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BULLETIN
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MISCELLANEOUS INFORMATION.

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V.—THE RAIN TREE OF HIERRO, CANARY ISLANDS.

(*Oreodaphne foetens*.)

J. HUTCHINSON.

The island of Hierro, the most western of the Canaries, was of considerable interest to the early voyagers, on account of the supposed existence of a wonderful tree called *Garoe* or *Til*, accredited with the miraculous power of supplying the whole of the inhabitants with sufficient water for their maintenance. The water supply of dry volcanic superstructures like the Canary Islands, being of such vital importance to the inhabitants, it is natural that any phenomenon, besides rain, which provided the islanders with additional water, was regarded as the gift of Providence and venerated and worshipped accordingly. So it was in regard to this celebrated tree, as will be evident from what follows.

Whilst it is probable that the Canary Archipelago was known

to the earliest voyagers, the Phoenicians and the Carthaginians, many hundreds of years before the Christian era, we know for certain that it was visited by Roman navigators during the reign of Juba II, King of Mauritania (about 25 B.C.). The Romans regarded the islands as being the western boundary of the world. Pliny gives us Juba's† account of them, of which the following is a free translation: "Juba learned much about the Fortunate Islands [= Canary Islands] by diligent enquiry; they lie . . . 625 miles from the Purpurariae [= Madeira, etc.], and to arrive there one must sail 250 miles west and then for 75 miles more bend one's course eastward. The first island is called *Ombrios*, where there are no signs of habitations; among the mountains there is a pool, with trees resembling the *Ferula* plant, from which water is obtained; from the black trees the water is bitter, from the whiter ones sweet to the taste. A second island is called *Junonia*, where there is a little house built of stone. Near to the latter there is a smaller island of the same name. And next in order there is an island called *Capraria*, which is full of large lizards. Within view of these islands is *Nivaria*, so named from its perpetual covering of snow and clouds. The next island is called *Canaria*, from its huge and numerous dogs, two of which King Juba brought away with him; here there are remains of dwellings. Moreover, in all these islands there is an abundance of fruit trees and birds of all kinds, as well as date-palms and pine-kernels. There is also plenty of honey, besides Papyrus and fresh-water fishes."

According to Hardouin‡ the larger *Junonia* was the island of *Gomera*, the smaller one near it a more or less submerged rock; *Capraria* was *Palma*; *Nivaria* the island of *Tenerife*; *Canaria* the Grand Canary of to-day, and *Ombrios* the island of *Hierro*. Another authority§, however, considered the larger *Junonia* to be *Palma*, the lesser one *Gomera*, but agreed with Hardouin as to *Ombrios* being the modern *Hierro*, the only one which immediately concerns us here. There are also other interpretations.

It is noteworthy that the name applied by the Romans to the last-mentioned island had some association with water supply, *ομβριος* being the Greek for rain. The modern Spanish name

* See Samler Brown, *Madeira, Canary Islands and Azores*, ed. x. p. g. 8 (1910).

† Pliny's text is as follows, as given in the Hardouin Edition, *Liber vi. Cap. 37*: "Juba de Fortunatis ita inquisivit: sub meridie quoque positas esse prope occasum a Purpurariis DCXXV mille passuum sic ut UCL supra occasum navigetur deinde per LXXV mille passuum ortus petatur. Primum vocari Ombriom, nullis aedificiorum vestigiis; habere in montibus stagnum, arbores similes ferulae, ex quibus aqua exprimitur, ex nigra amara, ex candidioribus potui jucunda. Alteram insulam Junoniam appellari in ea aediculam esse, tantum lapide extractam. Ab ea in vicino eodem nomine minorem. Deinde Caprariam lacertis grandibus refertam. In conspectu earum esse Nivariam, quae hoc nomen accepit a perpetuo nive nebulosam. Proximam ei Canariam vocari a multitudine canum ingenti magnitudine, ex quibus perducti sunt Jubae duo: apparentque ibi vestigia aedificiorum. Cum autem omnes copia pomorum et avium omnis generis abundant, hanc et palmis caryotas ferentibus ac nuce pinea abundare. Esse copiam et mellis. Papyrus quoque et siluros in omnibus gigni."

‡ Hardouin, l.c.

§ P. Galindo and Nunez de la Penna.

Hierro, according to Webb and Berthelot*, is derived from *hero*, which signified fountain or spring in the language of the Bimbaches, the original inhabitants now long disappeared. These authors state, on the authority of Viana, that the primitive people of Hierro called the wells or cisterns, which they used for conserving rainwater, *heres*, and that this designation was still in use (i.e., in 1839). This explanation of the origin of the name Hierro seems to discredit sufficiently the views taken by some writers on the Canaries that *Hierro* must mean the same as the French rendering of the word as *Fer*, which, however, has nothing to do with *jer* (iron).

In his excellent guide-book to Madeira, Canary Islands and Azores (1910), Samler Brown says of Hierro: "The coast is steep and uninviting, all the anchorages being mere open roadsteads. The cliffs rise so suddenly from the sea that there is no room for houses on the coast and consequently no seaport town to find a means of building a mole The interior is a sort of tableland along which most of the paths are conducted, and where most of the inhabitants own patches of land, on which they grow cereals, pasture their cattle, and where they live during the harvesting season The mountains, of which the Alto del Malpasa (4990 ft.) is the highest, are only partially wooded, and there is far less sylvan scenery than is to be found in the other islands of the western group, although in some places, and more particularly in the neighbourhood of El Golfo, there are a fair number of trees. There are practically no springs and the people depend for water on the rain, which is preserved in tanks. The air which passes, however, is sufficiently laden with moisture. Were the question properly studied and plantations made in judicious positions, it is probable that an increased supply could be obtained. On the arrival of the Spaniards there appears to have been a tree near Valverde called *El Garoe*, which, according to legend, distilled enough water from its leaves to supply all the people with what they required."

This tree, or perhaps more likely several trees, is supposed to have been *Oreodaphne foetens*, Nees (*Ocotea foetens*, Webb & Berthel.),† a species of laurel not now recorded from the island of Hierro. It is, however, still fairly common in the islands of Tenerife, Grand Canary and Palma, and in Madeira, where it occurs amongst other evergreens of the "laurel forest" or "Monte Verde," so characteristic of the cloud region of the Canaries. The date-palm mentioned by Pliny was no doubt the distinct endemic species *Phoenix canariensis*, Hort., considered by some authors to be a variety (var. *Jubae*) of the common date-palm, *P. dactylifera*, Linn. The pine-kernels were those of the endemic *Pinus canariensis*, C.Sm., which in former days must have occupied a much greater area of the islands than at the present time (see *Kew Bull.* 1918, 1-3).

In the narrative of Sir Richard Hawkins‡ on his voyage to

* Webb and Berthelot, *Hist. Nat. Isles Canar.* li. pt. i. 151.

† See Buch, *Allgem. Ubers. der Fl. Canar. Insel.* 341.

‡ See Haklutas Posthumus or Purchas His Pilgrimes, vol. xvii. 64.

the South Sea (1593) we get the following account of Hierro: "Two things are famous in these islands, the Pike (Peak) of Tenerife The other is a tree in the Island of Fierro, which some write and affirme, with the dropping of his leaves, to give water for the sustenance of the whole Iland, which I have not seene, although I have beene on shore on the Iland: but those which have seene it, have recounted this mysterie differently to that which is written, in this manner; That this Tree is placed in the bottome of a Valley ever flourishing with broad leaves, and that round about it are a multitude of goodly high Pines, which over-top it, and as it seemeth, were planted by the Divine providence, to preserve it from Sunne and winde. Out of this Valley ordinarily rise every day, great vapours and exhalations, which by reason that the Sunne is hindered to worke his operation, with the height of the Mountaine towards the South-east, convert themselves into moisture, and so bedew all the trees of the Valley, and from those which over-top this Tree, drops downe the dew upon his leaves, and so from his leaves into a round Well of stone, which the Naturals of the Land have made to receive the water; of which the people and cattell have great reliefe: but sometimes it raineth and then the Inhabitants doe reserve water for many dayes to come in their Cisternes and Tynaxes, which is that they drinke of, and where-with they principally sustaine themselves."

To this account there is a footnote as follows: "Of a tree in Fierro: One M. Lewis Jackson, now dwelling in Holborne, told me that A. 1618 he had beene in this Iland, and seene this Tree, which he thus described; It is as big as an Oake of middle size, the barke white like Hardbeame; sixe or seven yards high, with ragged boughs; the leafe like that of the Bay, white on the bottome and greene on the other side. It beareth neither fruit nor flower. It is situate in the declivitie of a Hill; in the day it is withered, dropping in the night (a cloude hanging thereon) yeelding water sufficient for the whole Iland; which containeth 8000^s soules, and above 100,000^s beasts, camels, mules, Goates, &c. It falls into a Pond made of bricke, floored with stones very thight, by pipes of Lead conveyed from the Tree to it, and thence divided into several Ponds through all the Iland. They which dwell up-hill fetch it in barrels. They water therewith also their corne-grounds. The Pond holds 20,000^s tuns, and is filled in a night. He added a report (perhaps devised to keepe off busie fingers, or with busie tongues to multiplie wonders) that the Moores having taken that Iland from the Christians, went to fell that Tree, but each blow recoyled on the striker."

A very good account of the Rain-tree of Hierro was found in a Spanish MS.† discovered in the Island of Palma

* There is no doubt very great exaggeration here.

† Dr. G. V. Perez, quoting the Spanish historian Viera y Clavijo, informs us that the name of the author of this MS. was Father Abreu Galindo. We have not seen a complete copy of the published work, but only a typed extract relating to the Rain-tree from a copy of the book kindly lent to Kew some time ago by Sir Daniel Morris.

and was translated into English and published by George Glas* in 1764 (London). Its title is "The History of the Discovery and Conquest of the Canary Islands: with an enquiry into the Origin of the Ancient Inhabitants." Glas, who had himself travelled much in the Canaries, but had not visited Hierro, writes thus about the island and its water supply:—"This island produces better grass, herbs, and flowers than any of the other islands, so that bees thrive and multiply here extremely, and make excellent honey. The wine of Hierro is poor, weak, and bad, insomuch that the natives are obliged to distil the greatest part of it into brandy. There are only three fountains of water in the whole island, one of them is called *Acof*, which, in the language of the ancient inhabitants, signifies river; a name, however, which does not seem to have been given to it on account of its yielding much water, for in that respect it hardly deserves the name of a fountain. More to the northward is another, called *Hapio*; and in the middle of the island is a spring, yielding a stream about the thickness of a man's finger. This last was discovered in the year 1565, and is called the Fountain of Anton Hernandez. On account of the scarcity of water, the sheep, goats, and swine here do not drink in the summer, but are taught to dig up the roots of fern, and chew them to quench their thirst. The great cattle are watered at those fountains, and at a place where water distils from the leaves of a tree. Many writers have made mention of this famous tree; some in such a manner as to make it appear miraculous; others again deny the existence of any such tree, among whom is Father Feyjoo, a modern Spanish author, in his *Theatro Critico*. But he, and those who agree with him in this matter, are as much mistaken as they who would make it appear to be miraculous. This is the only island of all the Canaries which I have not been in; but I have sailed with natives of Hierro, who, when questioned about the existence of this tree, answered in the affirmative."

Glas then goes on to give an account of the Rain-tree from the Spanish manuscript, as follows:—"The district in which this tree stands is called *Tigulabe*, near to which, and in the cliff or steep rocky ascent that surrounds the whole island, is a narrow gutter or gully, which commences at the sea, and continues to the summit of the cliff, where it joins or coincides with a valley, which is terminated on the steep front of a rock. On the top of this rock grows a tree, called, in the language of the ancient inhabitants, *Garset*, i.e., Sacred or Holy Tree, which for many years has been preserved sound, entire, and fresh. Its leaves constantly distil such a quantity of water as is sufficient to furnish drink to every living creature in Hierro; Nature having provided this remedy for the drought of the island. It is situated

* George Glas (1725-1765), a native of Dundee, made several voyages to the West Coast of Africa and the Canary Islands. On some paltry excuse he was imprisoned in Tenerife in 1764 for nearly a year, and on being released took passage for England on board the English barque *Sandwich*. He was killed during a mutiny on board the ship off the coast of Ireland. (See Dict. National Biography).

† This is probably a misprint for *Garos*.

about a league and a half from the sea. Nobody knows of what species it is, only that it is called *Til*. It is distinct from other trees, and stands by itself; the circumference of the trunk is about twelve spans, the diameter four, and in height from the ground to the top of the highest branch 40 spans; the circumference of all the branches together is one hundred and twenty ft. The branches are thick and extended; the lowest commence



Oreodaphne foetens, Nees.

about the height of an ell from the ground. Its fruit resembles the acorn,† and tastes something like the kernel of a pine-apple,‡ but is softer and more aromatic. The leaves of this tree resemble those of the laurel, but are larger, wider, and more curved; they come forth in a perpetual succession, so that the tree always remains green. Near to it grows a thorn, which fastens on many of its branches and interweaves with them; and at a smaller distance from the *Garze* are some beech-trees,

* See the great resemblance to an acorn in the accompanying sketch of *Oreodaphne foetens*.

† Glas has a footnote here saying "Not the anana, but the fir or pine tree pear, nut, or apple [= seed]. Those of Britain have nothing in them; but the pine-apples [= pine seeds] in Spain, and some other countries, contain a kernel of an agreeable taste."

bresos,* and thorns. On the north side of the trunk are two large tanks or cisterns of rough stone, or rather one cistern divided, each half being 20 ft. square and 16 spans in depth. One of these contains water for the drinking of the inhabitants and the other that which they use for their cattle, washing, and such like purposes. Every morning near this part of the island, a cloud or mist arises from the sea, which the south and easterly winds force against the fore-mentioned steep cliff; so that the cloud, having no vent but by the gutter, gradually ascends it, and from thence advances slowly to the extremity of the valley, where it is stopped and checked by the front of the rock which terminates the valley, and then rests upon the thick leaves and wide-spreading branches of the tree, from whence it distils in drops during the remainder of the day, until it is at length exhausted, in the same manner that we see water drip from the leaves of trees after a heavy shower of rain. This distillation is not peculiar to the *Garze*, or *Til*, for the *bresos* (*Erica arborea*), which grow near it, likewise drop water; but their leaves being but few and narrow the quantity is so trifling, that though the natives save some of it, yet they make little or no account of any but what distils from the *Til*, which, together with the water of some fountains, and what is saved in the winter season, is sufficient to serve them and their flocks. This tree yields most water in those years when the Levant or easterly winds have prevailed for a continuance; for by these winds only the clouds or mists are drawn hither from the sea. A person lives on the spot near which this tree grows, who is appointed by the Council to take care of it and its water, and is allowed a house to live in, with a certain salary. He every day distributed to each family of the district seven pots or vessels full of water, besides what he gives to the principal people of the island."

Dr. G. V. Perez has interested himself in the Hierro Rain-tree, and has kindly forwarded to the Director an abridged translation of an article from a Madrid paper, "Las Canarias," for November, 1917, entitled "Los Arboles Santos de Canarias," by R. Castellanos. "Hierro had no springs, but a Holy tree called Garoe, the existence of which being so marvellous has been denied to many, but is now admitted to have actually existed. The Rev. Andres Bernaldez, in his Chronicle of the Catholic Kings, says that in the Island of Hierro there is a marvel of the world; the inhabitants drink of water sweated from the leaves of a tree; there is a tree after the manner of an *Alamoyes* (Dr. Perez suggests this may have meant an *Ulmus*) alive still, that never loses its leaves, and its fruit is alike to acorns, which are bitter as gall if eaten; they are medicinal and do no harm; the height of the tree is that of 1½ lanza (a variance); it has large branches, and takes two men to embrace the trunk, which sweats miraculously drops of water into a receptacle placed at a lower level, so that not a drop of water is lost. From there the inhabitants get their water to drink, there being then about eighty families which got their supplies from it; the leaves are like those of a laurel but a little larger; there is not

* *Erica arborea*.

in all the seven islands another tree of that nature, nor in the whole of Spain, nor is there living man who has seen another anywhere else; and for that reason it appears to be a mystery of God who wished to supply water in such a manner as a consolation to the people who should have been thrown into that island where there never were wells or springs."

In regard to the identity of the *Garoe* or *Til*, Dr. G. V. Perez writes to the Director: "I feel positive that the tree in question was *Oreodaphne foetens*, Nees, chiefly because of the fruit, which is so like that of the Oak, with which the first Spanish settlers were familiar, different species of Oak being common in Spain. Among the different species of *Lauraceae* peculiar to the Atlantic flora and common in our evergreen forests, the one which has largest leaves, and where water appears to me to be more abundantly condensed is the tree in question."

Dr. Perez further writes that "Viera y Clavijo, the historian of the Canary Islands, in repeating the description from Father Juan de Abreu Galindo, recognised that the *Garoe* only owed its distillatory virtues to its frondosity, to its advantageous position and to the mountain mists that formed about it daily and that there was nothing supernatural in it; and the explanation of Father Abreu Galindo, who saw it, measured it and observed the tree himself, is enough to explain everything without appealing to the miraculous."

Although the Bimbaches of Hierro were friendly to the Spanish invaders led by Jean de Bethencourt at the beginning of the 15th century, it is clear that they did not wish them to remain long on the island. This may be gathered from the following story relating to the rain-tree published by Claude Duret in his *Histoire Admirable* (1605); Chapter xv., accompanied by a picture (here reproduced at Fig. A), is devoted



Fig. A.—The Canary Rain Tree: from Duret, *Histoire Admirable* (1605).

to an account of the Hierro rain-tree, and bears the following heading: "D'un certain Arbre port-eaux, c'est a dire qui fournit

d'eaux aux habitans d'une Isle." The substance of the story is as follows:—When the Spanish conquerors appeared in Hierro the natives covered their sacred rain-tree with branches, reeds, and other things, hoping by this ruse that the invaders would not see their water supply and would leave the island on account of its scarcity. The secret was, however, divulged by one of the Bimbache maidens, who fell in love with a caballero, and showed him the tree and its tanks of water. This led to a quarrel with the Spaniards, who carried off a number of the islanders as slaves, and on the departure of her lover the young woman was condemned to death.

It is interesting to note that with all its faults the picture given by Duret shows he had a good idea of the shape of the leaves, and also some hazy conception of the relationship of "drip-tips" to condensed moisture. That the Canary Rain-tree was well known and an object of considerable interest to botanists of the early 17th century is clear from the fact that a picture of the plant formed the frontispiece of Bauhin & Cherler's *Historia Plantarum Generalis* (1619), a copy of which we reproduce at Fig. B. The same drawing is reproduced by Parkinson (*Theatrum Botanicum*, 1640), who refers to Jackson's account mentioned above.

According to Dr. Perez, quoting Bartolomé Garcia del Castillo's book "*Noticias del Hierro*," this wonderful tree was blown down in a storm on the 12th June, 1612. He adds that in 1753 an enquiry about the tree was made in Hierro, and testimony was received from witnesses 80 to 95 years of age, who were all agreed about the tree having existed and they pointed out without hesitation where it grew, showing the remains of the tanks at its foot.



Fig. B.—Frontispiece of Bauhin & Cherler, *Historia Plantarum Generalis* (1619).

The serious effect on the climate following the destruction of mountain forests on the islands of St. Helena and Jamaica

has been well shown by Sir Daniel Morris.* In his lecture† before the Society of Agriculture and Commerce at Kingston, Jamaica, he quoted some correspondence from South Africa mentioned in J. C. Brown's *Forests and Moisture* (1877), p. 148, which we give in its entirety: "This season has been unusually hot and dry along the coast, and all around Graham's Town we have been unable to grow anything all this summer for want of rain. The springs are all failing. You may, perhaps, know the place of Mr. J. J. Stone, on the top of the hill on the Cowie Road, toward the sea, marked by a quantity of gum trees, on the ridge of the high hills to the south-east of Graham's Town. Well, all through the summer we had only light, misty rain, just enough to dampen the grass and not enough to wet the ground; but these trees of Mr. Stone's have there converted the mist into rain. They have scarcely felt any effects of dry weather; the vegetables and flowers have there grown all the summer without watering; there the tanks have always been full; and that is the only place of which I have heard, that it has been so within five and twenty miles of Graham's Town."

In November, 1901, Dr. Marloth,‡ of Cape Town, conducted some experiments for ascertaining the amount of moisture deposited from the south-east clouds, which appear around Table Mountain during the dry and practically rainless summer months, forming the well-known "Table-cloth." His results were little short of sensational and "excited considerable astonishment and wonder."§ Dr. Marloth placed two rain gauges on the top of Table Mountain about midway between the east and west ends of the upper plateau. One gauge was left open in the usual way, the other "surmounted with a framework representing a bunch of reeds."¶ The first experiments not proving satisfactory, owing to a combination of circumstances, Dr. Marloth continued with the experiment on December 21, 1902. "The first reading of the season was made on January 1, 1903, when it was found that the open gauge contained nothing, whilst the other one showed 15·22 in. of moisture, and that for a period of 10 days. The next reading took place on the 11th of January. The open gauge was again dry, the other one showing 14·64 in. In 21 days the reeds had condensed moisture corresponding to 29·86 in. of rain, while the open gauge showed nothing. . . . The observations came to an untimely end on the 15th of February, because a week afterwards the gauges were found to be destroyed. . . . The result is that . . . in 56 days, the gauge with the reeds had condensed a quantity of moisture equivalent to 74·87 in. of rain, and that quantity was recorded although the last three times the gauge had overflowed.

"If one considers that the average annual rainfall at Cape

* A Report upon the Present Position and Prospects of the Agricultural Resources of the Island of St. Helena (Colonial Office, Jan. 1884).

† Lecture on the Occurrence of Droughts, Kingston, Jamaica, July, 1885.

‡ Marloth in *Trans. S. Afr. Phil. Soc.* xiv. 403-408 (1903).

§ C. M. Stewart, l.c. 413.

¶ *Restionaceae*.

Town (Town House) is 23.84 in., at the Royal Observatory 27.95, and at Newlands (Bishop's Court) 55.54, which is almost the highest record for any low-level station in the Cape Colony, the extraordinary nature of these results is obvious, and it is not surprising that the vegetation of our mountains is so different from that of the hills."

Dr. Marloth's experiments showed that the summer of the plants growing within the area of the cloud belt was not dry, but that their environment approximated more nearly to that of a swamp, a permanent swamp in winter, due to rainfall, a periodical swamp in summer, due to clouds; further, that these conditions explained the presence of "a luxuriant and thickly set vegetation on the upper parts of these mountains; why shrubs, 6 to 8 ft. high, crown the summit of Devil's Peak; why thickets of beautiful heaths, 4 to 5 ft. high, grow on the top of Jonkershoek peaks; why there is a little forest of yellow wood, *Kiggelaria*, *Olinia*, and other trees on the top of Klappmuts Hill; why the cedar grows only at a certain level on the Cedarbergen, why Proteas and heaths abound on the Zwartebergen, and why there are little lakes, even late in summer, on the top of Table Mountain as well as close to the summit of Dutoit's Peak."

Objections to Dr. Marloth's rough-and-ready methods of investigation were at once raised by Mr. Charles Stewart,* which were, perhaps, justified from a meteorological standpoint; but as Sr. Marloth stated in his reply,† after two years' further experiments, he did not look upon the figures as being equivalent to records of rainfall, for during rain a great deal of water runs off the bare rocks and reaches the streams immediately, whilst water condensed from the clouds is captured only where sufficient vegetation exists, which, on the other hand, retains a large proportion of it in the spongy root system. He stated further that there could be no question that the vegetation of the South African mountains was a very important factor in the regulation of the water supply of the springs and streams, and that this influence was exerted in two ways, firstly, by capturing a not inconsiderable amount of moisture from the south-east clouds, which would escape if the mountains were formed by bare rocks only; and secondly, by protecting the water which has accumulated in the soil and the rocks against the sun and consequent evaporation.

There seems to be no doubt, then, that vegetation plays a very important part in the collection and retention of moisture under certain conditions, and the laurel forest of the Canaries probably performs this function in just such a manner as do the trees in the South African mountains. I have quoted Dr. Marloth at considerable length, because, as he says, his earlier experiments were apparently the first of their kind for determining the influence of mountain vegetation on the collection and retention of moisture from passing clouds; and further, to bring to the notice of the inhabitants of the Canary Islands how vital it may be for them not only to preserve, but, if possible, to augment

* S. Afr. Phil. Trans. l.c.

† Lc. xvi. 103.

the area of evergreen vegetation within the region of the periodical cloud belt. For instance, experiments might be made with the various species of trees and shrubs already growing there in order to prove which were the most efficacious in the condensation of moisture from the clouds. It would seem very probable that judicious planting of such vegetation at suitable altitudes might so increase the amount of water supply, as to make possible a great extension of the area of cultivation of the banana, for which the soil of the Canaries is so suitable, and for various other crops for which the water supply at present is insufficient.

Kew is indebted to Dr. G. V. Perez, of Santa Ursula, Tenerife, for notes on the Rain-tree in correspondence with the Director, and the writer tenders his thanks to his colleague, Mr. S. A. Skan, for indicating some of the literature.

VI.—MISCELLANEOUS NOTES.

MR. FREDERICK FLIPPANCE, formerly a member of the gardening staff, and for some time a Temporary Assistant in the Herbarium, has been appointed by the Secretary of State for the Colonies, on the recommendation of Kew, Assistant Curator of the Botanic Gardens, Singapore.

ARTHUR ECKLEY LECHMERE.—The news of the untimely death of Dr. A. E. Lechmere on February 14th, following so soon after his return to this country from Ruhleben, where he was interned for over four years, has been received with the deepest regret by those who shared with him the hardships of the life in the internment camp at Ruhleben and by all who were associated with him during his studies in this country and in France before war broke out. By his death biological science loses one of the most promising and enthusiastic of the younger generation of workers at the very threshold of his career.

Arthur Eckley Lechmere was a member of the family of that name long associated with Fownhope, Herefordshire, and was born 34 years ago. Following the death of his parents during his boyhood he ultimately settled in Bristol, started training as an electrical engineer and entered the University College there in 1905, as a student in the Faculty of Engineering. He soon transferred his attention to natural science and quickly developed that passion for biology which determined the subsequent course of his life and which in the end spurred him to those achievements in the internment camp which have excited the admiration and wonder of all who have been privileged to have been brought into touch with them. Under the stimulating influence of Professor J. H. Priestley, who at that period was in charge of the Botanical Department at University College, Bristol, Lechmere adopted botany as his chief subject and sought the earliest opportunity of engaging in research in that subject. In 1909 he received the London B.Sc. Honours degree in Botany