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TABLE OF CONTENTS.

	PAGE.
Editorial	195
The Extension Work of the College of Hawaii (MacCaughy)	197
The Great Coffee Corner (McChesney)	206
Unrecorded Specimens of Two Rare Hawaiian Birds	211
Work of the Department of Agriculture on Bee Diseases	213
Division of Forestry	214
Division of Entomology	218
Forest Fire Wardens	220
Forestry in Our Country Schools	220
Weed Destruction in the Philippines	221
Resistance of Plants to Wind—A Cotton Pest	222
Bracer for Rubber	223
Puna Forest Reserve	223
Proclamation (Puna Forest Reserve)	224

DIVISION OF FORESTRY.

FOREST AND ORNAMENTAL TREE SEED AND SEEDLINGS FOR SALE AT THE GOVERNMENT NURSERY.

The Division of Forestry keeps constantly on hand at the Government Nursery, seed and seedlings of the important native and introduced trees. These are sold at prices just covering the cost of collection or growing.

The list includes both forest and ornamental trees, such as Silk Oak, Koa, various species of Eucalyptus, Golden and Pink Showers, Pride of India, Poinciana, Albizzia, etc. The price of the seed varies from 10 to 50 cents per ounce. The seedlings may be had for 2½ cents each, except a few kinds which are 5 cents. Seed of the various palms is also for sale; the price per 100 varying from \$1.00 to \$2.50. All seed is tested before being sent out, which insures its being good.

All communications in regard to seed or trees should be addressed to David Haugh, Forest Nurseryman, Box 207, Honolulu, Hawaii.

RALPH S. HOSMER,
Superintendent of Forestry.

DIVISION OF ENTOMOLOGY.

To give information about insects free of charge is one of the duties of this Division and Hawaiian readers are hereby invited to make inquiry in person and by mail. In order to be able to advise intelligently or send the right kind of useful insects for relief we like and sometimes it is indispensable for us to see the insect suspected or caught in the act, also specimens of the injury. In a tin with a hole or two, or a wooden box specimens may be mailed at 3rd class rates. When specimens are not accompanied by letter *always* write your name and address in the upper left-hand corner of the package. Address all communications SUPERINTENDENT DIVISION OF ENTOMOLOGY, P. O. BOX 207, HONOLULU, HAWAII.

EDW. M. EHRHORN,
Superintendent.

THE HAWAIIAN FORESTER AGRICULTURIST

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A broadside has been received by the Forester, containing the advance premium list of the annual exposition of Dry Farmed Products, to be held under the auspices of the International Dry Farming Congress, at Colorado Springs, October 16-21, 1911. Premiums and trophies amounting in value to \$5000 will be paid out for prize awards. The grand sweepstake prize will be a trophy in the form of a cup worth \$250. There is considerable dry farming in Hawaii, and probably scope for more than exists. but in most cases those engaged in it could hardly afford to show anything at any exposition outside of the islands. Yet it might be of great advantage to agriculture in this Territory if it were represented at such a fair as this one by someone competent to make observations and acquire and collate data on the subject of dry farming. In the same connection, the idea occurs that, among the various objects of public aid to agriculture here which the legislature appropriates, a moderate fund might be provided for sending exhibits, or at least sample lots, of raw and preserved agricultural products to such important exhibitions or great fairs as may be held from year to year at central points on the mainland. There should be no trouble about enlisting the good offices of some responsible person of the place where the show was to be held to handle the exhibit or distribute the samples and attractive literature pertaining both to the products and the islands. Such a campaign would fit in well with the movement to market Hawaiian products.

Mr. C. S. Sterrett, of Los Angeles, the marketing expert brought here under legislation of last session, but only accepting a temporary engagement instead of the permanent one intended for such an official, is now making a tour of the group in company with Dr. E. V. Wilcox, director of the Hawaii Experiment Station. Some of his findings at different places already published in the newspapers indicate that his employment will yield a valuable body of information and advice, which it will then remain for our agricultural authorities and producers to turn to practical account. It will not do to allow his report to be uselessly buried in the archives, like the productions of many government commissions on various subjects for which the taxpayers of Hawaii have paid more or less liberally in years past.

Mr. C. S. Judd, the newly appointed head of both the agricultural and the public lands departments, has arrived and will enter upon the duties of his offices the first of next month. Both as a Hawaiian-born citizen and a trained expert in the Federal bureau of forestry, Mr. Judd is generally welcomed to the management of these supremely important subdivisions of the Territorial Government.

Mr. F. A. Clowes, of the Hawaii Experiment Station, is quoted from Hilo as stating that about 3000 pounds of island butter is being consumed monthly in that town and neighborhood, for which the makers average about forty-five cents a pound. This means that \$1350 a month, or \$16,200 a year, is received by the less than twenty small farmers that are said to be engaged in the business. With some of these dairying is the exclusive occupation. Further, the encouraging feature of the industry is mentioned that consumers ask for island butter and are willing to pay more for the first quality article of such than for the best imported.

In the catalogue of new bulletins in the Monthly List of Publications of the United States Department of Agriculture are the following: "The Sugar-cane Insects of Hawaii, by D. L. Van Dine, special field agent, pp. 54, pls. 4, figs. 5 (Bulletin 93, Bureau of Entomology);" "The Assimilation of Nitrogen by kice, by W. P. Kelley, chemist, under the supervision of Office of Experiment Stations, U. S. Department of Agriculture, pp. 20 (Bulletin 24, Hawaii Agricultural Experiment Station)." There are two circulars mentioned which might be of value to agriculturists in these islands—one treating of the damage to sugar cane in Louisiana by the sugar-cane borer, by T. C. Barber, agent and expert; and one dealing with the mango weevil, by C. L. Marlott, entomologist.

An article in the Pomona Journal of Economic Botany, on the Avocado in Southern California, is reviewed in the Agricultural News (West Indies). The review says: "Information is given to show that seedlings of West Indian and Hawaiian varieties have been grown in California, but the plants are not sufficiently old to afford definite indications as to their value."

THE EXTENSION WORK OF THE COLLEGE OF HAWAII, 1908-1911.

The College of Hawaii, established in 1908, is youngest of all the "Land Grant" Colleges of Agriculture and Mechanic Arts. It is a unique institution in many respects. Its insular position at the "Crossroads of the Pacific" gives it an unusually broad outlook toward the deeds and the needs of all countries and all peoples. Its student-body is drawn from an island population composed of a remarkable variety of ethnic elements—Polynesian, Oriental, Latin, and Teuton. The climatic conditions of its vicinity make possible peculiarly felicitous opportunities for the study of sub-tropical life, industries, and conditions.

Not least in the role of its unique features is its history, especially as regards extension teaching. There is perhaps no other institution of collegiate rank in existence that at so early a stage in its history took an active interest in the dissemination of collegiate advantages through the various channels of extension work. The College of Hawaii has made rapid use of the experiences of her sister institutions on the mainland. The privilege of carrying the "Gospel of Education" directly to all the people has been considered, from the very incipency of the institution, as one of its fundamental duties.

The College of Hawaii owes its origin to an act of Congress entitled "An Act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," approved July 2, 1862. The amount set aside was 30,000 acres for each senator and representative in Congress. This land was to be sold, and the income devoted to "the endowment, support, and maintenance of at least one college" (in each State and Territory), "where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts (in such manner as the legislatures of the States may respectively prescribe), in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

A resolution was framed by Mr. Wallace R. Farrington, and introduced by Representative Coelho, of Maui, in 1905, by which the Commissioners of Public Instruction were authorized to thoroughly investigate the requirements under the Federal law and other matters regarding the establishment and maintenance of a college of agriculture and mechanic arts. After considerable investigation by a committee of the Department of Public Instruction, a report was presented to the 1907 legislature, which resulted in the appointment of a special committee from the

University Club, consisting of Hon. H. E. Cooper, Mr. C. R. Hemenway, and Mr. R. S. Hosmer. Two acts were framed, introduced by Senator Coelho, and passed by the legislature, regular session 1907, without opposition: Act 24 provided for the establishment of the college; Act 94 made special appropriation for the biennial period ending June, 1909.

Short Courses.

The first funds of the College became available in July, 1907; the first prospectus of courses was issued January 1, 1908, and the first regular classes were held in February, 1908. This month, February, 1908, in which the first regular instruction of the College began, witnessed also the inauguration of the first short courses. These began February 18th and closed March 31st. They consisted of twenty-six evening sessions, from 7:30 to 9:30 o'clock, on Tuesdays and Thursdays. A printed announcement of these courses was issued, stating that "the College of Agriculture and Mechanic Arts has arranged a course of evening lessons for which there are no requirements other than interest and good attention."

The following synopsis will give a general idea of these courses:—

BOTANY—Jared G. Smith, Director, Federal Experiment Station.

- Lesson 1. Vegetable cell—structure, growth, contents, etc.
2. *a* Organs of vegetation—root, stem, and leaf.
b Process of assimilation and growth.
 3. The flower—plan, organs, etc.
 4. *a* Fertilization in flowers.
b Fruits—nature, kinds, etc.

ECONOMIC ENTOMOLOGY—D. L. Van Dine, Entomologist, Federal Experiment Station.

- Lesson 1. Place of insects in animal kingdom; characteristics, etc.
2. Life-history; development, metamorphosis.
 3. Injurious insects and their control.
 4. Hawaiian entomology.
 5. Scale insects—distribution; introduction.
 6. Beneficial insects—direct; indirect.

HORTICULTURE—W. T. Pope, Dean, College of Hawaii; J. E. Higgins, Hort., Federal Expt. Station.

- Lesson 1. General survey of Hawaiian fruits.
2. Germination of tree seeds; growth of seedlings.
 3. Care and cultivation of fruits in general.
 4. *a* Propagation of plants.
b Budding; grafting; pruning.

5. Culture of citrus fruits in Hawaii.
6. Ornamental shrubbery of Hawaii.
7. Banana; avocado, mango; papaia; culture of each.
8. Marketing of Hawaii fruits; picking; packing; shipping.

SOIL—W. T. Pope.

- Lesson 1. Origin, properties, plant-food, etc.
2. Classification; tillage, drainage, etc.

COMMERCIAL FERTILIZERS—F. G. Krauss, Agronomist, Federal Experiment Station.

- Lesson 1. Chemical constituents, values, etc.

PLANT BREEDING—F. G. Krauss.

- Lesson 1. Production of new varieties, etc.

FARM CROPS—F. G. Krauss.

- Lesson 1. Farm crops for Hawaii.

FORESTRY—R. S. Hosmer, Territorial Forester.

- Lesson 1. Forestry in general.
2. Hawaiian forestry.

At the last session of the series Mr. J. G. Smith gave a summary on agricultural literature, where information may be found, and how to make use of it.

Much interest was manifested by the people of Honolulu in this first extension work, the sessions were well attended and regularly attended. The courses did much to give Hawaii a favorable impression of the ideals and methods of the new institution.

Short Courses, 1909.

These short courses were indeed so much appreciated that they were continued on a similar plan in 1909. They comprised a series of twenty-six, on Monday, Wednesday, and Friday evenings of each week, March 3rd to April 2nd. The schedule was as follows:—

- March 3. Agricultural problems of Hawaii.
Dr. E. V. Wilcox, Director, Federal Expt. Station.
Economics of agricultural education.
J. W. Gilmore, President, College of Hawaii.
- March 5. Entomological inspection—objects, methods, results.
Jacob Kotinsky, Territorial Entomologist.
Types of plant diseases.
L. Lewton-Brain, Pathologist, S. P. Expt. Sta.
- March 8. Preservation of fruits.
Miss Agnes Hunt, Dept. D. Sc. Col. of Hawaii.
Poultry and profits.
B. E. Porter, Dept. An Hus., Col. of Hawaii.

- March 10. Botany of economic plants.
W. T. Pope, Dept. Hort., College of Hawaii.
Plant improvement. J. W. Gilmore.
- March 12. Sanitary dairying. E. B. Porter.
Chemistry in its relations to agriculture.
J. J. Morgan, Dept. Chemistry, Col. of Hawaii.
- March 15. Bacteria in their relations to health and diseases.
Miss Agnes Hunt.
Remedies for plant diseases. L. Lewton-Brain.
- March 17. Our worst insect enemies. Jacob Kotinsky.
Soil management. Prof. J. W. Gilmore.
- March 19. Feeds and feeding. B. E. Porter.
Meat production. E. V. Wilcox.
- March 22. Production and marketing of fruits. J. E. Higgins.
Planting the home grounds. W. T. Pope.
- March 24. Soil management. Prof. J. W. Gilmore.
Economics of forestry. R. S. Hosmer.
- March 26. Our insect friends. Jacob Kotinsky.
Production and marketing of fruits. J. E. Higgins.
- March 29. Planting the home grounds. W. T. Pope.
Rice. F. G. Krauss.
- March 31. Foods and diet. Miss Agnes Hunt.
Forestry in Hawaii. R. S. Hosmer.
- April 2. Bovine tuberculosis in relation to health.
J. W. Gilmore.
Agricultural literature.
W. G. Ross, Dept. Agronomy, Col. of Hawaii.

It will be seen from the above list of topics that the instruction given related directly to the affairs of Hawaii; those matters received foremost consideration that were of largest importance to the people of this community.

Movable Schools, 1909.

In the summer of 1909 movable schools were conducted in Hilo, Hawaii, and Wailuku, Maui. President Gilmore and Professor Young had charge of this work. Several sessions were held in each place, consisting of lectures, demonstrations and conferences. Some of the topics were: Plant Improvement; Recent Investigations in Soil Fertility; The X-Ray; Sanitation and Typhoid. These lectures on the other islands created much interest, and the subsequent request for their continuance showed the real appreciation of the people for efforts of this nature.

Astronomical Demonstrations.

The evening courses were not continued as much in 1910. Popular interest being centered on the approach of Halley's comet, the College conducted demonstrations and lectures at the Observatory at Kaimuki. Prof. J. S. Donaghho had charge of much of this work. The President's report for 1910 states that "during the period of the approach and recession of the comet about two thousand people visited the observatory, and to a large number of these the equipment and process of astronomical observations were explained."

Kindergarten Teachers.

At the request of the Director of the Free Kindergarten Normal Class instruction in elementary botany, zoölogy, and nature-study was given to this class. The class, of eight young women, met weekly for a period of about fourteen weeks. The work consisted chiefly of laboratory and field exercises, with particular reference to material suitable for use in kindergarten work.

Other Special Courses.

Other special instruction, to meet certain specific needs, has been organized from time to time, in response to special requests. Work of this kind has been done by the Departments of Domestic Science, Botany and Horticulture, Zoölogy and Entomology, and Art.

Correspondence Courses.

The Correspondence Courses were established in September, 1910. A printed folder, reading as follows, was sent out to public school teachers, plantation employees, and others supposedly interested in such courses.

Purpose.

The College of Hawaii, an institution supported by taxation, should extend its services to the people by all possible ways compatible with the best methods of college administration. While adequate provision should be made and fostered for collegiate work in residence, yet there exists in the community a large class of persons who for one cause or another are unable to adjust themselves to our formal system of education. Such persons manifestly have some claim upon the Territory for assistance in education outside the formal system. By correspondence study such persons may acquire knowledge in accordance with their requirements and capacities. While there are very

good reasons for students coming to the College for their instruction, there are also good reasons for the College going to the people; and more especially when the College offers instruction in subjects pertaining to the vocations of life.

That people may be taught in many of the subjects of the school and college curriculum through correspondence study is a demonstrated fact, and while the method lacks some of the advantages of resident study, it has certain advantages of its own. Among other things, it has a tendency to encourage self-reliance and self-determination. It affords earnest persons the opportunity of working and studying at the same time, and each student gets individual instruction. On the other hand, advanced subjects requiring extensive laboratory equipment are at a disadvantage as the manipulation of laboratory apparatus may not be taught by correspondence.

The specific classes of persons that correspondence study is designed to benefit may be enumerated as follows:

1. Those who want to learn but who are prevented from attending the College by exigencies of employment or place of living.
2. Those who find new demands made upon them by the progress of the industry in which they are engaged.
3. Those who are engaged in manual employments and who wish some mental activity to occupy their leisure hours.

Plan and Scope.

It is proposed that the College offer through correspondence study the following subjects: Soils and Crops, Plant Life, Poultry Husbandry, Domestic Science, Zoölogy.

The grade of instruction in these subjects will be in accordance with the ability and attainments of the students. Students taking any subject by correspondence shall be not less than fifteen years of age and shall not at the time of taking the course be in attendance at school.

Instruction in the subjects mentioned will be given by written lessons or assignments, the student returning a written report on each lesson or assignment according to the direction of the professor in charge. These reports will be carefully examined and returned to the student with such corrections, explanations, or suggestions as may be in the interests of the student. If each report meets the required standard, a new lesson or assignment will be sent.

A subject consists of weekly assignments and each assignment may contain one or more lessons. The course of instruction will terminate with the close of schools in June. No preliminary examination will be required, but students must satisfy those in charge of the course that they can read and write Eng-

lish fluently. Application blanks may be had on request, and the College will offer assistance and suggestion in the choice of subjects. Students will be expected to complete at least one course in the time specified for the course.

A fee of \$5 will be charged for each full course of eighteen assignments. For additional courses a reduction of one-half for each course will be made. The fee is intended to pay the cost of the lessons and postage one way. If a student takes less than half of the assignments, one-half the fee remaining above the cost of material used will be refunded.

Subjects in Detail.

COURSE I—Soils and Crops: Readings and reports on the origin and formation of soils, their physical, chemical and biological properties, relation of soil properties to soil managements, the adaptation of crops to soil types, and the essentials of crop-producing power. The studies on crops will consist of readings and reports on the leading crops of the United States and Hawaii, their geography, economics of production, commercial importance, products, uses and culture methods.

COURSE II—Plant Life: This course covers the fundamentals of plant life, both as regards plants in their various relations to man and as independent forms of life. Emphasis will be laid on the practical phases of plant life, especially such aspects as are exemplified in Hawaii, and in tropical regions generally. References are given to available literature, and from time to time individual observations, records and experiments will be required. The faithful performance of the work outlined in this course should give the student a comprehensive knowledge of the basic principles of plant structure and growth and of the application of these in horticultural practice.

COURSE III—The course in poultry culture treats on the underlying principles of the profitable production of poultry products. The essential business elements which lie not only in the qualification of the poultry man but also in the quality of the stock investment will receive special consideration from the time the egg or the chick is produced until it reaches the consumer. Each student is urged to be actively engaged in some part of the business while taking the course, for observation, study and work go hand in hand in any successful undertaking.

COURSE IV—Course in Cooking: This course is intended to give some methods for the simpler dishes used in the diet. It includes text assignments giving something of the needs of the human system as regards the elemental food stuffs, the preservation of food, with a few special diets for children and the sick.

COURSE V—Course in Zoölogy: The course is intended to

give a grounding in the subject of general zoölogy with special reference to its economic aspects. It includes text assignments, written lectures and simple dissections of a number of common animals with a view of gaining an understanding of the salient points in their comparative anatomy. Note of the life histories, forms and habits of animals are included in order to show the adaptation of animals to various circumstances and conditions of environment. The course is intended for teachers and others with a taste for or a knowledge of the facts and material of zoölogy.

This circular was accompanied by an application form with spaces for date; name; residence; occupation; age; previous education; name of steamer carrying mail; period of arrival and departure of steamer; course desired; purpose in taking the course; and other courses desired than those listed.

Numerous inquiries were received regarding the course, and students on the various islands registered in the course on soils and crops, plant life, and poultry raising.

President Gilmore, in an article upon correspondence study in the Hawaiian Collegian, June, 1910, writes as follows:—

One characteristic that distinguishes our system of education in America from that of other nations is its democracy. We look upon our system of common schools as fundamental to the welfare of the nation and upon the colleges that have been established under the direction of national law as institutions that render large returns to the nation in the form of increased efficiency for its citizens. However, up to the present time our system of education has one element lacking in rendering its democratic application complete, and that is, it does not reach all the people all the time. Every one now recognizes that the acquirement of an education does not consist of a certain number of years spent in school or college or of absorbing facts during a stated period of time that relate to certain specified subjects. The acquirement of an education is closely correlated with the life activities of the individual and of the activities of his environment and is independent of age, sex or the period of acquirement.

Correspondence study is the agency by which this gap in the scheme may be filled. There always exists in every community persons who through conditions affecting their living or their environment are unable to avail themselves of the privileges of the public school system as it is at present organized. They may have had limited opportunity to acquire that standard of learning that would do them the greatest good. Such persons may have both capacity and ambition, but not opportunity. It is such persons as these that the branch of correspondence study in the schools and colleges that are able to present it should most benefit. If everyone who has not had the opportunity of attending

school could receive the benefits through this means, no doubt the efficiency of every community would be largely increased.

That instruction may be imparted through correspondence is a fact that has been demonstrated by experience, and while such instruction may lack some of the advantages of attendance within the walls of the schools or colleges, yet it has advantages of its own. The correspondence student comes in contact in a more personal way with the instructor than is often the case with the student attending large classes. Moreover, the instruction may be taken by those who are engaged in manual and mental employment and can thus be given a more practical application, especially in the matter of time. Then, too, correspondence study enables a student to employ leisure hours in a way that is at once profitable and restful. In addition to this it may be taken in the home, which in our day of outside attractions and street activities may be a great blessing.

The College of Hawaii will, during the coming year, inaugurate a system of correspondence study as a branch of its various activities. Both on account of its somewhat limited facilities at the present time and also because of its not knowing what subject prospective students in the Islands may be interested in, the number of subjects offered in the beginning will be few.

As time goes on and new demands or points of view arise on the part of students, both old and young, additional subjects may be added. The grade of instruction in these subjects will be in accordance with the ability and attainments of the students.

It is believed that by this means the College may be instrumental in not only furthering the interests of education, but also in enabling people who may not have had opportunities of attending school to receive some instruction that may be suitable to their needs.

The correspondence work has amply justified its existence, and bids fair to increase markedly from year to year.

The President's Report for 1910 contains a section reviewing the work of the Extension Department, emphasizing its importance, and looking forward to its speedy development. The College of Hawaii has as its basic principle the ideal of service and training for service. The Extension Department is one of the large avenues through which it realizes this ideal.

VAUGHAN MACCAUGHEY,
In Charge of Extension Work.

THE GREAT COFFEE CORNER.

By J. M. McCHESENEY.

Coffee reached its lowest price on November 13, 1902—No. 7 Rio selling at 5 1-16 cents per pound on that day in New York.

The crop of 1906-7 was the largest ever produced—reaching the enormous amount of nearly 24,000,000 bags.

These were the two factors which brought about the great coffee “corner,” and raised the price to consumers of the breakfast cup two and a half times in six years.

In 1895 this grade (No. 7 Rio) was selling at 17 cents in New York. This high price stimulated planting in Brazil to such an extent that in seven years (by 1902) prices reached their lowest level, and bankruptcy threatened coffee growers throughout the world. The price again rose gradually till it reached 7½ cents in 1906-7, when the bumper crop of that season (nearly 24,000,000 bags of 130 pounds each) turned the scale again, and prices dropped to 5⅞ at New York in December, 1907. Since when the combine between Brazil and European capitalists, commonly called the “Valorization Scheme,” has caused a slow but steady advance in prices, till in December last No. 7 Rio sold at 13½ cents in New York.

Brazil is the great coffee growing country of the world, producing on an average more than 65 per cent. of the world's consumption. Sao Paulo, a State of Brazil, produces about 60 per cent. of the Brazilian crop. One plantation in Brazil produces 250,000 bags of 130 pounds each, by actual figuring enough to furnish a cup to every man, woman and child in the United States and Canada every day for a week. Eight thousand persons live on this estate and make their living cultivating coffee. The following table will be of interest as showing the world's production, the consumption yearly, the visible supply, and the price, on July 1, annually, for twenty years past:—

Year.	World's Visible Supply.	Price No. 7 Ric, New York.
1891	1,909,120	17⅜
1892	2,955,023	12⅞
1893	3,100,618	16⅝
1894	2,146,423	16½
1895	3,115,680	15¾
1896	2,588,193	13
1897	3,975,880	7⅜
1898	5,435,974	6¼
1899	6,200,013	6⅞
1900	5,840,561	8 15-16
1901	6,867,327	6

	1902	11,261,331	5¼
	1903	11,900,173	5 3-16
	1904	12,361,454	7⅛
	1905	11,265,510	7¾
	1906	9,636,563	8
	1907	16,399,954	6¾
	1908	14,126,227	6¼
	1909	12,841,057	7¾
	1910	13,719,530	8½
January 1, 1911		13,015,214	13½

Crop Year.	Production bags.	Consumption bags.	Production over Consumption.	Consumption over Production.
1890-1	9,323,000	8,718,661	604,339	
1892	11,979,000	10,804,551	1,174,449	
1893	11,284,000	10,946,228	357,772	
1894	9,401,000	10,571,533		1,170,533
1895	11,764,000	11,212,851	551,149	
1896	10,377,000	11,142,813		765,813
1897	13,918,000	12,244,204	1,673,796	
1898	16,058,000	14,571,902	1,486,098	
1899	13,756,000	13,480,904	275,096	
1900	13,801,000	14,972,699		1,171,699
1901	15,100,000	14,329,925	770,075	
1902	19,735,000	15,516,663	4,218,337	
1903	16,664,000	15,966,498	697,502	
1904	15,983,000	16,133,707		150,707
1905	14,448,000	16,163,353		1,715,353
1906	14,792,000	16,741,215		1,949,215
1907	23,786,000	17,544,750	6,241,250	
1908	14,834,000	17,525,418		2,691,418
1909	16,918,000	18,649,602		1,731,602
1910*	18,100,000	18,500,000		400,000

*Reports differ—not reliable.

While Brazil has steadily increased her output from 5,358,000 bags in 1890 to over 11,000,000 in 1910, that of every other coffee-growing country has decreased. It will be noted that consumption has increased close to 500,000 bags annually, while production varies much from year to year. As for instance, Brazil's crop of 1901-2 was 50 per cent. larger than the year before, and her crop of 1906-7 was nearly twice as large as that of 1905-6. In 1901-2 the world's crop was 19,735,000 bags, by far the largest up to that date. This brought the selling price down to 5 1-16. The production over consumption that year

was 4,218,000 bags. In 1906-7 the bumper crop was produced, the enormous amount of 23,786,000 bags. Production over consumption this year was 6,241,000 bags, and prices sagged to 5%. And all that kept the prices from going down to a figure that would have ruined the coffee growers even in Brazil was the so-called "Valorization Scheme" just put into effect. If these low prices continued, it meant ruin to coffee growers throughout the world. As a prominent Brazilian put it at that time, "The increase of the world's crop of 1902 was so violent it could not be accompanied by consumption, and so prices fell disastrously, and planting interests, once so prosperous, went from bad to worse, until the gigantic crop of 1906-7 threatened to swamp them altogether, and black ruin stared them in the face." Such were conditions when the government of Sao Paulo came to the rescue of the growers, and the "Valorization Scheme" was hatched, the most gigantic, far-reaching trust ever formed.

The three principal States of Brazil (the government of Brazil was not yet in the deal) now entered into an agreement whereby they assumed a pro rata responsibility for the purchase of such surplus coffee, to borrow money to carry that surplus, the same to be held until it could be marketed without crowding the price below the approved minimum. Eight million bags were purchased, and a loan of \$80,000,000 made, to be paid in stated installments. The Arbuckles, and Crossman & Sielcklen, of New York, together with some French bankers, made the advances. The Rothschilds and other leading bankers of Europe refused, considering the whole valorization program economically unsound. In December, 1906, in an interview by a reporter of the Wall Street Journal, Hermann Sielcklen, of Crossman & Bro. of New York City, the American representative of the syndicate who supplied a portion of the gold necessary to carry the load, said: "It is no scheme at all. It is simply a plain business proposition which houses representing \$250,000,000 capital can without any doubt carry through to the measure of success which is necessary to accomplish the object for which the plan was undertaken."

To those who financed the scheme it was only a "plain business proposition." It was only a matter of money and time to make it a success. In a leading coffee journal another writer at that time said: "Did you ever hear of such a crazy scheme? What would you say if Uncle Sam were to buy up the surplus wheat of the United States in order to boost the price? Well, the scheme will never work, because the stuff will always be hanging over the market and depress it, and everybody will know it is there."

After the large crop of 1902, and for a few years following, the consumption exceeded the production, and prices advanced

a little; the world's visible supply on July 1, 1904, was 12,361,000 bags, almost a year's requirements; and another crop ready to pick. Then came the record-breaking crop of 1906-7, and production was increased to 6,241,000 bags over consumption in one year. When they were expecting a 15,000,000 bag crop, they found they had 24,000,000 bags to market—Brazil's crop alone this year being 19,500,000 bags. In December, 1907, prices being still low, the American Consul-General at Rio de Janeiro wrote home: "Perhaps even now it would be an actual saving of money to the backers of the coffee syndicate, certainly to the planters, and to every one but the consumers, if this immense store of coffee were burned or thrown into the sea." (There were then some 8,000,000 bags in the hands of the syndicate, and another bumper crop in Brazil threatened.) "Although the Sao Paulo government had placed very heavy taxes on the extension of coffee plantations, and it is frequently said this will curtail the size of future crops, the effect is almost certain to prove otherwise," he said. A little later, the government of Brazil seriously proposed that the law then pending for a surtax on coffee shipped out of the country should be changed, and instead of taking a tax payable in money, the government should take one-tenth of the coffee, load it on barges, take it out to sea and sink it. Only the fear of criticism throughout the world prevented this wanton destruction of coffee. This was actually agreed to at a meeting of the committee representing the holders of the coffee in London April 26, 1909.

But many factors conspired to interfere with the success of the scheme. A new government was coming into office in Brazil. What would its attitude be? Continued overproduction was threatened. Prices were still low. It seemed that those who had predicted failure were to have their predictions realized. Something had to be done to interest further loans. At this date the Saturday Evening Post published the following: "Dispatches announce the utter collapse of the coffee 'corner,' at a loss to the Brazilian government of \$15,000,000."

But it was not to be. When the scheme had been in operation two years, it did not look promising, and Sao Paulo discovered she had more than she could carry. Brazil now came to the rescue of the four States which had originally undertaken to corner the crop alone, and in December, 1908, a new agreement was entered into. A new loan of 15,000,000 pounds sterling was made, the government of Brazil now guaranteeing principal and interest, and the bonds were issued for the amount. One-third of the bonds were taken in London, one-third in Paris, \$10,000,000 in New York, and the balance went to the money centers of Europe. A committee of seven was named to handle the coffee, six by the firms that furnished the money, and one by the Brazilian government. The coffee was to be shipped to the

representatives of the several firms as collateral, and the agreement provided that 500,000 bags only should be disposed of in the crop year 1909-10, 600,000 during 1910-11, 700,000 during 1911-12, 800,000 during 1912-13, and thereafter 700,000 yearly. To further help out the scheme, Brazil was to levy a surtax on all coffee shipped out of the country over 10,000,000 bags annually, of about a half cent per pound, and remit the proceeds of this tax weekly to the bondholders. It was also agreed that the government should enact a law that would prohibit the planting of additional coffee trees, and prevent as far as possible an increase in the supply. The success of the whole scheme depended on such a law, and it was done, with the result that the surplus is steadily declining, prices advancing, and consumption rapidly overtaking production. We have thus here presented the unique spectacle of a powerful government, for the first time in history, engaged in restricting by statute the production of a necessary commodity for the purpose of enhancing the price. Attempted "corners" in cotton, wheat and corn have failed in the past, but here we have a "corner" that has been a complete success. Every person who drinks a cup of coffee is contributing his mite toward the millions of profits now being reaped by the scheme.

In justification of the scheme a writer in the *Brazilian Review*, in speaking of the conditions existing in 1906-7, said: "Little by little, resources, accumulated in a decade of prosperity, were exhausted, and planters went down one by one into obscurity. Laborers were left unpaid, and emigrated in swarms. Banks broke, and even the great Bank of the Republic was forced for a while to suspend payments. So when the bumper crop of 1906-7 came, the cup of the planters' bitterness was full to overflowing."

On January 1 last the syndicate had on hand 6,310,323 bags coffee, of which 1,461,890 were stored in New York, the balance in European warehouses. This coffee is a much higher grade than No. 7 Rio. This coffee represents at present prices a value of 20,000,000 pounds sterling, while the obligation of Brazil to the syndicate, according to official figures, is but 13,000,000 pounds at the same time. While this difference does not represent the entire advanced cost to the consumers, it probably does represent the net profits to Brazil on the amount purchased for account of the syndicate.

Thus Hawaii gains by the "corner" what she failed to get by the tariff.

The price of coffee in the markets of the world has advanced about two and a half times since the scheme was inaugurated. Where will it stop? If coffee can be controlled now by capital (and it certainly is and pretty effectually), will this control be voluntarily surrendered later on when all the coffee is sold? It will be noted that restriction on new planting is being effectually

carried out by the Brazilian government, so it is improbable that the production will soon again overtake consumption to such an extent as to force down prices very materially. Will the United States, the great coffee drinking nation of the world, remain inactive while this is going on? The matter has already been brought to the attention of Congress by the introduction of a resolution of inquiry by Representative Norris of Nebraska. The department having charge of the resolution will probably report in December when Congress convenes. The United States is in a position to force Brazil by placing a heavy duty on Brazilian products in retaliation.

Of course, in Brazil, they do not call it a "trust" or "combine." There it is "a company organized to sell state-owned coffee." The State is merely a dealer. The total advances made to the government for the purpose of buying coffee were \$111,470,530 reduced to U. S. dollars. The State Secretary of Sao Paulo, referring to the conditions in December last, said: "The coffee situation is now solid and not easily upset, and will so continue indefinitely, provided the public authority is vigilant to see that the conditions leading up to the crisis, which we have left behind, are not repeated." (Meaning probably over-production.) "As to the liquidation of the compromises assumed by the State, it may be affirmed that within two or three years they will all be paid off, leaving a considerable balance."

In the meantime, it will be a good move on the part of Hawaii to plant coffee. A period of high prices is sure to prevail. Like the sugar trust, it looks like this great international coffee trust is to remain with us.

UNRECORDED SPECIMENS OF TWO RARE
HAWAIIAN BIRDS.

By OUTRAM BANGS.

From the Proceedings of the Biological Society of Washington,
D. C., Vol. XXII, pp. 67-70.

May, 4, 1910.

Lately while arranging the skins of *Acrulocercus nobilis* in the Museum of Comparative Zoology I discovered among them a fine example of the long ago extinct *Acrulocercus apicalis* (Gould) of Oahu Island.

This specimen came to the museum in exchange from Brown University, and had formerly belonged to John Cassin. It bears a label in Cassin's hand with the inscription, "Sandwich isld. J. K. Townsend male," and was without doubt collected by Townsend during his visit to Oahu in 1835. The skin, No. 17,598, Museum of Comparative Zoology, is that of a fine adult

male, and, although made seventy-five years ago, is in perfect preservation, except that its feet and legs have, at some time, been somewhat eaten by insects.

Wilson and Evans in their *Aves Hawaiensis*, 1890-1899 (p. "103"—the work is not paged) mention five specimens, all that were known to them, of *A. apicalis*—three in the British Museum, one of which went by exchange to Rothschild's Tring Museum, and a pair collected by Deppe which are in Vienna.

Rothschild's *Extinct Birds*, 1907, p. 27, enumerates the same five specimens, but says that Deppe's skins are in Berlin.

Ours makes the sixth known example of *A. apicalis*, which is believed to have been confined to Oahu, and which has not been seen alive by a naturalist since 1837.

It is the only one in America, Dr. Chas. W. Richmond informing me that the United States National Museum does not possess any, and Mr. Witmer Stone says that there is none in the Academy of Natural Sciences in Philadelphia, although that institution had most of Cassin's Collection of birds.

In the Museum of Comparative Zoology there is also a fine pair of *Ciridops anna* (Dole), one of the very rarest of Hawaiian birds and certainly one of the most beautiful.

The exact origin of these skins, of excellent make and in perfect preservation, I have been unable to learn. They came to the museum with a few other Hawaiian birds—six skins of *Acrulocercus nobilis* and several petrels and terns—and were catalogued by Dr. J. A. Allen in 1870; names for none but the Moheo being written on the labels or in the register by that naturalist.

Ciridops anna was described by Judge Dole in 1879, and is supposed to be, or perhaps better to have been, confined to the Island of Hawaii. It was, until I unearthed our two skins, known by three male specimens only, one now in the Bishop Museum and two in Rothschild's Museum at Tring. The female and young male were unknown.

Our male, No. 10,995, is in full plumage, and very closely matches the exquisite plate in Wilson and Evans, *Aves Hawaiensis*.

Our other specimen, No. 10,987, I take to be an adult female. Though a little smaller, it is exactly similar in proportions to the male, but is wholly different in color. It may be described as follows:—

Forehead clothed in stiffened, pointed, semi-erect feathers as in the adult male. Top of head, nape, and sides of head cinnamon washed with dull olive-yellow on forehead and with the lores and a narrow frontal band more dusky; cheeks with paler shaft-stripes to the feathers; lower back grayish cinnamon, gradually passing into the purer color of the head; rump and upper tail coverts olive-yellow; tail dusky, fringed with olive-yellow; primaries blackish, narrowly edged with dark olive-

yellow; secondaries more broadly edged with the same, the innermost nearly wholly dark olive-yellow; throat dull cinnamon, the feathers with paler shaft stripes, slightly washed with yellow-olive in lower middle; chest and breast dingy-smoke-gray, somewhat washed with olive, gradually passing into dark olive-yellow on belly; under wing coverts, axillars, under tail coverts and a small patch in lower middle belly dilute rufous-cinnamon. The general pattern thus resembles that of the adult male, though the colors themselves are very different. Our two skins afford the following measurements (in mm.):—

No.	Sex.	Wing.	Tail.	Tarsus.	Culmen.
10995	(♂ ad.)	80	44	22	11
10987	(♀ ad.)	73.5	41	21	10

*WORK OF THE DEPARTMENT OF AGRICULTURE ON
BEE DISEASES.*

Washington, D. C., December 6, 1910.

The honey bee annually produces a crop of honey valued at at least \$20,000,000, and there are vast opportunities for increasing this output. The most serious handicap to bee-keeping in the United States is the fact that there are contagious diseases which attack the brood of the honey bee. There are now recognized two such diseases, known as American foul brood and European foul brood. From data recently obtained by the United States Department of Agriculture, it is known that American foul brood exists in 282 counties in thirty-seven States, and European foul brood in 160 counties in twenty-four States, and it is estimated conservatively that these diseases are causing a loss to the beekeepers of the United States of at least \$1,000,000 annually. This estimate is based on the probable value of the colonies which die, and the approximate loss of crop due to the weakened condition of disease colonies. The State in which the diseases are most prevalent are California, Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, Nebraska, New Jersey, New York, Ohio, Pennsylvania, Texas, and Wisconsin, and it is unfortunate that these are the States in which honey production is most profitable, making the future outlook of the bee-keeping industry so much the worse unless active measures are taken to control the diseases. Furthermore, the distribution of these diseases is by no means fully known, and they are constantly spreading.

The cause of American foul brood has been found by the Department to be a specific bacterium, and enough is known of the cause and nature of European foul brood, which is also

a bacterial disease, to make it possible to issue reliable recommendations concerning treatment for both diseases. Both attack the developing brood, and as the adult bees die from old age or other causes, the colony becomes depleted since there are not enough young bees emerging to keep up the numbers. When the colony becomes weak, bees from other colonies enter to rob the honey, and the infection is spread.

Both of these diseases can be controlled with comparative ease by the progressive beekeeper, but the chief difficulty encountered in combating these diseases is the fact that the majority of the beekeepers are unaware that any such diseases exist; they therefore often attribute their losses to other sources, and nothing is done to prevent the spread of the infection. It is therefore necessary in most cases to point out the existence and nature of the diseases, as well as to spread information concerning the best methods of treatment. Several States have passed laws providing for the inspection of apiaries for disease, and the beekeepers in other States are asking for the same protection, so that careless or ignorant beekeepers can be prevented from endangering their neighbor's bees. This inspection is a benefit in so far as the inspectors can cover the territory. The Department of Agriculture is helping in this work by sending out publications to the beekeepers in infected regions, by examining samples of brood suspected of disease, and by sending out information concerning the presence of disease, so that beekeepers will be informed that their apiaries are in danger. The cooperation of agricultural colleges, State Beekeepers' Associations, and other similar agencies is being urged.

In view of the fact that these diseases are so widespread, every person interested in beekeeping should find out as soon as possible how to recognize and treat these maladies, and be on the lookout for them. A publication containing a discussion of the nature of these diseases and their treatment will be sent on request to the Department of Agriculture.

BOARD OF AGRICULTURE AND FORESTRY.

Division of Forestry.

ROUTINE REPORT.

Honolulu, June 8, 1911.

The Board of Commissioners of Agriculture and Forestry,
Honolulu, Oahu.

Gentlemen:—I have the honor to submit as follows the regular report of the work of the Division of Forestry for the month of May, 1911.

My own time during this month has largely been occupied with routine duties in connection with preparing plans for proposed forest planting in the Koolau District, Maui, and with arranging details regarding the experimental tree planting now in progress in this Territory under Federal funds; in attending to matters of detail in the office, and in preparing and revising, for the use of the Board, statements in regard to the reallocation of the Board's appropriation for the coming fiscal period.

Mr. Curran's Visit.

Mr. H. M. Curran, of the Philippine Forest Service, who stopped over for a month as a temporary member of the staff of the Division of Forestry, left Honolulu on May 14 en route to Manila. Under the date of May 12, Mr. Curran submitted to the Board a report outlining his opinion on the problem of replacing the forest in the portions of the Koolau Forest Reserve, Maui, where the original forest was killed some years ago.

Federal Tree Planting.

In the Federal tree planting work several thousand seedling trees, both of Conifers and of several species of Eucalypts, were planted out in the experimental plots on the slopes of Haleakala, Maui, during the months of April and May.

During May, also, several acres of ground in Nuuanu Valley above Luakaha, were put in shape for the planting of experimental plots of some twenty odd species of Eucalypts. The idea is to establish a half acre each of all the more important species, so that data can be got as to the stability of the several kinds for local use, more particularly those new to the Territory. The seedlings for this planting are now ready at the Makiki Station. The little trees will be set out during June.

Other Forest Planting.

The forest planting on the Kohala mountain, begun in April, is reported to be getting on satisfactorily. Provision for continuing this project was made in its reallocation of the conservation tax fund by the Apportionment Board.

Other work in connection with tree growing and distribution is described in the report of the Forest Nurseryman, submitted herewith.

Eucalyptus Bulletin.

Following a call for tenders, a contract has been awarded the Hawaiian Gazette Company for printing Mr. Louis Margolin's bulletin entitled "Eucalyptus Culture in Hawaii." The manuscript of this report, approved by the Forest Service, was re-

ceived after much delay late in April. The bulletin should be out about July 1. It should prove of more than usual interest to tree planters in Hawaii.

South Kona Forest Reserve.

On May 17, Governor Frear signed the proclamation creating the South Kona Forest Reserve, which project had been temporarily held up until a change could be made in the technical description of the boundary. The total area of this reserve is 36,952 acres, of which 29,260 acres is government land.

Very respectfully,

RALPH S. HOSMER,
Superintendent of Forestry.

ROUTINE REPORT.

Honolulu, July 1, 1911.

The Board of Commissioners of Agriculture and Forestry,
Honolulu, T. H.

Gentlemen:—I have the honor to submit as follows the routine report of the Division of Forestry for June, 1911.

Eucalyptus Bulletin.

Owing to the readjustment of the Board's financial matters, the manuscript of Mr. Louis Margolin's bulletin, "Eucalyptus Culture in Hawaii," had temporarily to be withheld from the printer early in the month; otherwise the bulletin would have been out by this time. The report is now in press and will appear early in July.

Federal Tree-Planting in Nuuanu Valley.

During the month there have been planted out in Nuuanu Valley above Luakaha, experimental lots of a number of species of Eucalypts, mostly new to the Territory. Plots, some of one-half, some of one-third acre each, have been laid out for some twenty odd species. About half of the seedlings have been planted; the remainder will be set out in July. The cost of this work was borne by the Forest Service of the U. S. Department of Agriculture out of its allotment for Experimental Planting in Hawaii. The object of the experiment is to help to determine which species of Eucalypts are best adapted for use in these islands.

Forest Fire Service.

On June 12, and again on June 18, forest fires were reported from the Koolau District, Kauai, on lands mauka of the Kilauea Sugar Plantation Company. These fires were both put out by plantation laborers acting under the direction of Mr. J. R. Myers, manager of the plantation and district fire warden. Something over one hundred acres were burned over. Efforts are being made to apprehend the persons supposed to have started the fires.

In order more efficiently to cover the Ewa District, Oahu, additional district fire wardens have been appointed, as follows: Mr. H. C. Dolliver, for the section between the land of Manana and the Kaukonahua Gulch; Mr. James Gibb, for the lands from Moanalua to Waiawa. For Palolo Valley, Oahu, Mr. Samuel R. Stone, and for the Districts of Honuaula and Kahikinui, Maui, Mr. Alike Dowsett.

Forest Reserves.

Following a public hearing held on June 28, Governor Frear, on June 29, signed a proclamation setting apart 19,850 acres of government land in the District of Puna, Island of Hawaii, as the Puna Forest Reserve. This reserve includes the section of ohia forest now being logged under a timber license held by the Hawaiian Development Company. The land having been set apart as a forest reserve, a payment of \$2,955.00, due from that company for timber already cut, will be paid over to this Board to form a special fund expendable for forest purposes. This is the first instance where the section of the forest reserve law relating to revenue from forest reserves has become operative.

During June an arrangement was consummated between the government and Mr. Eben P. Low, lessee of the Island of Kahoolawe, whereby in consideration of the remission of unpaid rents, Mr. Low agrees to kill off all the goats on the island and remove all of his remaining sheep during this calendar year. Kahoolawe has been set apart as a forest reserve in order that this Board may undertake systematic steps towards its reclamation. The present action permits this work to be begun a year sooner than would otherwise be possible.

Very respectfully,

RALPH S. HOSMER,
Superintendent of Forestry.

REPORT OF THE FOREST NURSERYMAN.

Honolulu, July 1, 1911.

Distribution of Plants for June.

	In seed boxes.	In boxes transplanted.	Pot grown.	Total.
Gratis	7000	1300	750	9050
Sold		400	89	489
	<hr/> 7000	<hr/> 1700	<hr/> 839	<hr/> 9539

Collections for June amounted to \$33.30 on account of plants and seed sold.

Collecting of Seed.

The *Grevillea robusta* and also most of the Eucalypts are now in season, and the two men are kept busy collecting and sorting. Some of the seed is quite difficult to collect and requires to be watched carefully. The *Grevillea robusta*, for instance, must be collected just before the seed pods begin to open; if left too long the pods will crack open and the seed get lost. Then again, should the pods be picked too soon, the seed will not be good. The same rule applies to a number of different species, and great care is required so that the best seed may be procured.

DIVISION OF ENTOMOLOGY .

Honolulu, June 30, 1911.

Honorable Board of Commissioners of Agriculture and Forestry,
Honolulu, Hawaii.

Gentlemen:—I herewith respectfully submit my report of the work of the Division of Entomology for the month of June.

During this month we boarded 26 vessels and we found fruit, vegetables and plants on 16 of them.

The usual careful inspection was made of all the shipments with the following result:

<i>Disposal with principal causes:</i>	<i>Lots</i>	<i>Parcels.</i>
Passed as free from pests	676	9416
Returned	4	25
Burned	34	64
Fumigated	14	17
Total inspected	<hr/> 728	<hr/> 9522

Rice Shipments.

Thirty-four thousand four hundred and ninety-five bags of rice arrived during the month, a large increase over last month's shipments, and each consignment was carefully inspected and found free from weevils and other pests.

Pests Intercepted.

Quite a number of small plant shipments were received during the month and a number of Australian lemons and apples, as well as a piece of sugar cane from Suva, Fiji, were taken from passengers. On orchids from England we found scale insects (*Diaspis boisduvali*). On Camellias from Sydney we found *Thrips species*. On Pine tree from Japan we found some plant bugs, a *Capsus species*, and on the lemons from Sydney we found two scale insects, *Chrysomphalus biformis* and *Chionaspis permutans*. Twenty-five boxes of lemons infested with several scale insects coming from California were returned to the shipper.

Brother M. Newell, Inspector at Hilo, reports the arrival of five steamers and two sailing vessels, of which three steamers brought vegetable matter consisting of 72 lots and 658 parcels, all of which was found free from pests.

Beneficial Insects.

During the month one colony of *Vedalia* was sent to Molokai and a large colony in all stages in a breeding cage to Midway Island, as the last shipment, owing to delay, arrived in bad condition. Four lots of Japanese beetle fungus was distributed.

I received a lot of pupae of the California Oak Moth (*Phryganidia californica*), which contained parasites of caterpillars. Unfortunately the lot did not yield many parasites, but those which issued were liberated. Last season this same parasite; *Pimpla behrensii*, was liberated in large quantities among the cocoanut groves for the purposes of attacking the cocoanut leaf roller.

Interisland Inspection.

Everything is in readiness now to start a thorough inspection between Oahu and the other islands. Since the Governor signed Rule IX, I have selected my inspectors, Messrs. Arthur E. Carter and Edward Drew, who will begin their duties on July 1st. Printed notices to passengers will be handed them when purchasing their tickets, and tags for shipment of plants are in readiness. Large notices in English, Portuguese, Hawaiian, and Japanese have been printed and will be placed in conspicuous places on the dock.

Respectfully yours,

EDW. M. EHRHORN,
Superintendent of Entomology.

FOREST FIRE WARDENS.

The following appointments have recently been made by the Board of Commissioners of Agriculture and Forestry:

District Forester.

G. O. Cooper, in and for the District of Hana, Island of Maui.

District Fire Wardens.

Alexander Smith, in and for that portion of the District of Hamakua, Island of Hawaii, extending from the western boundary of the land of Paauhau to the land of Kukaiau.

Alika Dowsett, in and for the District of Honuaula and Kahikinui, Island of Maui.

A. Menefoglio, in and for Wainiha Valley, District of Halelea, Island of Kauai.

Byron O. Clark, in and for Manoa Valley, District of Kona, Island of Oahu.

H. C. Dolliver, in and for that portion of the Ewa District, Island of Oahu, lying to the east of the main government road between the northern boundary of the land of Manana and the Kaukonahua Gulch.

James Gibb, in and for that portion of the Ewa District, Island of Oahu, lying between the lands of Moanalua and Waiawa.

Sam R. Stone, in and for Palolo Valley, Island of Oahu.

Walter F. Dillingham, in and for that portion of the Ewa District, Island of Oahu, lying to the west of the main government road.

FORESTRY IN OUR COUNTRY SCHOOLS.

(By O. E. HUSE, '12, School of Agriculture of the Pennsylvania State College, in *Penn State Farmer* for May, 1911.)

Educators, at the present time, are beginning to make a more practical application of the subjects taught in our schools and colleges. So in considering the question of, how much forestry is it practical to teach in our country schools, we must first answer the question of, how much use do the pupils in our country schools make of trees? The extent to which trees are used varies of course with local conditions, but we can find a number of general uses quite common to our country communities.

The boy does not have to be very old before he wants a bow and arrow, and right then we may begin to teach him the best kind of wood for bows and arrows, how to cut the limbs from

the trees with the least amount of damage, and some of the most prominent characteristics of trees. His acquaintance with the birch may begin still younger, mine did, and I can tell, that tree anywhere today, because of the close acquaintance I had with it in my youth. Nut and acorn trees, the boy knows in a general way because of the fruit which they bear, but by building upon his knowledge of and interest in the trees because of their fruits he may be taught their other characteristics, their commercial value and habits of growth. The sugar maple is distinguished because of the quality of its sap, and here again is a basis upon which I built a knowledge of all the maples.

Much of the damage done to nut and other trees by the boy is done through ignorance and carelessness. If he were taught more about trees, their seeding and growing habits, the injury caused by making wounds in the bark; if he could set out and raise some trees that he would feel were his own, the trees would become such close friends of his that he would come to be their natural protector.

Again, a few visits with proper instruction to where a house is being built, a fence being put up, a wagon in the course of construction, also a trip to the neighboring sawmill would give him very valuable lessons in the uses of wood.

The problem at once arises as to who will teach the boys these various things since the average country school teacher is not prepared for this work. There are several ways out the difficulty. The teacher may become informed by study with the aid of the State and National Forestry Bureau. Excellent bulletins, dealing with the teaching of forestry in country schools may be obtained from the Department of Forestry at Washington, D. C. The teacher may receive some practical help from carpenters, carriage manufacturers and mill foremen. Undoubtedly the demand for such subjects will force the normal school to offer instruction along this line in the near future. The normal school is the place where teachers should be prepared for this work. Meanwhile, we have our summer schools, such as the one at The Pennsylvania State College, where teachers may receive excellent training in the teaching of forestry.

This article is not intended as a finished discussion of the teaching of forestry in our country schools, but only as suggestive of a way in which the country boy may get a little more out of his school experience by becoming better acquainted with his surroundings. Thus will be found life in the country more valuable and more attractive.

WEED DESTRUCTION IN THE PHILIPPINES.

From an article in the *Philippine Agricultural Review*, for February, 1911, it appears that the Plant *Lantana Camara*, which is one of those known as "wild sage" in the West Indies, has

been introduced, together with other tropical American weeds and ornamental plants, into the island of Negros, in the Philippines. This plant, by its rapid spread and luxuriant growth, has already caused trouble to agriculturists in Hawaii, where insect pests have been introduced for the purpose of diminishing its spread.

The measures that are proposed for the eradication of the weed before it becomes disseminated beyond control consists in the process of loosening the root system, which is very weak, by means of a pick or a strong wooden stake, and then cutting through the roots just below the collar; the plants treated in this way are allowed to become dry in the sun, and are then burned as soon as they are fit for this to be done.

The article draws attention to the characteristic inflorescence of the plant, which consists of a small bunch of reddish or yellowish flowers, borne near the tips of the branches; the flowers in the center of the bunch open first, when their color is pinkish or yellowish, but reddish or purplish after a few days. The most potent circumstance in the spread of the plant is the fact that the fruits are eagerly eaten by birds, which do not, however, digest the seeds.

As is well known, the plant is a perennial, and attains in the West Indies a height of 5 to 7 feet. In Hawaii, it has been known to grow as tall as 15 feet, but the specimens in Negros were only 6 to 9 feet high, at the time of publication.—Agricultural News.

RESISTANCE OF PLANTS TO WIND—A COTTON PEST.

The *Bulletin Agricole*, of Mauritius, for February, 1911, has an interesting note on the effects, on various plants, of the hurricane that visited the island at the beginning of that month. It states that cocoanut palms showed a useful power of resistance to the wind, while the tamarind trees, although they had attained their full leafage, merely suffered a scorching of the leaves and soon sprouted again. In an area where much harm was done to plants of every kind, several acres of cotton were completely destroyed, though generally this plant exhibited reasonable behavior under the trying conditions: the wind scorched the leaves, but new buds quickly opened; the position in regard to cotton is summarized by saying that this plant has proved its possession of a power of resistance to high winds.

The note, it may be stated also, has reference to a large snail which is a pest of cotton in Mauritius. This, according to information contained in a letter from Mr. J. H. Lee, who is in Mauritius on behalf of the British Cotton Growing Association, is *Achatina fulica*. In regard to this animal, it is of interest that

an outbreak of the pest took place in Ceylon, in 1910; this is described in *Circulars and Agricultural Journal of the Royal Botanic Gardens, Ceylon*, Vol. V, No. 7, where, however, it has shown itself a scavenger rather than an enemy of plant life.—Agricultural News.

BRACER FOR RUBBER.

Tropical Life (London) for May, in its review of the rubber shares market, discusses a conflict between bulls and bears with regard to the price of Para, and then goes on to brace up the spirits of rubber investors in the following words:

“The outlook, then, is one of uncertainty; but this consumers' hand-to-mouth policy of buying only for immediate needs is becoming dangerous, and must be very hampering and nerve-racking, as in previous years it was the unquestioned policy to hold a fair margin of stock for future demands. These demands are going to be big. The motor industry is swallowing rubber with enormous rapidity, and its appetite grows with eating.

“The holidays at the beginning of May, in conjunction with a large measure of uncertainty as to the course of the material market, has brought business in rubber shares to a comparatively low ebb. Meanwhile, the tide of prosperity in the rubber industry flows steadily on; proof of this being clearly shown by the large number of excellent reports now coming to hand. It is the nature of these reports—demonstrating as they do the big dividend-earning capacity of well-placed, well-managed estates—that makes one feel that the rubber industry is not a ‘fairy's whim,’ but a sensible, solid, business-like undertaking of lasting merit. Reading the annual reports now appearing day by day, it is very noticeable how many of the comparatively young companies are entering the ranks of the dividend payers for the first time, with the prospect of largely increased distributions at this time next year.”

PUNA FOREST RESERVE.

Following a public hearing held on June 28, 1911, by the Governor of the Territory and the Board of Commissioners of Agriculture and Forestry, Governor Frear, on June 29, signed a proclamation setting apart 19,850 acres of government forest land in the District of Puna, Island of Hawaii, as a forest reserve. This proclamation is given on another page of this issue of the Forester. The report of the Superintendent of Forestry on this subject, approved by the Board of Agriculture and Forestry at a meeting held on June 9, 1911, was printed in the June number of the Forester.

PROCLAMATION OF THE FOREST RESERVE IN THE DISTRICT
OF PUNA, ISLAND AND COUNTY OF HAWAII.

Under and by virtue of the authority vested in me by the provisions of Chapter 28 of the Revised Laws of Hawaii, as amended by Act 65 of the Session Laws of 1905, and by Act 4 of the Session Laws of 1907, and of every other power me hereunto enabling, I, WALTER F. FREAR, Governor of Hawaii, with the approval of a majority of the Board of Commissioners of Agriculture and Forestry, having held the hearing of which notice has been duly given as in said acts provided, do hereby SET APART as a Forest Reserve to be called the "PUNA FOREST RESERVE," those certain pieces of government land in the District of Puna, Island of Hawaii, which may be described roughly as being the section of forest lying mauka of the Kaohe Homesteads above Pahoia, and containing an area of 19,850 acres, more or less, in the District of Puna, Island and County of Hawaii, Territory of Hawaii, more particularly described by and on a map made in June, 1911. by the Government Survey Department of the Territory of Hawaii, which said map is now on file in the said Survey Department marked Government Survey Registered Map No. 2060 and Puna Forest Reserve, and a description accompanying the same numbered C. S. F. 2248, which said description now on file in the said Survey Department, is as follows:

PUNA FOREST RESERVE.

Including portions of the Government lands of Makuu-Kaohe, Kaimu-Kehena and Kapaahu-Kamaili, Puna District, Island of Hawaii.

Beginning at a + marked on the lava under a mound of stones at North edge of the ancient cultivated grounds of Oliolimanienie, this point being the extreme West or mauka angle of Waikahekahenui as also of Waikahekaheiki, the common boundary point of these two lands with Makuu, the coordinates of said + referred to Government Survey Trig. Station "Olaa" being 37,071.0 feet South and 9,831.0 feet East, as shown on Government Survey Registered Map No. 2060, and running by true azimuths:

1. 332° 36' 30770.0 feet across the Makuu-Kaohe Government Tract to the West corner of Lot 1 of the Kaimu Homesteads (Thrum's Subdivision), from which point Government Survey Trig. Station "Heiheiahulu" (old) is by true azimuths 138° 02' 30";
2. 81° 00' 5710.0 feet along Kaimu Government remainder to the North corner of Lot 4 of the Kapaka-Kauka Homesteads;
3. 47° 35' 1177.0 feet along said lot to the West corner of said lot;
4. 47° 10' 3830.0 feet along Kaimu Government remainder to the North corner of Lot 1 of the Kapaka-Kauka Homesteads;
5. 23° 22' 950.0 feet along Lots 1 and 2 of the Kapaka-Kauka Homesteads to the West corner of said Lot 2;
6. 44° 30' 9440.0 feet along Kalapana-Kapaahu Government remainder to a point on the boundary of the land of Kahaualea;
7. 148° 00' 4100.0 feet along land of Kahaualea to a place called Kalaeolomea and Oahia marked "Z";
8. 116° 00' 8150.0 feet along land of Kahaualea to an ohia tree on top of a sharp hill about 50 feet high the North side of which is perpendicular; marked "K" which bears 216° 00' about 1300.0 feet from Kalalua Hill;
9. 125° 00' 24200.0 feet along land of Kahaualea to the boundary of the land of Keaau;

10. Thence along the land of Keauau to the point of beginning, the approximate azimuth and distance being $239^{\circ} 50'$ 36400.0 feet;
Area 19,850 Acres.

(Seal) In Witness whereof, I have hereunto set my hand and caused the Great Seal of the Territory of Hawaii to be affixed.

Done at the Capitol in Honolulu this 29th day of June, A. D. 1911.

W. F. FREAR,
Governor of Hawaii.

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PUBLICATIONS FOR DISTRIBUTION—Continued.

- "Important Notice to Ship Owners, Fruit Importers and Others. Rules and Regulations Prohibiting the Introduction of Certain Pests and Animals into the Territory of Hawaii." General Circular No. 2; 3 pp.; 1904.
- "Law and Regulations, Importation and Inspection of Honey Bees and Honey." General Circular No. 3; 7 pp.; 1908.

"The Hawaiian Forester and Agriculturist," a monthly magazine. Vols. I to VII; 1904-1910. To be obtained from the Hawaiian Gazette Co., Honolulu. Price \$1 a year.

DIVISION OF FORESTRY.

- * "Forest and Ornamental Tree Seed for Sale at Government Nursery." Press Bulletin No. 1; 3 pp.; 1905.
- * "Suggestions in Regard to the Arbor Day Tree Planting Contest." Press Bulletin No. 2; 7 pp.; 1905.
- "An Offer of Practical Assistance to Tree Planters." Circular No. 1; 6 pp.; 1905.
- "Revised List of Forest and Ornamental Tree Seed for Sale at the Government Nursery." Press Bulletin No. 3; 4 pp.; 1906.
- * "Instructions for Propagating and Planting Forest Trees." Press Bulletin No. 4; 4 pp.; 1906.
- "Instructions for Planting Forest, Shade and Ornamental Trees." Press Bulletin No. 5; 7 pp.; 1909.
- "Na Hoakaka no ke Kanu Ana i na Laau Malumalu ame na Laau Hoohiwahiwa." Press Bulletin No. 6; 8 pp.; 1909.
- "Eucalyptus Culture in Hawaii," by Louis Margolin. Bulletin No. 1; 88 pp.; 12 plates; 1911.
- Report of the Division of Forestry, for the year ending December 31, 1905. Reprint from Second Report of the Board; 77 pp.; 5 plates.
- * Report of the Division of Forestry, for the year ending December 31, 1906. Reprint from Third Report of the Board; 123 pp.; 4 maps.
- Report of the Division of Forestry, for the year ending December 31, 1907. Reprint from Fourth Report of the Board; 70 pp.
- Report of the Division of Forestry, for the year ending December 31, 1908. Reprint from Fifth Report of the Board; 85 pp.
- Report of the Division of Forestry, for the biennial period ending December 31, 1910. Reprint from Report of the Board; 86 pp.; 22 plates.

DIVISION ON ENTOMOLOGY.

- "The Leaf-Hopper of the Sugar Cane," by R. C. L. Perkins. Bulletin No. 1; 38 pp.; 1903.
- ** "A Catalogue of the Hemipterous Family Aleyrodidae," by G. W. Kirkaldy, and "Aleyrodidae of Hawaii and Fiji with Descriptions of New Species," by Jacob Kotinsky. Bulletin No. 2; 102 pp.; 1 plate; 1907.
- * "On Some Diseases of Cane Specially Considered in Relation to the Leaf-Hopper Pest and to the Stripping of Cane," by R. C. L. Perkins. Press Bulletin No. 1; 4 pp.; 1904.
- "A Circular of Information," by Jacob Kotinsky. Circular No. 1; 8 pp.; 1905.
- "The Japanese Beetle Fungus," by Jacob Kotinsky and Bro. M. Newell. Circular No. 2; 4 pp., cut; 1905.
- Rule VII: "Concerning the Prevention of Distribution of the Mediterranean Fruit Fly"; unnumbered leaflet; 1910.
- Rule VIII: "Concerning the Importation of all Banana Fruit, Banana Shoots or Plants"; unnumbered leaflet; 1911.
- Report of the Division of Entomology, for the year ending December 31, 1905. Reprint from Second Report of the Board; 68 pp.; 3 plates; 10 text figures.
- Report of the Division of Entomology, for the year ending December 31, 1906. Reprint from Third Report of the Board; 25 pp.; 7 text figures.
- Report of the Division of Entomology, for the year ending December 31, 1907. Reprint from Fourth Report of the Board; 18 pp.; 1 plate.
- Report of the Division of Entomology, for the year ending December 31, 1908. Reprint from Fifth Report of the Board; 26 pp.; 2 plates.
- Report of the Division of Entomology, for the biennial period ending December 31, 1910. Reprint from Report of the Board; 70 pp.; 10 plates.

DIVISION OF ANIMAL INDUSTRY.

- * "Inspection of Imported Live Stock." Rule 1; 1 p.; 1905.
- * "Inspection and Testing of Imported Live Stock for Glanders and Tuberculosis." Rule 2; 1 p.; 1905.
- * "Concerning Glandered Horse Stock in the Territory." Rule 3; 1 p.; 1905.
- * "To Amend Rule 1, Inspection of Imported Live Stock." Rule 4; 1 p.; 1907.
- * "Quarantine of Horse Stock from California." Rule 8; 1 p.; 1908.
- "Rules and Regulations, Inspection and Testing of Live Stock." Rules and Laws; 11 pp.; unnumbered pamphlet; Revised 1910.
- Report of the Division of Animal Industry, for the year ending December 31, 1905. Reprint from Second Report of the Board; 62 pp.
- Report of the Division of Animal Industry, for the year ending December 31, 1906. Reprint from Third Report of the Board; 41 pp.; 3 plates.
- Report of the Division of Animal Industry, for the year ending December 31, 1907. Reprint from the Fourth Report of the Board; 104 pp.; 6 plates.
- Report of the Division of Animal Industry, for the year ending December 31, 1908. Reprint from Fifth Report of the Board; 44 pp.
- Report of the Division of Animal Industry, for the biennial period ending December 31, 1910. Reprint from Report of the Board; 59 pp.; 13 plates.