



THE FRUITS OF SPAIN

*The Canary-Island
Banana*

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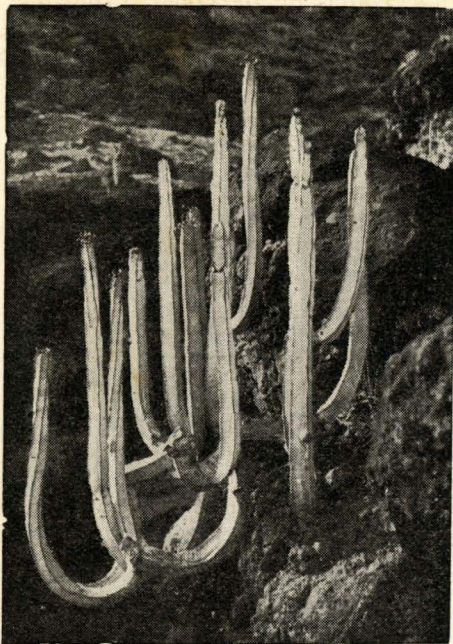
THE CANARY-ISLAND BANANA

GEOGRAPHY AND HISTORY

The Canary Islands, situated in the Atlantic Ocean, a little above the Tropic of Cancer, form two outstanding Spanish provinces, in which the air and sea routes connecting Europe with South America and West Africa intersect.

The Canary Archipelago consists of seven major islands: Tenerife, Gran Canaria, Palma, Gomera, Lanzarote, Fuerteventura and Hierro, and the islets known as Graciosa, Alegranza, Montaña Clara, Lobos, Roque del Este, and Roque del Oeste or del Infierno. They are all within the frame of the spherical quadrilateral formed by the parallels $27^{\circ} 40'$ and $29^{\circ} 25'$ North and the meridians $13^{\circ} 20'$ and $18^{\circ} 10'$ East with reference to the meridian of Greenwich. Their total area is 8554 km.² and their population approximately 700,000.

The mildness of their climate was famous in the earliest times, and the name «Afortunadas» by which they were known was attributed to this. According to don Simón Benítez Padilla, an illustrious native of the Canary Islands, the poetical gardens of Armida were located in the Canary Islands by the Italian poet



In this mild climate the teasel (*Euphorbia canariensis*) grows spontaneously.

Torquato Tasso in Canto XV of his famous work *La Gerusalemme Liberata*, which he completed in 1575: *Ed eran queste l'Isole Felice* and referring to ancient times he adds *E qui gli Elisi campi, e le famose stanze delle beate anime pose* (And here placed the Elysian Fields and the famous sojourns of the blessed souls).

In the coastal regions of the Canaries the temperature in summer never exceeds 28° (82.4° Fahrenheit) and in winter never falls below 14° (57.2° F.), the average temperature varying between 18° (64.4° F.) and 24° (75.2° F.), the seasonal changes characterizing continental climates being hardly perceptible. An apparent season of eternal spring is the fundamental characteristic dominating the lower districts of the islands.

In these districts the banana known as the Canary, Chinese, or dwarf banana (*Musa Sinensis*, Sweet or *Musa Cavendishii*, Lamb) is widely cultivated. The circumstances of its introduction into the Canary Islands are not exactly known. Some writers attribute its introduction to a French scientific expedition which from Cochin China arrived in the Islands in 1855 as a result of the efforts of Mr. Sabin Berthelot, then French Consul in Santa Cruz de Tenerife.

It seems that, at first, various species of banana were grown in the Canaries as a decoration for the gardens, and some authors mention their presence in the fifteenth century, remarking that they were taken from there to the island of Santo Domingo

in 1516 by the Franciscan Father Tomás de Berlanga. From the latter island, then a Spanish possession, the cultivation of the banana later spread to the other Central American islands and to South America.

Without going further into the early history of the matter, we can state that the cultivation of the banana on agricultural lines did not commence in the Canary Islands until the end of the nineteenth century, just at a time when the use of the cochineal (*Coccus Cacti*, L., or *Dactylopius coccus*, Costa) was being supplanted by artificial dyestuffs derived from the distillation of coal.

The plantations of nopal trees (*Opuntia Cochinillifera*, Mill, or *Nopalea Coccinellifera*, Dick) on which the cochineal lived as a parasite, situated in the temperate regions in the north of the islands, were gradually replaced by banana plantations.

The cultivation of this plant spread rapidly from 1885 until the beginning of the present century. During the first years, shipments of its tasty fruit were made almost exclusively to Great



The cochineal lived parasitically in the XIXth century on the nopal, supplanted recently by the banana.



Banana plantation.

Britain, but shipments of bananas from the West Indies soon began to arrive in Europe, and the Canary fruit then began to be distributed to the other European markets.

Until the first world war, Germany and France were second in importance to Great Britain as consuming markets for Canary bananas. However, a serious crisis arose in the islands as a result of the suspension of purchases by the belligerents during the period 1914-1918.

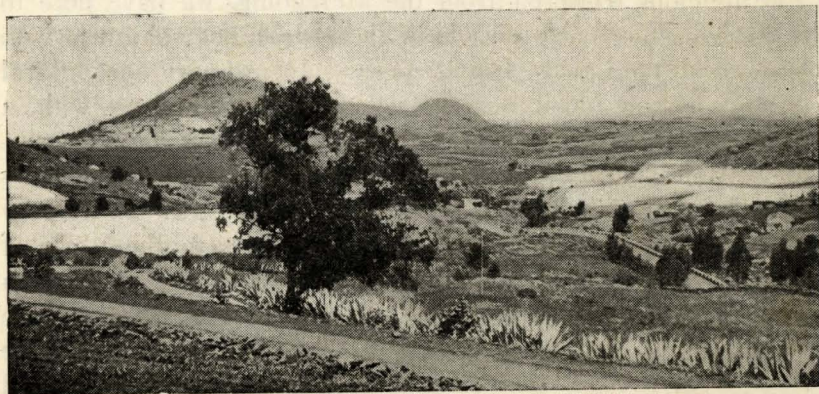
At the end of this unhappy period, shipments of large quantities were soon renewed and the Canary Island plantations recovered their former position. France, Italy, Great Britain, and Peninsular Spain re-entered the market as important buyers of this delicious fruit.

During the fourth decade of the present century, the banana growers of the Canary Islands faced another crisis, until in 1938 the production and trade were harmoniously and adequately organized by the carefully-calculated distribution of the fruit among the various consuming markets.

This task is in the hands of the «Confederación Regional de la Exportación del Plátano (C. R. E. P.), a body subordinated to the Sindicato Vertical de Frutos y Productos Hortícolas. The latter body directs the production and distribution of all the horticultural wealth of Spain.

PRODUCTION

In the Canary Islands, bananas are cultivated in the northern lowlands of Tenerife, Gran Canaria, Palma and Gomera, over an area of about 7000 hectares. These districts are favoured with a temperate climate free from fluctuations of temperature, low rainfall, and gentle breezes. However, it must not be imagined that with these favourable climatic conditions the producer is relieved from all agricultural problems and can without great effort and forethought obtain a plentiful crop of bananas. On the contrary, in these islands as practically nowhere else in the world the peasant must take great pains and display great



Reservoirs for the storage of water destined for the irrigation of the plantations.

perseverance and skill in the management of his enterprise.

Having acquired a plot of land in the coastal regions mentioned, he proceeds as follows: first he removes all the soil and breaks up the underlying rock to a considerable depth; then he collects separately the available earth, the gravel, and the larger stones. He arranges for adequate drainage by spreading the larger stones below and above them the medium-sized ones.

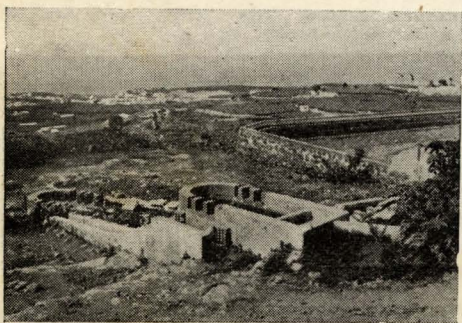
On the surface he spreads a layer of earth about 1 metre deep, using the soil obtained from his own plot or that transported from near or afar. Having carefully levelled the surface, he still has to build terrace walls, windshields, and channels and small reservoirs for irrigation purposes.

With this, the preparatory work is not at an end. The grower must find water at great depths or in long galleries; build large and small dams to catch the rain water and lay down pipelines to convey the precious liquid to his plantations.

As will be gathered from the foregoing, we have here to



Preparing an estate for plantation.



Water-distributing chests in the banana-producing districts.

deal not so much with an ordinary agricultural undertaking as with a real work of construction, and this is the name given in the Canary Islands to the work of preparing a banana plantation. The costs are so high in relation to the value of the virgin soil that such work may well be compared to the erec-



These banana plantations near the coast represent a gigantic effort and heavy outlay.



Plantation fields in the coastal regions of the Canary Islands.

tion on any plot of land in a large city of a building of many stories.

The irregular surface of the Canary Islands does not permit plantations of any size on the same level. They are therefore found arranged in multiple terraces, which prevent the use of mechanical means of cultivation or of animals. Only human labour is possible, not only for the reasons mentioned but also because of the irregular distribution of the plants and the surface growth of the fibrous radicles of this plant.

On account of the slight rainfall in the coastal regions of the Canary Islands, the moisture required in the soil must be maintained by frequent irrigation. This must normally be done for eight or nine months in the year and sometimes also in some winter months when the rains are delayed.

After each irrigation it is customary to turn over the surface of the plantation with the spade in order to destroy the spontaneous growth and to break up the crust, since in this way, as is well known, the moisture of the soil can better be preserved. Deeper digging is carried out in winter only, for the purpose of burying the manure.

To combat the Argentine ant and the white cochineal, arsenical sirups and nicotine preparations are used, which keep the trees free from parasites at all times.



Spadework is the only form of tillage on the plantations.

The cultivation in a state of constant vegetation calls for an abundant and frequent addition of fertilizers in order to compensate for the heavy ex-



*Bunch of bananas in full growth hanging from
the "mother" plant.*



In the foreground: Stump of the "mother" shoot (already cut), the "daughter" shoot before bearing fruit, and the small "granddaughter" shoot to the right of the "daughter" shoot.

shoots recently sprouted from the rhizome or «head» beside the «daughter» shoot. This unusual growth enables the grower to pick during all the weeks of the year, and no circulating capital is necessary, for the week-to-week costs can be met with the money obtained from the bunches cut from the tree.

Below are shown the monthly averages of the banana production of the Canary Islands, based on the crops recorded during the past decade 1938-1947.

traction of vegetal material suffered by the soil.

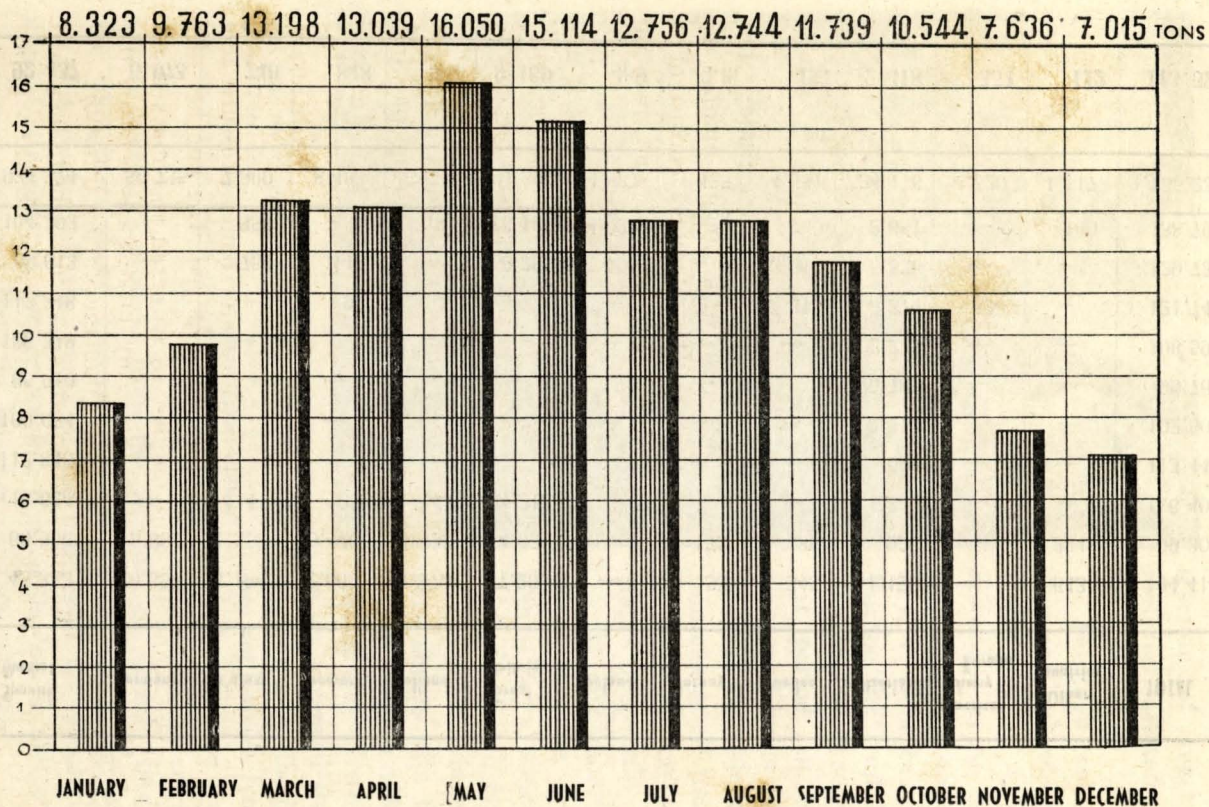
The high cost of such meticulous cultivation is fully rewarded by an uninterrupted crop of fruit. Whereas in Europe the fruit ripens in a short seasonal period, in the Canary Islands any given banana plantation can at all times show all the various stages of growth.

At any moment there can be seen «mother» shoots, with the bunch hanging down, «daughter» shoots with the bunch hanging down, «daughter» shoots in an advanced state of growth though not yet bearing fruit, and very often «granddaughter»

YEARS	Spanish Market	Germany	Belgium	Denmark	Holland	Great Britain	Ireland	Norway	Sweden	Switzerland	American Army in Europe	Other Countries	TOTAL
1938....	45.353	40.853	4.194	2.662	1.872	7.263	—	53	345	1.176	—	643	104.414
1939....	66.906	18.882	1.552	5.446	1.432	4.021	—	172	186	926	—	284	99.807
1940....	110.624	—	41	135	145	4.212	—	—	—	1.246	—	—	116.403
1941....	112.845	—	—	—	—	—	—	—	—	600	—	—	113.445
1942....	100.094	—	—	—	—	—	—	—	—	2.413	—	—	102.507
1943....	95.910	—	—	—	—	—	70	—	—	3.789	—	—	99.769
1944....	106.319	—	—	—	—	—	—	—	—	2.275	—	—	108.594
1945....	113.318	—	—	95	—	—	—	1.230	310	3.274	3.520	—	121.747
1946....	68.613	—	754	145	—	50.295	795	—	3.310	5.826	—	—	129.738
1947....	104.392	—	858	—	185	26.101	4.022	—	400	2.651	—	190	138.799
TOTAL.	924.374	59.735	7.399	8.483	3.634	91.892	4.887	1.455	4.551	24.176	3.520	1.117	1.135.233
Annual Average 1938-1947..	92.437	5.973	740	848	363	9.189	489	146	455	2.418	352	112	113.522

MONTHLY PRODUCTION OF BANANAS

Averages for the decade 1938 - 1947



T R A D E

In the Canary Islands, the unit employed in the trade is the «racimo» (bunch) or «piña». It consists of a varying number of «hands», usually between 9 and 11. The «hands» consist of a number of bananas called «fingers», arranged in one, two, or three rows.

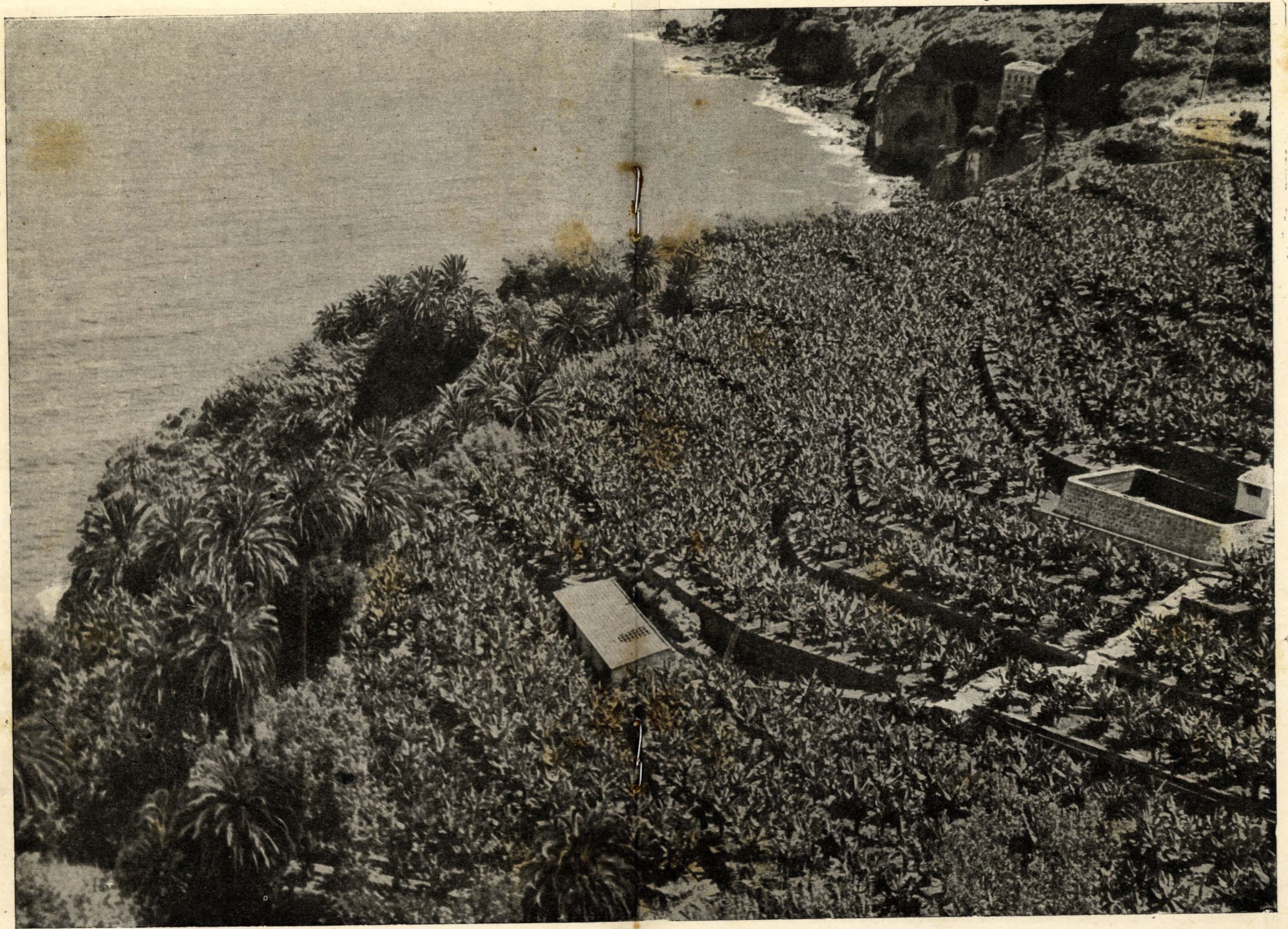
From the moment when the bunch is cut from the tree it undergoes a series of treatments aimed at ensuring that the fruit shall arrive at the consuming centres in the best possible condition. For this purpose, before leaving the estate it is placed in the shade on some straw or banana leaves until it is loaded on lorries or horse-carts and conveyed wrapped in blankets to the packing stations.

In the latter adequate ventilation of the bunches is provided by means of doors and windows let into walls placed in different directions.

The bunches are first washed with water under pressure and the deformed or damaged fingers are removed. The bunches are then weighed and the full number of kilogrammes marked on the transverse section of the axis. Any large gaps between the hands are filled with pads to avoid damage during transport.

The bunches having been prepared as described, they are wrapped in a covering consisting of two sheets of Kraft paper filled with straw, dried banana leaves or pine leaves.

The parcel thus formed is strongly bound with sisal rope and



High slopes necessitate many levelled terraces for the plantations near the coast.



The banana bunch is cut with great care.

finally the weight of the bunch and the mark of the exporting firm are stamped on the outside.

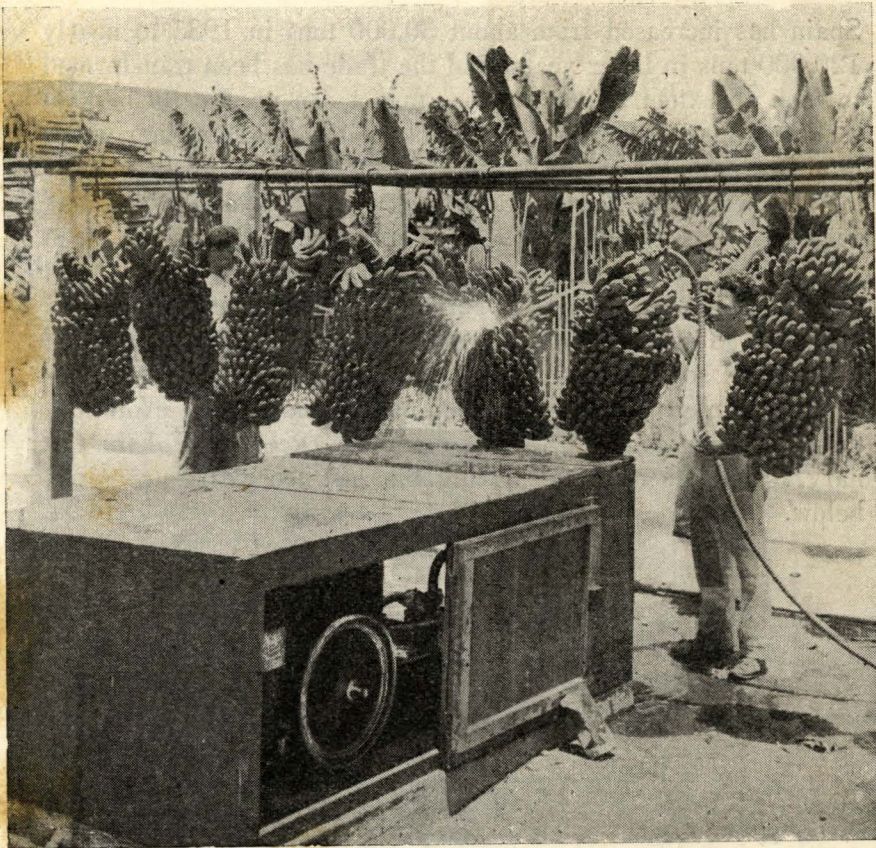
On the arrival of the packed bananas at the quayside for loading on the ships that will take them to the various European ports, they are subjected to a rigorous inspection for quality and phyto-sanitary condition before they are allowed to leave. After each shipment has been inspected and its condition, quality, packing, appearance, marking, and weight are found in order, loading and stowage aboard the fruit vessel is begun, all the time under the supervision of the Official

Fruit Inspection Service (S. O. I. V. R. E.).

For the last half century the banana has been the permanent

The bananas are protected with blankets before transport from the estates to the packing stations.





The bunches are well washed with water under pressure before packing.

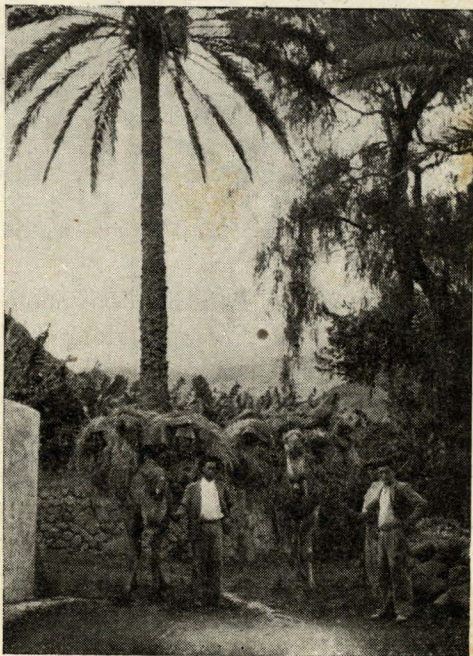
and fundamental base of the economy of the Canary Islands. In alternate periods of splendour and crisis it has represented throughout the principal purchasing power of the islanders, the state of the trade having repercussions in the most diverse activities of the Archipelago.

The trade was at first directed to foreign countries but has evolved in such a way that the national market has now taken first place, and the banana has become one of the most popular desserts of the Spaniards. In spite of the exquisite and varied quality of Spanish fruit, the annual consumption of bananas in

Spain has increased from about 30,000 tons in 1935 to nearly 120,000 tons in latter years, and the trade has been transformed to such an extent in recent times that it can practically be said that the Canary Islands are now in a position to place their whole crop in Spain.

However, one must not overlook the abnormality that has reigned in this trade since 1936. First there was the war in Spain itself; later the tremendous war which ravaged all Europe, and finally the international difficulties of arriving at the postwar economic adjustments, which still continue and which, it is to be hoped, will soon be overcome for the good of all.

To complete the understanding of this commercial evolution, the export figures to the various markets—except that of the Canary Islands themselves—during the last ten years are given below.



The camel too is used for transporting bunches of bananas from the estates to the packing stations.

YEARS	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
1938	5.104	7.941	12.701	12.870	12.047	12.998	9.672	9.736	10.907	6.973	5.642	5.809	112.400
1939	5.393	6.412	8.862	7.802	9.804	14.980	11.505	11.718	8.565	8.985	7.763	5.535	107.324
1940	6.788	9.309	12.338	11.817	15.209	13.600	8.901	11.136	10.940	10.970	8.107	8.291	127.406
1941	12.179	12.494	13.639	12.387	16.064	10.754	12.086	10.763	9.642	8.982	5.314	5.340	129.644
1942	10.327	11.282	13.800	14.373	14.156	13.702	13.864	12.467	11.790	11.579	8.028	5.732	142.100
1943	7.823	8.529	9.382	12.229	10.765	14.483	17.974	13.198	15.555	13.812	7.051	5.657	136.458
1944	6.361	9.177	12.660	12.868	15.676	19.554	12.413	15.052	16.026	10.095	6.963	5.757	142.602
1945	8.324	11.828	16.846	14.132	20.400	20.942	12.117	14.383	11.136	10.143	8.839	11.707	160.797
1946	10.774	11.444	15.799	13.023	19.521	15.649	12.908	15.282	10.132	11.328	9.748	6.032	151.640
1947	10.153	9.215	15.951	18.887	26.859	14.481	16.124	13.702	12.693	12.569	8.907	9.287	168.828
TOTAL DECADE..	83.226	97.631	131.978	130.388	160.501	151.143	127.564	127.437	117.386	105.436	76.362	70.147	1.379.199
AVERAGES	8.323	9.763	13.198	13.039	16.050	15.114	12.756	12.744	11.739	10.544	7.636	7.015	137.920

To conclude this part, attention is called to the characteristic that distinguishes the banana from the other Spanish fresh fruits. This is its possibility of always being available on the market in abundant quantities, unlike the other fruits, which are absent except in certain seasons, and this gives it a very superior commercial value that is greatly appreciated by all fruit dealers in the consuming centres.

It further differs from the other fresh fruits in that it is usually shipped before fully ripe, and on arrival at the consuming centres must be submitted to special treatment in maturing chambers. In these the bananas are kept at a temperature of 18° (64.4° Fahrenheit) to 20° (68.0° F.) in a humid atmosphere, by which means the change of colour from green to the characteristic yellow is brought about, and the starch is transformed to saccharose and reducing sugars.

ECONOMIC-SOCIAL IMPORTANCE

There are no owners of large banana plantations in the Canary Islands, the property being subdivided to such an extent that the land unit commonly employed is the «celemín» (450 m² approximately).

To give a more exact idea of the distribution of the banana plantations, a comparison is presented below of the relation between the number of growers and the size of their estates.

Estates between		Number of growers	Percentage they represent
0	and 0,5 hectares	9.841	74,910
0,5	» 1 »	1.622	12,346
1	» 2 »	996	7,582
2	» 3 »	304	2,315
3	» 4 »	135	1,028
4	» 6 »	121	0,921
6	» 8 »	60	0,458
8	» 10 »	14	0,106
10	» 15 »	22	0,167
larger than 15 hectares		22	0,167
		13.137	100,000

There is no seasonal stoppage on the plantations to interrupt the daily labour of the workers, who are permanently employed

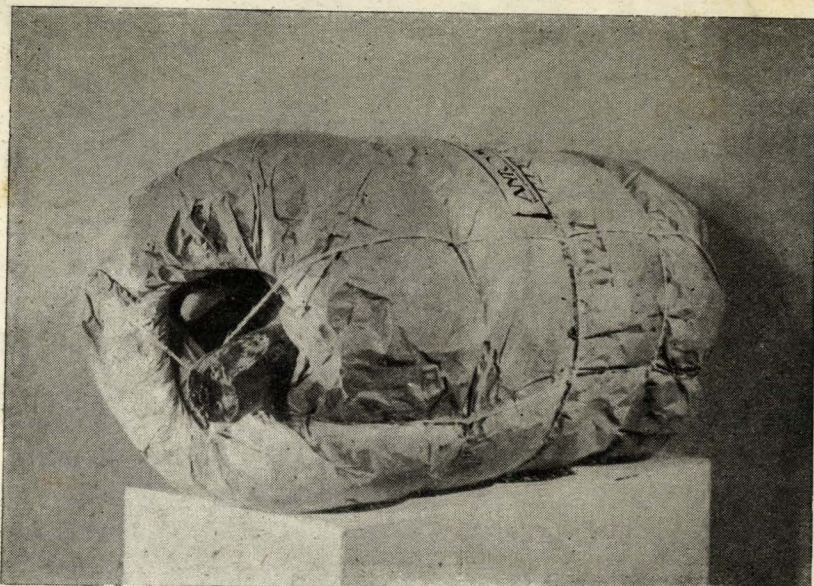
throughout the year, and, like industrial workers in the large cities, enjoy holidays, Sunday rest, family compensations and all the social insurances provided by Spanish legislation in general. Moreover, unlike other agricultural workers, they participate in the proceeds of the sale of the fruit in the form of supplements to their basic wage. These supplements commence as soon as the price exceeds one peseta per kilogramme in the field.

This year the price will probably exceed two pesetas per kilogramme, in which case each worker will obtain a daily supplement of more than 50 % of the basic rate in the coastal regions.

These supplements, because of their significance of participation in the profits, are classified in three types, affecting the estates situated in the low-lying regions (below 100 metres); in the middle region (between 100 and 200 metres above sea level) and the estates producing less, situated above 200 metres. In the first, the average annual production per hectare is 34,000 kg.; in the middle region 28,000 kg.; and in the elevated estates 20,000 kg. approximately.

The average number of workers employed throughout the year on the plantations is 3 per hectare. Thus 21,000 workers live directly from the cultivation of the banana in the Canary Islands. However, if the land transport, classification, cleaning, packing, and loading on ships is borne in mind, this figure must be increased by another 2000. That is to say, the cultivation and preparation of the banana provides a livelihood for about 23,000 families of workers in the islands. Indirectly many more families are affected, since the import and internal transport of fertilizers and packing material, the repair of walls, reservoirs, irrigation channels, etc., and the works carried out in the country with the income derived from the banana, represent a continual source of wages for agricultural and industrial activities of all kinds.

The value of the banana influences every aspect of the life of the islands, and is the barometer that indicates the well-being or decadence of the Archipelago. For this reason the corporations, bodies and authorities of all kinds are keenly interested in the course of the banana trade. Tailors, shoemakers, mecha-



How a bunch of Canary bananas is packed.

tics, bricklayers, carpenters, doctors, lawyers, etc., and the business world in general daily discuss the banana, and take note of its rises and falls for guidance in all their transactions. The 350,000,000 pesetas (£ 7,000,000 approximately) a year which represent the annual turnover of the banana crop must naturally have a profound repercussion in the life of the 700,000 inhabitants of the Canary Islands.



How the bunch is born protected by large bracts.

ITS APPLICATIONS

All parts of the banana tree are utilized in the Canary Islands. The stump or «head» is esteemed as fodder for the cattle kept on the estate; the trunk or «rolo» (false stem of monocotyledoneous plants) is also used as cattle fodder or for the extraction of the fibres it contains; the leaf may be eaten by cows and goats and after drying may be used for packing the bunches.

The fruit itself is undoubtedly one of the most popular of all fresh fruits. It is so clean and easy to eat that children, aged persons, and those who lack dexterity can remove the skin without using cutting instruments or touching the pulp with their fingers. Other fruits require washing or peeling with a knife, so that the edible part has been in contact with the washing water or with fingers that had previously touched the skin.

However, this is not the only property that makes the banana so widely esteemed. Another that distinguishes it from other fruits is the constant weekly production —varying between

a minimum of 1500 tons in winter and a maximum of 3500 tons in spring and summer— which permits the fruit trade to offer to consumers a steady supply of Canary bananas at all times. The millions who have acquired a taste for this pleasant fruit are thus able to find it in the shops at any time of the year.

In addition to both these, the banana possesses another outstanding property, namely its great richness in carbohydrates in comparison with other fresh fruits, as shown by the following table based on the data of Rein and Vázquez Sánchez.

In 100 parts of fresh fruit	Proteins	Carbohydrates	Fats	Calories
Apples	1,40	13,73	—	62
Pears	0,27	9,03	—	38
Peaches	0,4	14	—	59
Grapes	0,63	14,68	—	63
BANANAS (without peel) ..	1,2	23	—	99
Cherries	1,85	7,92	—	40
Plums	0,8	17	—	73
Strawberries	1,0	9	—	41
Raspberries	1,0	8	—	37
Pomegranates	0,96	9,16	—	41
Melons	0,39	4,95	—	22
Fresh figs	0,75	8,57	—	38
Oranges (without peel)	0,8	14	—	60

If the banana is compared with other everyday foodstuffs for human consumption, we arrive at the following results, due to Rein, which speak well in favour of the banana:

In 100 parts of:	Proteins	Carbohydrates	Fats	Calories
Bananas (without peel)	1,2	23	—	99
Hake	16	—	0,3	68
Milk	3,4	4,7	3,4	65
Eggs (without shell)	14	0,6	11	162
Lean veal	22	—	3	118
Lean pork	21	—	7	151
Lean beef	21	—	4	123
Maize	9,9	69	4,4	364



Preparing parcels with coverings of Kraft paper.

If it is remembered that a kilogramme of bananas, consisting of 10 or 12 fruits, contains about 700 grammes of pulp and 300 of peel, and that an egg contains 6 grammes of proteins and 5 of fat, equal to 72 calories, and if the data presented in the above table are taken for comparison, the following energy equivalents will be obtained:

1 kilogramme of bananas, unpeeled, equals

- 10 eggs.
- 1 litre of milk.
- 1 kilogramme of hake.
- 0.50 kilogrammes of lean pork.
- 0.55 kilogrammes of lean beef or veal.

As the daily consumption of the Canary-Island peasant may be estimated at 3,400 calories, and the calory content of the foot known as «gofio» (1) undoubtedly exceeds 400, it will

(1) Gofio is the meal of maize or other cereals after roasting of the grains. Large quantities are consumed in the Canary Islands.

readily be seen how rich is the food based on the banana and the roast meal mentioned. The workers of these islands live and work hard on a diet consisting of 1 kilogramme of bananas, half a kilogramme of roast meal and a little cheese, dates or dried fish.

Other important substances present in the banana are minerals, in the proportion of 0.9 per cent, certain ferments in appreciable quantities, and vitamins in the amounts shown below:

Vitamin A	250 gammas in 100 grammes (Wolff).
Vitamin B	3 to 5 U. I. in 100 grammes (John).
Vitamin C	8 to 12 mg. in 100 grammes (Eekelen).

Nowadays it is fully appreciated that vitamins are of fundamental importance to the normal development of the functions of the human organism, which requires them in certain minimum quantities. This question is dealt with so thoroughly in the books on the subject of nutrition that we will only mention



Palm trees and banana trees thrive in the outskirts of the two Canary-Island capitals.

the fact that the vitamin content of the banana exerts a favourable influence on:

The increase of disease-resisting powers (Vitamins A, B₁, B₂, C, D, H).

Maintenance of the functional activity of the nervous system (Vitamins A, B₁, B₂, B₄, C).

Anti-anaemic action (Vitamins A, B₂, C, D).

New formation and integration of the bony matter (Vitamins A, B₁, C, D).

Growth (All vitamins except H).

Maintenance of the sexual functions (Vitamins A, C, E).

Doctors, among whom Harrop, recommend bananas for the treatment of obesity, the diet based on this fruit being supplemented with proteins administered in the form of milk. Undernourished persons —anorexia of invalids and children— should be given bananas as an agreeable energy-producing diet containing a considerable quantity of vitamins, ferments, and mineral substances. It is also recommended that ripe bananas, well mashed and with the addition of tomato or orange juice, should be used for the commencement of feeding of infants.

In conclusion, it may be stated in brief that its constant presence on the market, its hygienic handling and the ease with which it can be eaten, its high energy value, richness in vitamins, ferments, and mineral substances, its medical applications, its attractive colour and aroma, and delicious flavour, make the banana one of the most popular of all fruits among all the peoples of the world.

