

TEMPLE MODELS FOR THE ST. LOUIS EXPOSITION.

BY HAROLD J. SHEPSTONE.

An interesting exhibit of the forthcoming World's Fair at St. Louis will be the late Dr. Schick's famous models of the temples which have stood upon Mount Moriah, Jerusalem. It was on this spot that Solomon built his historic temple, 1,000 years before the birth of Christ. Since that period no less than seven other great structures have in turn occupied the sacred site—two Jewish, one pagan, two Christian, and two Mohammedan.

Solomon's Temple, Built 1000 B. C.

Of these eight buildings, the most notable are the Temple of Solomon, the Temple of Herod, the Church of Justinian and the present Mosque of Omar.

Dr. Schick made very elaborate models of these four temples, and his son-in-law, Dr. L. Schoenecke, to whom the models now belong, has decided to exhibit them at the St. Louis Exhibition of 1904. More than ordinary interest attaches to this exhibit, as it will be the first time the models have ever been seen outside of Jerusalem. Previous efforts to secure them for exhibition purposes have always failed. As already stated, they represent the work of the late Dr. Schick, a well-known German archaeologist, who gave thirty-two years' patient study to the buildings which have occupied this particular spot during the last 3,000 years. He made a very exhaustive study of the locality itself, as well as of all literature, both sacred and profane, dealing with the ancient buildings. He died on December 23, 1901, at the age of eighty, fifty years of his life having been spent in Jerusalem. "No one living," wrote the Secretary of the Palestine Exploration Fund at Jerusalem at the time of his death, "knew Jerusalem better than he did." He was honored by several learned societies, and was much sought after by scholars and others interested in the archaeology of Palestine.

The models, which are works of art, are of wood, and made to a scale of 1 foot to every 200 feet of the entire plateau, or temple site. They are in many pieces to facilitate removal, and when put together each model forms two quadrangles, each about 9 feet long and 5½ feet wide, and some 20 inches high. The model of Solomon's Temple, for instance, which naturally attracts prior attention, is 18 feet long and nearly 6 feet wide.

Beginning at the southeast corner, we see part of the mount rising in rock steps up to the city wall, the valley of Kedron to the right, and the Tyropæan valley to the left, and inside, the wall of the mills bastion and the "house mills." Following up are two streets leading to the double and triple gates of the "king's house." On a higher terrace is the palace of the king, Solomon. Here to the left is the "house of the forest of Lebanon," and crossing above the double passage, we reach the judgment hall, in which was the throne of the king, and, further, after crossing the triple passage, the king's private lodging. Above this terrace of pal-

The Mosque of Omar, on the Temple's Site. Mount Moriah as it is Today.

Herod's Temple, Built 30 B. C.

aces and on a higher level are the outer temple walls and porches forming a great square.

Inside the porches extends the inner court, or court of the Gentiles, behind which none but Jews could go. A rise of twelve steps brings us to another platform or terrace called Chel, or the Rampart, on which stands a large building with three wings and three stories high. Inside this building are the middle court and the inner court. Fifteen steps, on which the Psalm of Degrees was chanted, led up to this inner court, and thence up five steps to the court of the priests, and there, on the holy rock of Sakhra, stood the altar of burnt offerings and the brazen sea. Up twelve steps more, on the highest platform, stood the House of the Lord, where the ark of the Covenant reposed, beneath the outspread wings of the cherubim in the holy of holies. The house faces to the east. On the north, outside the temple inclosure, we see the fortress with

the towers Mea and Hananeel, mentioned by Nehemiah.

The great Temple of Solomon was destroyed by the Chaldeans, and after the captivity of the Jews, a new one was built upon the same site by Herod, which is known as Herod's Temple. It was finished about thirty years before the birth of Christ. An inspection of the two models reveals a considerable difference in the design of the various buildings. Herod enlarged the temple area, tak-

ing into the inclosure the ground space formerly covered by the palaces of the king, and extending the wall to the west. A grand porch, called Solomon's Porch in John, was built where the line of palaces had been,

but the inner temple with the Chel and its buildings were arranged much as in Solomon's time. The altar is larger and of stone. The marble pillars in the courts have taken the place of

THE SUCCESSIVE TEMPLES OF MOUNT MORIAH, JERUSALEM.

pillars of brass. The upper room has a greater roof, and the middle tower of the front is unfinished. Herod's fortress, Antonia, has taken the place of the old strong place on the northwest. This temple was destroyed by the Romans.

Equally interesting is the model of the great Christian Church of St. Mary, built in the reign of the Emperor Justinian and known as Justinian's Church. A detailed description of the model is unnecessary here. Dr. Schick was of the opinion that it was erected on the foundations of the temple of Jupiter, built in the second century by Hadrian. The fourth model, Haram Es-Cherif, shows Mount Moriah, the site on which the preceding temples have been built, as it is to-day. It will be seen that a beautiful mosque has taken the place of Justinian's church. The first building within the inclosure is the Aksa mosque, and close to it the mosque for the women, once the armory of the Knights Templars. The great mosque shows traces in its architecture of all the phases of ownership it has seen—Byzantine, Crusader, and Saracen.

As could only be expected, the models have caused a great deal of discussion in archaeological circles. It is impossible to know in certain instances the exact architecture of the buildings, but all are agreed that Dr. Schick's models represent with marvelous ingenuity and faithfulness the great and ancient worshiping places that have stood upon the famous temple site at Jerusalem. They undoubtedly show great intelligence, patient industry, and profound scholarship. Dr. Schoenecke, the present owner of the models, is always pleased to show them to visitors to Jerusalem, and many Americans have expressed interest in them.

London, S. W.

A "SCIENTIFIC" VIOLIN.

BY H. C. FYFE.

Mr. Augustus Stroh, a well-known London man of science and inventor, has lately brought out an entirely new kind of violin, of which some photographs are given on this page. On looking at the instrument, the first thing that strikes one is the fact that there is no sounding box, and that instead of this feature of the violin, hitherto considered indispensable, there is a metal trumpet or resonator and a diaphragm also composed of a metal substance. Mr. Stroh's object was to turn out a violin which should equal in quality of tone the fine old instruments of the classic makers and should be in every respect as beautiful an instrument, so far as sound was concerned, as the fiddles of Amati or Stradivarius.

The ordinary, common form of violin consists, as everybody knows, of the strings, the bridge and the sounding box or body. It was thought that all string instruments must have a sounding box, which would be set in sympathetic vibration with the strings of resonance if any considerable effect was to be attained, and the maker of violins showed his skill by the manner in which he made his sounding box. The body required special wood, special varnish, etc., and in the con-

struction of the Stroh violin, decided to abolish the "body" or sounding box of the violin and to substitute for it a trumpet or resonator made of aluminium. The following description, together with the photographs here reproduced, will give a good idea of the construction of the Stroh violin. The vibra-

nary violin, is perfectly free to vibrate, the result being that when the strings are set in motion by the bow, the bridge and rocking lever vibrate accordingly, and thus every vibration is transmitted to the diaphragm.

The diaphragm sets in motion the air contained in the resonator, the resonator augmenting and distributing the sound to the surrounding atmosphere.

London, England.

A Japanese Opinion of American Patents.

Some three years ago the Japanese government sent to this country a certain Mr. Takahashi to study our patent system. Mr. Takahashi pays a glowing and picturesque tribute to the American system. "We saw the United States not much more than one hundred years old," he said, "and we asked, 'What is it that makes the United States such a great nation?' We investigated, and found it was patents, and so we will have patents."

THE "SANTOS-DUMONT NO. 9."

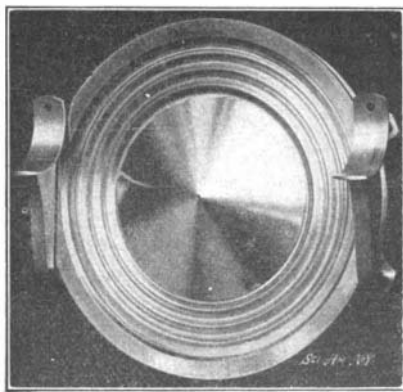
BY THE PARIS CORRESPONDENT OF THE SCIENTIFIC AMERICAN.

The new airship which Santos-Dumont is constructing at Paris will be the smallest that has yet been made. It is being built at the Lachambre aerostatic park, and is nearly finished, as will be noticed in the different views of the car and balloon. The latter has somewhat the form of an egg, with the large end placed foremost. Its length is about three times the diameter. The aeronaut is experimenting with this form of balloon, which differs considerably from its predecessors. The ovoid form will no doubt prove more stable than the cigar-shaped, and will give less pitching, although of course as high a speed cannot be attained with it. Only the light weight of the aeronaut, 110 pounds, permits of constructing such a small airship. The balloon is constructed of Japan silk and

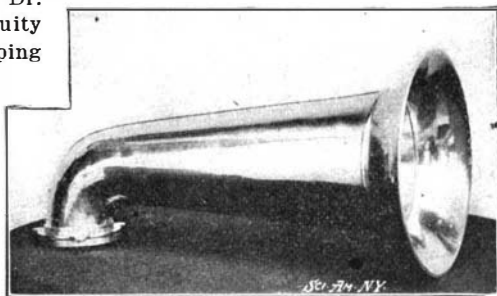
has a capacity of only 280 cubic yards. An upper valve is not made use of, but a tearing cord is employed instead, while below, in the rear, is a valve opened by a cord from the car. The balloon is provided with an interior air bag of 58 cubic yards capacity; this will be kept filled out by a ventilating fan. The total length of the balloon is but 45 feet, and its diameter, in the largest part, 18 feet. The balloon is to advance with the large end foremost, like the balloon "La France" with which the Renard brothers made their celebrated experiments in 1884. The photographs were taken while the balloon was being inflated

with illuminating gas in order to fill it out in shape and allow the wires to be attached. On each side of the balloon a piece of fabric is firmly fastened to the canvas. To the eyelets of these strips will be attached, by connecting pieces, a series of steel piano wires which support the car. There will be 40 of these wires, and they have been carefully tested. Each wire, with a diameter of .032 inch, can support a weight of 190 pounds.

The framework or car is constructed on somewhat



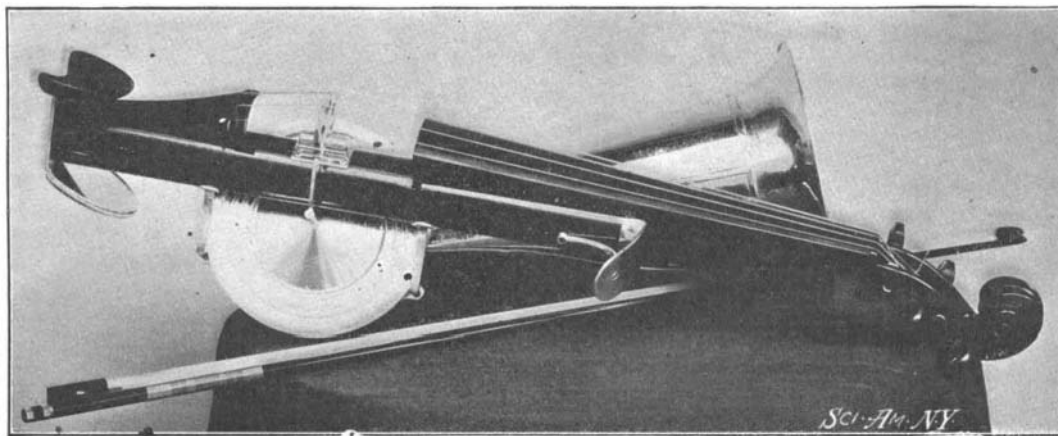
The Vibrating Diaphragm in Holder.



The Resonator or Trumpet.



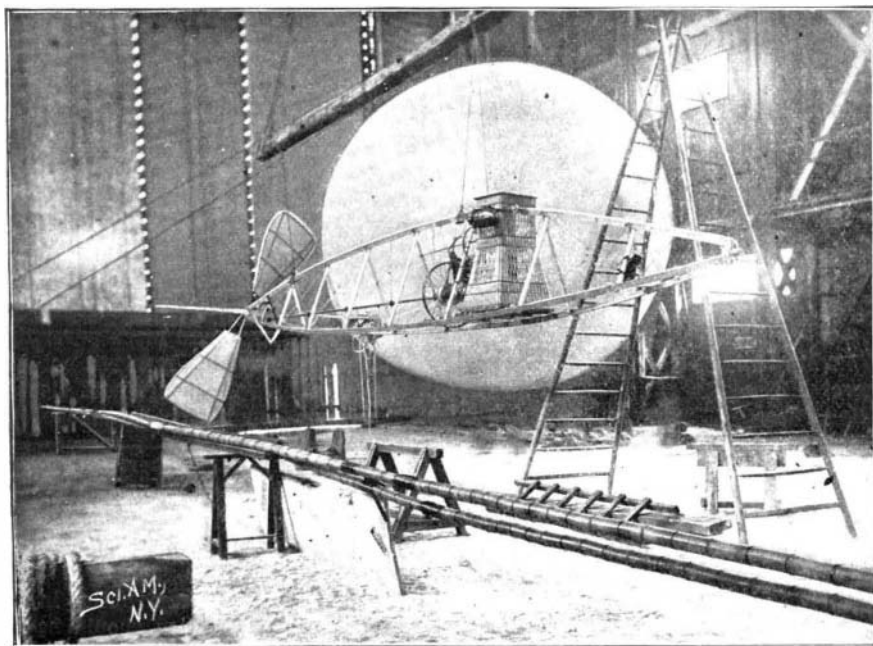
Lever and Rocking Bridge.



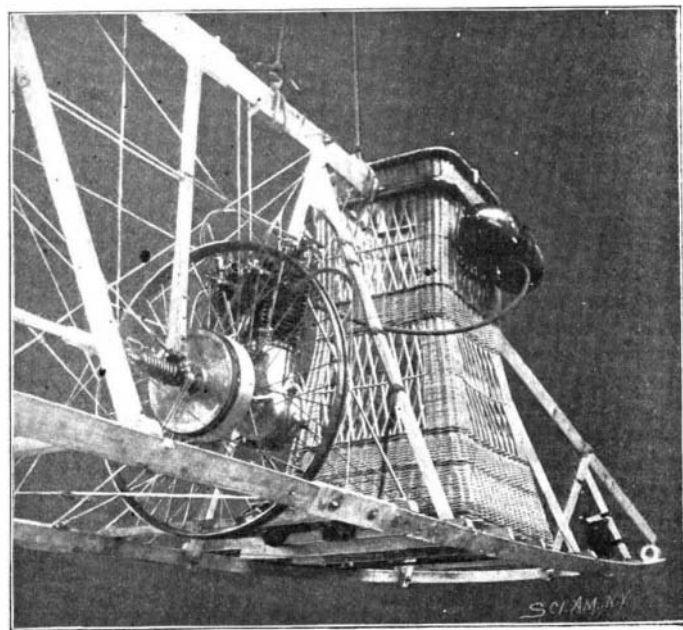
THE STROH VIOLIN.

tions of the strings are conducted by means of an ordinary violin bridge, which rests upon a rocking lever, to a diaphragm and resonator. The lever supporting the bridge oscillates laterally upon the body of the instrument, each being attached to a diaphragm of aluminium by a small connecting link. The diaphragm is held in position between two india rubber cushions by means of a specially designed holder fixed upon the body of the violin by two brackets.

Attached to this holder is the trumpet or resonator.



THE "SANTOS DUMONT NO. 9" IN COURSE OF CONSTRUCTION.



THE CAR OF THE "SANTOS-DUMONT NO. 9."

struction of violins the great Cremona makers have for long held first place.

The violinist had to pay a high price for one of their instruments, but he knew that it could not be equalled by any other modern maker. Mr. Stroh having given

The body or main support of the instrument is in no way employed for sound purposes; it simply holds the various parts of the violin together and sustains the enormous tension of the strings when tuned. The disk or diaphragm which represents the belly of an ordi-

the same lines as before, and is suspended 7 feet below the balloon. It is quite small, and measures but 29 feet long and 3 feet high in the center. The framework, of pine, is made up of three main pieces of triangular section, bent into an arc of a circle, and braced