

irregular in size, some having changed skin, or molted, this being evidenced by their larger head, while the main body of the worms were small, with small heads and a shining skin, and keeping back so much that if they would even reach the fourth molting they were unable to spin a cocoon. Luckily this pebrine breaks out at the second age, before the worms are too much advanced in their short existence. Hardly a twentieth of pebrined worms are able to spin a cocoon.

The other and more dreaded epidemic, which, for the last six years, seems to take the place of pebrine in the cocoeneries of Europe, is flackerie or blight, a still worse malady, since it breaks out in the last age of the worm, a few days before spinning time, just when the breeder is almost done with feeding. This last epidemic I have never detected here with me, and doubt very much that it does exist in California; one at one time is enough, I should think.

Your correspondent wants to know, furthermore, whether in this State we use California semen, or seed as it is commonly called, or whether we prefer to it Chinese and Japanese seed. Chinese seed is altogether out of the question, and used nowhere, either here or in Europe. Chinese silk-growers, in fact, generally employ for raising silk bivoltine and polyvoltine races, which yield, it is true, several crops a year, but of a very inferior silk, such as it would not be profitable for us to raise, at any rate. As to Chinese annuals, they do not stand against the epidemic.

In regard to the Japanese, their green and white annuals are certainly very hardy and vigorous races, but again the cocoon is too small and the silk of an inferior quality. And if the infected districts raise Japanese annuals, the reason is that they cannot raise anything else. Seed dealers have gone all over the world in search of silk worm eggs that could stand the epidemic; they have sent out agents to Tartary, Turkistan, Persia, Morocco, California, South America, etc., but none of those countries have yet been able to furnish them a vigorous and healthy race of silk-worms as Japan did and does yet so much so that Japan has all the seed trade to herself, a regular monopoly, Italy and France, their main customers, importing from that country yearly about 1,400,000 ounces or cartons of silk worm seed, for which they have to pay from \$2 to \$3 a carton, retailing the latter at \$5 a piece. Last year I got ten cartons direct from Japan, and this season I raised a full carton of green annuals and half a carton of white annuals, and now I am busy in manufacturing seed from them.

In regard to the cost of my seed, I invariably sell it at \$6 an ounce; but I guarantee two things: First, that it is what I represent it to be; secondly, that I do select for seeding the very finest cocoons, preserving the seed through summer and winter according to the best method known. But, as I do not wish to deceive any one, I will add here, that I do not guarantee my seed to be free of disease—I mean pebrine.

Now that I have, I think, answered fully all the inquiries put by your correspondent, I will entertain you briefly about my own experiments. For years already I have spent a great deal of my time in the study of this silk industry, and have a very fine mulberry orchard, with seven varieties of trees altogether, though my favorites for feeding silkworms with are the grafted rose-leaved and *Morus japonica* varieties. I own, too, an experimental cocoonery large enough to raise in it 60,000 silkworms, and furnished with five tiers of cocooning shelves and 240 cocooning ladders—the nicest contrivances ever invented in that business, and which save a great deal of labor.

I employ for cleaning and thinning out the worms perforated paper obtained from Europe.

If in silkworm raising I started slowly and quietly, I may add that I tried to be thoroughly prepared, taking no chances against me. But, no matter how nice a cocoonery is kept—no matter how healthy is the food—no matter how favorable is the climate—when the epidemic breaks out among the worms as the dreaded pebrine does, with nothing to stop its ravages, the rearing is a failure. I believe that I was the first to discover that pebrine was the cause of our failures in California, either on a large or small scale,

and as well in 1869-70 as in latter years. Such is the fact, and that was the reason that made me say in letters to the *Rural Press* last year that we had to give up entirely the silkworm seed business, and turn our attention to the surer but less profitable business of raising cocoons for the silk only.

This year I intended to raise 50,000 worms, but I succeeded in raising hardly the half of it. However, I will keep on raising worms from one to two ounces of seed every year, till I come to a satisfactory result, and which would warrant me in building a large cocoonery and raising silkworms on a larger scale.

I intended to say a few words about the particular merits of each silkworm race and mulberry variety, and likewise the future of the business in this State; but, this letter being so long already, I will here close it up, in the hope that in writing it I have not too much trespassed on your time and the patience of your readers.

Yours very truly,

FELIX GILLET.

Nevada City, July 2, 1875.

—*Sacramento Record-Union*.

The Benefits of Irrigation Limited.

Admitting all the benefits claimed by the advocates of irrigation, there are limits to its value. Water alone will not long support any kind of vegetation. Its great value consists in its power as a solvent of the salts and other elements in the soil, which enables the rootlets of plants to seize upon and appropriate them. Wherever these elements of fertility exist, water makes them at once available. But where they are absent irrigation is of little or no practical utility. This is evident from the condition of large tracts of worn out land in the Southern and Southwestern States, where long continued cropping of cotton or tobacco has exhausted the elements of fertility in the soil, so that nothing will grow any longer. There is plenty of moisture from the clouds, but this does not help the matter. It only serves to cut up the surface into gullies, and to wash out the last lingering elements of fertility. Hundreds of thousands of acres of such lands are found to-day on which irrigation would be useless, and which nothing but a thorough system of manuring could restore to fertility. Under ordinary conditions, this is so expensive that very few have resorted to it, the cost of virgin soil being far less than that of restoring the "old field" by means of fertilizers. No part of the soil of California, however, has reached that condition, and some years must elapse before it will do so. But it must be borne in mind that every crop raised necessarily reduces the natural fertility of the soil, and that irrigation, which acts only as a stimulant, and not as a supporter of vegetable growth, would only serve to promote great crops for the present at the expense of the soil itself. The time is coming, therefore, when fertilizers must supplement irrigation if our fields are to retain their fertility. This is not only theoretically evident, but it has been demonstrated on a most lavish and wasteful scale in all, or nearly all, the old States of the Union. The Genesee and Mohawk valleys in New York, the Western Reserve in Ohio, the banks of the James and Potomac rivers in Virginia, prove every day to the eye and the purse of the farmers that the fertility of their fields is growing "small by degrees and beautifully less." No system of irrigation could prevent the gradual deterioration of their land, nor could anything arrest it excepting a cessation of constant cropping and a liberal application of fertilizers. These are considerations which should enter into every farmer's calculations who does not think it right to leave to his sons the curse of a barren inheritance.—*S. F. Chronicle*.

Among the graduates at the commencement of the Columbian University, last night, was Mounge Edwin, a Karen, from Burmah, who now goes to one of our theological seminaries to prepare himself more fully for the work of preaching the gospel to his countrymen. Though subject to all the inconveniences of acquiring knowledge from text-books written in a language with which he had scarcely any acquaintance before he came to our shores, he has never-

theless, stood side by side with the first students of his class, and has even gained two prizes in most difficult departments of study—in the Greek language, and in mathematics. *Washington Star*, July 1.

In one of the French departments there is a "society for the protection of birds useful to the farmer." All nests found are reported to the society and protected by it. In the past year the society protected 214 nests, from which came 904 birds.

DIED.

At Clarkston, Cache Co., June 30th, of putrid sore throat, HORACE EDWARD, aged 4 years, 10 months, and 25 days; also on July 8th, of the same disease, ELIZA SUSANNAH, aged 7 years, 4 months, and 7 days; son and daughter of Mr. and Eliza P. Coutecher.—Com.

In Spanish Fork City, July 14th, of sun stroke or brain fever, THOMAS YOUNG.

Deceased emigrated to Utah in 1854, was a mason and worked upon the public works in Salt Lake City until 1858, when he came to Spanish Fork and has resided here since with his family. He was born at Tarvin, Cheshire, England, Oct. 11th, 1813. He leaves a wife and six children; was a kind and devout father, exemplary citizen, and faithful member of the Church.—Com.

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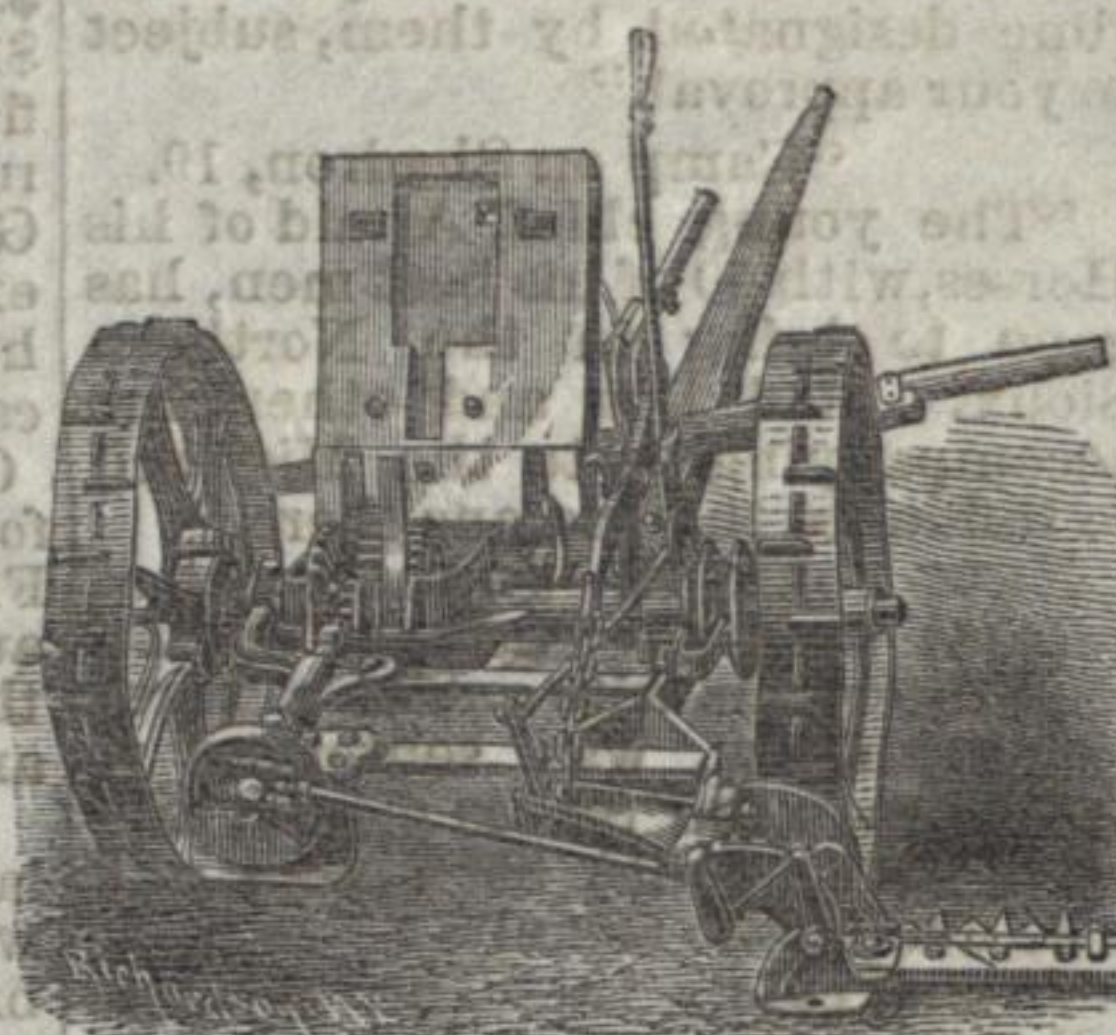
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In Purchasing Your Mowers and Reapers.

Interested parties who desire to find a sale for their own machines by misrepresentations concerning the

CAYUGA CHIEF,

have been spreading reports to the effect that the CAYUGA CHIEF would not be sold in this Territory after this year, and that it would therefore be difficult for purchasers of the Machine to get any repairs for it; that the CAYUGA CHIEF MANUFACTURING COMPANY would be or was consolidated with another firm and the Machine would not be manufactured after this year.

We desire to assure the Farmers of Utah that all such statements are misrepresentations set afloat by parties who are jealous of the splendid reputation the CAYUGA CHIEF REAPERS and MOWERS have obtained in this Territory and in every country where sold.

It is a well known fact that this Machine has been built in large quantities for nearly twenty years, and that the firm that build it is one of the strongest and most successful manufacturing companies in the United States. They will still continue the manufacture of the CAYUGA CHIEF in even larger quantities than heretofore for years to come.

As for the undersigned, we came here to STAY! And we say to our friends, the Farmers, that we will still continue to sell the CAYUGA CHIEF and feel satisfied it will continue to hold, as it does now, the leading position among first class Reapers and Mowers.

RAKES.—We also have one of the finest Sulky Rakes ever on exhibition in this Territory.

The CAYUGA CHIEF is on exhibition, three doors south of J. W. Lowell & Co's Wagon Shop, Main Street.

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Our Soap is sold in all the Co-operative Stores in the Territory and at the Factory.

Orders addressed to John South, Assistant Secretary, P.O. Box 716, will receive prompt attention.

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