Silkworm Breeding.

BY PROFESSOR CHAS. V. RILEY.

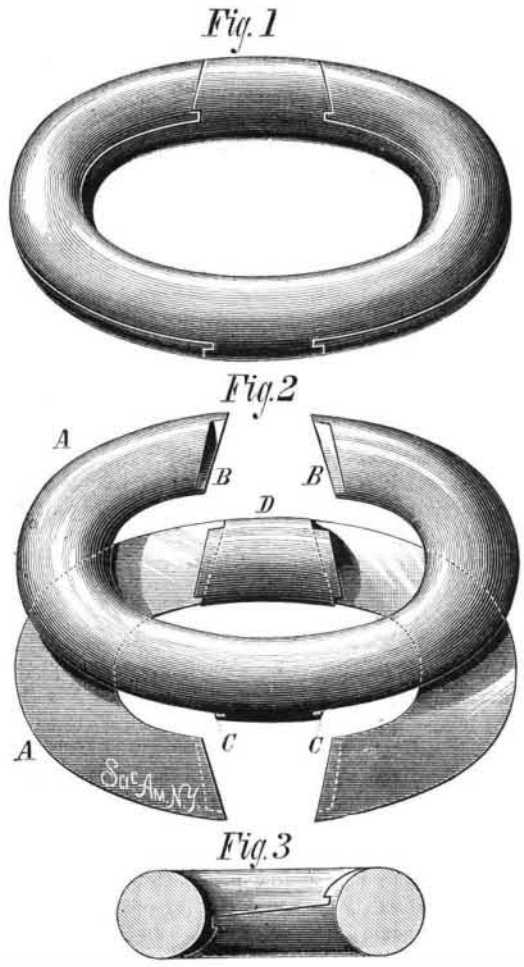
The possibility of producing two annual yields of raw silk, which you refer to in your issue of August 10th, cannot be considered a discovery, and will certainly create no change in the production of silk. In all silk growing countries, races of worms that are single, double, or treble brooded, that is, which produce one, two, or three generations annually, have been known for centuries. In France they are termed respectively *annuel*, *bivoltin*, and *trévoltin*. As a rule the eggs of the annuals cannot be made to hatch the same season they are laid, no matter how manipulated; but occasionally an exceptional batch will hatch, and by changed conditions any race may, in a few years, be rendered inconstant and variable. Quite a number of a white annual race, which had bred constant for seven years under my care, produced last summer a second generation; while some eggs of the same race, that had been attached to some woodwork of an apartment that was subsequently kept warm throughout the winter, did not hatch till the leaves began to unfold the next spring. Of the eggs obtained from the progeny of the second generation above mentioned, but about five per cent hatched this summer—the rest failing to hatch though exposed to the full heat of the past month—an interesting case of atavism or reversion to the more normal habit of the race. While some of the digoneutic races are reared at Milan and other places where the summers are pretty equable, they have not been found as profitable as the annuals, the summer generations proving less healthy and productive than the annuals reared in spring. What is true in this respect for Europe and Asia is fully as true for America. At the Department of Agriculture the present year there has been a good illustration in point. A number of worms of different races were fed on various species of *Morus* and a large number on *Maclura*. The worms were very much crowded and not as thoroughly cared for as they should have been. Yet, all things considered, they did remarkably well. A small lot of a digoneutic race were hatched later, and though receiving the greatest care, with plenty of room, one half of them perished ere spinning, and the rest formed small and very slight cocoons. The heat of July is too great for their well-being.

Washington, D. C., August 3, 1878.

WOOD'S LAP RING.

The engraving represents a new form of lap ring, which is made without pivotal connections. When it is in use it is securely locked, so that the parts cannot become accidentally disconnected.

The sections, A A, are both exactly alike, both being cast from the same pattern. Each section is open at the center at one side, and the opening converges toward the outer side of the ring. Tongues, B, are formed on ends of each section, which are fitted in grooves, C, in the raised solid center portion, D, of the other section.



WOOD'S LAP RING.

The sections of the lap ring are readily connected by sliding one of them over the other until the solid middle portion of each section enters the opening in the other section. This ring is very easily applied to chains or tackling, and forms a reliable connection, which may be easily disconnected without the use of tools of any sort.

Patented through the Scientific American Patent Agency, May 28, 1878, by Mr. Henry S. Wood, of Rob Roy, Ark., from whom further particulars may be obtained.

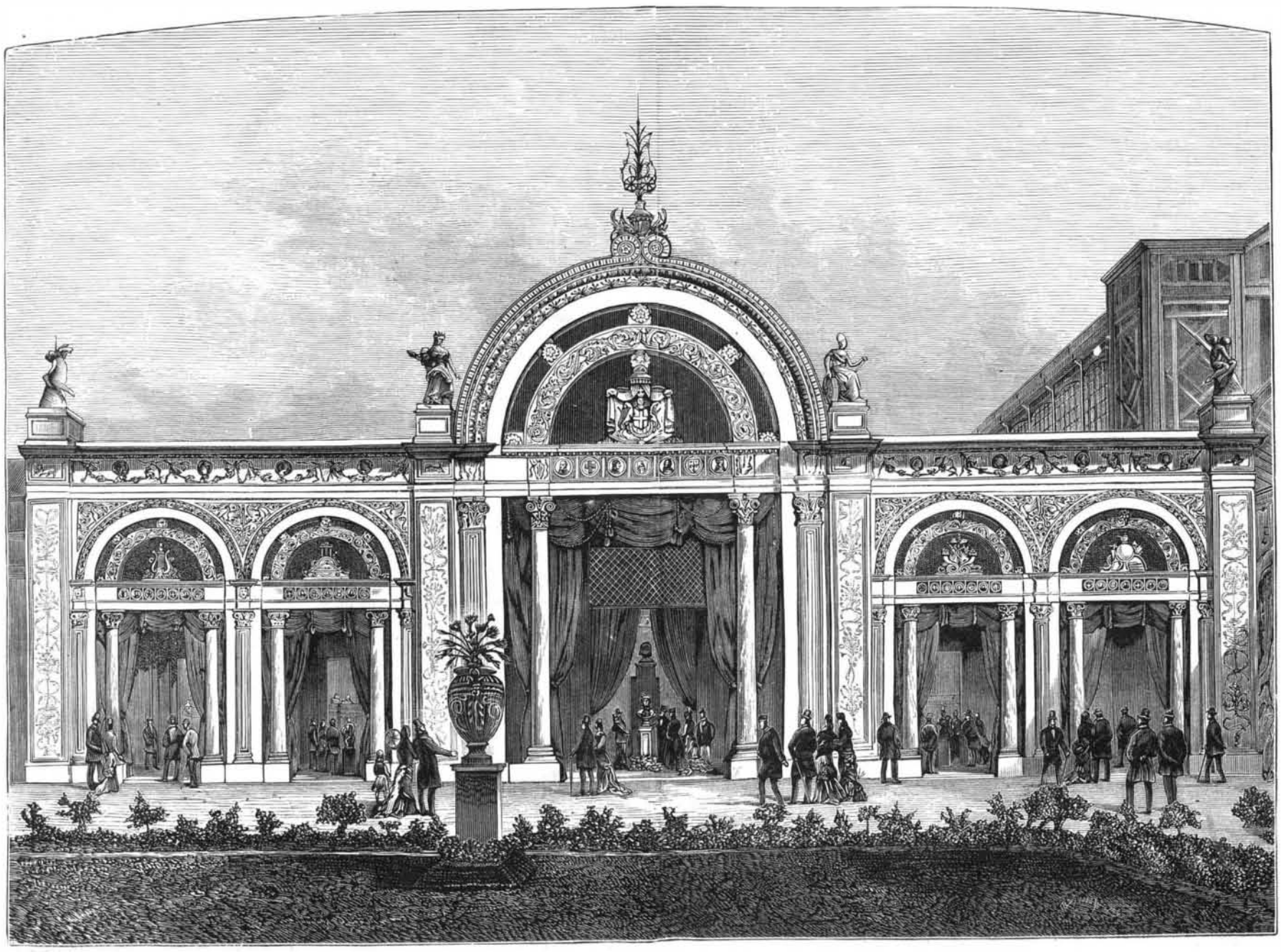
PARIS EXHIBITION.—THE ITALIAN FACADE.

The Italian façade presents a series of five arches, the central arch being nearly twice the height and width of the other four arches, the whole length of this façade being 32 meters, or 104 feet. The central arch is twofold, that is to say, with two concentric arches in the archway, which rises to the height of 30 feet. The arches are constructed of white marble and terra cotta intermixed; their span is traversed, in each opening, by a horizontal piece of marble, in which are inserted mosaics representing the portraits of illustrious Italians, poets, artists, and historians, the arms of Italian cities, and other subjects; other decorations, in black and white, are introduced above or at the sides. The central arch is supported by terra cotta pilasters and two pillars of stucco colored green to imitate cipollino marble. Heavy red curtains are suspended within the arches, and a few statues are placed there. We take our illustration from the London *News*.

Hardy Catalpa Trees.

A correspondent inquires what we know about "the hardy catalpa." There is but one species of catalpa that we know of. Some have believed they have a variety that blooms a little earlier than the other, and this may be; it is also said that one variety grows straighter than the other. We can only say there are trees in Pennsylvania, four and five feet round, that have endured winters when the thermometer indicated 20 below zero, and are as straight as gun barrels. We do not know in what respects the "hardy" and "straight" catalpa is hardier or straighter than these, and should be glad to know.

There is one point worth noting. In some situations the catalpa, in common with the pawlownia, chestnut, and other trees, dies back the first year, and often the second; or if not dying right down, loses its terminal bud, and this makes the stem a little crooked. If we were growing catalpa for timber we should let it grow as it will for two or three years, and then cut clean to the ground, a clear straight sprout, ten, fifteen, or even twenty feet high, being the result; and it goes on without dying back after. We have seen catalpa that made a sprout fifteen feet high and ten inches round, in one season, when cut back in this way.—*Gardener's Monthly.*



PARIS EXHIBITION.—THE ITALIAN FACADE, CHAMP DE MARS.