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THE HAWAIIAN FORESTER AND AGRICULTURIST

JULY, 1917

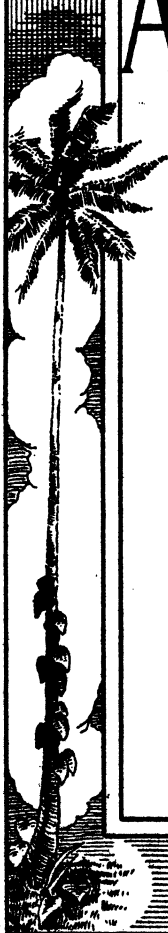
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VOL. XIV.

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and Agriculture.

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Board of Agriculture and Forestry

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.

C. S. JUDD,
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 insects 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 by parcels post. 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 of Entomology.

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A complete list of the publications of the Board available for distribution (together with the titles of certain issues now out of print) is to be found on the cover of the last biennial report.

Applications for publications should be addressed to the Mailing Clerk, P. O. Box 207, Honolulu, Hawaii.

THE HAWAIIAN FORESTER AND AGRICULTURIST

VOL. XIV.

HONOLULU, JULY, 1917.

No. 7

Professor MacCaughey contributes a short article on the California laurel to this number.

Departmental reports of Forestry, Plant Inspection and Entomology are brought up to May in this issue.

In keeping with the live topic of food conservation is an article in this number on goat's milk for infant feeding. While, as respects some parts of the group, the old saying about the "best Indian" seems to have been applied to goats, yet, given the right kind, a live goat may be much better than a dead one wherever conditions are favorable for keeping that stock.

Preparedness against pests is proving effectual in Hawaii.

HEAD OF FOREST SERVICE NOW IN FRANCE.

Announcement of the arrival of Henry S. Graves, Chief of the U. S. Forest Service, in Paris, has led the Department of Agriculture to explain that Mr. Graves has gone abroad to make arrangements for the forest work which the American army engineers will undertake in France in connection with the military operations of the allied forces.

Because of the opportunity for service by this country in woods work incidental to the war which the request of the British government for the sending of a forest regiment was believed to present, Mr. Graves has been granted leave of absence from his position as head of the Forest Service and has received a commission as major in the Reserve Engineer Corps. He has not been assigned to any command, but is acting under instructions, it is stated, to proceed to France in order to learn on the ground in advance just what conditions will need to be met, what equipment will be called for, and how extensively the service of American lumbermen can be utilized to advantage.

One of the staff officers of the regiment, Captain Barrington Moore, is with Mr. Graves for the purpose of arranging for its prompt assumption of the specific duties to which it will be assigned when it is landed in France. While organized on mili-

tary lines, the work of the regiment will be industrial, not combatant. It will operate in the woods behind the armies, getting out timbers, ties and lumber required for military purposes.

The recruiting of the regiment which has already been asked for is being pushed by the Forest Service and was reported last month to be advancing rapidly. The listing officers for this regiment are as follows: Forest Supervisors Seitz, Erickson, Hastings and Evans, of Oregon; Smith, Fromme, Park and Sylvester, of Washington.

Applicants must be white, between the ages of 18 and 40, and must pass the regular army physical examination. Men subject to conscription will discharge their obligations by enlisting in this regiment.

WHAT THE BIRDS DO FOR US.

Birds interest and cheer us by their action, song and beauty, also they are useful to us in many ways. All animals, including birds, live on what they eat. Birds are so strong and swift and live so fast that they have to eat much more than we. A school teacher undertook to care for and feed a tiny young bird, a little vireo. She fed it 100 grasshoppers in a day. It ate them all, although the legs of the last one stuck out of the little bird's mouth at sunset. Birds love to eat insects such as bugs, caterpillars, moths and beetles.

Insects if not kept in check by the birds and other enemies would increase so fast that they would soon eat every green thing on earth and leave us to starve. Sometimes a single insect lays hundreds of eggs at one time, and in some cases a single pair of insects might produce thousands, or even millions more insects in a year, if they and their eggs were not eaten by birds or destroyed in other ways. Birds spend a large part of their time hunting and killing such insects and their eggs. They eat untold millions of these creatures. In this way they tend to save for our use the vegetables in the garden, the grain in the fields, from which meal and flour are made, and the fruit on the trees, all of which we must have to live and thrive.

Also birds such as sparrows and quail eat the seeds of weeds, and so prevent weeds from growing; other birds, such as hawks, owls and herons kill and eat rats and mice, especially the mice of the fields and woods, which if not so killed off and kept down would increase so fast that they, like the insects, would soon eat up every green thing.

Many birds are scavengers, destroying foul, offensive and decaying things. Others eat flies and mosquitoes, which plague us and carry disease.

Division of Forestry

Honolulu, Hawaii, July 5, 1917.

Board of Commissioners of Agriculture and Forestry,
Honolulu.

Gentlemen:—I respectfully submit the following routine report of the Division of Forestry for the month of May, 1917:

Forest Fencing.

Arrangements were completed during the month with the Kukaiau Ranch Company for the construction of a fence on the boundary between the government land of Piha and the private land of Maulua and between the latter land and the government land of Laupahoehoe in the Hilo Forest Reserve, Hawaii. This was authorized on August 4, 1916, but the ranch has not been in a position until recently to undertake the work. A contract provides that the work be completed in five months and the cost of the government's share of work will be \$817.90 besides furnishing the fence wire. The total length of fences to be constructed is 4.73 miles and when completed they will put an end to the inroads which wandering cattle have made on the native forest in this region. Mr. H. Meyer, who claims the ownership of these cattle, has been given until June 30 to get rid of them.

Mr. F. G. Snow has completed 1,050 feet of cooperative fencing of the forest reserve strips fronting his place near Glenwood in the Olaa Forest Park Reserve, which were in need of protection, as pointed out in my March report, and is prepared to complete this work in the region of his place.

A short stretch of fence 432 feet in length was constructed during the month on the new boundary of the small area of land next to Lot 817 in the Makiki-Round Top Tract, which was recently eliminated from the Honolulu Watershed Forest Reserve.

On May 23, I visited the region of Makua and ascertained that the fence required by General Lease 730 to be built along the makai boundary of the forest reserve had not yet been constructed. The matter was reported to the Land Commissioner.

Tree Planting.

On the Honolulu Watershed Forest Reserve in upper Manoa Valley 995 koa, 100 silk oak, and 169 various species or a total of 1264 trees were planted, in addition to the necessary weeding to keep previously planted trees from getting choked by the grass.

On Tantalus in an opening in the eucalyptus forest, Ranger Kapihe planted out 80 Australian red cedar trees, *Cedrela australia*.

The tree planting on the Kealia Forest Reserve, Kauai, by Ranger Lovell continued during the month with the planting of 240 silk oak and 122 lemon gum trees.

Assistance was given during the month in two private planting projects in accordance with the customary offer of this Division by supplying seedlings and directions for planting. One of these was on the new Dowsett Tract in Nuuanu Valley, where house lots have recently been placed on the market. Here the Dowsett Company undertook the planting of native koa trees along the paved roads 35 feet apart and 17 feet in from the curb. In all 272 koa trees were thus planted out and in time should form very beautiful and attractive avenues. A windbreak of 109 swamp mahogany trees was also planted at the upper end of the tract.

The other project was at the Oahu Country Club, where advice was given on species to be planted on various parts of the links with methods of planting. Over a dozen hau slips and one hundred willow slips were also actually planted out under our supervision.

Miscellaneous.

One day was spent at the eucalyptus plantation of the Kunia Development Company with the Forest Nurseryman giving advice on forest thinning and in taking growth measurements of trees on sample plots.

The report of hunting on Kahoolawe without a permit was investigated during the month and a strong letter to Edward Tollefsen of Pukoo, Molokai, warning him of the offense and its probable consequences brought forth the reply that he did not know it was unlawful and that he was now acquainted with the rules and regulations. To prevent similar offenses in the future notices have been sent to be posted on Kahoolawe together with copies of Rule II to be handed out by the native boy on the island to all who land there. Incidentally, Mr. Low reported to me on May 15 that while on Kahoolawe recently he had driven 200 goats into the pen, but had released them again.

The bulletin on the ohia lehuas of Hawaii by J. F. Rock was handed to the Honolulu Star-Bulletin for publication.

Maps and description of surveys of several new forest reserves have recently been received from the Government Survey Office and will be presented to the Board before long with appropriate recommendations.

Respectfully submitted,

C. S. JUDD,

Superintendent of Forestry.

REPORT OF FOREST NURSERYMAN.

Honolulu, Hawaii, June 21, 1917.

Superintendent of Forestry,
Honolulu, T. H.

Dear Sir:—I herewith submit a report of the work done during the month of May:

Nursery—Distribution of Plants.

	In Boxes Transplanted	Pot Grown	Total
Sold	52	114	166
Gratis	800	1943	2743
	<hr/> 852	<hr/> 2057	<hr/> 2909

Collections.

Collections on account of plants sold amounted to.....\$ 3.25
Rent of office building, Nursery Grounds, for March..... 35.00

Total

\$38.25

Plantation Companies and Other Corporations.

The distribution of plants under this heading amounted to 2,000 in seed boxes and 325 pot grown.

Makiki Station.

A 15 H. P. gasoline engine has been installed at the station and everything is practically ready for the cutting up of logs.

The road leading to the station has had some needed repairs and is in a fairly good condition now.

We have now on hand at this station large quantities of the species of trees which are generally in demand, also a number of new exotics which we are experimenting with. For planting on the watersheds we have a large number of koa and other suitable trees ready.

Honolulu Watershed.

During the month the work on the watershed has been principally hoeing and clearing away grass and weeds from the young trees, clearing trails and rooting out seedling *Caesalpinia bonduc*. A few patches of the latter pest are still to be found in the lower end of Opu Valley.

With the assistance of the squatters who are located in this valley we are spending one day each month in clearing and expect to have it well in hand in a short time.

Advice and Assistance.

The writer has been called upon to give advice and assistance as follows:

Calls made	8
Advice by telephone.....	10
Advice by letter.....	4
Advice given to people calling at Nursery.....	9

Very respectfully,

DAVID HAUGHS,
Forest Nurseryman.

WHAT SHOULD WE DO FOR OUR FORESTS AND SHADE TREES.

We should plant our waste lands to young trees which will become forests.

We should never set a fire in the woods. If it is necessary to build a fire in the woods it should be made on rocks or bare ground.

Never leave a fire until you are sure it is out.

Never drop a match in the woods.

We should plant shade trees on all our streets and highways.

Every home should have some trees planted near it.

Do not allow anyone to hitch a horse to a shade tree.

Never injure the bark of a tree, it may cause its death.

• Spray the trees to kill their insect enemies.

Water the trees in hot dry weather.

Learn to love and protect the trees for they are among our best friends.

In coöperation with the food supply committee of the California state council for defense, the U. S. Forest Service is making plans to stock to their very fullest capacity the national forest ranges. If the stock can be secured and the money raised for necessary trails and water developments, an increase in the number on the ranges equivalent to 80,000 head of cattle might be made.

Division of Plant Inspection

Honolulu, Hawaii, May 31, 1917.

Board of Commissioners of Agriculture and Forestry,
Honolulu.

Gentlemen:—I respectfully submit my report of the work done by the Division of Plant Inspection for the month of May, 1917, as follows:

During the month there arrived at the port of Honolulu 59 vessels, of which 27 carried vegetable matter. Of these vessels 2 passed through the Canal Zone in transit to the Orient.

<i>Disposal</i>	<i>Lots</i>	<i>Parcels</i>
Passed as free from pests.....	830	15,194
Fumigated	26	92
Burned	113	119
Returned	5	5
Total inspected	974	15,410

Of these shipments 14,907 packages arrived as freight, 268 packages as mail matter and 235 packages as baggage of passengers and immigrants.

Rice and Bean Shipments.

During the month 68,488 bags of rice and 4184 bags of beans arrived from Japan and Oriental ports, and after careful inspection were passed as free from pests.

Pests Intercepted.

Approximately 7377 pieces of foreign baggage belonging to passengers and immigrants were examined and 68 packages of fruit and 40 packages of vegetables were seized and destroyed by burning.

On May 5th, a passenger from Manila brought 30 orchids and two ornamental trees, with permit to import. These were fumigated and one orchid showing decay was destroyed.

On May 3rd, shipments of plants from California were fumigated on account of being infested with plantlice and ants.

On May 9th, 2 baskets of garlic in the cargo of the S. S. China were found infested with the larvae of a Lepidopteron, probably *Ephestia clutella*, and were fumigated with carbon bisulphide before delivery.

On May 15th, 4 cases of rose plants arrived from San Francisco, and were fumigated on account of rose aphid. On the same date the S. S. Colombia brought 30 Lichee trees and 18 Bamboo suckers which belong to the U. S. Department of Agriculture, Washington, D. C. Mr. Groff, who had charge of these plants, found that they would not stand the long journey and asked permission to turn them over to the local Experiment Station. The Collector of Customs and I saw no objection to this request, and after the usual fumigation and removal of packing and soil they were turned over to Mr. Higgins. In the packing were found a few snails, slugs and a colony of ants; the plants were free from pest or disease.

The following plants were taken from the baggage of passengers and immigrants:

One Peony from Japan, May 9th, which was burned; one Juniper and one Wistaria from Japan May 19th, which were returned on board the steamer; one ornamental plant from China, May 31st, which was burned, and one Wisteria from Japan which was burned.

The following packages were found in the post office:

One package of seeds from Manila for the Board of Agriculture and Forestry, which was fumigated with carbon bisulphide as a precaution.

Two packages of corn from Japan which were contraband and were returned by the postmaster, as well as a package of tree seeds.

One package of tree seeds from New Zealand for the Forester of the Board of Agriculture and Forestry, which was first fumigated as a precaution.

On May 5th, 3 packages, and on May 31st 2 packages of beneficial insects arrived for the H. S. P. A. and were handled in the usual way. All soil and packing has been destroyed.

Six Queenbees from California having the proper certificate were allowed to land.

Hilo Inspection.

Brother Matthias Newell reports the arrival of seven steamers, of which four brought vegetable matter, consisting of 126 lots and 1996 packages of fruits and vegetables. All were passed as free from pests.

Kahului Inspection.

Mr. Will J. Cooper reports the arrival of nine vessels, three of which brought vegetable matter, consisting of 12 lots and 417 packages of fruits and vegetables. One crate of turnips showed infestation of the turnip maggot and was ordered dumped at sea. All other shipments were free from pests and were passed.

Inter-Island Inspection.

Sixty-two steamers plying between Honolulu and other island ports were attended to during the month. The following shipments were passed as free from pests:

Taro	511	bags
Vegetables	180	packages
Plants	130	"
Fruit	11	"
<hr/>		
Total Passed	832	"

The following packages were seized and refused shipment on account of not meeting the required regulations pertaining to soil and infestation:

Fruit	4	packages
Plants	6	"
<hr/>		
Total Refused	10	"

Respectfully submitted,

E. M. EHRRORN,
Chief, Division of Plant Inspection.

Division of Entomology

Honolulu, Hawaii, June 6, 1917.

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

Gentlemen:—During the month of May the insectary handled 33,800 pupae of the melon fly. From these there were bred 950 females and 731 males, *Opius fletcheri*.

The distribution of parasites was as follows:

Opius fletcheri.

	Females	Males
Oahu—		
Sheridan Street	492	430
Kaimuki	45	15
Waianae	60	30
Castner	140	120
Maui—		
Haiku	105	80
Kauai—		
Homestead	60	30

Opius humilis.

Oahu—		
Kaimuki	35	25

Diachasma tryoni.

Kaimuki	55	20
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Diachasma fullawayi.

Kaimuki	30	15
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Tetrastichus.

King Street	2000
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Pamanagrus (Corn leaf hopper parasite).

Makiki	300
Sheridan Street	2000
Nuuanu	550
Manoa	25
Kailua	600
Kauai—	
Kilauea	400
Lihue	2550
Molokai	1500
Lanai	900
Maui—	
Haiku	1400
Makawao and Kula	3400

Respectfully submitted,

D. T. FULLAWAY,
Entomologist.

Goat's Milk for Infant Feeding

The following is the "summary" of Bulletin No. 429 of New York Agricultural Experiment Station, Geneva, N. Y., the authors of the bulletin being W. H. Jordan and G. A. Smith:

1. During the years 1910-1912, inclusive, a herd of milch goats was kept at the Station. The number of animals of which complete records were kept varied from 10 to 26.

2. In the year 1912, 31 adult and 9 partially grown animals were fed. The quantity of food consumed was as follows:

Dry, coarse food.....	37,740 lbs.
Beets	1,550 "
Cut grass	24,000 "
Pasture	132 days
Grain	14,688 lbs.

3. The total cost of this food, at the prices then ruling, was \$441.95. The average cost per month per goat varied from \$0.481 to \$0.992. The average cost of food per goat per year was \$11.05, making the daily cost \$0.03.

4. The yearly production of milk, including some animals in the first period of lactation, varied from 301.7 pounds to 1,845.2 pounds. The average yearly yield for 10 animals of which records were kept during 3 years, including 28 lactation periods, was 800.4 pounds.

5. The food cost of the milk per goat for all the goats during the year 1912 was 4 cents per quart and for the three years during which the record was kept 3.4 cents. The lowest cost was with the Saanen goat, No. 11, for the year 1911, which was estimated to be 1.27 cents per quart. The other items of cost, such as care and overhead charges, it is not possible to give with any accuracy. The average food cost for a quart of milk from the Station herd of 25 Jerseys during the three years has been found to be .92 cent per quart.

6. The range of composition of the mixed milk of the whole flock as determined during May and June of the year 1912 was as follows: Solids, 11.4 per ct. to 11.9 per ct.; solids not fat, 7.72 per ct. to 8.61 per ct.; fat, 3.5 per ct. to 3.8 per ct.

The composition of milk from individual goats was found to vary in total solids from 9.22 per ct. to 18.55 per ct.; in protein, from 2.24 per ct. to 4.96 per ct.; in casein, from 1.56 per ct. to 4.76 per ct.; in fat, from 1.08 per ct. to 8.4 per ct.; and in ash, from 0.43 per ct. to 0.8 per ct.

7. A chemical study of the goat's milk indicated no essential difference between the constitution of its casein and that of cow's

milk. Marked and probably important differences were observed in the salts of the ash as compared with the ash of both cow's milk and human milk.

8. Extensive study of the use of goat's milk in infant feeding by Doctors Sherman and Lohnes, of Buffalo, showed that the curds of goat's milk when returned from the stomach were smaller and more flocculent than those of cow's milk. From the determination of the combined hydrochloric acid in the returned food, the authors conclude that the cow's milk had a greater stimulating effect on the stomach than goat's milk. The absorption of the food and gain in weight in comparing the two milks were indefinite for several reasons. The babies tolerated equally well similar amounts of goat's milk and cow's milk when used with the same diluents. The younger the child, the more the evidence pointed toward a greater gain on goat's milk.

9. Goat's milk was supplied to 18 cases of children that were not thriving on any other food that had been tried. In 17 cases a satisfactory state of nutrition was established through the use of goat's milk, the beneficial results in some instances being very marked. With certain of these children their situation was regarded as serious, and their restoration to a satisfactory nutritional condition was good evidence that goat's milk is often a very desirable resort for infant feeding.

The California Laurel

BY VAUGHAN MACCAUGHEY,

Professor of Botany, College of Hawaii.

In response to a request recently received at the College of Hawaii concerning the wood of the California Laurel, the following data was prepared. As this wood is one of the most valuable cabinet woods of Hawaii's chief source of lumber, and as it is practically unknown in the Territory of Hawaii, the information given below may be of general interest.

The California Laurel is a member of the Laurel family, which includes such trees as the Alligator Pear, Camphor, Cinnamon and Sassafras. Its technical name is *Umbellularia californica* Nuttall; the generic name refers to the flower clusters, which are little umbels. It is also known as Spice Tree, Pepper-wood and "Oregon Myrtle."

It is a tree of average size, under favorable conditions, however, attaining a height of 80-90 feet. Trees 100 feet high have been recorded. It is sometimes tall and straight, but usually divided near the ground into several large diverging stems. At high elevation (4000 feet) and in Southern California it is small and is very frequently only a shrub. Jepson describes six forms: typical, gregarious, pendulous, rockpile, dwarf and prostrate. The last occurs along the sea-coasts.

Its range extends along the Pacific Coast from Oregon to Southern California; it is common where it can obtain an abundant supply of water. It is most common and of its largest size in the rich valleys of Southwestern Oregon, where it forms, with the broad-leaved Maple, a considerable part of the forest growth.

All parts of the tree are characterized by an aromatic, pungent, volatile oil of spicy flavor and odor. The wood is the most valuable timber produced in the forest of the Pacific North America for the interior finish of houses and for furniture. It is heavy, hard, strong, compact, close-grained. The heartwood is light rich brown; the sapwood is lighter in color, thick, comprising 30-40 layers of annual growth. The ducts (sap-tubes) are fine and evenly distributed; the medullary rays are numerous and delicate. The wood takes a high polish; in manufacture it is used for turned articles and is especially valued for furniture and interior finish. For these latter purposes no other Pacific Coast wood furnishes such luxurious patterns. The beautiful "Black Myrtle" of Oregon is produced by sinking logs in water to improve the color of the wood.

The physical properties of the wood, according to Hough, are as follows:

Specific gravity	0.6517
Percentage of ash	0.39
Relative approximate fuel value	0.6492
Coefficient of elasticity	106766
Modulus of rupture	806
Resistance to longitudinal pressure	568
Resistance to indentation	199
Weight per cubic foot	40.61 lbs.

No specimens of the tree are known in the Hawaiian Islands, and the wood does not occur in the local trade.

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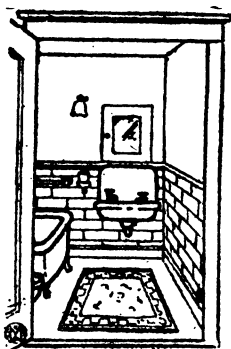
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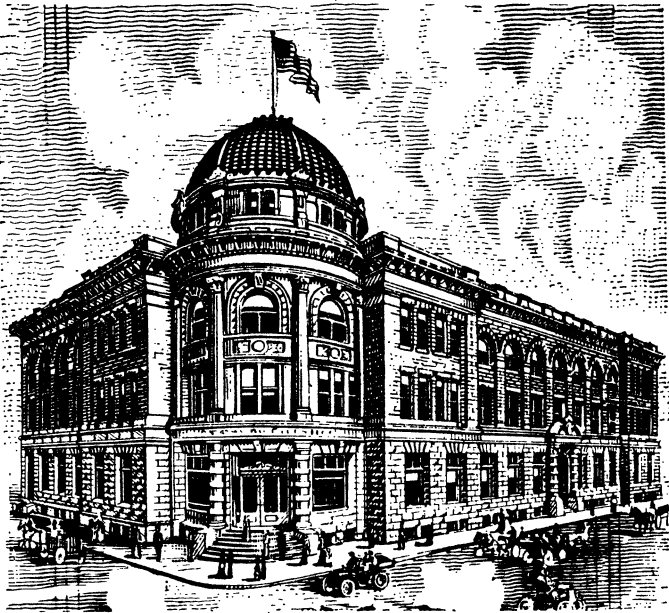
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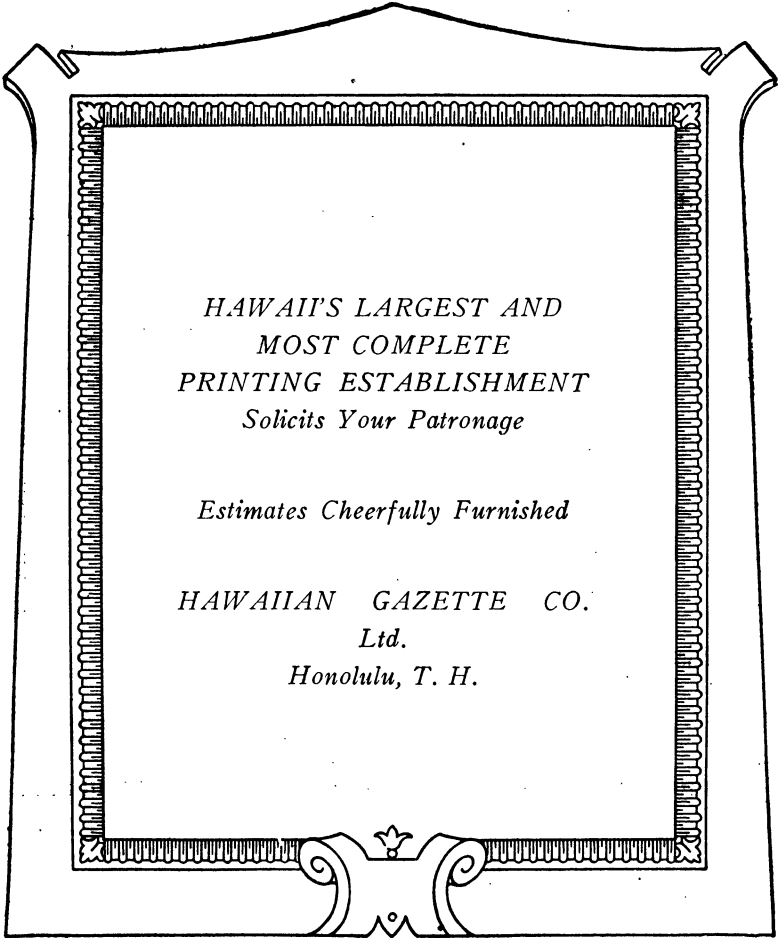
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