation and plans of new buildings, etc., which have appeared in the three editions of the SCIENTIFIC AMERICAN during the year just closing reaches the large number of