

SILK CULTURE IN CALIFORNIA

BY CARRIE WILLIAMS

THAT silk production can be carried on successfully in California none who have given any attention to the history of agricultural ventures or experiments can doubt.

As far back as 1854 this branch of industry was advocated by the California Farmer, and some persons were engaged in raising silk worms on a very small scale, just to see if the climate suited the worms; and if the kind of mulberry grown on our soil was suitable for the silk worm, and if the silk produced from such foliage could be considered worthy of comparison with silk produced in Europe and Asiatic regions.

The first few attempts made by incompetent parties proved not at all satisfactory. This is most frequently the case in all branches of business. The first successful attempt to raise silk in California was made by Monsieur Prevost, a French silk culturist, in 1860. The eggs were imported from France by Henry Heutsch, a lawyer. The exhibit of silk was made at the Mechanics' Fair in San Jose. It proved very satisfactory to those who labored to show what California silk worms could do, and it attracted much attention to the special branch of industry.

Some of the trees then planted, and from which the first silk of this State was made, are still standing, and may again be used in feeding silk worms, for the mulberry is a long-lived tree. There are some found in England more than three hundred years old. In those early days of our golden State there were certain facts demonstrated in regard to the production of silk, which facts remain to-day as facts beyond all contradiction. A few of those I will here mention:

The superiority of our soil and climate, and their combined action on the

foliage of the mulberry tree, cause it to yield more and better food; and this results in development of more healthy and better silk producing worms. Our clear, bracing atmosphere, rolling over our vast mountains and valleys, from the grand old Pacific, which is earth's greatest purifier, overcomes all miasmatic vapors so fatal to silk culture in many of the silk districts of Europe.

There is but little rain-fall during the season of the year best adapted to the production of silk, and, as a consequence of these favorable conditions, the loss from death of worms, so discouraging in other countries does not exist in our State.

Another special advantage as to climate is that there is no need of the scrupulous care to keep out of the cocoonery the fresh, pure air of heaven, lest it be laden with too much moisture. Less expensive buildings and better furniture and appliances are great helps. So great, indeed, that combined with feeding whole branchlets instead of separate leaves, the work of the cocoonery is reduced very materially. These climatic and soil conditions, discovered to exist when silk was first produced in California, are to-day found to be no less weighty, and everything in nature points to the possibility and advisability of this State becoming the great center of the silk industry of the world.

Surely there are unchanging principles that abide forever. There are certain truths pertaining to the silk industry that will forever remain the same. Briefly summed up, they are: A mild, dry, equable climate; good soil for the production of the foliage; good care and protection for the worms, especially cleanliness. With reasonable attention in all details success will surely follow. For a number of years after the fact of

northern counties as in San Diego. Silk can be produced in the *whole* State. The difference in quality of product will, I think, be but trifling, if any be found. The great difference will be the length of season. The further south the longer the season. Several crops of silk may be raised all through the State if the trees be pruned judiciously and new slips put in so as to yield tender leaves for the young worms as they come.

In San Diego I have had silk worms every day in the year for consecutive years. But I do not hold that it would pay to produce silk here more than nine months in the year.

During my years of experimenting in this business I have discovered, and proved beyond all contradiction, that the production of silk worms can be under human control, that is, if at the proper time the eggs are placed in cold storage below 40 degrees Fahrenheit they may be kept from hatching indefinitely.

I have kept them for fifteen months, and then found that a large per cent gave out strong healthy worms. But some taken out after twelve months storage hatched 95 per cent. Whether the difference in these results was altogether owing to the time of storage or the original quality of the eggs I am not now able to say. I think it was owing to the latter cause.

Thus it may be noted that not only may silk be produced in California of a better quality than we import from foreign countries, but also that there is an open market for silk eggs. Especially may this be emphasized because in all silk-producing countries of Europe and Asia traces of that fatal disease still linger, while here there is found no trace of disease. Nor could such disease ever be found here, for it originated in filth and neglect of the worms while rearing them in overcrowded dwellings, with little means of ventilation.



Canopy and tray showing cocoons.

PHOTO BY SLOCUM.

Some may say: "What a pity that the silk industry was ever let fall into the background!" It would seem so, and yet looking at it in a philosophic way we see differently. Had the silk business continued to engross the attention of the public since the early sixties, the fruit interest of California would never have

would have been loath to migrate to regions of blizzards, electric storms and cyclones.

But now that our nation is established by the hand of Him who ruleth all nations, and that our lines have gone to the far-off isles where the Stars and Stripes float over millions of people who



PHOTO BY SUDCOM.

Native silk in skeins and apparatus for reeling and spinning.

been developed as it now is. A similar example is seen in the very founding of our nation. Had the Pilgrim Fathers (and mothers) landed on the coast of California instead of on Plymouth Rock, the entire eastern region would have been slow in developing. Persons now tasting the sweets of our glorious climate

look to us for instruction as well as protection, it becomes our imperative duty as a people to expand and multiply our industries in order to keep pace with our geographical expansion.

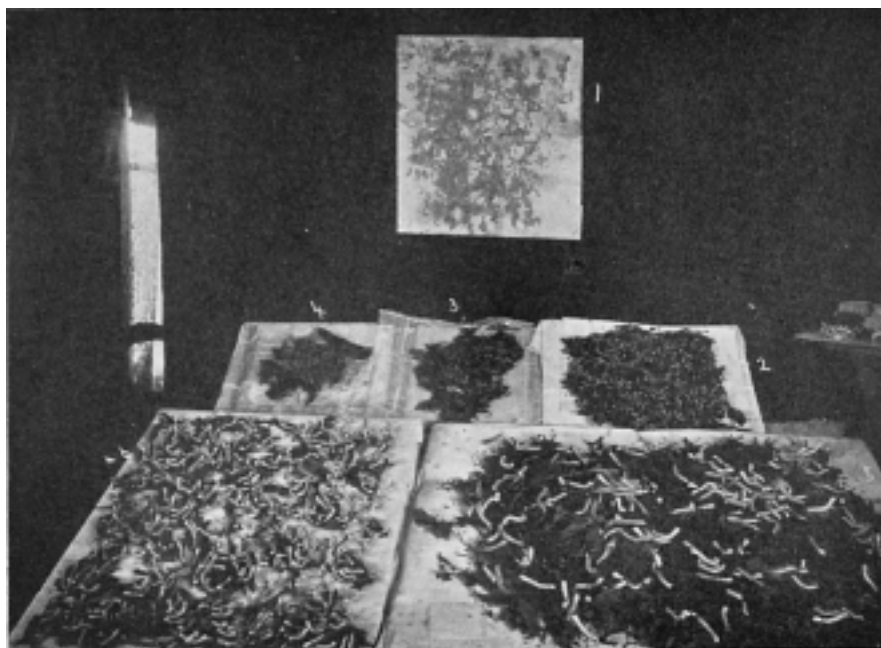
There are yet millions of acres of fertile lands in this State, now given up to the natural growths of the soil, to shelter

wild beasts and creeping things; yet yielding no revenue to the State or nation. These acres should be planted with the choicest mulberry trees. They should be cared for as other trees, and they would much sooner bring to the owners substantial reward.

Silk raising, like every other branch of business, will be found to give back in cash, in just proportion to the capital invested, and the amount of care bestowed on the details and general management. If a housewife sees fit to keep a hundred or two worms, on which she bestows little or no care, she will reap accordingly. If, as has been tried in the past, alien syndicates are organized, large expensive buildings are erected, and furnished according to old European style—supplied with foreign eggs and a foreigner installed as chief manager—the result will likely be as in former years, disastrous, and the entire business will be counted as another failure in silk producing. It is not seldom that failure is due to want of common sense and lack of executive ability.

But, if desired, let capital combine and operate on a large scale, and there is no reason why it should not succeed. Let managers be employed who know something about the business, and who are willing to learn something more. Let them first work on a limited scale, and see what the requirements are, and then let them enlarge the work as fast as circumstances will admit, for there is really no limit to what may be done in silk production and generating seed (eggs) in this State.

If colonies of silk raisers were organized and established in suitable localities there would soon be witnessed a wonderful unfolding of our hitherto undeveloped resources. Our population would vastly increase, and with our increase of citizenship our wealth would increase. Undeveloped wealth or resources are of no use to State or nation. It is but the talent folded away in the napkin, and as such it receives its due reward. Where individuals go into the business, three to five acres should be the minimum. But the more the better,



Silk worms in various stages of growth.

PHOTO BY SLOOUM.

if only well cared for.

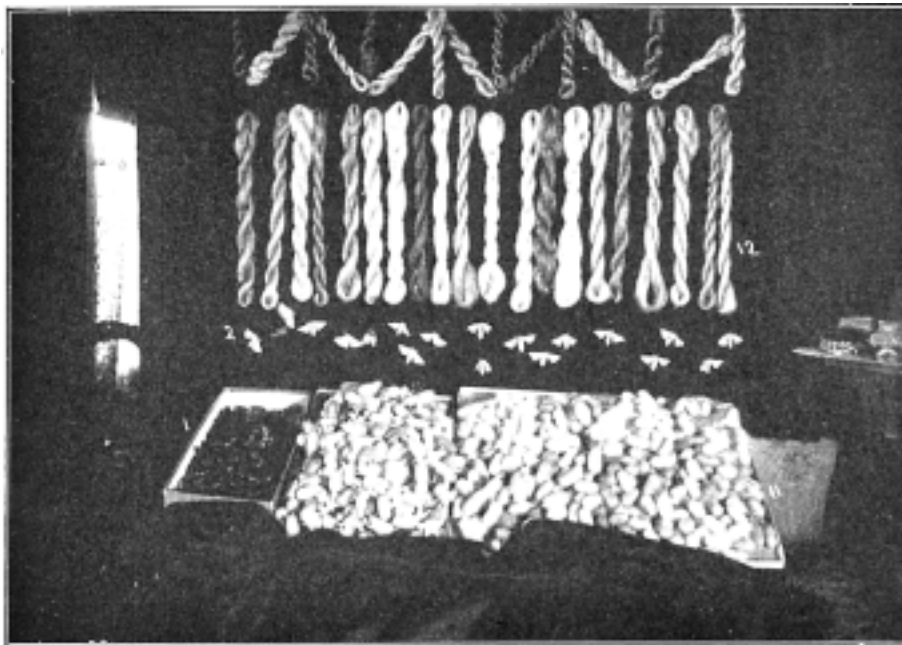
Millions of dollars worth of reeled silk is brought to San Francisco every year, landed, and then shipped across the continent to Eastern manufacturers, who weave the silk into fabric, and then ship back to us the manufactured article. Let horticulturists and business men consider these facts, for facts they are. Is it wise in us to send money out of the State for an inferior article, when we can in the greatest abundance produce a superior article with less trouble and less expense? Yes, I say, far less expense, for most of the small silk producers of the far-off East have to pay as much rent per acre as would purchase the same amount of land here. And consider, too, the difference in growth of trees. It is asserted by those who have seen and know whereof they speak that a mulberry tree will grow as much here in one year as in Europe in three years. I have often seen limbs of ten feet growth in one season. If, then, we have such a wonderful climate, so healthful as to forbid disease of silk worms, and so congenial to the mulberry tree, why

cannot we produce at least a large per cent of our own silk? Are not the Americans as a people possessed of as bright genius as the laboring classes of foreign nations? Are we not the foremost nation in the world for inventions of all kinds? And did not Richardson's manufactured silks take the first premium at the Paris Exposition in 1900?

Before the Civil War and for some time after, we manufactured only about fifteen per cent of the silk we as a nation use. Now we manufacture more than seventy-five per cent.

The greatest drawback or obstacle to the progress of the silk industry is the lack of knowledge, even of the first principles. To illustrate this, I will say that a certain lady apparently from the "higher walks of life," once called at my place of business and greatly admired what she saw, and while enthusiastically commenting on the beauties of the samples of silk shown, remarked: "How wonderful that little worms should bring out of the dirty ground such beautiful material."

There is little or no attention paid



Moths, cocoons and reeled silk.

PHOTO BY SLOCUM.

to this special branch of natura. history. There are few, if any, school books with special chapters or illustrations on silk. The teachers themselves were not taught and hence they are not qualified to teach those placed under their care. I think one would be safe in making the assertion that there is not one per cent of all the teachers in the State of California who could give an approximate estimate of the possible money value of one acre of mulberry leaves fed to silk worms.

Without going into detail I may here state that one acre well cared for will yield seventy to one hundred pounds of reeled silk, and one pound of reeled silk will make from five to fifty yards of fabric. In advanced educational schools and colleges we never read of large-hearted philanthropists endowing "chairs of silk culture." Of course not. Silk, as a rule, is only thought of as a "womanly sort of work," not worthy the attention of thorough business men. This is a very false idea of the industry, that should at once be dispelled. Any work or industry that puts in motion \$600,000,000 annually, calls for capital, brains and energy. This is the estimated retail cost of silk for the world, and we Americans use one-fourth of that amount.

We now send out \$45,000,000 to \$50,000,000 yearly for reeled silk to keep our silk factories going. Yet it is estimated that our golden State could supply nearly, if not all, of this vast amount of silk.

It is stated in the New York Herald of August 3d that Miss H. A. Kelley of Charleston, S. C., has been appointed a special "field agent" by the United States Government for the establishment of silk culture as a national industry. If this is really so, then there will be a market for cocoons in the United States, the want of which has been the great hindrance to our silk production in all localities.

Miss Kelley has spent six years in

Italy studying the nature and habits of the silk worm, and now offers the Government, rent free, the use of buildings worth \$30,000, which she used as a female seminary since 1870. It has long been her purpose to establish a national college of scientific silk culture in those buildings at Charleston. Her appointment as field agent by the Government followed her lectures at the Charleston Exposition, and an examination of her work by the Department of Agriculture. This movement, inaugurated by a Southern woman of means, signifies very much for all agricultural sections of the whole country where the silk worm can be raised, the mulberry tree produced.

It means for California that she need not fear being brought into competition with any State in the union in the production of silk. Our climate for this special business stands unrivaled. Then, too, Italian methods may do for Italy, and Southern States where colored labor may be brought largely into requisition, but we have, and should ever maintain, better methods for managing the insect: methods that will result in larger returns for the amount of labor expended.

But whatever these difference may or may not be, it will be a grand thing for the whole nation if the silk industry be established as a national industry. It will open a market for cocoons and at least in a measure correct the error that for years has kept millions out of the national treasury—that is, it will lessen the importation of reeled silk, as raw silk, and hence free of duty, when in reality it is 25 per cent manufactured, and should in this proportion pay revenue. Miss Kelley's project deserves unbounded success.

Let the mulberry trees go in by the thousand, and we can soon furnish silk eggs for our own State and export better and more healthy stock than can be produced in any country of Europe or Asia.