

Wild Plant Improvement.

Our readers are not specially interested in the reasons which caused the government to discontinue the Pacific Coast Laboratories, etc., nor in Prof. Pierce's defence of himself as published in the California Fruit Grower. But we think that his account of the work which has been done there, may be of considerable interest, so we copy it:

The discontinuance of the government interest in the Pacific Coast Laboratory and Wild Plant Improvement Gardens at Santa Ana, has led to some misconceptions and misstatements.

The undersigned was endorsed by the faculty of the University of Michigan and appointed by Secretary Rusk, in 1889, to undertake an investigation into the nature and control of the California vine disease. After devoting a year to this work, it seemed advisable to make a comparative study of this disease with vine diseases of southern Europe and Algeria, where the same varieties of grapes are grown. As the chief of the division held that the expense of such foreign study could not be paid by the Department, the investigation was undertaken at a personal expense of nearly two thousand dollars, including the loss of salary during absence from the United States. Soon after returning to California, in the summer of 1891, it was proposed to the Department that this station be permanently established at Santa Ana for the study of plant diseases in general on the Pacific coast, and that it be known as the Pacific Coast Laboratory. This was done, and the laboratory has since served as a general bureau of information relative to plant diseases for the entire region west of the Rocky Mountains. The results accomplished have been of great value to the region represented. The work on peach leaf curl alone has been saving approximately half a million dollars annually to the horticultural industries of the coast, and at least one and a half million dollars annually to the United States in general.

Large numbers of other diseases have been successfully treated and the general information disseminated over the coast through correspondence has resulted in great savings to the fruit interests during the period the laboratory has been active.

The cause of one of the most serious diseases of apple trees—known as black canker—which at one time bid fair to destroy the entire apple industry of Oregon, Washington and Idaho, was first demonstrated here and a satisfactory method of treatment recommended through the press of the affected region. The cause of the bacterial walnut blight of California was first discovered and demonstrated at this laboratory. A method of treatment shown to reduce the loss one-half was also ascertained through careful experiments. In relation to the California vine disease, a resistant vine has been found and its hardiness proved through many years of testing. Cuttings of this resistant variety have been distributed from this laboratory for the past two years over all parts of the infected districts. The breeding of this resistant to other grapes for the transmission of its hardiness to new varieties of fruit is well in hand and is the only apparent source of permanent relief from this disease, which has already cost California from forty to fifty millions of dollars.

Advanced methods in the overcoming of plant diseases are those looking to the securing of resistant or immune types of plants. To further this line of work a search was begun for wild plants resistant to the diseases with which we are struggling. A search of the world for all types of wild walnuts was begun; also for all species of wild grapes, wild loquats (resistant to loquat blight), for wild pears (resistant to pear blight), and for other hardy wild fruits. This work gradually led to the discovery that the wild fruits and many other valuable wild plants of the world are today being almost wholly neglected. In fact, of the 895 agricultural experiment stations and colleges of the world, not one is devoting its attention specifically to the

improvement of wild plants. The same is true of the 252 leading botanic gardens and arboreta. This unoccupied field was called to the attention of the officials of the bureau and a proposal made that the gardens which had been secured at personal expense for the care of the grape and other hybrid plants be designated Plant Improvement Gardens, and that the pathological work of the laboratory be extended to include the improvement of wild fruits and plants in general. In other words that the department begin to occupy the almost wholly neglected field of wild plant improvement. This proposal was duly accepted by the officials of the bureau of Plant Industry, and our energies were directed accordingly. The title of the station was thus changed at the writer's suggestion, as indicated, to the "Pacific Coast Laboratory and Plant Improvement Gardens." As a result of this understanding much energy has been devoted during the past three years to bringing together at these gardens, from all parts of the world, the seeds of wild fruit, berries, grapes, nuts, tubers, grasses, legumes, forest trees, wild flowers and ornamentals of every description for testing and improvement by hybridization, selection, etc. Our garden numbers have reached considerably above 7,000 during that period, and the effort has been directed almost single handed. The fourteen acres of land first secured, soon became too small, and having neither funds nor the authority for the purchase of land for the government, we were forced to secure more land at personal expense. This was done by the purchase of thirty acres near the original ten acre tract, with abundant water rights. A nominal rental has been paid by the Department for the original garden, netting less than one per cent on the value of the property.

In representing the needs for the development of this new work to the head of the pathological office of the bureau it developed that it was his wish to discontinue the work, and a copy of his recommendation to the chief of the bureau to that effect was received. This being the wish of the pathologist, an effort was made to save the work by proposing to the chief of bureau that he authorize its establishment in the bureau as an independent office. This, the chief of bureau declined to do upon purely personal grounds. The only recourse left was to attempt to have this invaluable line of work established as a separate division or bureau in the department. The writer, therefore, upon his own initiative, visited Washington to present the claims and needs of the work to the Secretary of Agriculture. The result was that the Secretary declined to take action without the recommendation of the chief of the bureau of Plant Industry, and as this official had already issued instructions to have the work discontinued, no further effort was practicable. Having, without support, done all that seemed possible to found, to develop and to save this work for the people, an undertaking with unlimited possibilities for benefiting the general horticulture, agriculture, floriculture and forestry of the country, our official connection with the bureau closed June 30, the end of the present fiscal year.—Newton B. Pierce, Pathologist in charge of Pacific Coast Laboratory and Plant Improvement Gardens, Santa Ana, Cal.

Florida Sugar and Syrup.

The Louisiana Planter says: There is no doubt at all but that the semi-tropical climate of Florida is very conducive to the production of sugar cane, cane syrup and cane sugar and molasses. At the same time there has been great difficulty since the Civil War in organizing any manufacturing sugar industry there. The St. Cloud venture, developed by the Disstons of Philadelphia, was more of a land speculation, apparently, than an organized venture into sugar manufacture, and it failed. Before the Civil War, however, there was quite a number of open kettle sugar houses in Florida, some of which were reported

to have been quite successful. At the present time there are hundreds of little horse mill establishments, which do a good business in grinding small patches of cane and manufacturing Florida syrup. The Florida journals, while appreciating thoroughly the advantages of their own country for cane culture and sugar manufacture, are somewhat extravagant in their claims and perhaps hurt their own cause with the claims they make. In a recent issue of the Florida Agriculturist several articles are reported as having stated that a thousand gallons of cane syrup per acre is not considered extraordinary. The making of syrup alone with, say a density of 35 degrees Beaume cold, is comparatively a simple process and with any such yield as that named it would be extremely profitable. Such a yield, if sold for syrup for 25 cents per gallon, would indicate a yield of \$250 gross produce per acre; such a yield, again, would represent in Louisiana a yield of at least four pounds of sugar per gallon of syrup, which would be 40,000 pounds per acre, and far above the general average yield of sugar in this state.

There is no doubt at all but that very small cane mills can be made to secure very high cane juice extraction. It becomes simply a question of labor in handling small quantities of cane, say one or two at a time, under which conditions the little cane mills will do most excellent work if they are properly understood and in capable hands. Florida lands can produce sugar cane of high sucrose content and it is a pity that they do not begin in a moderate way and gradually endeavor to build up a regularly organized sugar industry. When a start is once made along these lines and it be made an industrial success, others will quickly fall into line and Florida will have a sure enough cane sugar industry.

The Sweet Potato.

A short time ago, in writing of the sweet potato root borer, we said that probably no crop would be so much missed as the sweet potato, if it should be destroyed. The editor of the Tampa Times, calling attention to one effect of the drouth mentioned the difficulty of getting out the usual area of sweet potatoes. All that is said is good, but we doubt if very many will feel that they can afford to water the vines as they are planted. The Times says:

The spring drouth probably has caused a good deal of vacant ground which is fit for the cultivation of the sweet potato. The Times is a firm disciple of the potato, and it would recommend all of its readers who have the ground and can get the cuttings to plant freely. There is a good profit in potatoes, especially where they are put in on rich land, given a little preliminary cultivation, properly raked up in the hill and fertilized somewhat. The prices of potatoes range from a dollar a bushel in August down to fifty cents in December. But at fifty cents a bushel there is a profit that would make the rich wheat grower of irrigated mountain valleys open his eyes.

Moreover, the sweet potato is acceptable food to all kinds of farm stock. The largest and best being marketed, the smaller and more unshapely tubers may be profitably converted into meat. Boiled, the fowls will receive them gratefully as a portion of their daily ration. The young pigs are fond of them. And if anybody kicks on the work of boiling the potatoes they should remember that it adds about forty per cent to the acceptability and nutritious value of the food.

By the way, there are two things connected with the potato that should not be forgotten by people who want to grow them. The ground must be fitted and fertilized, and when the slip is poked into the ridge it should always have a cupful of water poured in with it. It makes the difference of a week's growth in the first month. Even in rainy weather, unless the moisture is actually coming down, it pays to wet the ground around the slip.

Feeding Value of Soy Beans.

Are these beans grown at all in Florida? The following question and accompanying answer from the Southern Farm Magazine, contains much valuable information:

"Please give me some information concerning the value of soy beans for hay and grain production. Kindly state the composition as well. Are soja and soy beans similar or entirely different?"

The soy bean and soja bean are one and the same thing. It is a legume, and, in our opinion, will yield more grain per acre than the cowpea. Some varieties of it, such as the black, which mature comparatively early and do not grow so vigorously as the Mammoth Yellow and the Medium Green, will make a fine quality of hay, and one which is easier to cure than that from the cowpea. When planting for grain you will find the two varieties just mentioned among the best to plant for large yields. The black is an excellent variety of soy bean for general cultivation. The grain can be fed to a great variety of live-stock, but being rich in protein, it should be mixed with corn or other concentrates. The hay will be readily eaten by all classes of live-stock. Farmers in the South should cultivate the soy bean extensively. It makes a much richer hay than timothy and can be fed under rational conditions as a substitute for a portion of the grain now fed to beef and dairy cattle. It will produce more pounds of beef per acre when fed in the form of hay than would be obtained from an acre of corn. When grazed it should make from 400 to 600 or more pounds of pork per acre. Soy beans contain an average of 29.6 per cent. of digestible protein as compared with 18.3 for cowpeas, 15 to 16 for bran, and 37.2 for cottonseed meal. You will see that it is one of the richest foodstuffs the farmer can grow, and will aid in balancing up rations in which corn predominates.

Coca-Cola is Dangerous.

The Progressive Farmer has been printing a series of Two Minute Health Talks. No. 12 in the last number was on this subject, and was as follows:

Prof. M. H. Holt, of Oak Ridge Institute, in this state, thinks coca-cola is a dangerous beverage and has written to a number of eminent physicians for their opinion on the subject. Extracts from some of the replies are reproduced below:

Dr. James McKee, of the State Hospital for the Insane (at Raleigh) writes: "I think the government owes it to its developing youth to place restraint upon the sales of coca-cola, because with the cheapening of this drug comes the increased use of it, and with the increased use of it comes the moral depravity of young men, who eventually wind up in mania and dementia."

Dr. J. D. Spicer, of Goldsboro, says: "I consider coca-cola as injurious to the mental, moral, and physical energies of the addicted, and tends alike to sap the intellect, and sooner or later destroys the usefulness of the whole man."

Dr. P. L. Murphy, of the Western Hospital for the Insane at Morganton, says: "I do most unhesitatingly condemn the use of coca-cola."

Dr. H. F. Long, of Statesville, writes: "Those who drink coca-cola will soon have the habit fixed upon them, and will fall easy victims to whiskey, morphine or cocaine. Next to the last, it is the most harmful drink I know of."

Dr. H. T. Bahnsen, the celebrated physician and surgeon of Winston-Salem, writes: "I am sure that coca-cola drinking is one of the worst habits that a young man can form, and doubt if the alcohol habit is any worse. The sale of the poison ought to be prohibited by law."

Dr. Stewart McGuire, the well-known physician of St. Luke's Hospital, Richmond, Va., writes: "I regard the coca-cola habit as extremely prejudicial to health, and think you should use every legitimate means to arrest its development among your students."