

Discovery of a New Nebula by Photography.

MM. Paul and Prosper Henry have recently announced the discovery by means of photography of a new nebula in the Pleiades. It was first photographed on November 16 last, and, though it was again photographed on December 8 and 9, MM. Henry have as yet been unable to detect it by direct telescopic observation. The nebula is about 3' in extent and "tres-intense." It presents a well marked spiral form, and seems just to escape Maia. Its position is as follows: R. A. 3 h. 38 m. 57 s., Decl. 24° 1' N. The question is sometimes asked, Which is the most sensitive to light—the human eye or the photographic plate? This discovery seems to indicate the superior sensibility of the chemical plate.

DESIGN FOR A SUMMER GARDEN HOUSE.

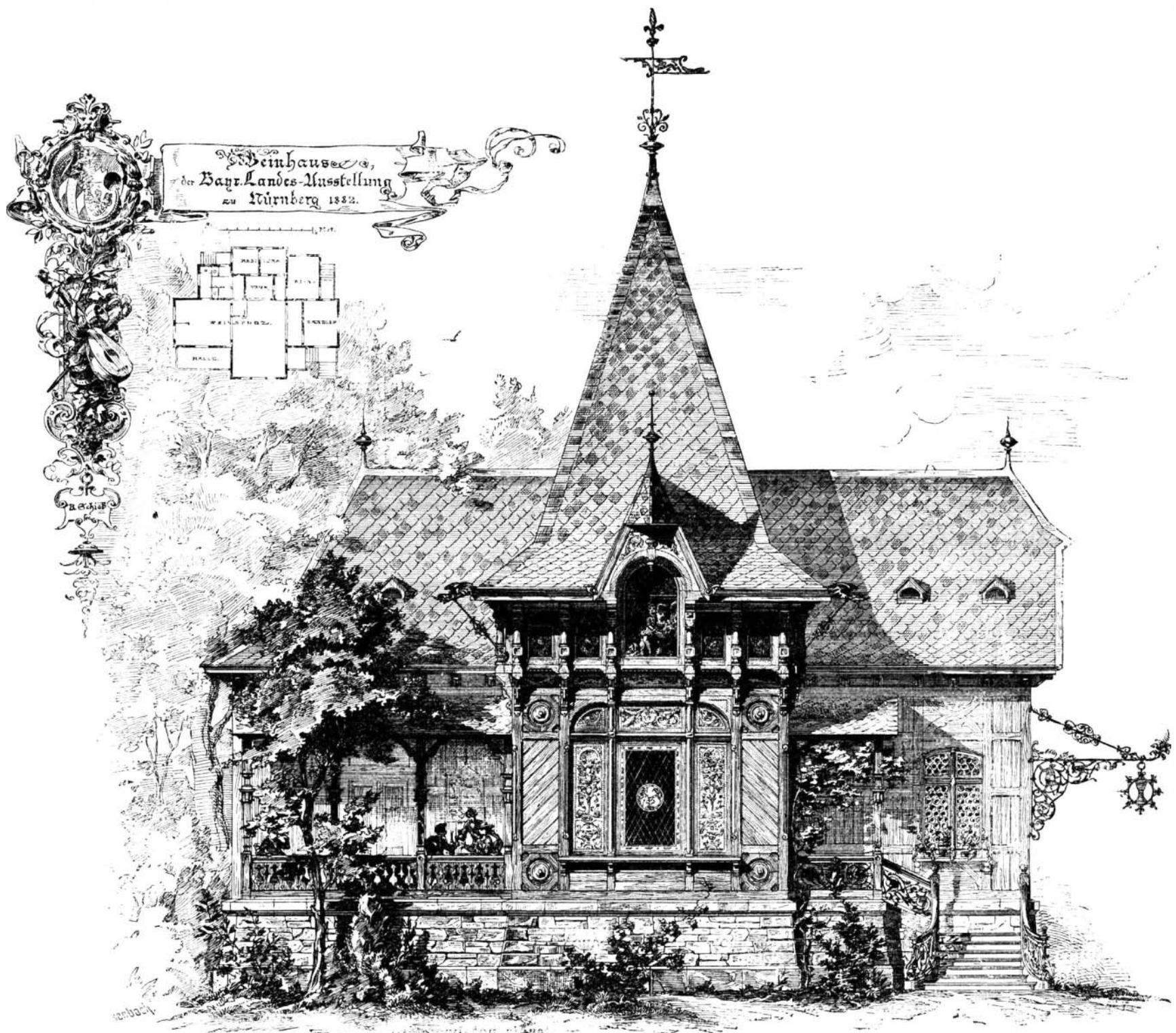
Our engraving, for which we are indebted to *Architektonische Rundschau*, illustrates a much admired

as a notable example of the complete carelessness possible in this direction, that the handsome residence of a neighbor got on fire three times within one month, and that on each occasion the narrowly escaped destruction was directly traceable to defective construction. In the first instance, fire was due to wood placed in connection with a steam boiler, and in the other two cases was caused by joists or beams brought in contact with chimneys when the house was built. In these cases sufficient heat reached the timbers to cause ignition.

There are many buildings in all parts of the country to-day where a little hotter fire than usual in furnace or grate will do just the same thing. Every householder should assure himself that no such danger menaces his own home or warehouse. Continued contact of wood with hot brickwork or heated currents of air will eventually cause combustion. There is but one remedy, and that is to remove the conditions. If a

were taken to avoid them. Now, however, they have been so well illustrated, together with the large possibilities of defectiveness in flues and chimneys, by a very complete list of catastrophes, that an intelligent builder—by which we mean not only the man who builds a house, but the man who has it built as well—must keep this experience in mind, and see that none of these fatal conditions is repeated in his own structure.

With twenty-seven recognized causes of fire, and any number besides, not classified, there are not a few otherwise careful persons who despair of the value of precautions, and trust the whole matter to fate and a heavy insurance. The wisdom of providing funds necessary for rebuilding is certainly commendable; but aside from any economic reasons why valuables should not be permitted to be thus quietly consumed, those who have gone through the ordeal of a fire, at either home or place of business, know that



DESIGN FOR SUMMER HOUSE.—BY PROF. C. SCHICK, KARLSRUHE.

design for a summer refreshment house or casino, by Professor C. Schick, of Karlsruhe.

The Origin of Fires.

In speaking of the origin of fires, Dr. Nichols states that present investigations show that the number of fires attributable to incendiarism is much less than is generally supposed. Spontaneous combustion is another cause which has heretofore been brought forward on a great many occasions, when the real trouble has been in defective or careless construction. While dwelling houses in the United States are burning at about the rate of one every hour, and mills, hotels, stores, and barns are vanishing in proportion, it is worth the consideration of every householder to know whether his own premises are inviting destruction from fire, or whether they are reasonably secure from the ruin brought by that element. In the fire tables of 1884, incendiarism is placed at the top of a list of some twenty-seven causes. Next in this fatal list comes defective flues, but it is questionable whether they have been given the rank they deserve. Dr. Nichols mentions

building is already erected, and these fire traps carefully concealed, it is a difficult matter to get at the source of danger and see that it is removed; but the difficulty is much less than that of starting anew when fire has carried off the household goods or destroyed the "plant" of a well established industry.

But while spontaneous combustion, being impersonal and therefore without the ability for defense, has had a great many sins laid to its door by builders whose volubility exceeded their carefulness, this peculiar process of slow oxidation has still a heavy account against it in the list of fire losses. In one instance, recalled by the same writer, a dwelling house caught fire by the spontaneous ignition of sawdust placed between kitchen floors as a sound deadener. The sawdust alone was safe enough, but when it became saturated with oil from the polishing of the floor above, new conditions prevailed. The sawdust heated rapidly from the absorption of oxygen by the oil. The temperature speedily rose to such a point that ignition occurred, and flame burst through into the room. For many years the conditions favorable to spontaneous combustion were so imperfectly known that no precautions

there are many things for the loss of which insurance is but a poor compensation.

Combustion of Copper and Nitrogen.

A curious phenomenon has been observed by M. Blondlot, and communicated to the French Academy of Sciences. A disk of platinum and a disk of copper, 0.03 meter in diameter, were fixed vertically in front of each other by help of two platinum stands. The disks were 3 or 4 millimeters apart, and both were placed inside a bell jar of porcelain, open below. The apparatus was then heated red hot for three hours, by means of a gas furnace, and although there was no electric current it was found that the face of the platinum disk was blackened with a deposit containing copper and platinum. In short, the copper had crossed from the copper plate to the platinum one. M. Blondlot, by repeating the experiment in different gas, found that the nitrogen of the air was the agent in this transport of matter. The nitrogen combines with the copper, and lodges on the platinum, either incorporating itself with the latter or decomposing in contact with it under the influence of its high temperature.