

CULTIVATION OF TEA IN THE SOUTH

Success of Dr. Shepard, of South Carolina.

METHODS AT PINEHURST

CLIMATIC DIFFICULTIES OVERCOME BY SCIENCE.

HE SUCCEEDS WHERE UNCLE SAM FAILED

The Possibility of Tea Growing as an Industry for the South. A Coming Factor in the Commercial Expansion of the Country.

(The Country Gentleman.)
To the Editor: It is nearly a decade since the National Department of Agriculture relinquished what appeared to be an utterly futile attempt to cultivate tea in the South, with the remark by Commissioner Loring, "The climate is not favorable for it."

Recently these abandoned hopes have had a cheerful revival in an apparently successful demonstration by Dr. Charles N. Shepard, of Berkeley county, S. C., at his estate of Pinehurst. Dr. Shepard is a scientific horticulturist who has studied long and earnestly in the face of tremendous difficulties and almost certain failure, to show the people of the Southern section of the United States how they may cultivate tea, and better still, do it profitably. The results, which this distinguished scientist and earnest philanthropist now announces, appear to make the long deferred possibility of tea growing as an industry for the South, a coming factor in the commercial expansion of the country.

Whatever the economic outlook may be, however, (and there are undoubtedly difficulties in that line still to be overcome) there is without question considerable satisfaction and a great deal of interest for the agriculturist in Dr. Shepard's unqualified success in domesticating the tea plant. He has shown how it may be cultivated to a splendid productivity. Despite the claim of Asiatic authorities that the yearly rainfall for tea-growing should not be less

fluence the selection of the seed. From the Assamese, Darjeeling, Kangra, Kumaon, Ceylon, Formosa and Chinese seeds (types already experimented with at Pinehurst) better black than green tea can be manufactured. The Japanese variety is best for green tea. The seed closely resembles a Barcelona nut in the outward appearance, both as to size and to shape, and is of a dirty black color. The best seed, it is claimed, comes from upper Assam and Manipur, from some half dozen or so well known gardens. The Assam plant, when cultivated for seed, is allowed to grow to the height of an apple tree instead of being pruned to five feet, as when grown for leaf. The cost of 100 pounds of Oriental tea seed, about 40,000 seeds, varies from \$80 to \$120, according to quality and expense of transportation. The United States Department of Agriculture, under Secretaries Rusk and Wilson, has aided Dr. Shepard in securing consignments of tea-seed from far Asia. The Department of State, through its consuls, has greatly helped in obtaining the best quality of seed. The most promising variety was brought from Darjeeling, an elevation of 3,000 feet, the aim being to produce hardiness with a good-sized delicate leaf.

Immediately on its receipt, the seed is planted out in nursery beds. Great care must be exercised in selecting a thin, rather light soil overlying a harder sub-soil, with free drainage, near a water supply, and to have the surface of the bed rather below the surrounding land. The top-soil is spaded to the depth of four inches and then raked off level.

In the early days of tea-planting in British India, lots of vagaries were indulged in. Sometimes seed was sown close together and in rows, so that it came up in hedges, and sometimes it was scattered abroad from the back of an elephant, who was made to wander in an aimless manner about the land which was to be brought under cultivation. Nowadays it is the practice in the Orient to make the nursery beds from 4 to 6 feet wide and separate from each other by shallow drains, the seed being sown with geometrical precision about 6 inches apart. In South Carolina, the seeds are sown 3 inches apart, at a depth of 2 or 3 inches, and in rows 4 inches distant from each other. The ground is then wet and covered with a few inches of pine straw or other protective litter and kept moistened, especially after the sprouts appear, when the litter is all removed and the bed kept free from weeds. A shade is erected over the bed, as the young tea plants cannot stand the direct sun, their native habitat being the shady forest. From 25 to 60 per cent. of the seed planted may be expected to germinate. In a few months the young sprouts, of 4 to 6 inches in height, are ready for transplanting to the tea garden, which is best done during the wet season in midsummer by the ordinary methods.

In laying out a tea garden, Dr. Shepard recommends that level land be

five foot alleys, though it demanded more hoeing, can be used advantageously on slopes to prevent the washing away of soil. After planting, the seedlings of shaded and protected by broad shingles inserted on the south and west in summer, and north and east in winter.

The young plants are kept growing through the winter by all good agricultural methods. Vacancies caused by the death of individual plants are filled immediately from the surplus stock in the nurseries. Carefully preserved stable compost, fortified with acid phosphate and kainit, is spread wherever it can be profitably used. Commercial fertilizers rich in soluble potash and available nitrogen, with a certain part of soluble phosphates, are those employed at Pinehurst.

About the middle of March, the young seedlings produce their first "flush"—that is, they have sprouted sufficiently for picking. The young successive shoots are allowed to grow until on each are four or five young leaves. Although the plants will produce leaves suitable for tea-picking as early as the second year, it has been found advisable to defer systematic leaf-picking until the third year. In the axis of each leaf may be seen a diminutive leaf-bud, which on proper encouragement will rapidly produce another wholly equipped shoot. This encouragement is supplied by furnishing so great a stimulus to luxuriance that its existent foliage fails to meet the needs of the plant, or by depriving it of the greater part of its leaves. The cultivated Assamese variety is capable of bearing twenty or more flushes in a season; the Chinese and Japanese but a few.

On young plants and on the earliest spring flushes of the older bushes, the pickers are taught to nip off, between the thumb nail and forefinger, the "Pekoe" tip (the tiny, unexpanded leaf-bud at the end of the shoot), and an almost equally tender, small leaf next on the stem, termed the "Orange Pekoe." As the season advances, a large proportion of the "Pekoe" a slightly larger and firmer leaf—is taken. Following these leaves come two yet larger and more mature leaves, the first and second "Sonchong." The first is picked at the height of the season; and two leaf-buds are left at the end of the shoot for producing others in due time. The pickers put the leaf into Swiss trout-baskets, which have been found the most convenient receptacles, because the tips or leaves can be dropped one by one through the square hole in the cover, and lie lightly in the basket until it is removed. The tea-leaves must not be packed down tightly, for fear of becoming heated, which would seriously injure the quality. Neither is the picked tea allowed to collect in large quantities in the field, but is brought to the factory, very carefully examined as to fineness and general condition, weighed and spread out on a cool, clean floor in preparation for the process of manufacture.

In the cultivation of tea, it is very important to prevent the shoots from growing too long or too straggling, and to insure leaf-productiveness, that they be nipped off in time. The constant picking of the young leaves during summer impoverishes the plant. Pruning consequently becomes imperative. In the earlier stages of Dr. Shepard's work, he followed the plan of maintaining clean stems with such disastrous and disheartening results that the whole effort was well nigh given up. Later experiments demonstrated the success of his original method of pruning, which was directed toward producing breadth without increasing the height of the plant, and also secured strength in the shoots, so that they are able to resist the production of new leaves after each picking. Instead of undergoing a severe pruning every fourth year, with a subsequent loss of crop for a season, as is the practice in Indian gardens, the plants are partly renewed annually and need no rest time. The result has proved that, introduced into the open sunlight and properly pruned and cultivated, the most luxuriant types of tea from the gloomy jungles become capable of greatly augmented yield. Nor does intensive cultivation and cropping, judiciously exercised, appear seriously to impair the strength and life of the plant.

The importance of this discovery was recognized by an expert from the National Department of Agriculture who had grown many thousands of tea-plants and was familiar with methods of culture in India. He declared the Pinehurst garden to be one of perfect cultivation. The remarkable color of the foliage, a deep velvety green, shining with vigorous health on the lower leaves of the plants, and the uniformity and perfection of shape of the bushes, indicative of skillful pruning, were most highly commended.

The recent returns from the earliest tea-gardens at Pinehurst prove that they equal the best yields of the best tea growing countries. The rose garden in a single year ending with 1898, produced 1200 pounds, an average of 5 ounces of tea per bushel. In China and Japan the average yield per bush does not exceed 2 ounces; in India and Ceylon, it is from 3 to 5 ounces. It is this result which enables Dr. Shepard to say confidently at the end of ten year's arduous labors that he has been successful from an economic, as well as an agricultural standpoint.

As a beginning to a wider spread of tea cultivation throughout the South, Dr. Shepard makes a practical, common sense suggestion for the large class of people who, he thinks, might profitably add the cultivation of tea to that of flowers and vegetables. This can be done by filling out the corners of their gardens and home fields with tea-bushes, as is the custom in China, or substituting useful as well as ornamental evergreen hedges of that plant for the present unsightly, costly and frequently unreliable fences. Cultivated in this way, the outlay of time, labor and money would be minimized, and the household should be able at the outset to supply its own tea. The output in green leaf of these gardens could be taken for manufacture to the tea factories which would be established in each neighborhood as demand for them arose.

A great advantage which tea cultivation has for the grower inheres in the fact that the season for gathering the leaf lasts in the Southern States for six months. The crop is thus practically independent of the instability of the weather during any determined period, which is not usually the case with most of the products of horticultural enterprise and solicitude.

T. A. STEWART.

"Better do it than wish it done." Better cure catarrh by taking Hood's Sarsaparilla than complain because you suffer from it.

HE LAUDS DEWEY, CONDEMNS OTIS.

(Continued From First Page.)

Individual Americans, civilians and soldiers, treat them arrogantly, as if already they were our slaves.

"The Filipinos never forget; they never forgive. They are highly sensitive, easy to flatter, but impossible to fool. They are very bitter, very brave, very persistent. We need on our side great tact, absolute discipline, stainless honor, incorruptible honesty—otherwise a legacy of hate and bloodshed. This is as certain as the decrees of God. "Our Congress ought to be called at once to give the Filipinos some promise of government. Unless some promise is made of a very definite character, in my judgment the war will not cease with the conquest of Aguinaldo. "For the present, I should think that an autonomous government with an American protectorate would satisfy the people. We might arrange for a convention at the end of ten years to determine, by a public vote of the Filipinos, what form of government they wanted. "The Spanish friars should go home to Spain and American priests take their places, granting to the Filipino 'padres' the full rights of priesthood, which they have never had under Spain."

REMARKABLE RESCUE.
Mrs. Michael Curtin, Plainfield, Ill., makes the statement that she caught cold, which settled on her lungs; she was treated for a month by her family physician, but grew worse. He told her she was a hopeless victim of consumption and that no medicine could cure her. Her druggist suggested Dr. King's New Discovery for Consumption; she bought a bottle and to her delight found herself benefited from first dose. She continued its use and after taking six bottles, found herself sound and well; now does her own housework, and is as well as she ever was. Free trial bottle of this Great Discovery at all drug stores. Only 50 cents and \$1.00, every bottle guaranteed.

UNDER THE ROSES.
"Th' lover," mused the janitor philosopher, "oftin gives th' lass to understand that her widdid life will be a bed uv roses; but, faith, it's a funny bed uv roses that has a cook stove at wan end an' a washtub at th' ither."

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OLD.
Stubo—"This should be a fine place to go nutting."
Penn—"Nutting in a theater?"
Stubo—"Yes; there are peanuts in the gallery, polished coconuts in the front row and chestnuts on the stage."

On the 10th of December, 1897, Rev. S. A. Donahoe, pastor M. E. church, South Pt. Pleasant, W. Va., contracted a severe cold which was attended from the beginning by violent coughing. He says: "After resorting to a number of so-called 'specifics,' usually kept in the house, to no purpose, I purchased a bottle of Chamberlain's Cough Remedy, which acted like a charm. I most cheerfully recommend it to the public." For sale everywhere. Bobbitt-Wynne Drug Co., and Henry T. Hicks, Druggists, Raleigh.

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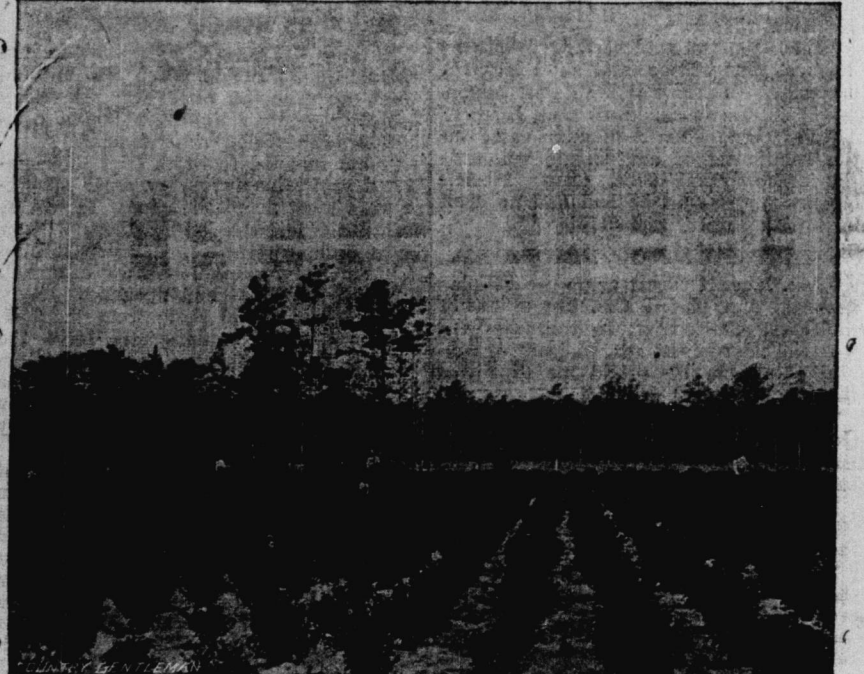
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VIEW OF DR. SHEPARD'S TEA FARM. (Printed by Courtesy of the Country Gentleman.)

than 80 to 100 inches and that the temperature should not be lower than 40 degrees F., Dr. Shepard has proved that various species of the tea-plant will flourish in the climate of South Carolina where the rainfall is but 58 inches per annum and a temperature of 15 degrees F. may be looked for in winter.

Dr. Shepard's experiments have been carried on entirely within the boundaries of his own extensive estate of 700 acres, 50 of which are now set out as tea gardens. The varied sites and soils afforded by the plantation have all been utilized in scientific experimentation with the different varieties of teas procured from foreign lands. Dr. Shepard based his hope of tea domestication on the fact that the tea-plant, though indigenous to a tropical climate, can endure very considerable cold. This is evident from the botanical history of the original Assam plant which even in the remote and chilly northern islands of Japan has made itself a home. Though the natural result of climatic change is to stunt the plant and shrink the foliage, it has not necessarily lessened leaf production. The smaller leaves characteristic of the variety usually termed Chinese have given rise to the division of commercial tea (Camellia thea) into two distinct and widely divergent varieties, the Assamese and the Chinese, the many intervening types being largely the result of their hybridization.

As a result of his prolonged and scientific labors, Dr. Shepard has evolved a distinct system of cultivation and pruning, and has acquired a thorough knowledge of the habits of the teaplant, all of which is of great value not only to the prospective tea-grower, but also to the student of tea cultivation. A question of primary importance is the selection of seed. In Dr. Shepard's opinion, it is best to choose the nearest approach to the indigenous Assam variety that the local climate will permit, in order to obtain the greatest yield and strength consistent with quality. For delicacy of flavor, he recommends the Chinese or Indian hybrids, which also afford a very fair leaf production. Although either green or black tea may be made from the same leaf, experience has shown that each variety of the teaplant is better adapted for the manufacture of either one or the other. Consequently the intention of the grower to produce green or black tea will in-

chosen, naturally moist, but free from stagnant water. The soil should be light and porous, rich in thoroughly decomposed organic matter (preferably from oak leaves), and as deep as possible. The sub-soil should be self-draining and present no obstacle to the deep penetration of the tap roots.

The analysis of the best tea-soils, made by Dr. Shepard, shows the preponderance of nitrogen, potash and magnesia nicas. Manganese forms a considerable part of each; but there is no sulphuric acid, and very little lime. The presence of iron in large proportion is noted in the best Japanese, Javanese and Chinese soils. The ferruginous property of the soil has promoted the high quality of the Formosa tea. The Pinehurst experiments have been conducted on sandy, clayey and bottom lands, on level fields, on hillsides and in drained ponds. The level lands have proved the best when thoroughly drained, porous to as great a depth as possible, and free from all original acidity. It was early recognized that none of the plats afforded sufficiently abundant and quick plant food to stimulate and maintain that luxuriant growth which is indispensable in a successful tea garden. Consequently all the land has received generous enrichment in a heavy dressing of burnt marl in advance of cultivation. A system of soil treatment was adopted after thorough study and experiment that would, as far as possible, compensate for the scarcity and unequal distribution of rainfall. By under-drainage, subsoil plowing and pulverizing to a depth of 18 inches or more, a gain of moisture equivalent to a fall of 10 to 15 inches of rain is secured. The supply of moisture is further conserved by planting cow peas between the bushes, in the autumn, whose roots penetrate the soil, and dying not only leave valuable food for the tea-plant, but render the earth much more porous and capable of retaining the moisture during seasons of drought.

It is generally held that each bush requires about 16 square feet of soil. At Pinehurst, it has been found desirable to plant farther apart than in the East, so that mules and the usual cultivators could be utilized. The plants are preferably set out at distances of 4 to 6 feet, in triangular planting, to facilitate three-way plowing and to secure a minimum of uncultivated land. It was found, also, that the system of planting in hedges, 12 or 15 inches apart, with