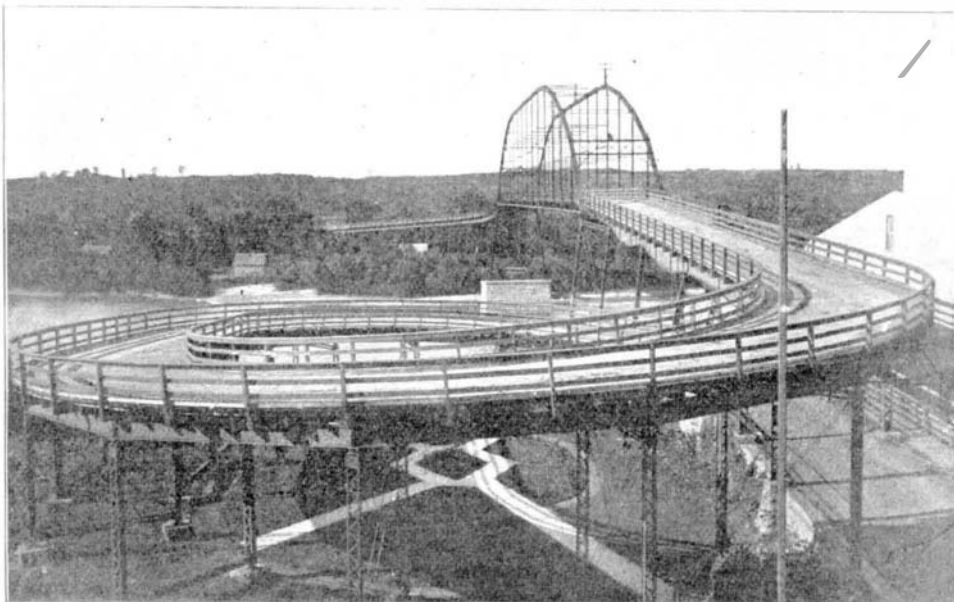


**A NOVEL SPIRAL BRIDGE.**

The High Bridge across the Mississippi, at Hastings, Minn., was built by the Wisconsin Bridge and Iron Company, of Milwaukee, at a cost of \$40,000. The work was commenced September 25, 1894, and the bridge opened to the public as a free bridge April 27, 1895. This is the only free bridge between St. Paul and Dubuque, Ia. The bridge and approaches are constructed of steel and extend 75 feet above low-water mark. Its length is 1,970 feet, including approaches, and it has an 18-foot driveway and 4½-foot walk, which terminates at the spiral approach end in a stairway.

The idea of a spiral approach was conceived by the late Mr. John C. Meloy, a resident of the city, who also donated the ground upon which it is built. The object in view was to build an approach that would not necessitate the crossing or occupying of some of the principal business streets of the city, and at the same time would be long enough to make an easy grade.

The spiral is a complete success in every detail, and heavily laden teams find it just as easy to ascend or descend as the straight approach on the opposite end of the bridge. The ground inclosed within the spiral has been converted into a park.



**SPIRAL APPROACH TO BRIDGE OVER THE MISSISSIPPI AT HASTINGS, MINN.**

**THE BERLINER AEROPLANE.**

Great attention has been given to the subject of mechanical flight by Washington scientists, notably Prof. Alexander Graham Bell and Mr. Emile Berliner, the well-known inventor. Mr. Berliner recently designed a small model of a flying machine which lifts, in flying, a weight of over one pound for every square foot of horizontal area at a speed estimated at less than 20 miles an hour. The model is of aluminium and tin plate, with rods of oak and metal tubing for supports. It weighs about 34 pounds including ballast. The motive power for horizontal propulsion was supplied by two common skyrockets, attached to the rear of the machine, which is 7 feet long. On August 19 it lifted itself from the ground and attained a height of 8 feet, maintaining itself for a distance of 40 feet at an almost even height of 3½ feet from the ground. No launching device was employed, a push of the hand being given in starting. The main body consists of arches opened below and sloping down in the rear, where wide tail ends are attached. The arches in moving forward tend to produce a current of compressed air, and at the same time exert a parachute action which helps to support the entire structure, but the main lifting is done by the inclined and spreading tail pieces catching the air current. Wheels are attached to the body to facilitate the attaining of initial speed on any fairly smooth surface, and they have now been mounted elastically in order to modify sudden shocks should the machine strike against a hard surface. The horizontal area of the machine is 30 square feet. During the recent experiments the ballast was lifted to the rear of the machine. It then rose to a height of about 8 feet, after 40 feet travel, then turned backward, and was damaged coming down on the unprotected back. The rapidly moving aeroplane is considered by scientists to be the proper solu-

tion of the problem of mechanical flight, and the principal endeavor of experimenters in this line of work has been to provide a motive power which is both light and of sufficient propelling force to move a given weight of aeroplanes rapidly forward through the air.

The experiments of Mr. Berliner are not of recent origin. Eighteen years ago he constructed a full-sized model flying machine, which was not successful, and nearly thirty years ago, in a communication to the SCIENTIFIC AMERICAN, he proposed the very principle of propulsion of flying machines, a stream of compressed air or gas, which he is using in his experiments.

Mr. Berliner is now engaged in the construction of a small improved model having a small car attached underneath, with which he intends to make elaborate experiments in order to arrive at more correct data for ascertaining the lifting power per square foot of the horizontal area of his machine. The new model will be sufficiently large to serve as a basis for designing a machine capable of lifting, besides its own weight, a person and the motor for propelling the machine at a possible rate of 20 to 30 miles an hour.

**An Ancient Wood Carving.**

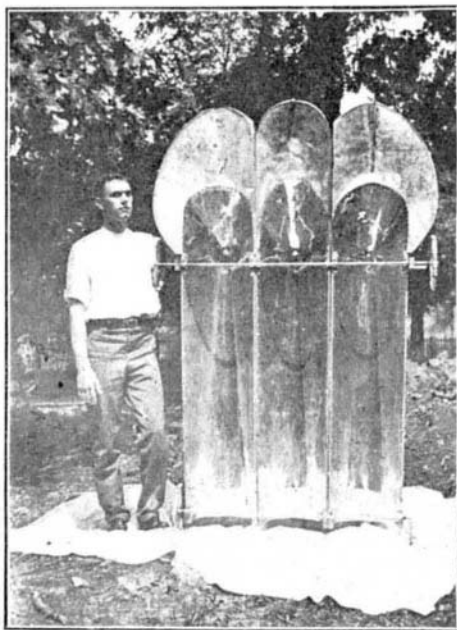
The most ancient specimen of wood carving known to exist, a statuette—it is of sycamore—is in the

Museum of Gizeh, at Cairo. It dates from B. C. 3900, so is very nearly 6,000 years old, and still the wood is as sound and good as if of recent date. It was found at Sakkarao, and it is supposed to represent one of the overseers of the workmen engaged in building the pyramids which abound in the immediate neighborhood, and which comparatively recent discoveries have proved to be the oldest of all the pyramids of Egypt. The statuette is known as the "Skeikd-el-Beled," or "Sheikh of the Village," a name given to it by the Arabs who found it, because its features represented very closely those of the man who was then their own sheikh. In this specimen is seen a wonderful instance of how human nature, through the roll of thousands of years, keeps on repeating itself. The statuette is distinctly a portrait, showing a well-fed, closely-shaven man of fifty, or thereabout, altogether nude, save for a cloth bound by a leather girdle about his loins, and reaching down to his knees. He stands erect, and in the right hand grasps a staff, but the latter is not generally considered to be a part of the original. The exact height of the statuette is 3 feet 8½ inches. A careful cast in plaster of Paris of

this wonderful old carving was made early in 1894, and may now be seen in one of the Egyptian galleries of the British Museum.

The spintharoscope is an instrument invented by Sir William Crookes for the purpose of studying the wonderful radio-active properties of radium. The instrument is composed of a very high-power system of lenses, set in one end of a tube about 1½ inches long. At the other end of the tube, a speck of radium is carried on a moving iron finger. The finger can be shifted across a fluorescent screen, and placed at one end of the tube opposite the magnifying lenses at the other end. As the fluorescent screen and the radium are in close proximity, the screen is subjected to a complete bombardment. When the minute fragments of radium strike it they become visible, producing an effect similar to the sheen of moonlight on rippling water. Although the particle of radium in the spintharoscope is microscopic, still X-ray photographs have been made with even so small a speck as this.

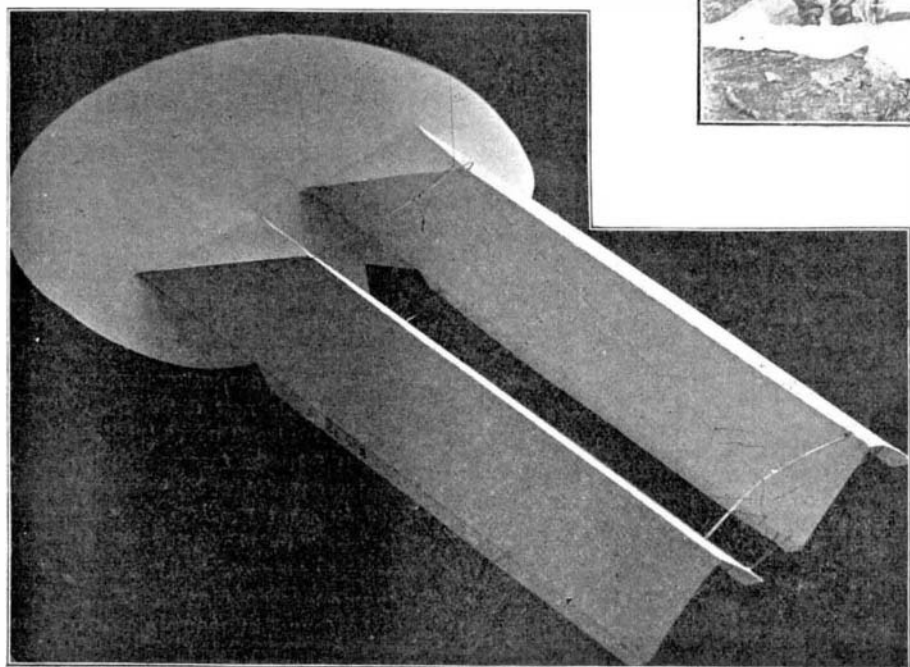
On Sunday, August 2, that section of the Adirondack branch of the Delaware and Hudson narrow gage railroad running from Lyon Mountain to Lake Placid, a distance of 48 miles, was changed to full gage, thus giving the Delaware and Hudson a through line from Albany to Lake Placid.



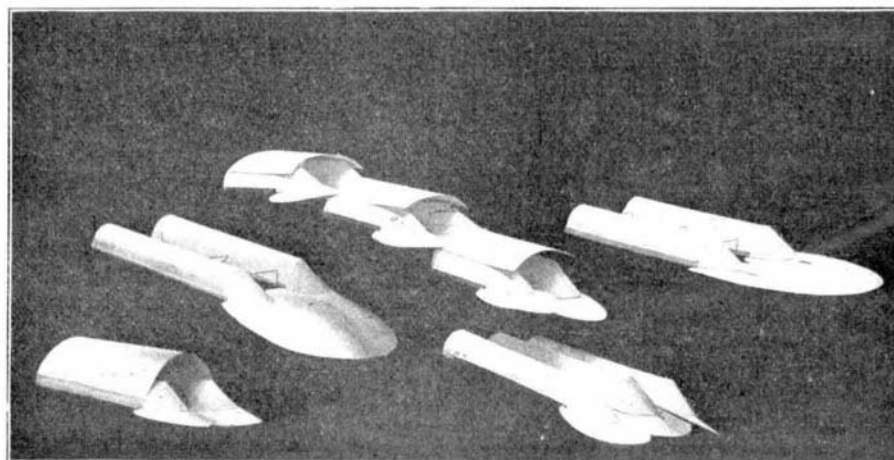
**in Aeroplane.**



**The Aeroplane at Rest.**



**Cardboard Model of Aeroplane.**



**Cardboard Models.**

**BERLINER'S FLYING MACHINE.**