THE MARKETING OF SOUTH AFRICAN CITRUS FRUITS.

A Thesis submitted to the FACULTY OF AGRICULTURE of the TRANSVAAL UNIVERSITY COLLEGE in partial fulfilment of the requirements for the degree of Bachelor of Science in Agriculture by

W. S. ALLWRIGHT.
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THE MARKETING OF SOUTH AFRICAN CITRUS FRUITS.

INTRODUCTION.

When goods or agricultural products are produced in quantities greater than the requirements of the individual producer, it becomes necessary to dispose of the surplus. Agriculture to-day exists primarily for the purpose of production for sale to consumers and it is this movement or distribution of articles from the primary producer to the ultimate consumer that is termed "marketing".

During his recent stay in Pretoria Dr. Butterfield, in one of his most interesting lectures, expressed his opinion that agriculturists in general, though rightly stressing the importance of improved methods of production, had given too little attention to the all-important problem of marketing.

While colleges and other research institutions have showed the farmer how to increase his agricultural production per unit acre of land, they have not aided him in disposing of the increased production. The mere increase of quantity and quality have not meant increased wealth and contentment for the farmers because such do not depend on increase of quality and quantity but rather on prices received for the output. Is it not true that the years of maximum production see the lowest prices paid for the product? It goes without saying that farmers as a whole have been keenly dissatisfied with their financial returns. On the other hand the consuming public protests that it pays too much for most food products.

It.............
It is generally admitted that the difference between the price paid by the ultimate consumer for a given article and the price received by the producer for the same article has been in most cases entirely too great. This spread between producer and consumer is taken up in the marketing process and the attitude taken by the farmer is that he is entitled to a larger proportion than he now gets of the money paid by the consumer for the farmers' products.

At present, then, the problem before agricultural producers is one of marketing rather than one of actual production, as the latter question has received and is receiving a great deal of attention.

The rapid increase in the world's production of citrus fruits during the last decade and the certainty of an even greater increase in the near future makes the immediate solution, if that is possible, of the marketing problem of the utmost importance to citrus farmers.

In this paper, a thesis presented for the degree of Bachelor of Science of Agriculture the writer attempts to outline the various phases in the marketing of South African citrus fruits and attempts to put forward recommendations that may be of assistance to the farmer in the profitable marketing of his citrus fruits even under conditions, weakened by a greatly increasing production of fruits, and by the fact that his markets are six thousand miles away.

Owing to the fact that the writer had only a very limited time in which to make a detailed study of a subject of this nature, and to the fact that, in comparison...
son with the overseas market, the local market for South African citrus fruits is, at its best, a small one he has, on the advice of Professor Clark Powell, only referred to certain phases of the problem of local markets.

Conclusions, in many cases, have had to be drawn from rather meagre data for no other reason than that data on a South African subject of this nature do not exist.

The evidence presented has been taken from the following publications:

1. The Official Year Book of the Union of South Africa.
2. The Commercial and Industrial Gazettes.
4. The Citrus Grower (a quarterly publication).
5. The South African Fruit Exporter.
7. The South African Fruit Grower.
8. Farming in South Africa.
10. The Bulletins referring to the subject issued by the Agricultural Department of the Union of South Africa.
11. Various American Publications dealing with the subject.
13. Crops and Markets.
14. Records of the South African Fruit Exchange including several reports, and different phases of the subject, that have been made from time to time and
15. The Linlithgow Committee Report, and the writer feels himself highly indebted to Professor H. Clark Powell, Dr. Bruno Hahne, Mr. W. v.d. Hoek, Mr. R. Rusk, Mr. H. Pickstone....
Pikstone, Members of the South African Citrus Exchange Limited, Mr. Putterill, the Chief Government Fruit Inspector, Members of the Perishable Products Export Control Board, Members of the Administration of the South African Railways and Harbours, The Inspector of Co-Operative Societies and last, but not least, the Members of the Division of Economics and Markets of the Department of Agriculture of the Union of South Africa, for their valuable advice and assistance.
The Importance of the Citrus Industry as compared with that of other Industries to South Africa.

The Importance of Agriculture.

A division of labour only takes place and capital is only obtained when there is a surplus production. Obviously other industries can be inaugurated only after a surplus food supply enables some members of the community to devote their energies to pursuits other than farming.

The potentialities of any country are in the first place the potentialities of that country for food production. In the case of South Africa manufacturing has practically not started and hence practically no exchange for concentrates from other countries is possible, so that any increase in its carrying capacity must be where by cropping more will be obtained from the crops than from vegetation.

The mining wealth of any country is not an inexhaustable asset and, though it has played a great role in the development of South Africa, it cannot increase the carrying capacity of this country to any great extent in the future.

Owing to her geographical position the climate and soils of South Africa, in general, are unsuited to forestry with the result that large, heavily forested areas, in which extensive lumbering activities could be centred, are not found. In 1926 the total area of South African plantations was only 347,027 morgen and of her indigenous forests 4,580,686 morgen of which 4,192,832 morgen was dwarf........
dwarf or scrub forests.

Therefore, as the mining resources are not permanent assets, as forestry is not possible on a large scale, and as extensive development of manufacturing is out of the question for at least two or three generations agriculture must be the basic industry of South Africa.

That agriculture is the most important industry in South Africa can be seen by reference to Table 1 showing the estimated value of the agricultural production, as compared to the value of the mining and manufacturing production, of the Union.

<table>
<thead>
<tr>
<th>Year</th>
<th>Value of Agricultural production</th>
<th>Value of Mining production</th>
<th>Gross Value</th>
<th>Added Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1917-18</td>
<td>£70,800,000</td>
<td>£48,600,000</td>
<td>£60,100,000</td>
<td>£25,900,000</td>
</tr>
<tr>
<td>1919-20</td>
<td>110,900,000</td>
<td>68,300,000</td>
<td>92,900,000</td>
<td>39,100,000</td>
</tr>
<tr>
<td>1921-22</td>
<td>65,800,000</td>
<td>40,500,000</td>
<td>79,400,000</td>
<td>36,600,000</td>
</tr>
<tr>
<td>1922-23</td>
<td>81,600,000</td>
<td>54,600,000</td>
<td>74,500,000</td>
<td>37,300,000</td>
</tr>
</tbody>
</table>

The valuation of the agricultural production was made on the basis of wholesale and open market prices and shows that agricultural production is increasing at a faster rate than mining which is remaining more or less stable. The sudden inflation immediately after 1918 was due to the effects of the "World War".

Importance of the Citrus Industry.

Table 2 shows the relation of the value of citrus fruits exported to that of some of the other most important agricultural products.

Table 2

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Table 2.
The values of some of the most important agricultural products exported from South Africa.

<table>
<thead>
<tr>
<th>Year</th>
<th>Citrus Fruit</th>
<th>Deciduous Fruit</th>
<th>Maize</th>
<th>Beef</th>
<th>Wool</th>
</tr>
</thead>
<tbody>
<tr>
<td>1924</td>
<td>£222,872</td>
<td>£203,711</td>
<td>£492,001</td>
<td>£118,966</td>
<td>£15,763,952</td>
</tr>
<tr>
<td>1925</td>
<td>353,523</td>
<td>367,467</td>
<td>5,669,405</td>
<td>199,726</td>
<td>15,095,446</td>
</tr>
<tr>
<td>1926</td>
<td>339,459</td>
<td>349,149</td>
<td>908,541</td>
<td>89,363</td>
<td>12,645,851</td>
</tr>
<tr>
<td>1927</td>
<td>423,500</td>
<td>396,972</td>
<td>1,266,111</td>
<td>57,359</td>
<td>17,117,948</td>
</tr>
</tbody>
</table>

The value of the total agricultural export of the Union of South Africa is between £25,000,000 and £26,000,000. The production of maize will not increase to any great extent, that of wool will, no doubt, increase but is limited by the carrying capacity of the land as is also the beef production. Since 1927 the value of the citrus fruit exported from South Africa has greatly increased and will undoubtedly increase still more greatly in the near future for a large percentage of the trees planted, as will be seen later, have not yet come into bearing. In area, South Africa has a much greater amount of land, suited to citrus growing, than even California, which is producing twenty times the quantity of citrus fruits than South Africa is at present producing.

Hence, of Agriculture in the Union citrus culture is one of the most congenial as well as most profitable branches. It is indeed more than merely a profitable business enterprise for there is a glamour, a romance connected with orange growing that is not to be found in the cultivation of other fruits. It is an enterprise that attracts people of all countries and all stations of life and...
and in the words of Professor Clark Powell "it would not be an exaggeration to say that, on the average, the people engaged in citrus culture are of greater capabilities, enterprise and general progressiveness than any other group of people engaged in agriculture.

It is well known what part citrus culture plays in the agricultural production of California and provided that, and always provided that, South Africa produces an article of highly standardized quality, well graded, attractively packed and well marketed, there is no reason why it cannot be made to play as great if not a greater role in the agricultural production of South Africa.

---
Most probably the first introduction of orange trees into South Africa was during the time of van die- beek when, owing to shortage of food, the ship "De Tulp" was sent to St. Helena for provisions and returned on the 11th June, 1654. Willem Gerrits, a gardener, was sent along with the Tulp to fetch some young apple and orange trees and returned with some fruit trees which he obtained "from those planted long before", evidently on the island, and which were at that time nearly growing wild there. This apparently notifies the first introduction of oranges into the Cape. These trees were evidently planted there and slowly distributed throughout the Cape Province as it became populated.

The French Huguenots in particular took up the matter of orange-growing with great spirit, their orchards in the Drakenstein Valley and French Hoek being celebrated at an early period. In a series of letters, published in "South Africa a century ago", Lady Anne Barnard describes how she and her husband had walked in an Orange Grove planted by Synneer Meeg about eighteen years before (i.e. about 1760) and how he had sent twenty-seven wagons, each containing about six thousand oranges to Cape Town and still had many more to send.
At a later date, in the same month, she describes the Orange Grove of Wynheer Latagan's as "exceeding anything her imagination had formed as luxuriant". There is also evidence that the "Voortrekkers" took orange trees along with them.

The following extract from a letter written by W. Tuck to the Agricultural Journal of 1892 shows some interesting facts:

* In or about 1850 Mr. J. Brehm, of Uitenhage, imported direct from Rio a case of orange trees mainly for the purpose of getting this variety*, (i.e. the Washington Navel or Bahia).

* Unfortunately the rats got to the trees and destroyed a number of the labels and also gnawed the bark off a number of the trees below the grafts.*

* Happily the Bahia Orange escaped and two others, one was the Malta Egg Orange, the other had lost the label but the graft had escaped. For the want of the true name this last one somehow got the name of the "Cinnamon Orange" now known as the Haartjie or Tangerine".

He (W. Tuck) further states "that the Navel orange then introduced, was nothing more or less than the true "Bahia" which was at that time exported extensively from the Mediterranean ports".

In 1854 trees grafted by Mr. W. Tuck were distributed to various parts of the Cape Province.

Thus, although there is a difference of opinion as regards the trueness to type of the introduced Bahia, it is clear that the Navel Bahia was then imported into South Africa.
Africa and evidently, by accident, a false form which was rectified at a later date, was obtained.

Mineral discovery in about 1870, followed by the resulting influx of people, meant a concentration of population and hence an internal market for disposing of produce and Kimberley became the means by which a big railway expansion was to take place. These results were very much magnified by the discovery of gold in Johannesburg. These discoveries resulted in internal farming being changed and improved to meet the sudden increase in demand.

In the annual reports of Tidmarsh's Botanical Gardens, Grahamstown, reference is made to the fact that the Government was approached with the view of obtaining some assistance in the introduction of a collection of the "best procurable sorts of the orange, lemon, etc., from Bahia, Malta, and the Azores". Some thirteen varieties were selected in Europe by Mr. O. D. Rudd and these were planted and propagated from 1895 onwards and distributed among the farmers whose demand for grafted orange trees was already in excess of the supply. The report of 1897 makes a reference to the wider use of the Seville orange and the use of the Pampelmoes as stocks while that of 1901 admits that the Rough Lemon stock gives larger trees but claims that the quality of fruit was poorer. In the writer's opinion this was probably due to the young age of the trees. The wide use of the Bitter Seville as a stock, at this time was no doubt responsible for a great loss to farmers for it is now a well established fact that this stock is totally........
to~tally unsuited to South African conditions.

Enormous losses in farming were suffered during the Boer war but at the same time there was an increased flow of capital and this caused a sudden development immediately after the war. Agricultural Departments, though in existence before the war, were now brought up to date and experimental stations were started off. New crops and varieties were introduced, Land Banks were established and co-operative movements started. Production improved not only in quantity but also in quality. Naturally these sweeping changes were also to have their influence on the slowly developing Citrus Industry. In 1905 the Chief Entomologist, Mr. Lounsbury, introduced direct from Brazil a new importation of Washington Navel trees. One of the original trees of this importation is to be seen at Baddaford farm, near Fort Beaufort. Some years ago several importations were made from California, which have included trees of the most highly selected standard strains that were selected by A. D. Shamel, of the United States Department of Agriculture.

It is to the Royal Horticultural Society of England that the first real impetus towards the establishment of the present-day Citrus Industry of South Africa may be traced. This Society held a show in London in 1906 for the exhibition of citrus fruits and it was then demonstrated that South Africa could grow oranges and all other fruits of the Citrus family to a perfection as great as could be obtained in any quarter of the globe.
The following extract from the "Tribune", London:-

7th June, 1906 is of interest:

One of the most interesting sections of the exhibition was that devoted to the Transvaal and South African products. It was the first time that South African fruit had been exhibited in England. Oranges and citrons were the chief feature of this section, a species of seedless orange having received the special recommendation of the judges. The Transvaal had carried off seven of the Society's medals (two gold and five silver) and three had been awarded to the Cape exhibits.

As an outcome of this the country took a keen interest in the export of oranges. Commencing in 1907, the day of small things, the number of boxes exported was three thousand. The planting of orange trees, as can be seen by reference to Table 3, now steadily increased.

| Table 3 |
The number of citrus trees in the Union in the specified years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Lemon Trees</th>
<th>Orange Trees</th>
<th>Maartjie Trees</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1911</td>
<td>172,856</td>
<td>985,601</td>
<td>404,189</td>
<td>1,562,646</td>
</tr>
<tr>
<td>1912</td>
<td>248,336</td>
<td>1,825,662</td>
<td>441,904</td>
<td>2,515,882</td>
</tr>
<tr>
<td>1924</td>
<td>225,950</td>
<td>2,959,790</td>
<td>321,180</td>
<td>3,806,920</td>
</tr>
<tr>
<td>1925</td>
<td>270,540</td>
<td>3,559,280</td>
<td>341,900</td>
<td>4,171,720</td>
</tr>
<tr>
<td>1926</td>
<td>192,920</td>
<td>3,633,130</td>
<td>307,340</td>
<td>4,133,390</td>
</tr>
</tbody>
</table>

The expansion in citrus-growing during the last six or seven years has been truly amazing.

From.........

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From 1907 the export trade in citrus fruits has steadily increased as can be seen from Table 4.

Table 4.
The Export (in boxes) of citrus from South Africa.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of boxes exported</th>
<th>Year</th>
<th>Number of boxes exported</th>
</tr>
</thead>
<tbody>
<tr>
<td>1907</td>
<td>3,000</td>
<td>1918</td>
<td>4,064</td>
</tr>
<tr>
<td>1908</td>
<td>4,454</td>
<td>1919</td>
<td>54,677</td>
</tr>
<tr>
<td>1909</td>
<td>38,051</td>
<td>1920</td>
<td>135,184</td>
</tr>
<tr>
<td>1910</td>
<td>13,053</td>
<td>1921</td>
<td>230,175</td>
</tr>
<tr>
<td>1911</td>
<td>26,976</td>
<td>1922</td>
<td>293,000</td>
</tr>
<tr>
<td>1912</td>
<td>18,414</td>
<td>1923</td>
<td>412,000</td>
</tr>
<tr>
<td>1913</td>
<td>37,309</td>
<td>1924</td>
<td>525,894</td>
</tr>
<tr>
<td>1914</td>
<td>68,955</td>
<td>1925</td>
<td>769,599</td>
</tr>
<tr>
<td>1915</td>
<td>53,273</td>
<td>1926</td>
<td>624,170</td>
</tr>
<tr>
<td>1916</td>
<td>59,964</td>
<td>1927</td>
<td>940,594</td>
</tr>
<tr>
<td>1917</td>
<td>3,580</td>
<td>1928</td>
<td>679,861</td>
</tr>
</tbody>
</table>

The deflation in the export of fruit after 1914 was the result of the combination of a number of factors: the enforcement of the Fruit Export Act, the South African Rebellion and the Great War. During the war South Africa was compelled to consume most of her fruit locally.

The continuous expansion, as indicated by the above figures, was due to a combination of circumstances, viz:

1. ............
1. Low rate of freight from inland to the ports;
2. Low shipping rate from South African ports to England;
3. Efforts of the Fruit Exchange established in 1921, and
4. Compulsory inspection of all fruit exported, together
with proper standardization of the product both with
regard to sizes of boxes and their contents.

After the first year of experimental work in
exporting in 1907, when railway and shipping rates were
very high, very considerable assistance was rendered to
the growers by the action of Government in arranging a
flat rate for the export of citrus fruits from any sta-
tion to any port in the Union, and by inducing the Union
Castle Steamship Company to provide cool chamber space
at a particularly low rate.

In 1914 a Fruit Export Act was passed which
did much to regulate citrus as well as deciduous fruit
export. Standard sizes of boxes were introduced and
their use made compulsory, and by the same law it was
laid down that no fruit would be exported unless it had
been previously inspected and passed by a competent offi-
cial. The benefit to the industry of this law has
been great and will be incalculable. It has compelled
the grading of fruits for size all over the Union; it
has standardised packs and given a certain guarantee of
quality; it has made it possible by the use of standard
sizes of boxes for any grower to know at once the market
price of his fruit as cabled from overseas. Previously
boxes of many different sizes were used.

Regulations have been made, from time to time,
in consultation with growers and exporters, and on the
whole........
whole it may be said that without this act the outlook for the fruit industry in South Africa would be far less bright. Annual meetings have taken place between the growers and officials of the Agricultural Department and all matters in connection with fruit export discussed fully and freely with the result that mutual confidence has been established and a general good feeling prevails. Some little differences arose in the early stages with regard to the adoption of different sizes of boxes as standards but those have all been satisfactorily settled.

The Fruit Export Act was amended in 1917 by Act number 31 and revised regulations governing the export of fruit were published in 1922 and 1923 respectively and are now published annually.

In order to place the organisation of the industry on a sound basis and with the object of eliminating the shipment of waste and inferior fruit, likely to bring the South African product into disrepute, a South African Fruit Growers' Exchange was formed in December 1921 including fruit growers from all parts of the Union and Rhodesia. This Exchange was further stabilised by its reorganisation in 1926, and the distribution of produce on the overseas markets was brought under better control by the appointment of an overseas representative of the Exchange.

Act No. 12 of 1925 made provision for the control of the export of fruit from the Union and of the shipment of fruit at Union ports by a Fruit Export Control............
Control Board. This was amended in 1926 and a Perishable Products Export Control Board took the place of the Fruit Export Control Board.

The establishment of cold storage chambers at Cape Town and later at Durban has resulted in placing the export trade on a much firmer basis.

Further acts and amendments, the most important of which were the Shipping Contract, concluded in 1926 and the introduction of the Total - solids - acid ratio in 1928, have been made from time to time and these have all helped to place the Citrus Industry on a stable basis.

What may prove itself to be one of the milestones in the history of the Citrus Industry in South Africa is the establishment of the Citrus Experimenting Station at Nelspruit in 1927.

THE PRESENT POSITION OF THE INDUSTRY.

INTRODUCTION:

Owing to the geographical position of South Africa, great variation in both soil and climate throughout the entire country is only natural and hence those sections best suited to the propagation of species of the citrus family, are widely scattered. This fact is made more significant by the large areas that a number of the farms are composed of. What Mr. H. G. Wells says:- "South Africa is a country not only of immense spaces but of immense spaciousness. Everything is far apart; even the grass blades are far apart" is particularly appropriate in the case of the citrus orchards of South Africa.

Citrus............
Citrus growing is pre-eminently a business requiring co-operation in various operations such, for instance, as irrigation systems, fumigation, spraying, packing, marketing, dissemination of instructions and information and interchange of ideas and experiences and, if people are far apart, co-operation becomes difficult.

This factor is probably the greatest handicap to the citrus industry of South Africa for, as far as soil, climate and water supply is concerned, she has a very large area, probably over a million acres of land, according to Professor Clark Powell, suited to the successful culture of citrus fruits.

**AREAS OF PRODUCTION FOR EXPORT.**

The following are the citrus producing divisions of the Union together with the amount of fruit exported from each during the 1928 season:

*Table 2.*

**AMOUNT OF FRUIT EXPORTED FROM THE CITRUS PRODUCING AREAS DURING THE 1928 SEASON.**

<table>
<thead>
<tr>
<th>AREA.</th>
<th>Fruit exported (Shipping tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transvaal.</td>
<td></td>
</tr>
<tr>
<td>Marico</td>
<td>1,870</td>
</tr>
<tr>
<td>Koster</td>
<td>1,984</td>
</tr>
<tr>
<td>Rustenburg</td>
<td>7,794</td>
</tr>
<tr>
<td>Magaliesberg</td>
<td>138</td>
</tr>
<tr>
<td>Northern Transvaal (Warmabaths to Nylstroom)</td>
<td>217</td>
</tr>
</tbody>
</table>

| Northern.                      |                                |

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<table>
<thead>
<tr>
<th>Area</th>
<th>Fruit exported (Shipping tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Transvaal (Potgietersrust, Zbediele)</td>
<td>3,780</td>
</tr>
<tr>
<td>* * (Louis Trichardt, Messina)</td>
<td>93</td>
</tr>
<tr>
<td>North Eastern Transvaal (Traneen area)</td>
<td>1,184</td>
</tr>
<tr>
<td>* * * (Selati, Acorn Hook etc.)</td>
<td>634</td>
</tr>
<tr>
<td>Eastern Transvaal (Kaapsuiden Valley &amp; Barberton)</td>
<td>432</td>
</tr>
<tr>
<td>* * (Karino - Aikmaar)</td>
<td>1,950</td>
</tr>
<tr>
<td>* * (Elandsheok - Airlie)</td>
<td>2,772</td>
</tr>
<tr>
<td>* * (Lydenburg)</td>
<td>22</td>
</tr>
<tr>
<td>* * (White River, Plaston)</td>
<td>3,481</td>
</tr>
<tr>
<td>South Eastern Transvaal (Piet Retief)</td>
<td>24</td>
</tr>
</tbody>
</table>

**N.A.T.A.**

| Coast                                                                 | 90                              |
| Main-line                                                             | 180                            |
| Hudson & Golden Valley                                                | 4,008                          |

**C.A.P.E.**

South Western Districts (Paarl, Groot Drakenstein Wellington & Somerset) | 948 |
Western Districts (Graaff Reinet, Peecape, Porterville)                | 237 |
Southern * (Montagu, Robertson, Swellendam, Mossel Bay)                | 261 |
Northern * (Orange River)                                              | 243 |
Karoo Districts (Lutshoorn, Outshoorn, Ladismith, Graaff Reinet)       | 227 |
Eastern Districts (Laingsloof, Humansdorp)                             | 1,194 |
* * (Gumtoos Valley)                                                   | 1,423 |
* * (Uitenhagen)                                                       | 978  |
* * (Sundays River)                                                    | 1,095 |
* * (Grahamstown, Bathurst)                                            | 453  |
* * (Fort Beaufort, Kat River)                                          | 2,086 |
* * (Somerset East)                                                    | 129  |

Although...
Although these figures do not represent the total production of each area, they give some indication as to which divisions are the most important. They must not be taken too literally, however, as they are only for one season and the figures of production for one season only are always apt to be misleading. Further some areas are expanding more rapidly than others so that what is the most important area one year, may be surpassed by another area in the succeeding year.

What characteristic reactions the climates of the different citrus sections of South Africa will have on the fruits of the various varieties has not been determined. Certain sections may produce very superior fruits of a certain variety. It is important that growers observe and study climatic reactions in order to determine what varieties are most satisfactory for each section.

VARIEIES OF CITRUS FRUITS GROWN IN SOUTH AFRICA;

THE SEEDLING.

In South Africa, as in all other countries, the cultivation of citrus fruits first started with seedlings, and here, as elsewhere, many growers still advocate seedlings because of their vigour. The exact meaning of the word "seedling" being an orange grown on a tree which has itself been produced from seed and allowed to grow up and bear fruit naturally without having been grafted on budded. The seedling groves that now exist produce, in general, a fruit of fair quality and size and, if properly grown and handled, such fruits will probably for several years find a ready market at moderate prices.
Seedling groves that have reached bearing-age can probably be profitably continued as they are, but, owing to the increasing competition on the market, inferior seedlings should preferably be worked over to standard varieties that are more in demand. While top-working means a loss of the crop for several years and a shock to the trees, it can successfully be done with old trees of even thirty to forty years of age.

Fruit from the miscellaneous seedlings of varying type cannot be build up a reputation for a country or sell for a maximum price and South Africans surely will not wish to have their groves of the future constituted of such trees. The main objection to seedlings may be summed up as follows:
1. They do not produce true to type.
2. They have large numbers of seeds or a few only.
3. They lack uniformity in size, shape and time of ripening, and
4. They grow into unwieldy, large trees which it is impossible to properly fumigate or spray for insect pests or plant disease. One never knows when planting the seed of citrus, what the resulting fruit will be like.

It must be remembered, however, that what we call "varieties" are mainly nothing more than specially good seedlings that have been chosen because of certain superior qualities they possess and groves of the future, if they are to produce fruit that will compete favourably in the world's markets, must be grown from carefully selected........
selected strains of known superior types. Whether any such superior strains will be selected from the South African Seedling is a difficult question to answer, but it is quite possible.

THE VALENCIA.

Judging from observation, the Valencia is in general to be considered the most satisfactory orange variety for most sections of South Africa especially the Transvaal. Some growers claim that they prefer the Du Rei, a variety that is becoming quite popular of late, but as the writer cannot see any distinction, worthy of commercial importance, between the two varieties, he is not discussing them separately.

In certain regions, especially in the Cape and Natal, the Valencia has not been planted as generally as the Washington Navel but where seen, is doing well and some growers even claim to prefer it to the Navel. In general it appears that good typo trees of this variety have been used in propagation in South Africa but through carelessness to observe the principles of bud selection, groves that were planted out before 1936, are found to be showing a fair amount of variation.

THE WASHINGTON NAVEL.

More has been written about the Washington Navel than about any other variety of the citrus family. In the past it has occupied the position of the dominant variety in South Africa but that position is now being taken by the Valencia. This is no doubt due to the better adaptability of the Valencia and to the fact that
the Washington Navel, unless careful selection is practiced - and this has not been done in the past in South Africa, shows a great tendency to throw bud-sports the fruits of which, though Navels, are usually of very inferior quality and often worthless.

A study of the South African groves reveals the distressing fact that many of them are made up of a collection of very variable as well as inferior types. In one grove that was visited by the writer no fewer than eight distinct variations were noticed. Groves of this nature are by no means exceptional and trees, often as many as sixty per cent of the orchard, showing these off-type variations should be top-worked with more profitable types.

According to Dr. Webber the Navel may be termed "the weak sister of the orange family" but we always cherish the weak sister. If one is not a student of horticulture, it would be wisest to plant some other variety as growing navels demands a specialist. Judging by the quantity and quality of the fruit it appears that the Navel is best suited to conditions prevailing in the coastal regions of the Cape Province and Natal.

The Lew Gim Gong.

Among the varieties of oranges recently introduced the Lew Gim Gong is apparently the most promising. It was imported from California and those growers, who have so far tried it, are all well satisfied and claim that it is well suited to conditions prevailing in the Eastern Transvaal.
OTHER ORANGE VARIETIES.

There are many other orange varieties of good character but none has come to stand as have the Valencia and Washington Naval.

The Joppa, Jaffa, Pineapple, Paper-rind, St. Michael and Mediterranean Sweet are all well-known mid-season varieties, each possessing certain qualities of excellence and all planted to some extent in South African groves but their market appears to be a special one so that the demand for this type of orange, as also for the Blood oranges such as the Malta Blood, is a limited one.

The Selsota orange and also the Seville are planted to a limited extent in South Africa.

MANDARIN OR MAARTJIE VARIETIES.

In general the maartjes of the South African groves are simply maartjes or at the most "Cape Maartjes" and have been propagated as seedlings or as layers from other seedlings. This is of course due to the fact that the groves are all mainly old plantings, the new groves that have been put out in recent years being almost wholly of Navels and Valentinas.

The "Cape Greenskin" variety, while really of good quality, is when judged by external appearance, still green and unripe. No market will accept a green coloured citrus fruit as satisfactory and it is doubtful if one ever will. This variety has no doubt been responsible for some of the severe criticisms to which South African maartjes have been subjected.

The standard varieties: the Dancy tangerine and the Satsuma, do not seem to have been as successful
in South Africa as the Cape maartje. New varieties of good quality with seedless fruits of larger size and more regular shape not "necked" or "sapped" are very much needed. There will always be a good market for a limited supply of good maartjes.

**GRAPE-FRUIT OR POMELO VARIETIES.**

The planting of Grape-fruit trees in South Africa has only reached a commercial extent during the last few years and even now it is not known whether its culture in all sections in which it has been planted, is going to be successful or otherwise. It must be admitted that the trees usually grow well and the quality of the fruit from some areas is undoubtedly good but this cannot be said of the majority of the plantings. Judging from results obtained in California, Grape-fruit is more localised according to climatic conditions than any other variety of the Citrus family.

It appears that the Marsh Seedless is composed of a number of strains, differing widely from each other, and it is quite possible that some of the strains will be found to be suited to the conditions of some of the citrus areas of South Africa. At present the writer is of the opinion that the Triumph is the more generally adapted variety to the conditions in the Eastern Transvaal while growers in certain sections of the Cape Province claim that the Marsh Seedless is best suited to conditions there.

The Grape-Fruit planted in South Africa in the past was limited almost wholly to the above two varieties. Sir Percy Fitzpatrick of Amans, some fourteen years ago introduced........
introduced such leading varieties as Walters, Ellen, 
McCarty, Pernambuco and Foster and these have been 
spread to different sections of the country, as well 
as a variety, the "Cecily", bred by Sir Percy Fitzpatrick, 
but there is no definite evidence yet as to which varie-
ties are to be recommended in South Africa. In general 
in America it is considered that the selected strains of 
the Marsh Seedless are superior to all other varieties of 
Grape-fruits.

LEMON VARIETIES.

Because lemons are exported to a minor extent, 
their propagation is mostly limited to production for 
home consumption. If a regular but limited supply of 
good quality fruit was forthcoming however, there is no 
reason why a growing demand for lemons could not be encour-
aged in South Africa especially in her growing urban cen-
tres. It would be possible to supply lemons throughout 
the year for not only are there a number of varieties that 
mature over a long season, but there is also the possibility 
of storing lemons in cold storage for several months.

Commenting on the lemon industry in South Africa 
in 1925, and the position has improved little since then, 
Dr. Webber states: "at the present time the lemons to 
be seen in South African markets are a fearful and wonder-
ful lot. Scarcely a fruit is to be found that would not 
go to the "dull heap" in an up-to-date packing house. 
Growers cannot hope to extend the use of a fruit unless 
they offer a product that will attract the buyer. At 
present half of the fruits in the markets are of the rough 
lemon......
lemon type which should not be grown except to furnish seeds for nursery purposes and the remainder, which comes from such improved varieties as the Eureka and Villa France, is not generally picked until it is overgrown and thus over-ripe and poor in quality. I have been told that many South Africans prefer rough lemons but I believe this is due to the fact that they have never used cured lemons of a good variety. 

He also believes that South Africans are worthy of better treatment and would appreciate and pay more for a good article which would cost no more to transport and sell but little more to grow and pack.

Though there is practically no export market for South African lemons owing to the Mediterranean production, it must be remembered that the South African market is not to be despised and the man who puts up a good article will surely get the trade.

THE DESIRABILITY OF USING A FEW VARIETIES

The general tendency when starting a fruit industry is to plant a large number of varieties. The market demand is for a regular supply of fruit of a known standard type and quality and the grower should attempt to supply what the market demands. Then again the growing of a few varieties in large solid blocks is the most economical method of production. It facilitates the picking and handling of fruit, the planning of farm work, the keeping of orchard records, the planting of cover crops, irrigation, etc. It is easier to handle two or three crops than a large number and no grower, unless.......
unless he is operating on a very large scale, should handle oranges, grape-fruit, navelines and lemons, neither should he grow half a dozen different types of oranges.

In South Africa at present groves are mixed in a large measure. Seedlings in this block, Valencias in that, Navels here and navelines there and not infrequently the trees are mixed in the same row. In the recent blocks, solid blocks of one variety prevail but even now most growers have too many varieties. As to which will be the most important varieties in South Africa is difficult to say but according to present statistics and conditions, it will be a big advance for the industry if growers will centre their attention on the Washington Navel and Valencia varieties and grow only the best strains of these varieties on the best stocks for each special locality. This will also simplify the nurseryman's problem and avoid dangers of mixing and consequent disappointment.

An idea of the present extent to which the various varieties of citrus fruits are grown in the Union may be obtained by reference to Tables 6, 7 and 8 respectively.

Table 6........
TABLE 6.

Number of Orange Trees Grown for Commercial Purposes in the Union of South Africa, 1927.

<table>
<thead>
<tr>
<th>Age</th>
<th>Cape</th>
<th>Natal</th>
<th>Transvaal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 3 yrs.</td>
<td>351,095</td>
<td>21,903</td>
<td>575,981</td>
<td>948,909</td>
</tr>
<tr>
<td>3 to 4 yrs</td>
<td>122,953</td>
<td>38,627</td>
<td>600,335</td>
<td>761,915</td>
</tr>
<tr>
<td>5 to 7 yrs</td>
<td>148,726</td>
<td>40,783</td>
<td>472,160</td>
<td>661,669</td>
</tr>
<tr>
<td>8 yrs &amp; over</td>
<td>245,692</td>
<td>32,809</td>
<td>400,124</td>
<td>678,625</td>
</tr>
<tr>
<td>Total</td>
<td>867,726</td>
<td>134,122</td>
<td>2,048,114</td>
<td>3,050,522</td>
</tr>
</tbody>
</table>

These figures show that about 55 per cent of the trees were below five years of age and consequently not yet yielding appreciable quantities of fruit. Only about 20 per cent had reached the full bearing age. A greatly increased production is therefore to be expected.

Information was also collected regarding the number of orange trees grown were proposing to plant during the next two or three years and it was found that the number of trees already planted would probably be increased by 20 to 25 per cent.

High prices received during the 1926 season greatly stimulated plantings but the fall in prices in 1929 will no doubt limit further plantings for a while.

Table 7.........
### TABLE 7.
The Export of Citrus Fruit from the Union.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Total number of packages.</th>
<th>Total weight in shipping tons.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1927</td>
<td>1928</td>
</tr>
<tr>
<td>Seedlings</td>
<td>275,229</td>
<td>184,090</td>
</tr>
<tr>
<td>Navelo</td>
<td>322,983</td>
<td>305,500</td>
</tr>
<tr>
<td>Valencia</td>
<td>223,552</td>
<td>298,565</td>
</tr>
<tr>
<td>Du Roi</td>
<td>9,865</td>
<td>12,770</td>
</tr>
<tr>
<td>Medit. Sweet</td>
<td>7,005</td>
<td>7,799</td>
</tr>
<tr>
<td>Maltese Blood</td>
<td>Total for 274</td>
<td>Total for</td>
</tr>
<tr>
<td>Jaffa</td>
<td>these</td>
<td>7,960</td>
</tr>
<tr>
<td>St. Michael</td>
<td>miscellaneous</td>
<td>503</td>
</tr>
<tr>
<td>Pineapple</td>
<td>varieties</td>
<td>514</td>
</tr>
<tr>
<td>Selecta</td>
<td>was 81</td>
<td>81</td>
</tr>
<tr>
<td>Seville</td>
<td>6,642</td>
<td>1,773</td>
</tr>
<tr>
<td>Loui Siu Kong</td>
<td></td>
<td>161</td>
</tr>
<tr>
<td>Grape-fruit</td>
<td>37,396</td>
<td>31,900</td>
</tr>
<tr>
<td>Shaddocks</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td>Haartjes</td>
<td>57,915</td>
<td>23,558</td>
</tr>
<tr>
<td>Lemons</td>
<td>2</td>
<td>1,476</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>940,594</strong></td>
<td><strong>879,861</strong></td>
</tr>
</tbody>
</table>

The 1928 season crop suffered from droughty conditions. This no doubt was the cause of the comparatively low export. The introduction of the Total-solids-acid ratio would also have limited the quantity of fruit exported; however, the quantity rejected for this cause was comparatively low.
Seedlings and naartjies show a greater reduction in quantity than any of the other varieties. This was no doubt due to the fact that the older orchards, consisting mostly of seedlings and naartjies were planted before the necessity of irrigation in South Africa was realised with the result that these groves suffered more from lack of water than the more recently planted ones. The same applies to the older navel orchards.

The increase in the quantity of fruit of the valencia and other varieties exported, even in the face of the adverse 1928 season, shows to what great extent the orchards now coming into bearing, consist of these more recently introduced varieties.

A fair quantity of lemons was exported during the 1928 season. This was due to the fact that the Mediterranean countries had an unusually bad season and so a few of the South African lemons realised abnormally high prices.

**Table 8.**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Transvaal</th>
<th>Cape</th>
<th>Natal</th>
<th>Natal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1927</td>
<td>1928</td>
<td>1927</td>
<td>1928</td>
</tr>
<tr>
<td>Seedlings</td>
<td>76.2</td>
<td>74.4</td>
<td>23.4</td>
<td>25.6</td>
</tr>
<tr>
<td>Navel</td>
<td>40.5</td>
<td>57.6</td>
<td>52.4</td>
<td>29.8</td>
</tr>
<tr>
<td>Valencias</td>
<td>72.4</td>
<td>70.6</td>
<td>11.6</td>
<td>9.7</td>
</tr>
<tr>
<td>Du Roi</td>
<td>45.0</td>
<td>37.7</td>
<td>2.5</td>
<td>5.3</td>
</tr>
<tr>
<td>Medit. Sweet</td>
<td>53.3</td>
<td>28.6</td>
<td>46.7</td>
<td>-</td>
</tr>
<tr>
<td>Misco. Orange</td>
<td>36.9</td>
<td>69.5</td>
<td>13.1</td>
<td>10.5</td>
</tr>
<tr>
<td>Grape Fruit</td>
<td>58.3</td>
<td>48.9</td>
<td>60.5</td>
<td>50.1</td>
</tr>
<tr>
<td>Naartjes</td>
<td>16.9</td>
<td>26.2</td>
<td>46.3</td>
<td>54.9</td>
</tr>
</tbody>
</table>

Mid........
Mid-season varieties of oranges are apparently more popular in the Transvaal than in either of the other two provinces while Natal is apparently concentrating her energy on the production of three varieties of oranges only.

The planting of seedlings for commercial purposes, as can be seen from the above three tables, has fortunately ceased.

**THE DURATION OF THE CITRUS EXPORT SEASON OF SOUTH AFRICA.**

Since South Africa is situated in the Southern Hemisphere the maturation of her citrus fruits takes place during the winter months. This fact places her in the very fortunate position of being able to supply the Northern Hemisphere with citrus fruit during the summer season when the production of fruit in the latter is limited almost exclusively to that of the soft fruit varieties.

The duration of the citrus export season of South Africa, as can be seen from Table 9, is from about the middle of May to about the third week of November. The dates of the commencement and of the end of the export season are however not constant as they vary with the season and with the climatic condition.

These figures clearly indicate that the Washington Navel and Seedling varieties form the principal export fruit during the early part of the season while the Valencia matures towards the end of the season.

The Spanish export season commences towards the end of November and continues until May or June. The fruit...........
Hence 1. Heaviest shipments leave South Africa during June, July and August.

2. All figures for 1926 are not available but the commencement of the 1929 season is later owing to weather conditions and introduction of the sugar-acid ratio in 1928.

3. Increased late shipments in 1929 due to increased Valencia crop.
fruit arriving early in the season, however is usually immature and of inferior quality. It is anticipated that if South Africa supplies mature fruit of good quality during this period, she will be able to realise good returns. It is true that the first few shipments sent during the latter part of November and early December have not been too promising but it is quite possible that, when the fact becomes known that South Africa can supply fruit of a high standard quality until the end of December, profitable returns will be realised and this will mean that the duration of her export season will be extended until the end of December.

In view of the fact that the Valencia crop of Eastern Transvaal, owing to climatic conditions prevailing there, only reaches maturity towards the end of September and early October, this factor of extending the export season or finding markets for this late fruit is of sufficient importance to warrant investigation.

From available figures it is apparent that the export season for the Navels and Valencias of Natal is considerably shorter than that of either the Transvaal or the Cape Province.

While for nearly all the varieties the export of citrus fruits from the Transvaal commences at an earlier date than those from the Cape Province, which is in turn earlier than Natal, the difference between the commencement of the export season in the different provinces is only a matter of a week or two and not sufficient to be of any commercial value as far as the extension of the export season is concerned, but if the writer........
writer is correct in assuming that the order of the 
maturity of the fruit in each province is the same as 
for the respective export seasons, there is a possibility 
that this factor as also the fact that the fruit of 
different districts in the same province matures at 
different times, may be of some value in extending the 
season of those districts that have a shorter season or 
a different season as far as local markets are concerned 
and thereby increasing the consumption of fruit in South 
Africa.

Figure 2 is a graph representing the amount 
of citrus fruits exported from South Africa every week. 
This graph gives an indication as to when South Africa 
exports the bulk of her fruit. The bearing of this 
point on the prices received on the overseas markets 
will be seen later. It is also a valuable indication 
of the amount of shipping space required during the res- 
pective months and is of importance to the overseas re- 
presentative of the Exchange as far as a profitable 
distribution is concerned. As conditions and varieties 
of fruit grown in South Africa change this graph will 
have to be changed to meet the new requirements.

PICKING OF THE FRUIT.

The South African citrus growers, situated 
some six thousand miles from their markets, have suffered 
severe losses in the past due to the fact that their 
fruit arrived at the ports and on the overseas markets in 
an unsound condition. Not only did they suffer individual 
losses but the overseas consumers became prejudiced 
against South African fruit which as a result naturally 
failed to realise the highest prices.

Investigation.......
### TABLE 2.

**THE DURATION OF THE CITRUS FRUIT SEASON OF SOUTH AFRICA.**

<table>
<thead>
<tr>
<th></th>
<th>S S R U L L I C S.</th>
<th>M A V A L A</th>
<th>V A L E N C I A L.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROVINCE</td>
<td><strong>First</strong></td>
<td><strong>Last</strong></td>
<td><strong>Peak</strong></td>
</tr>
<tr>
<td>Transvaal</td>
<td>7.5</td>
<td>14.5</td>
<td>21.6</td>
</tr>
<tr>
<td>Natal.</td>
<td>24.6</td>
<td>21.8</td>
<td>15.1</td>
</tr>
<tr>
<td>Cape.</td>
<td>17.5</td>
<td>21.5</td>
<td>18.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PROVINCE</td>
<td><strong>First</strong></td>
<td><strong>Last</strong></td>
<td><strong>Peak</strong></td>
</tr>
<tr>
<td>Transvaal</td>
<td>26.0</td>
<td>5.6</td>
<td>16.1</td>
</tr>
<tr>
<td>Natal.</td>
<td>17.7</td>
<td>7.6</td>
<td>23.9</td>
</tr>
<tr>
<td>Cape.</td>
<td>6.8</td>
<td>4.9</td>
<td>15.8</td>
</tr>
</tbody>
</table>

7.5 in the first column means the 7th of May 1927.
Investigations into the cause of the wastage were carried out by the Department of Agriculture and, as in California, it was found that the principal cause of wastage was due to certain types of fungi entering the fruit. No fungus, however, can enter a sound fruit and the abrasions through which they entered, were found to be due to careless handling, in picking, packing and transport of the fruit.

Through not making use of the Californian experience and through ignorance of the essentials, many mistakes were made: citrus fruits were picked; they were cut from the trees with scissors and portions of the stems were left adhering to the fruit; the fruit was subject to bruising and every possible kind of abrasion; it was picked in an immature or over-ripe condition; in general, no particular attention was given to the picking of the fruit and the only object of the picker was to get it off the tree irrespective of the manner in which he accomplished this.

The severe losses which the farmer suffered, forced him to adopt better methods. Through dearly paid-for experience, he came to realise that more attention had to be paid to the careful handling of fruit.

At present as far as picking is concerned, the state of affairs is fairly satisfactory though far from perfect. Some growers still display carelessness in this direction and do not adopt the most modern procedure. On one farm in the Western Province, visited by the writer, scissors were still in use to sever the oranges from the tree.
tree and on enquiry it was found that this was quite
a common practice on a few of the adjoining farms.
It must be remembered that one fruit decaying in a box
may be the cause of the decay of fruits coming into con-
tact with it.

It is of interest to note that several marks
of the fruit exported always arrive on the overseas mar-
et in a wasty condition. Does this not reveal the
fact that the shippers of such fruit pay less attention
to the proper picking and handling of their fruit than
do those whose fruit always arrives in a sound condition?

During the 1929 season practically every ship-
ment showed waste to an extent five and even as high as
thirty per cent. The fact to be noted is that a few
of the more carefully handled marks showed no waste at all.
Taking the value of a box of oranges as one pound sterling,
it will be realised that a five per cent loss on the
South African citrus crop this season will mean a loss
of over £50,000. This is a serious factor and one
that must be remedied at once.

A certain percentage of the fruit will always
be injured but this should never exceed two per cent
and should be culled during the process of grading and
packing.

In South Africa where coloured labour is used,
it is imperative that some responsible person be placed
in charge of the picking-gang and it should be his duty
to watch carefully each man at his work and to see that
it is properly done.

The.............

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The word "picking" as applied to the gathering in of a crop, is a misnomer as no orange should be picked from the tree or removed from it by any other means than cutting by means of a clipper designed specially so as to eliminate all possible chance of injury to the fruit in the operation.

In using clippers it is customary to sever the stem about an inch from the fruit, then a second cut is made removing the entire stem squarely with the exception of the extreme end by which it is attached to the orange. The removal of the stem close to the fruit is of great importance in order to prevent it from injuring the fruits with which it comes into contact.

Pickers should be made to understand that their work must be done carefully; their finger-nails should be trimmed so that there may be no danger of even the slightest scratch or puncture to the skin from that source, or better still, cotton picking gloves should be worn.

Pickers should carry specially constructed bags strung round their necks in which to place, not drop, the fruit when picked. These bags are so designed that the fruit can be carefully released through the bottom of the bag into specially constructed "lugboxes" in which there should be no danger of the fruit being injured. No sand must come into contact with the fruit.

Under no circumstances should picking be done when there is dew or mist on the fruit. In this connection.....
nection it is interesting to learn from Mr. Taylor and Dr. Hall of the Mazoe Estates, Rhodesia, that they dare not pick for three weeks after a rain; if they do, sour rot (Cosepora citri aurantii) almost invariably takes heavy toll of the fruit. Occasionally samples of fruit affected with this fungus have been obtained from export consignments from the Union and Dr. Doidge is authority for the statement that it occurred commonly during the 1925 season in association with the brown rot fungus (Pythiacystis citrophthora). It may possibly occur with the blue and green moulds and sometimes be masked by them.

The effects of early spring rains and of rising temperature, conditions on the keeping and carrying quality of late fruit especially require investigation. It is considered that the late rains during the 1929 season were responsible for much of the decay reported in South African exports.

Irrigation just before picking detrimentally affects the carrying quality of the fruit but to what extent is not certain. This is a subject calling for investigation especially since waste of fruit is so frequent in South African shipments. It should be determined what climatic factors and otherwise affect the carrying quality of fruit from the Union.

In order to prevent injury to the trees and to the fruit, picking ladders designed specially for the purpose should be used for those fruits that are too high to reach comfortably.

The...........
Export of Citrus Fruit.
No. 702.]

[12th April, Hl29.

EXPORT OF ClTRtiS FRUIT.
His Excellency the Governor-General has been pleased to
.&auction the issue, in ter!IlB of section .!even. of the Fruit
Export Act, No. 17 of 1914, of the undermentioned amended
.regulations.
Government Noti~ No. 608 of 1928 is hereby cancelled.
REGULATIONS.
1. No fruit intended for export shall be inspected under
these regulations unless the ret;~uirements of the Perishable
Products Export Control Board In respect of the registration
.of the name, address, distinctive brand and number of the
person intending_ to export c:itrus fruit, and of the renderi.'ll11

of mtended shtpments .!hall have been. comphed
wi.th.
Vide regulations Nos. 25 and 26 of the Perishable Products

-of utimate.,

.Export Control Board, which are contained in the Appendix
:hereto.
2. For each consignment of fruit examined by the inspector
-the exporter shali pay at the rate of one shilling and four
pence per 40 cubic feet of packages of fruit.
(Attention is also directed to Government Notice No, 1452
-of the 4th September, HJ22, prescribing a special fee of 5s. per
40 cubic feet to be paid in respect of the inspection and gnuling of citrus fruit exported.)
3. The exporter shall pay the charge for the cold storage
.l'eqnired by regulation No. 4 and mako his own arrangements
:for the disposal of his fruit oversea.
4. (a) All citrus fruit which is to be shipped in refrigerated
hold shall in so far as reasonably practicable and in so far as
suitablo Precooling facilities may permit, be precooled in a
precooling store approved by t~e Perishable Produc.ts E~p?rt
Control Board.
\.Jnless author1zed to the contrary m wr1tmg
by the Secretary for Agriculture, or his duly appointed
.deputy citru~ fruits shall be reduced to a temperature of
40o F.' within thirty-six hours of receipt in the store and
maintained at this temperature within a latitude of three
degrees F. during the entire period it is in the precooling
.st<Jre.
(b) Fruit placed in private approve~ cold stores at the port
-of shipment will be in.spected by the ~nspector. at such stor~s,
provided that forty-111ght hours' notiCe be 11:1ven to the m-.spector by the exporter or his agent.
J!'ruit so stored shall,
in so far as practicable, be conveyed to the harbour in
.Iefrigerated trucks.
5. Every box of fruit submitted for inspection must be con.:signed to the person or agent appointed by the exporter to
arrange the shipment thereof from the various ports, u,nd
-every consignment shall be accompamed by two Fruit Con-.signment Declaration Export Notes, in which all the specifications required are given.
6. Boards of reference, composed of persons whose names
have been approved for that purpose by the Minister, have
been constituted at the ports of Capetown, Port Elizabeth,
East London, and Durban, and will be established at such
-other places as may be necessary, to which an exporter may
appeal if the inspector refUEes to brand or stamp any box of
fruit belonging to such exporter.
7. A fee on the basis of lOs. per one ton or portion thereof,
aud for any quantity over one ton 5s. per ton extra, with a
maximum of £2. lOs., shall be deposited with the inspector
by the consignor of each consignment of fruit upon which the
-consignor may require the inspector to obtain the decision of
the Board of Reference under the provisions of section five of
the Act.
8. The consignor shall, within twenty-four hours of the time
·of receiving the iuspector's notice remove from the place of
inspection any fruit which the inspector has refused to brand
.or stamp, or which, having been referred to the Board of
Reference, has been decided upon by the Board in favour of
the inspector.
Wbcnever it shall appear that there is a
.danger of rejected fruit contaminating other perishables the
]'ruit Inspector may require the consignor or his agent to
Temove such fruit forthwith.
NoTE.-Attcntion is invited to section six of Act No. 17,
1914, empowering the Inspector of Fruit to destroy or otherwise dispose of fruit rejected by him for export which is not
removed from the place of inspection within the period prescribed by the regulation and providing that any expense of
storing pending removal shall be a charge against the owner
.of such fruit.
9. Boxes of fruit marked so as to represent a grade higher
than the correct grade shall be re-marked by the inspector,
.and, if otherwise complying with these regulations, brandod or
stamped by the inspector as provided in section four of the
Aot.
10. In case any variety of citrus fruit not specified in
regulat_ion I\~?· 21 be offered for in~pection, iL will, if otherwise
complying w1th the regulatwns, be branded <Jr stamped by
the in.~pector as provided in section fou.r of the Act.
11. Not less than 5 per cent. of the boxes of fruit in each
consignment shall be opened by the inspector for examination,
and all boxes so opened shall be stamped by the inspector to
tbat effect.
12. Only new and clean boxes or packages shall be lJSed by
-exporters.
13. Every box of fruit submitted for inspection shall be
dearly marked-

On. one end thereof with
(a) the distinguishing number assigned to the exporter by
the Perishable Products Export Control Board and the
registered mark of the exporter (or his name or other
means of identification);
(b) the variety, number, and grade of fruit;
2934/11/4/29

1,900

and on. the other end and on. top of the box with
(e) the shipping mark of the agent appointed by the exporter
to dispose of his fruit oversea.
(d) All characters forming names, registered brands, re!Jistered numbers, as well as thooe characters denotmg
varieties, numbers, and grades of fruit shall be not leas
than i in. in depth in the case of boxes and not lass than
! in. in the case of trays.
Non.-Where paper labels are used for thia purpose,
it is recommended that the particulars appearing on
such labels be also placed directly on the box above the
label for identification purposes, as labela are liable to
become torn from the box.
(e) All characters forming shipping marks shall be Hot less
than one inch in depth.
14. Every box of fruit submitted for inspe<:tion must be
consigned to the person or agent appointed by the exporter
to arrange for shipment thereof from the various ports.

(j) Jiin.imum weiuM.-'l'he minimum weight of boxe11 of

sizes SO t<J 126 shall be not less than 74 lb. and all
longer counts must weigh not less than 7'7 lb. per
packed box; the net weight of the fruit shall be not leSII
than 64 lb. and 67 lb. respectively.
(g) Size.-The size shall not determine the grade.
The
sizes of fruit shall be as followa ; Counts of

ExnnuntNTAL SHIPMENTs.

15. Notwithstanding anything to the contrary contained in
the regulations, the Minister mo.y allow the shipment for
experimental purpoaes of consignments of fruit whwh do not
conform thereto under such restrictions and conditions as he
may prescribe.
CITRUS FRUIT.

16. Citrus fruit shall be packed in boxes, the size of which
shall be(a)

Orange3 and Grape Fruit.
Outside measurement-26 in. by 12 in. by 12 in. (with centre piece).
Wood required.
Ends and middle piece (three pieces), 11~ in. by
11} in. by llj16ths in.
Top, bottom, and sides (eight pieces) 26 in. by 5! in.
by ;tin.
Cleats (two pieces)1 either 11 in. by ! in. by i in. or
11 in. by 1 in. by t m.
(The ends of orange boxes and grape fruit boxes are
to be firmly fastened together with metal fasteners.
No ends or centre pieces are to be made of two pieces
of equal width.
Cleats for grape fruit boxes must be
colourod red.)
NaartjiM.

(b) Outside measurement 26 in. by 12 in. by not more than
6 in. deop with centre :riece. For the export seasons
1928 and 1929 boxes 18 m. by 12 in. by not more than
4! in. deep will be permitted but not thereafter.

Lemons.
(t) Lemons may be packed in any of the standard citrus
packages.
The 12 in. deep
boxe;; shall be strapped at each end and in the middle,
but the shallower boxes need not be strapped.
The
strapping shall be nailed over the cleats, but the middle
of the lid shall not be nailed to the centre piece. W1re
bound boxes shall not be allowed.
17. All oranges and grape fruit boxes shall be packed tightly
throughout, and the bulge after nailing up shall not be le;;s
than f in. from the centre board or mol'() than H in.
18. Each citrus fruit shall be wrapped in tissue or other
similar paper. If wrappers are descriptive of any particular
variety of citrus, such description must agree with the fruit
contained therein.
19. All frmt in one box shall be of uniform size and of one
variety.
20. All fruit shall be of good quality, in smmd condition,
fully developed, not too npe or too unripe free from disease
bruises, cuts, and shall be of the charact~ristic shape of it~
variety.
(d) All boxes shal. have cleats on the lids.

NOTE.-(i) The attention of exporters is directed to the
extreme importance of care in handling all fruit
both before and after packing.
(ii) It is recommended that all fruits should be cured
before packing.
21. The following shall be the grades for the fruits mentioned:-

"A." Oranges.
(a) "Fancy " fruit shall be that which is free from all
blemish and injury .
(b) "Choico" fruit shall be that which is sound in all
respects save for slight blemishes or other injuries which
m nD way affect the quality of the fruit oth<:>r than its
exterior appearanOfl.
(c) Fruit wllich is in all other respects equal to " Choice"
fruit but has been markPd by hail or causes other than
those specified in the f~llowing section, but not to such
an extent as to be unsightly 11)ay be shipped, but the
box shall not be marked " Chowe/' but shall in place
thereof, bear the word "Standard."
'
(d) No fruit having S{'ale shall be oxpor~ed nor shall fruit
having fungoid or mechanical injuri<:>s' likely to cause
wast,e be .exp?rted.
~he Chief Fruit inspector may,
howeve1·, m h1s d1scretwn, pass scale marked fruit for
export provided that a_ prore.<;a of cleansing has been
employed which i~ not likely to cause mechanical injury
or the breakdown of the fruit.
(e) Matv.rity.-No oranges shall be exported unless(i) they have attained 70 per cent. yellow or orange
colonr;
(ii) they show on test not Jess than the following ratio
of total soluble solids to acid:Seedlings: 5.0: L
Valencia and other late varieties: 5.5:1.
Navels ; 6.0 : 1.
Printed by tho Govornment Printer, Pretoria.
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80 per box, average diameter 3i- in.
96
3J
112
3;t
126
3!
150
3
176
2i
200
2i
216
2i "
226
2'/
252
2! ,. "

288

2i

324
344
360

2t
2i
2

"B." Grape Ji'ru.it.
(a.) " Fancy" fruit shall be that which is free from all
blemish and injury.
(b) " Choice " fruit shall be that which is sound in all
respech save for slight blemishes or other injuries which
in no way affect the quality of the fruit other than its
exterior appearance.
(c) Fruit which is in all other respects equal to "Choice"
fruit but has been marked by hail or causes other than
those specified in tho following section, but not to such
an extent as to be unsightly may be shipped, but the
box shall not be marked " choicet but shall, in place
thereof) bear the word "Standara."
(d) No fruit having scale shall be exported, nor shall fruit
having fungoid or mechanical injuria;; hkely to cause
waste be exported.
The Chief Fruit Inspector may,
however, in his discretion, pass scale marked fruit for
export, provided that a process of cleansing has been
employed which is not likely to cause mechanical injury
or the breakdown of the fruit.
(e) Maturity.-No grape fruit which have not. attained 70
per cent. colour typical of its variety shall be exported .
(f) Minimum weight.-'fhe minimum weight shall be not
less than 64 lb. for all counts up to 64; for counts above
that number the minimum weight shall be not less than
67 lb. per packed box; the net weight of tho fruit shall
be not less than 54 lb. and 57 UJ. resp€{.-tively.
No
(g) Size.-The size shall not determine the grade.
counts of more than 150 per box shall be eJ<ported.
"C." Naa.rtjies .
The following shall be the grades:Extra 3dected.-Not less than 2! in. in diameter.
Selected.-Not less than 1! in. in diameter.
Ohoice.-Less than H in. in diameter.
Puffy-skin, sour and/or green naartjies shall not be
exported.
ATI>BNDIX,

Regul-ations

No~. 25

and 26 of the Peri$habl€ Products
Export Oontrol Board.

25. (a) No person shall e-x:port a perishable product as
defined in the Act during any season from the "Cnion to a
plaee outside the Union (ether than the countries referred to
m section fifteen of the Act) unless he has, at least three
months prior to his first intended shipment in respect of that
season, applied t<J the Board in writing to be registered as
exporter for the ensuing year, and has furnished the Board
in his letter of application with his fu11 name, address, port
of shipment, the kind of product intended to be exported and
the approximate date when his first consignment will ;each
the port of shipment selected by him. The application shall,
El.S nearly as possible, be in the following form;" I/We (here insert full name and full postal address)
hereby give notice that I/we desire to export through the
port of (here insert the port of shipment) the following
perishable products (here insert the class of product
mtended to he exported).
My/ Our first consignment wiU reach the above port of
shipment on or about the (here iiJBert the approximate date)
next.
My I Our boxes will bear the following distin<:tive
mark. namely (here insert the mark of brand).
1/We hereby apply to be registered as an exporter on the
above basis."
(b) On receipt of such written application and information
tLe Board shall re~Sister such porson as an exporter, and
assign a distinguislnng number to him, and shall advise him
of the fact that he has been registered as an exporter and
cf the number assigned to him. The number assigned t.o him
shall figure en all boxes or packages t<:lndercd by him for
export during that season.
(c). Faih>re by a~ intcndinj!: exporter to comply with the
reqmrements of tlns regulatwn shall entitle the Board to
withhold permission for the shipment of his product or to
refuse to grant in reRJlect of his product any priority ~f shipment to which, under the regulations or by reason of priority
~~t.i~J~tal at the port of shit>ment, it may otherwise be
26. (a) Every person who proposes to export a perishable
pro~uct, as cle~ned in the Act, from the Union to a place
outs1de the Umon (other than the countries referred to in
section fifteen of the Act), shall furnish information to the
Board in regard thereto in such fo1'm and within such time as
the Board may from time to time require.
(~) An;r person w:ho expD~-s any perishable product from the
Unwn w1thout havmg furmshed to the Board the information
required to_ he furnished, in terms of paragraph (a) hereof
shall be gu1lty of an offence and habiB on conviction to a fin~
not. exceedinJ.!: £50, in addition to the differentiation of troat~e~:e PA~~~ded for in sub-section two (2) of section fourteen.


The object of the picker should be to deliver a perfectly sound fruit to the packer. In California picking is mostly done by the Co-operative Packing Houses who have special picking gangs. Some of the packing houses in South Africa are commencing to pick, as well as pack, the citrus fruits of their members. This practice is to be highly recommended both for condition and standardization (uniformity in maturity, etc.) as well as for economical reasons.

In California some pickers act as commercial picking gangs picking fruit at a fixed remuneration.

After carefully emptying the fruits into the lugboxes, these should be placed in the shade and carefully hauled to the packing house as soon as economically possible.

**GRADING AND PACKING.**

Following on the process of picking is that of curing, grading and packing.

In their third report the Imperial Economic Committee strongly recommends the Governments of the Empire to impress on producers’ organisations in their territories the necessity for striving to carry the standards of production and presentation to the highest possible level.

In the Citrus Export regulations issued annually and appended here to the Government, prescribe the regulations to which all citrus fruit intended for export must conform. Among others certain of these regulations make provision for the standardisation of grading and......
and picking. No regulations exist, however, as far as fruit for local markets is concerned.

To enforce the above regulations the Department maintains an inspection service. The Chief office of this inspectorate is at Table Bay Harbour, Cape Town and branch offices are established at the ports: Mossel Bay, Port Elizabeth, East London and Durban, and also at certain inland centres such as Marico, Springs, Rustenburg, etc. Advice on packing and packing demonstrations are given by the inspection staff and where necessary inspectors will make personal visits to growers for this purpose.

Prior to the existence of regulations, fruit for export was packed in any shape and size of container in the best way the fruits would fill up the box. Paraffin boxes, slop boxes and practically any kind of containers were made use of. Growers paid little attention to such matters as grading and appearance but perhaps the worst offenders were to be found among the speculative buyers who often bought the fruit on the trees and packed it irrespective of size and quality with no other object in view but the profit that would be made. All these practices only strengthened the prejudice against South Africa as a producer of citrus fruits.

The increasing competition on the overseas market assisted by South African legislation, however, has compelled the South African producers to pay more attention to the standardisation of their fruit as regards grading and packing.

Modern........
Modern machinery, the increasing number of cooperative packing-houses, better methods of production and the increasing strictness of the Government fruit inspectors are all assisting in raising the grading and packing of South African citrus fruits and it is hoped that it will be raised to a standard equal to that of anywhere in the world.

Commenting on the 1926 export season the South African Trade Commissioner in London states that the packing and sizing of a box of South African oranges will be all that can be desired is, as with condition, accepted by the trade as a matter of course.

'Some 'Choice' packs do not always show up too well against even someone else's 'Standard' but this is a point the practical difficulties of which are realised only too well. There was an attempt to introduce half-cases of oranges to these markets. It was not a success and the salesmen had difficulty in disposing of them and this in spite of the excellent demand for citrus generally at the time when they arrived. The recognised package on these markets for oranges is the standard box as in use at present.'

This may lead some to consider that the grading and packing of South African citrus fruit needs no further improvement but it must be remembered that two hundred and fifty tons of fruit were rejected at the ports in 1926 for faulty packing and a further nine hundred...
hundred for being underweight due, in a large percentage of cases, to too slack packing. In this connection Mr. R. Bulmer of the Repacking Depot, Cape Town, remarks as follows: "I have seen packs during the 1926 season that have evidently not been thoroughly wilted and have arrived at the docks and been rejected by the Fruit Inspectors for being 'slack packed'. In some cases they have been so slack that I have had to repack them two counts higher i.e. 150's at 200.

In comparison with the California standard of grading and packing, it must be admitted that South Africa occupies second place so that if she wants to compete successfully with that country, it is essential for her to improve her grading and packing still further.

Co-operative packing-houses are assisting to a large extent to standardise grading and packing but there are too many farmers that are not members of such houses and the individual farmer cannot afford to erect expensive packing-houses fitted with the most modern machinery. This fact is making standardisation exceedingly difficult and every farmer should make every possible effort to become a member of a co-operative packing-house.

Familiar examples of the high degree of standardisation by co-operative associations are brought to mind by the mere mention of 'Sunkist' oranges, 'Eastmore' cranberries, 'Sun-Maid' raisins, 'Diamond Brand' walnuts etc. The greater the control of the central organisation over the product, the greater possibility....
possibility that a high degree of perfection may be reached along this line.

Some of the reasons for the necessity of standardisation are:

1. To meet competition from other countries;
2. To hold the confidence of buyers;
3. To encourage increased consumption by producing an article which practically sells itself;
4. To improve the carrying quality of the product by only packing good quality fruit and;
5. To make possible a sound and extensive advertising campaign.

California produces a highly standardised article under the brand "Sunquist" oranges and though the best South African citrus fruits are equal to, if not superior to, the best Californian, the latter always realise the highest prices due to no other reason but that they are highly standardised and can consequently be well advertised.

With reference to the export regulations for citrus fruits there are a few details that must be remembered. It has been customary in the past to allow the fruit to wilt for five or six days before grading and packing. Lately experiments tend to prove that two or three days is sufficient time for curing, the objects of which are:

1. To allow the escape of the surplus moisture from the skins by evaporation and thus to render them tougher and less liable to injury.

2. ..........
2. To prevent too much loss of weight during transit. In connection with this it is interesting to note that the Chief Fruit Inspector warns shippers against not allowing their fruit to wilt too soon; thereby causing the packed boxes to arrive at the ports underweight. Growers must, however, realize that wilting or curing for too long a period causes the keeping quality of the fruit to be affected detrimentally.

3. To enable a firm pack that will remain as such.
4. To allow any bruises, injuries or insect stings to manifest their presence so that they can be called before packing.

The Fruit Exchange has established a Repacking Depot at the Docks in Cape Town to repack the exportable fruit contained in boxes that have been rejected by the fruit inspector who, after repacking has been completed, visits the depot to re-inspect the fruit. Any fruit that is rejected and not permissible for export, is sold on the local markets of the respective ports.

Citrus fruits are graded according to the regulations. Such grading is done before sizing preferably by white labour familiar with what is required for a "Fancy", a "Choice" and a "Standard pack" according to the actual quality, as revealed by the external appearance, of the fruits. To leave this grading for the packers to determine would be a grave mistake as it would hinder them in their work and would result........
result in much confusion and unsatisfactory grading. It is very necessary that the standards set for the grades should be rigidly maintained and all graders should realise that in so far as it is commercially feasible grading should be carried to the point where all of the products in a given grade make the same appeal to the buyer.

Grading for size is one of the most important of all details which go to make up a perfectly packed box of fruit. Unless oranges are perfectly graded for size, they do not pack properly. It is impossible to grade oranges perfectly by hand. Recourse must therefore be had to some kind of machine which will attend to the work in a manner mechanically perfect.

Several patterns of mechanical devices for this purpose are on the market at present. Some of the most modern of these machines, such as the "Stabler Parker" sizing machine, several of which are in use in South Africa and for which the Citrus Exchange have the sole agency, have reached the highest degree of efficiency. The average individual farmer, however, cannot afford such a machine which needs a special pack-house for its erection and uses less efficient sizing devices, some of which are home-made and many of which are inefficient. Several farmers are still using the old-fashioned sizing boards which contain round openings of different sizes into which the fruits are fitted one by one. Such methods speak for themselves and provide another reason why farmers should erect co-operative packing-houses.

In............
In all cases for the best results a special citrus fruit packing-house is essential. In one case at least a pack-house in South Africa has reached a very high standard of efficiency and compares favourably with the average Californian pack-houses which are, however, of a very much higher packing capacity.

As the packing season of South Africa only lasts for about six months, it is doubtful whether this country will ever quite reach the same efficiency in packing as California which has an all the year round packing season and can therefore specialise to a greater extent.

For wrapping the fruit a thin tough tissue-paper should be used of convenient size for the fruit which it is desired to wrap. As a guide to purchasers the following table is given:

<table>
<thead>
<tr>
<th>For standard box 96 pack use</th>
<th>12x12 inch paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>112, 126 &amp; 150 packs use 10x10</td>
<td>176 and 200</td>
</tr>
<tr>
<td>216, 226 &amp; 252</td>
<td>9x9</td>
</tr>
</tbody>
</table>

The fruit should be carefully wrapped, i.e. each orange completely and neatly surrounded with paper, which should be finished off with a twist, and, at the same time, be so placed round the fruit as to display the "brand" to the best advantage. All wrappers should bear the same distinctive mark as that which appears on the outside of the box containing the fruit. A neatly prepared brand renders the appearance of the fruit more attractive and the brands on the papers should all be placed in the same direction and not carelessly at random.

Some......
Some South African growers still persist in using plain wrapping paper in spite of the fact that Trade Commissioners always point out that for best results this should not be done.

In 1926 Kat River Co-operation introduced the system of branding their fruits on the skin. Commenting on this the Trade Commissioner in London reports as follows: "Numerous enquiries are received from retail fruit revivalers particularly as regards oranges branded with the name of their mark on the skin — only one concern so far in South Africa has adopted this now fairly common device. It has made it just about the best known mark of South African oranges on the market. All growers or at least packing-houses should consider the advisability of branding their fruit*. During the current season, as far as the writer can ascertain, only four packing-houses are making use of this practice and it is interesting to note that the overseas Publicity Agent of the Exchange is also stressing the desirability of the use of a brand for the fruit itself. Such branding should preferably be done by some mechanical device that does not injure the skin of the fruit in any way. Such devices are now procurable.

The point that South Africa must market a substantial quantity of fairly uniform fruit under an Exchange brand, if she wants to hold her own in overseas markets, has been raised again and again. Owing to the wide variation in the quality of oranges from different parts of the Union, however, the introduction of one brand for all sections would be impracticable for...
besides this point there are many other practical difficulties in the way such as the wide area over which the industry is spread, the difficulty of keeping the standards uniform, etc.

Overbranding, on the other hand, may lead to that undesirable condition of affairs indicated by the old saw which says that one cannot see wood for the trees. There would seem to be some little indication of this occurring in connection with the many marks being adopted for very indifferent South African export fruit, but doubtless this will eventually be remedied by the salutary process of elimination.

One of the essential requirements to be met in the disposal of any product in large volume is advertising. One of the fundamentals of advertising is that the product must be uniform in quality and identifiable to the consumer. South African fruit, according to Professor H. Clark Powell, is marketed under a large number of brands, probably about 700 of them, and thus no single brand has any opportunity of becoming well known because none of them is a very large brand.

As pointed out above the establishment of a national brand covering better quality fruit, is out of the question at present but the establishment of district or area brands covering good fruit of similar quality, and the subsequent advertising of such brands, is quite feasible and highly to be recommended.

The advertisement of a few district brands of such a nature, though still competing the one with the other, would be a big improvement on the present position where so many brands are competing with each other.

Certain........
Certain co-operative associations in the Eastern Cape desire to associate themselves together for the primary object of establishing such a brand which will in no way prejudice the standing of the present brands of the shippers concerned. Existing brands identify the fruit much more to the trade than to the actual consumer. Such brands will be retained by the respective packing-houses and an extra brand will be created that will be advertised to the consumer.

Regulations for the brand are suggested here-with by Professor H. Clark Powell and it should be remembered that they are minimum requirements. Should one packing-house ship fruit that is much above the regulations and another house ship fruit that is only slightly above, the interests of no one will be adversely affected. The fruit will still be sold to the trade on the basis of its local brand and any difference in quality will be realized by the respective shippers.

**BRAND XXXX.**

A packed box of fruit shipped under this brand shall consist of mature oranges of one variety, of good eating quality, of normal form for the variety, picked from the tree, of good colour for the variety, of good texture, free from scale insects, substantially free from blemishes of any description, free from any injuries or defects that cause fruit to decay, excluding fruit that is rough, coarse, hail-marked, more than slightly blemished, misshapen fruit, dirty fruit, fruit that cuts dry or shows the effects of frost injury.

Oranges..........
Oranges packed under this brand shall not vary more than 5% below the above specifications.

Oranges shipped under this brand shall be considered immature if the juice does not contain soluble solids equal to, or in excess of eight parts to every part of acid in the juice: In other words the minimum sugar-acid ratio shall be 8 : 1

All fruit packed under this brand shall be wrapped in paper wraps on which is printed the name of this brand. Local packing-house brand-names shall not appear on the wrappers used for fruit under this brand.

The name of this brand may be stamped on fruit conforming to the specifications of this brand. A uniform size of this brand-stamp should be agreed upon when the name of this brand is chosen and every shipper should use this uniform stamp, whether it be applied to the fruit by machine or by hand. Unless the brand-name be stamped on the fruit itself, much of the value of the brand will be lost.

Should the authorised representative of the Eastern Cape Citrus Association find fruit being packed under this brand which, in his opinion, is below the specifications for the brand, he shall immediately confer with the packing-house manager in question. Should they fail to agree, the matter should be referred to the Field Department of the Citrus Exchange, the decision of which shall be final. Generally speaking, the representative or inspector of the E.C.C.A. should be given wide powers in interpreting the specifications for the common brand. This brand is the property of the

E.C.C.A.  

© University of Pretoria
E. C. C. A. and hence no shipper should be allowed to prejudice the interest of the other shippers by sending fruit under this brand that is not up to specifications.

An inspector or field-man is essential for the maintenance of the brand. He should be a man who is familiar with packing-house work and familiar with grading operations. He should, of course, be of sufficient ability and character to gain the confidence of the packing-house managers with whom he must deal. During the packing season his work will be to travel from one packing-house to another in order to see that fruit being packed under the brand is up to specifications.

This brand should also be stamped on the label end of the boxes containing fruit that is up to the necessary quality. A uniform design for this brand should be adopted and should be as striking and as attractive as possible. This will mean some adjustment of present labels but it is essential. Possibly the two halves of a cut orange bearing the brand name could be super-imposed on present labels.

Fruit not coming up to the above specifications can still be shipped, if desired, under the ordinary brand of the packing-house so that the imposition of a high ratio can work no hardship on anyone.

The above recommendations by Professor Powell have not been approved of as yet but are included to give an indication of the basis on which a district brand may be built up.

A............
A further point of interest with regard to the South African export regulations is that only clean new boxes may be used to export fruit in. Some growers instead of using white boxes, which are slightly more expensive, have been using brownish boxes. The Trade Commissioner advises growers against this practice for the brown box is not as attractive as the white and therefore does not sell at as good a price.

California, by having a good local market, is at a great advantage over South Africa at present in that she only exports those counts which are most popular on the World's markets and can export these under two highly standardised brands. In this connection the Trade Commissioner for South Africa in London reports: "Whilst on the question of sizes there can be no doubt that South Africa exporters are faced with a very serious problem in the market prospects for very large oranges counts 80, 90 and 112. It must be realised that by the very nature of things there can only be a very limited trade for oranges of this size at a price which shippers still appear to expect".

The most popular counts on the English markets are from 176 to 200. There may be an outlet for the larger oranges, however, on the Netherlands markets which appear to prefer the shorter counts. Investigation in that direction may prove of infinite value to South Africa. Good quality oranges of the longer counts will always realise a fair price.

Some growers consider that the old 226 pack should be substituted for the 216 pack and the Government Fruit...
Fruit Inspector at Port Elizabeth, after a careful study of the packs during the 1928 season came to the same conclusion. He also considers the 340 pack to be unnecessary and points out that the right diameter for the 360 pack is 2 1/8 inches and not 2 inches.

Girls and women handle, wrap and pack oranges far better than men and youths. They are better adapted to the work which is clean, light and pleasant and should be well paid for in order to secure reliable and competent workers. Packers should wear gloves or very special attention should be paid to keeping the finger-nails short. With good treatment and good pay the same workers may be obtained season after season, the advantages of which are only too obvious.

With oranges properly graded for size, packing in the standard export box is simple and easy. It is of interest to note that no other box but the standard size as laid down in the regulations, is acceptable to the overseas markets. In the standard packs shown in the accompanying diagram there is a place for every orange providing that the packing is done correctly, neatly and firmly. A well packed box of oranges on arrival at its destination, should open up with a neat and attractive appearance; this can be assured by adopting the packs shown and seeing to getting the correct bulge in the box. To obtain the best results, wrapping and packing should be done by the same person who should stand during the operation.

The utmost care must be observed in all operations.
Several mechanical devices known as fruit-box presses are in use for assisting in nailing down the cover which must be done in accordance to rules. Nailing up the boxes must be done quickly, carefully and efficiently and needs a handy person. Boxes must not be nailed in the centre and nails must be driven squarely into the end pieces and not into the fruit.

The box must be marked in accordance with the regulations and only good marking material that will not smudge or rub off, must be used. All marks should be made with care to neatness for an attractive appearance goes a long way towards realizing a high price.

Remarking on the labelling of boxes for export, Mr. Pulmer of the Repacking Depot, Cape Town, recommends packers to either have an attractive label, as most packing-houses have, or else get their brand stamped into the boxes when they are manufactured. The extra cost will be well compensated for by the nice appearance and hence readier sale of the boxes. He also recommends packers to use rubber stamps for marking the counts and varieties of the fruit on the boxes.

The country of origin should clearly be indicated as a member of the British Empire for the Empire Marketing Board are encouraging the consumption of Empire products in the United Kingdom, which is at present South Africa’s greatest fruit market.

Quality..............
QUALITY.

The Imperial Economic Committee, after a thorough investigation of the United Kingdom fruit markets, report that: "It is up to the producers to do everything in their power to improve the quality of their output and to arrange for its delivery on the British market in prime condition."

"It is absolutely futile and hopeless to ship to the British market anything but the best. Inferior quality graded fruit is invariably slaughtered at great loss to the seller and tends, moreover, to prejudice and depreciate the general market for the good fruit by an appreciable amount."

On reviewing the criticisms of the overseas salesmen and customers, it becomes evident that the quality of her citrus fruit in the past has been no credit to South Africa. Moreover, the inferior quality of the South African product, taken as a whole and compared with the Californian, has been responsible for a certain amount of prejudice under which the South African article is still suffering.

As late as 1927 we find the following extract in the report of the overseas representative:-

"We regret that we are unable to express satisfaction with the quality, especially in regard to navals. We have on many occasions pointed out that although much good fruit was shipped from South Africa, yet this was overshadowed by a great deal which should never have been allowed to leave the country. There were large quantities of fruit puffy and dry and what juice there was, had little or no flavour. The Late Valentias were mostly........."
mostly very good but lacked sweetness, the percentage of sugar being many points below that of Californian fruit.

"South African Grape fruit has also come under the ban of buyers owing to the very thick skin and pith. A further point which elicited the buyers' criticism, was the large number of seeds and absence of juice."

The Trade Commissioner in his report on the reasons for the low prices during 1927 confirms everything that is contained in the above extract and adds "these factors in a poor season such as 1927 more than overshadow the undoubted excellence of much of the better class fruit.

That the position indicated above even as bad as it appears, was an improvement on former years there is no doubt. Mr. Pickstone reports that the Government Fruit Inspector prior to 1927 found that a considerable percentage of South African oranges were, for all intents and purposes, lemons in disguise. Again on 9th February 1926 Mr. Dana King, Orange Sales Manager of the Californian Fruit Growers Exchange, while commenting on the South African oranges on the London Market makes the following statement: "the South African Fruit was very dry and after ordering it on two occasions we 'passed it up'. The character of the fruit seems to be that of a very dry Thompsons Naval".

Improvement in propagation and cultural practices have enabled the export standards, as laid down in the regulations governing fruit export, to be made higher so that each succeeding season now is marked by an improvement in the quality of South African citrus fruits reaching the overseas market. In 1928 for instance,
a total solids-acid ratio was introduced and also the minimum weight of a box of fruit for export was increased by two pounds. As a result of the improvements in quality the "Produce Markets Review" of August 25th, 1926 reports as follows:

"It is pleasing to note that what is lacking in quantity (speaking of South African Oranges) is made up for by quality, as the fruit generally so far this season has been exceptionally good for outstanding merit the well known brands have advertised themselves", and again in their issue of November 3rd, 1926, "Despite the arrival from other competitive sources South African oranges maintain their popularity as they are undoubtedly the best flavoured fruit at present on the market.

On the 1926 citrus export season the London office of the Exchange reports as follows: "We are very glad to be able to report that the quality as a whole, compared with last season was much better this year. We saw very few of the dry, puffy oranges which were unfortunately so much in evidence last year, and we heard of very few complaints from buyers. Appearance and colour were also good, particularly towards the end of the season. There was quite a quantity of scarred fruit and occasional comments have been made regarding the lack of sugar in the Seedlings and the Late Valencias.

"Unfortunately with the exception of two or three marks, the South African Grapefruit is still thick-skinned, puffy, lacking juice and often full of seeds, and it is only due to the fact that it comes when the market is bare that it has done as well as it has.

It.........
It realised abnormal figures this year and shippers were very lucky indeed for as soon as the better quality fruit from other countries arrived in large quantities, prices declined and remained low.

These remarks, while undoubtedly showing that the quality of the South African citrus fruit has improved, must not be taken too literally for the 1928 season was an exceptionally good one just as the 1927 and 1929 seasons were exceptionally bad ones and when a commodity is meeting a good market, the presence of a percentage of poor fruit has but little effect on the whole. It finds its own level of values and sells accordingly. When the position is reversed as in 1927 and 1929 and there is a bad market to be faced, every slight defect is magnified and made the most of and the value of the article as a whole suffers in consequence.

**REJECTIONS.**

The reasons why fruit is rejected at the coast and at inland inspection centres are:-

1. Waste;
2. Poor Quality;
3. Injured fruits;
4. Bad packing;
5. Culls;
6. Incorrect marking;
7. Damaged in transit;
8. Scale;
9. Faulty packing eg. missing counts etc.
10. Underweight;
11. General untidiness.

*During..........*
During the 1927 season the following amounts of fruit were rejected:

At Port Elizabeth 11,196 cases;
At Durban 4,667 cases;
At Koster 1,660 cases, and
At Capetown 22,557 cases.

At Capetown 15% of the fruit rejected, was on account of inferior quality, 34% for underweight and 51% because of unsound condition.

The Chief Fruit Inspector for South Africa commenting on the 1927 season reports that the comparatively small percentage of rejections due to inferior quality should not be taken as indicating a uniformly high standard of quality as it is difficult to devise a practical working basis for both the grower and the inspector to decide what is or what is not a fruit of export quality.

During the 1928 season the fruit rejected was as follows:— (In tons)

<table>
<thead>
<tr>
<th>Causes</th>
<th>Cape Town</th>
<th>Port Elizabeth</th>
<th>Durban</th>
<th>East London</th>
<th>Inland</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsoundness</td>
<td>1,511</td>
<td>157</td>
<td>153</td>
<td>12</td>
<td>96</td>
<td>1,909</td>
</tr>
<tr>
<td>Poor Quality</td>
<td>233</td>
<td>22</td>
<td>19</td>
<td>-</td>
<td>141</td>
<td>415</td>
</tr>
<tr>
<td>Underweight</td>
<td>539</td>
<td>249</td>
<td>18</td>
<td>-</td>
<td>116</td>
<td>922</td>
</tr>
<tr>
<td>Immaturity</td>
<td>15</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>135</td>
<td>150</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>164</td>
<td>13</td>
<td>8</td>
<td>-</td>
<td>98</td>
<td>283</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,469</strong></td>
<td><strong>441</strong></td>
<td><strong>173</strong></td>
<td><strong>12</strong></td>
<td><strong>586</strong></td>
<td><strong>3,679</strong></td>
</tr>
</tbody>
</table>

The figures for Capetown show that 61% of the rejections were due to unsound condition. The comparable figure for 1927 was 51%. Growers should take note of this and take more care in the handling and grading of their............
their fruit. At Capetown 283 consignments were rejected during the 1926 season as compared with 204 during 1927.

Approximately 900 tons more fruit were rejected in 1928 than in 1927 and this in spite of the fact that the total amount of fruit presented for export during the former was less. This was due to the fact that the export standards, as laid down in the regulations for the 1928 season were higher; and rightly so, than they were for the previous season.

Thus just over 7 per cent of the total amount of fruit for export was rejected in 1928. Taking everything into consideration, this is a very serious state of affairs and growers should do all in their power to remedy it. If it is not remedied, it means that when South Africa exports ten million cases, seven hundred thousand cases or, taking the value at £1 per case £700,000 worth of fruit will be rejected before it leaves the country.

**WEIGHT.**

In his annual report on the citrus season for 1927, the Chief Fruit Inspector for the Union pointed out that the minimum weights as then laid down in the Government Export regulations, were too low for they allowed a considerable quantity of fruit that was of inferior quality even though it was several pounds over the stipulated weight to reach the overseas market. He considered that the test for quality by weight was reliable providing the minimum was sufficiently high as a fruit of high weight can be accepted as being good in quality as far as thinness of skin, abundance of juice and minimum of rag are concerned.
In order to prove his contentions, he recorded the weights of a large number of boxes of fruit arriving at the port during the 1927 season and these records can be summarised as follows: (In pounds weight).

<table>
<thead>
<tr>
<th>Variety</th>
<th>Short Counts (96-126)</th>
<th>Long Counts (150-126)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NO. OF MIN.</td>
<td>MAX. WT.</td>
</tr>
<tr>
<td>Navels</td>
<td>306</td>
<td>72</td>
</tr>
<tr>
<td>Seedlings</td>
<td>61</td>
<td>72</td>
</tr>
<tr>
<td>Valencias</td>
<td>66</td>
<td>72</td>
</tr>
</tbody>
</table>

The average weights for the short counts of Navels, Seedlings and Valencias were 75.6, 75.2 and 76.2 lbs. respectively. The average weights for the long counts were 79.3, 79.3 and 79.6 lbs respectively.

As a result of these investigations, the Minister of Agriculture agreed to raise the minimum weights of all oranges exported during the 1928 season by two pounds with the result that the minimum weights to which citrus fruit must now conform before it is allowed to be exported, is as stipulated in the export regulations for the seasons 1928 and 1929 respectively.

Without doubt this has been a valuable step in eliminating the poorer quality fruit from export but there seems to be a feeling that the minimum weight for the 150 - pack should be a pound less than what it is at present.

In exceptional instances, however, weight as seen from the following two examples is not a guarantee of quality.

EG. 1 .............
### Mr. 1.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Count</th>
<th>Weight per case</th>
<th>Juice</th>
<th>Skin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valencia</td>
<td>176</td>
<td>77 lbs</td>
<td>27%</td>
<td>6%</td>
</tr>
<tr>
<td>Valencia</td>
<td>176</td>
<td>77 lbs</td>
<td>42%</td>
<td>49%</td>
</tr>
</tbody>
</table>

This is certainly an extreme case but it furnishes a good example of a heavy but worthless type of fruit.

### Mr. 2.

The second example is that of a consignment of 49 cases of navals reported by Mr. Dreyer, Government Fruit Inspector. None of the seven cases, all varying in counts from 96 to 288 weighed, were underweight but the fruit was of exceptionally poor quality being a mass of dry coarse saps with about the same amount of juice as one generally finds in a good apple.

A certain amount of weight is lost by the fruit in transit to the coast due to loss of water by transpiration and evaporation. These two means of losing water are governed by several factors such as relative humidity, ventilation, etc., and cause a loss in weight of about 4% per day whilst in transit. This factor should be thoroughly investigated in order that farmers may know exactly what the loss in weight in transit will be and make due allowance for such loss and thus forestall all rejections due to underweight.

**THE SO-CALLED MATURITY TEST FOR EXPORT ORANGES.**

That the overseas market is accustomed to an orange of the highest quality and expects it to be of sufficient importance to bear repetition and what is more, it will take no other as clearly illustrated by............
by the fact that brands known to be of inferior quality were sold at prices which did not cover the cost of marketing in 1929, while the higher quality brands returned profitable prices to the shippers.

The only safe and reliable guide upon which to fix export standards must be quality based on some such definite test as the test of the total soluble solids - acid ratio. California learned this years ago and by adopting the eight to one total soluble solids- acid ratio have standardised in their own home and export markets based fruit of a character behind which it is safe to spend money on propaganda, and which has created its own demand.

To show the need for a maturity standard one cannot do better than quote an extract from a communication dated 7th July, 1927, from the Trade Commissioner, London:

"With reference to your letter A.3/4 of the 10th June, it was observed from the regulations published in the Government Gazette, dated 27th May, that oranges are now required to pass a 7 to 1 ratio of soluble solids to acid test before permission for export is granted. This is undoubtedly a step in the right direction and I hope that it may one day result in the elimination of the complaints that are invariably received at the commencement of a season to the effect that our oranges are sour. I do not wish to convey the impression that such complaints are general. On the contrary, particularly this season, they have been singularly few; yet there is the fact to be faced that if there are grounds for even the slightest of complaints, a certain amount of harm must be done to the general good name of South African...."
African oranges and this more than likely will react on the demand and consequently effect the price of subsequent shipments.

It may be added that comments, public, official and private, have been made from time to time in more or less caustic terms on South Africa's "sour oranges".

Why a maturity standard must be by a mechanical test and not by taste, is because the palate, quite apart from the personal factor, cannot always be depended upon for two reasons:

(a) When all the oranges in a district are sour ones, palate has no standards of comparison and accordingly becomes accustomed to the sour fruit;
(b) A very sour orange may ruin one's palate for several hours.

No. 12 (e) of the Export Regulations (Government Notice 759 of 1927) states "... and unless oranges will pass a 7 : 1 ratio of soluble solids to acid test they shall not be exported ...."

When this test was put into action, it was found that a strict adherence to it, would cause many growers severe losses and possibly even prevent all export from some growers while it would delay picking in Rhodesia for about a month with the result that picking would only be commenced about the middle of August and all Rhodesia's oranges must be shipped before the end of September otherwise they are over-ripe for export.

Accordingly, the South African Co-operative Citrus Exchange Limited requested the Department of Agriculture to rescind this portion of Regulation 12(e) for the 1927 season. The request was granted and it was further...
further agreed that the Inspector's office should collect as much information as possible on the degree of maturity as defined by this test, attained by the different varieties of oranges from different localities throughout the season.

More than 1,000 tests were made during the season. The results for the different varieties and different localities were kept separate and published in the Chief Fruit Inspector's report No. 4, 1927, which gives a wealth of valuable information on these tests.

Contrary to the experience of most of the other countries it was found that the "sourness" of South African fruit in many cases was not merely due to immaturity of the fruit but rather to some inherent characteristic. In general, however, the ratio does seem to increase during the season - the increase being greatest and most regular in the case of the Washington Naval Oranges while Seedlings exhibit the least regularity.

The conclusions arrived at from the data accumulated may be summed up as follows:— that

(1) The ratio of the total soluble solids acid has a direct relation to the flavour within certain fairly wide limits;

(2) While the mean values of this ratio are distinct, the individual tests show considerable overlapping due to the fact that a normal soluble solids content coupled with an abnormally low acid content gives a wide ratio though the quality of the fruit may be poor.

(3) The Washington Naval Orange is considerably sweeter than either the Seedling or the Valencia Late;

(4) ........
(4) The percentage of sour oranges decreases as the season advances though inherently sour oranges remain such.

(5) A low soluble solids content coupled with a high ratio indicates insipidness.

(6) Although in the main the quality from the point of view of flavour and sweetness of the different varieties improved with the advance of the season, many irregularities were found to exist. This applied particularly to the Seedling oranges and is probably due to the multiplicity of strains.

(7) In general the ratio of the best flavoured fruits was found to be between 6 : 1 and 10 : 1 and ordinarily fruits with a ratio of 5 : 1 or less were very sour.

The South African Co-operative Citrus Exchange Limited furnished a number of cases of oranges towards the end of 1927 for the purpose of determining whether any change takes place in the ratio during storage and in transit to England.

Conclusions drawn from the results were:

(1) That in general a slight rise in the ratio takes place during storage.

(2) That storage at 67° F usually gives a greater increase in the total soluble solids acid ratio than storage at 45° F.

(3) That the rise in the ratio in all cases is so small that the period of storage to which fruit would have to be subjected to make any appreciable difference in the total soluble solids acid ratio is too long to warrant the extra expense of storage and the risk of loss due to over-ripeness.
In considering the above conclusions it must be remembered that the physiological process in the different citrus varieties and strains of a variety are different; to cite an extreme case in the lemon according to some unpublished work by the Chief Fruit Inspector of the Union, there is an increase in acid, in the Washington Naval a decrease, the amount of change depending greatly on the stage of ripeness of the fruit.

Working on the same subject Mr. K. V. Pack, chemist of Rhodesia, came to the following conclusions:

1. As it is difficult to select oranges of an even degree of ripeness at the time of picking, some lack of uniformity as regards ripeness must occur in fruit packed in the same case. It follows, therefore, that accordant results in duplicate samples taken at the same time are not always to be expected. On that account any change in the ratio of soluble solids to the acidity of orange juice must be considerable if it is to be concluded with certainty that such a change naturally takes place during storage.

2. It would appear that no marked change occurs in the ratio of soluble solids to acidity of the juice of oranges during a period of three months storage at the ordinary temperature after picking and that any increase in the ratio which may take place during the transit of oranges from Rhodesia to England immediately after picking will not exceed about one part of soluble solids compared with the acidity of the juice expressed as unity.

The following figures, taken from an unpublished paper by the Chief Fruit Inspector of the Union, on the ripening of Washington Naval oranges from Groot Drakenstein...
Drakenstein are of interest here as they show the change in acidity over a period of storage at 43° F and also the difference between the total soluble solids in the juice and the actual sugar in the juice as determined by chemical analysis:

<table>
<thead>
<tr>
<th>Tests</th>
<th>Percentage Sol. Solids</th>
<th>Percentage Total Sugar</th>
<th>Percentage Acid</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Test</td>
<td>11.7</td>
<td>6.9</td>
<td>1.92</td>
<td>6.1 : 1</td>
</tr>
<tr>
<td>Test after 42 days</td>
<td>12.0</td>
<td>9.3</td>
<td>1.04</td>
<td>11.6 : 1</td>
</tr>
<tr>
<td>Test after 79 days</td>
<td>11.6</td>
<td>9.4</td>
<td>0.81</td>
<td>14.3 : 1</td>
</tr>
</tbody>
</table>

From these figures it appears that there is an increase in total sugar and a decrease in the percentage of acid in the Naval orange during storage. More experiments, however, are needed to confirm this and whether the same state of affairs exists in the other varieties and strains of citrus fruits is still to be determined.

The question of humidity was not taken into account in this experiment so that it may have varied and thus may have effected the results. It would be of interest to determine whether during the process of storage humidity has an effect on the total soluble solids acid ratio and what this effect is.

The tests made during the 1927 season were the basis for fixing the maturity standards for 1928. The ratio of Total Soluble Solids to anhydrous citric acid were fixed at 5 : 1, 5.5 : 1 and 6 : 1 for Seedlings, Valencias (and other late varieties) and Nava1s respectively. These set ratios are low and consequently it was realised at the time that the export of only sweet fruit would not be realised thereby. The test has,
however, prevented the export of unpalatably sour fruit and also it has brought the question of the internal quality of the fruit as opposed to external appearance into better perspective. Most packhouses and many individual growers have testing-outsuits and where they have not, they have usually taken the precaution of sending samples for test to the nearest Fruit Inspector's office before packing for export.

Further tests were made and recorded during the 1928 season. In general the results derived from these confirmed those derived from the tests of 1927, and it appears that the fruit from some sections has a larger percentage of sour fruit than that from others, but in the opinion of the writer this is not due to soil or climatic conditions, which, if responsible, would result in practically all the fruit being sour while a large percentage of it registers a test of over 7:1. In all probability the high percentage of sour fruit is due to the propagation of the trees from inherently "sour" parent-trees or it may be due to the effect of the stock on the scion. In this latter connection it must be remembered that the stocks are propagated from seeds and thus very variable - the effect of different strains of stocks on the scion is being investigated at the sub-Tropical Horticultural Research Station at Nelspruit. Another factor that contradicts those that consider "sourness" to be due to soil and climate, is that a "sour" and a "sweet" tree may be found standing next to each other.

The tests for 1928 show that 18.7%, 89.4% and 70.3% of South African Navals, Seedlings and Valencias respectively.
respectively have a ratio of less than $7 : 1$.

When taken into consideration that all Californian oranges test at least $5 : 1$, these percentages make evident one of the reasons why California always realises higher prices for her citrus fruits than South Africa.

As South Africa must depend on her export market to dispose of her fruit, it is imperative that she should take drastic steps to improve the present state of affairs if she intends to compete successfully on the overseas markets. To improve the position still further a ratio should be introduced that will be applicable to grape-fruit.

The ratio for oranges as it stands at present, is far too low and in order to protect the interests of those farmers with comparatively sour fruit, the Government shows no inclination to higher the standards.

Under these circumstances the best possible solution for those farmers in localities, such as the Eastern Province, that produce a high quality of fruit is to co-operate to export their fruit under a general brand of which the minimum standards for export must be as high as those of California. Such a brand must be adequately advertised and in this way the producers of a high quality fruit will be adequately rewarded for their superior quality.

The main object of the test is to prevent the export of oranges that are sour. This it can do but what is almost, if not quite, as important, is the elimination from export of insipid oranges. The test furnishes sufficient information to make it possible to eliminate a good deal of insipid fruit.

With......
With a few exceptions growers had little difficulty in complying with the 1928 maturity standards. In fact growers from some areas such as Sunday's River Valley would welcome an increase in the minimum ratios.

The most important difficulty occurred in the Transvaal in the case of the "Australian" type naval oranges. This orange is of really good quality in texture, juice-content and thickness of skin although in its shape it is frequently flattish. The juice of this fruit was higher in acid than the Washington Navals, from the same areas, specially during the first few months of the season. The total soluble solids content, however, was very similar in both types. By the time the fruit had reached the required ratio it was almost too late to ship. Tests illustrating this difference were made at White River and are shown in table 10.

### Table 10.
Comparison between Washington and Australian Navals.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>April</td>
<td>5 1.35 10.5 8.1</td>
<td>5 1.46 10.6 8.7</td>
</tr>
<tr>
<td>May</td>
<td>26 1.32 10.0 7.8</td>
<td>26 1.48 10.2 7.9</td>
</tr>
<tr>
<td>June</td>
<td>71 1.31 10.0 8.1</td>
<td>15 1.62 9.7 6.1</td>
</tr>
<tr>
<td>July</td>
<td>52 1.44 10.3 7.3</td>
<td>14 1.53 10.4 6.9</td>
</tr>
<tr>
<td>August</td>
<td>11 1.56 10.6 6.7</td>
<td>15 1.45 10.7 7.3</td>
</tr>
</tbody>
</table>

Some difficulty was experienced, particularly in one Packhouse, with Valencia Late oranges. Here the trouble was an economic one arising out of the desire to curtail........
curtail the packing season as much as possible.

There seems to be a general tendency of farmers to pick the Valencia Late oranges too soon, if some variety which would satisfactorily bridge over the gap between the Naval and the Valencia Late season, there would be less likelihood of this.

Table II gives a comparison between the ratios of Navals, Seedlings and Valencia Oranges respectively. Generally the largest fruits in a consignment are of poorer flavour than the smallest fruits; for this reason the 176 count was chosen for most of the tests as this size is a good average for these varieties.

Table II
Tests of 176 count oranges at Capetown 1928 Season.
- - - - - - - - - -

<table>
<thead>
<tr>
<th>Variety</th>
<th>No. of Solids:Acid Ratio</th>
<th>SOLIDS</th>
<th>ACID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navals</td>
<td>21 11.5:1.3 9.1:1</td>
<td>13.7</td>
<td>7.7</td>
</tr>
<tr>
<td>Seedlings</td>
<td>68 12.2:1.9 6.9:1</td>
<td>15.1</td>
<td>7.7</td>
</tr>
<tr>
<td>Valencia</td>
<td>59 10.9:1.5 7.3:1</td>
<td>12.4</td>
<td>8.3</td>
</tr>
</tbody>
</table>

From these figures it is evident that while the seedling orange has a higher solids content than either the Washington Naval or the Valencia Late, it also has a still higher acid-content which places it as the sharpest flavoured of the three varieties. The Washington Naval is the sweetest.

Table 12 shows the ratios of different counts from one consignment and from the figures it is apparent that the short counts are of poorer quality than the longer counts.
This table brings out the fact that the smaller fruits are actually of better value than the larger fruits.

In order to get a better idea of palatability and of insipidness, a test was made with sugar-acid solutions in place of orange juices. Both the total soluble solids content and the ratios of total soluble solids to acid were varied in the different series that were tested. It was found possible to arrange by taste the series in consecutive order. In general those mixtures were best to the taste which had a ratio of total soluble solids to acid of about 7 : 1 to 10 : 1 inclusive and this was not greatly effected by changes in total soluble solids content. Small changes in acid concentrations were more noticeable than small changes in sugar concentrations and insipidness was associated with low acid content coupled generally.

<table>
<thead>
<tr>
<th>Count</th>
<th>Solids</th>
<th>Acid</th>
<th>Ratio</th>
<th>Flavour</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>9.1</td>
<td>0.6</td>
<td>14.2 : 1</td>
<td>Insipid</td>
</tr>
<tr>
<td>80</td>
<td>10.8</td>
<td>0.7</td>
<td>15.2 : 1</td>
<td>Insipid</td>
</tr>
<tr>
<td>96</td>
<td>12.4</td>
<td>0.8</td>
<td>15.1 : 1</td>
<td>Fairly Good</td>
</tr>
<tr>
<td>112</td>
<td>11.5</td>
<td>0.9</td>
<td>13.5 : 1</td>
<td>Fairly Good</td>
</tr>
<tr>
<td>126</td>
<td>12.2</td>
<td>0.9</td>
<td>13.1 : 1</td>
<td>Fairly Good</td>
</tr>
<tr>
<td>150</td>
<td>11.3</td>
<td>0.9</td>
<td>12.3 : 1</td>
<td>Fairly Good</td>
</tr>
<tr>
<td>176</td>
<td>12.8</td>
<td>0.9</td>
<td>15.0 : 1</td>
<td>Fairly Good</td>
</tr>
<tr>
<td>200</td>
<td>13.1</td>
<td>0.9</td>
<td>14.7 : 1</td>
<td>Fairly good</td>
</tr>
<tr>
<td>216</td>
<td>13.0</td>
<td>1.0</td>
<td>12.8 : 1</td>
<td>Good</td>
</tr>
<tr>
<td>252</td>
<td>12.1</td>
<td>1.0</td>
<td>11.6 : 1</td>
<td>Good</td>
</tr>
<tr>
<td>288</td>
<td>14.0</td>
<td>1.0</td>
<td>14.0 : 1</td>
<td>Good</td>
</tr>
</tbody>
</table>
generally with a fairly low total solids content. This applies equally well to orange juices but in practice one's opinion of quality of fruit depends a great deal on the circumstances of the test. For example a juice such as this — solids 9.2%, acid 0.56%, ratio 16.4:1 is poor in flavour and one would say so unhesitatingly if one had a juice such as this:— Solids 12.3, acid 1.16 ratio 10.6:1 to compare it with but without this comparison the flavour may be adjudged good. It is therefore difficult to lay down a scientifically sound standard designed to prevent the export of insipid oranges which would be certain not to penalise any grower unnecessarily.

In orange juice there may be anything from two to four per cent of substances in solution other than sugars and acid. This fact possibly accounts to some extent for the somewhat inconsistent flavour records obtained during the tests though the circumstances under which the test is made are as important. The introduction of an actual chemical analysis would hardly be practicable as it would make the test too involved. As an example of the inconsistency accruing in the tests the following three tests on different consignments of Washington Navals will be of interest:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9.2</td>
<td>0.72</td>
<td>12.8</td>
<td>Sweet, fairly good.</td>
</tr>
<tr>
<td>9.2</td>
<td>0.56</td>
<td>16.4</td>
<td>Very sweet.</td>
</tr>
<tr>
<td>9.3</td>
<td>0.73</td>
<td>12.7</td>
<td>Very insipid.</td>
</tr>
</tbody>
</table>

As already pointed out weight is not a sufficient criterion of quality. Wherever a maturity test was made during the 1928 season at Capetown a record was kept at

the...........

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the same time of the percentage juice and skin in the sample. The juice was extracted as thoroughly as possible by means of an ordinary conical fluted squeezer.

The results obtained are given in Table 1, further data is being collected but in the meantime the accompanying graphs are given, as, although they are based on meagre data they do seem to bear out one's conclusions on the three chief varieties exported from South Africa.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Seedlings</th>
<th>Valleya</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>31</td>
<td>182</td>
<td>176</td>
</tr>
<tr>
<td></td>
<td>1.60</td>
<td>0.69</td>
<td>0.69</td>
</tr>
<tr>
<td>0.93</td>
<td>0.93</td>
<td>1.04</td>
<td>1.04</td>
</tr>
<tr>
<td>0.35</td>
<td>0.35</td>
<td>45.0</td>
<td>45.0</td>
</tr>
<tr>
<td>0.85</td>
<td>0.85</td>
<td>48.7</td>
<td>48.7</td>
</tr>
<tr>
<td>1.04</td>
<td>1.04</td>
<td>9.3</td>
<td>9.3</td>
</tr>
<tr>
<td>0.99</td>
<td>0.99</td>
<td>6.3</td>
<td>6.3</td>
</tr>
<tr>
<td>1.05</td>
<td>1.05</td>
<td>9.9</td>
<td>9.9</td>
</tr>
<tr>
<td></td>
<td>49.6</td>
<td>46.6</td>
<td>46.6</td>
</tr>
<tr>
<td></td>
<td>6.4</td>
<td>9.4</td>
<td>9.4</td>
</tr>
</tbody>
</table>

Table 1

Mean Values 176 Count.
In Fig. 1 curves are given showing the variation in juice content of South African oranges: (A) represents Valencias (B) Seedlings and (C) Navals. The average juice content, represented by point O in the figure, of Valencias is 48%, of Seedlings 44% and of Navals 41%. The curves show that about 11.6%, 10.5% and 9.2% of the Valencias, Seedlings and Navals respectively have the average juice content of the variety, furthermore, there is greater variation in juice content in Navals than in either of the other two varieties, Valencias being the least variable. The elimination from export of fruit which has a juice content of say 3% or more, less than the normal, would be a great benefit to South Africa's reputation on the overseas market.

Fig. 2 shows the relationship between the size of the fruit and the amount of juice and skin. The curves A and B representing juice and skin respectively are based on actual measurements made from samples of various counts. If the skin were uniform both in thickness and texture and similarly the pulp in quality and juiciness, one would expect the curves for juice and skin to take the form shown respectively by X and Y in the figure. The fact that there is agreement only in the longer counts (from about the 252 count upwards) points to uniformity in quality there, but to some falling off in the quality in the larger fruits.

CONCLUSIONS:

(1) Navals have a higher percentage of skin but they vary less in this respect than either Valencias or Seedlings which are very similar.

(2)........
(2) Navals have less juice than either Valencias or Seedlings and vary more in this respect. Valencias vary least.

(3) Over a range of counts the percentage skin is greater in the larger fruits than one would expect it to be on theoretical grounds; vice versa the percentage of juice is less.

(4) It is only in the long counts that these relations approximate to the theoretical.

(5) The popular counts are therefore actually better value from quality point of view than either the larger or smaller fruits.

(6) The juice content of the fruit furnishes an easy and accurate measure of its quality, if taken in conjunction with the chemical maturity test.

While most of the above evidence has been extracted from the reports of the Government Fruit Inspector, the Division of Horticulture has also been active in experimental and observation work on the problem of the sour orange.

Bulletins Nos. 37 and 50 both deal with this subject as also an article, written by Dr. Bruno Rahn, Senior Horticulturist, Department of Agriculture, in the July issue of "The Citrus Grower".

Dr. Rahn says that "the growers position may be:

(a) that he is in the habit of picking his crop too early and that he can improve its sugar content by leaving it longer on the trees;

(b) that his trees are a mixed lot, some of which ripen later than others in which case he can leave the late-maturing trees to be packed later; or

(c).....
(c) that some or all his trees are of an inherently sour strain which will not improve by hanging on the trees longer.

Such trees of which the fruit is intended for export should be either topworked to some known standard variety of known high quality or be replaced by a high quality tree. The sour fruit is, however, often very rich in total soluble solids and fails to pass the ratio only because of an extremely high acid content. It is valuable for the making of orange squash and fresh orange drinks and may, therefore, be disposed of locally without difficulty to firms which specialise in such beverages in yearly increasing quantities.

The claim that fruit sweetens up during wilting has been shown to be true but uneconomical for if the fruit is allowed to remain on the tree for the same period of time as it is wilted for, it sweetens up to the same extent as the wilted fruit which loses up to 25 per cent in weight during wilting.

Some growers with sweet fruit are inclined to ship their fruit as soon as it reaches the required ratio, which is very low, and before it is mature. Dr. Rahne is of opinion that to prevent this "it may become necessary to set minimum standards for total soluble solids and for acid content of the juice below which it will be illegal to export oranges". Such a regulation would be of practical application and would not only prevent the export of immature fruit of potentially high quality but would also eliminate the most insipid fruit from the export trade.

While there are many difficulties connected with imposing a higher total soluble solids-acid ratio, farmers should........
should impose such a ratio upon themselves and make it compulsory to gradually widen the ratio of their fruit, where economically possible, until it reaches the 8:1 standard for it is with fruit of this ratio that South African oranges have to compete on the overseas markets.

In order to increase local consumption of fruit some such form of guarantee of standard quality as the "sugar" acid ratio should be introduced for all fruit marketed locally.

TRANSPORT.

A glance at any geographical map of the Union at once reveals the unfortunate fact that South Africa has no large inland water ways which can serve as a cheap means of transport. This fact, besides being of importance from the point of view of the present day transport, has had a great retarding influence on the development of the Union especially from the agricultural viewpoint.

Since South Africa then has no inland water ways, she has to depend on animals, motors and railways - all of which are comparatively expensive means of transport - to do all her transport to and from the coast.

Animal transport was undoubtedly the first means of transport used by Europeans in South Africa. The earlier type of wagon, however, was not suited to the transport of citrus fruits as we understand it to-day. We read of the transport of oranges loose in the bottom of ordinary "buck-wagons" for distances of fifty miles and more to local markets. To-day we find the more conservative and non-progressive type of "bywoner" farmer still using the same type......
type of transport that was used by his forefathers centuries ago. The orange, and for that matter any type of fruit is a highly delicate commodity and needs the most careful and only the most careful transport. No person to-day should buy fruit that has been handled in a way that potato farmers would be ashamed of handling potatoes.

Fortunately the progressive farmers (and these are the exporters) have realised that the manner of transport largely determines the condition of the fruit on its arrival at its destination. To-day spring-trolleys are in general use for the conveyance of the "lug boxes" of fruit from orchard to the receiving depot, packing house or station while larger specially constructed wagons are used to transport the fruit from the receiving depots to the packhouse and again from the packhouse to the station if this is necessary. For facility in handling and transporting where possible the pack-house should always be constructed at the railway station.

In former years oxen were used for all transport but fortunately the mule has replaced the ox in horticultural practices for the latter is more liable to damage trees in the orchard and is far too slow and too difficult to handle for intensive farming.

**Motor Transport:**

An increasing use of motor-transport is taking place at present. The motors may be the property of either individual farmers, co-operative packhouses or the Railway Administration.

Where individual farmers or packhouses use motor-transport, it merely displaces the trolley and wagon trans-
port especially the latter for difficulty is sometimes encountered in getting into the orchard and so spring trolleys are used to cart the fruit to the receiving depot outside the orchard from whence the motor transport is available.

Where important citrus areas are long distances from railway stations, the Railway Administration will on contract undertake to do all the farmer's transport from the packhouse or receiving depot to the station. Railway motor-power is thus transporting to the extent of 100,000 cases of fruit per annum from Muden to Greytown a distance of 14½ miles at a charge of 9d per case.

At Rustenburg the farmers have a contract with the Railway Administration to transport all their fruit from the respective farms to the control packhouse while at Montagu the fruit is transported from the farms to the Montagu packhouse and thence to Ashton Railway station all by railway motors.

Motor and wagon transport naturally raise the question of roads. While the main roads are fairly good, they can still be greatly improved. The ordinary farm roads, however, are in general a disgrace and should be improved greatly for reasons of economy of time and vehicles as well as to insure the easy transport of the fruit. It is over these roads that the fruit must be transported before it is packed and it therefore behoves every farmer where practicable to see that his farm roads are in good condition - he must not wait for the Government to do everything.

Railway........
Railway Transport.

Railway transport in general and of fruit in particular has not reached nearly the same high standard of efficiency that it has in California for instance.

Owing to lack of refrigerating chambers and the insufficiency of refrigerated railway cars, the inland transport of all citrus fruits is by ventilated cars and it is doubtful whether refrigerated transport for citrus will be used - not for at least ten to fifteen years at any rate. However, it is important enough to warrant thorough investigation especially in view of the excessive waste experienced during the 1929 season and for those who wish to try it, the railway will supply refrigerated cars at an extra cost of 9d per 100 pounds weight of fruit for a distance of 1,000 miles.

In some cases railways are used for the transport of "lug boxes" of citrus fruits from the producers' nearest stations to central packhouses returning the empty lug-boxes but the more general use of railways is for the transport of the packed fruit from the inland producing centres to the ports.

Though the transport is performed fairly efficiently, there are still several complaints most of which are in connection with the transport of fruit for local markets. A fairly common complaint in connection with fruit transport is that with a few exceptions packhouses are only allowed one day in which to load often causing the departure of half cars of fruit with the result that transhipment often takes place and the fruit receives more handling than advisable, whereas if an extra day for loading was allowed where necessary this extra handling would be prevented, fewer trucks needed and less damage to the fruit necessitated.
A further complaint in connection with export of fruit is that an extra tariff charge is made on export fruit that is rejected at the coast even when that fruit is of no use and lost to the grower.

In connection with the fruit for local markets although transhipment is unavoidable, it is felt that it can be improved upon for pockets of fruit which weigh less and are therefore easier to handle generally show less damage than fruit packed in cases for local markets. This may be due to the heavier weight of the case or to (a) loading bulge up or bulge down; (b) loose loading causing displacement in transit, or (c) the standing on cases by graders.

It is generally admitted that for the transport of fruit in pockets, cars fitted with trays are best suited but for fruit packed in standard citrus boxes the car without trays is to be recommended.

All railway officials and their staff should be educated to the fact that fruit is a very delicate product and they should be trained to handle it with the essential care.

It must be remembered that while the Citrus Exchange has undoubtedly done much to improve transport methods both over land and by sea, the Government have by legislation made possible the export market for citrus fruits - if it were not for the reduced railway rates and other facilities offered by the South African Railways and Harbours, the export of citrus fruits from South Africa would be well-nigh impossible.

The specially constructed ventilated cars in use at present are of several sizes and many designs, but for efficiency the larger "bogeys" of modern construction are to..........
to be preferred. During the shipping season a ready supply of such cars is usually kept at the shipping centres and can be obtained on a few hours notice, but during periods of a shortage in cars several days' notice must be given if a car is needed. In practically all cases there are sufficient cars available for the transport of export fruit but fruit-cars are not always to be obtained for fruit for local markets and in such cases the Railway Administration, where possible, supply thoroughly clean cattle trucks. This though not of frequent occurrence, must be condemned. Luckily, however, the Administration is authority for the statement that there will be a sufficiency of fruit cars to meet the demands of the increasing fruit traffic.

During the export season the Railway Administration co-ordinates its services in such a way that as far as practically possible, there is a "through" service from all the main producing centres to the coast on certain days of the week with the result that as little time as possible is lost in conveying the fruit to the coast. The time saved by this co-ordination between White River and Cape Town may be as long as twenty-four hours.

There is no standardized method of packing fruit-cases in the cars - some prefer to pack it flat while others claim that packing on end is to be preferred - reliable information on the different merits of the different systems used would perhaps be of value and assist in standardization.

Interesting experiments are being carried out with regard to the respective merits of the different positions of fruit in the railway-cars for efficient transport.
transport. These results will undoubtedly be of great assistance in designing new cars for fruit traffic.

This year (1929) an attempt is being made to further eliminate unnecessary handling of the fruit by packing it directly on the skids at the loading centres. This means that the first time the individual boxes of fruit will be handled after loading is when they are stowed away in the cold chambers of the ship on to which they are loaded. Naturally on arrival at Cape Town a few cases of fruit will be removed from the skids for inspection purposes.

Facilities for Fruit Export at the Docks.

All handling of citrus fruits exported from the Inland Producing Centres from the time it is loaded on the railway-car to the time it is loaded into the ship is done by the South African Railways & Harbours.

Shipping through Cape Town.

Precooling storage of a capacity of 3,828 shipping tons, considered to be the most modern in the world is available at the East Pier berth, No. 8 quay, and precoolcd commodities can be shipped direct from cool chambers, of which there are seventy of equal size, to the ship.

The cold chambers were constructed to minimise the continual loss due to the decay of perishable products in transit to Europe and on January 12, 1926, the first fruit was precoolcd in them.

The cooling efficiency of the chambers can be judged from the fact that their temperature can be reduced to......
to 34° F within twenty-four hours. Their working capacity can be computed at three full loads a week or roughly 200,000 cases of citrus fruits.

On arrival at Cape Town the railways fruit-cars are run into the refrigerated inspection chamber which is behind the baggage store and not interfering with cargo-working or passenger traffic in any way. After inspection the fruit is stacked into specially constructed skids which run on their own wheels: these skids are run along on large electric skids into the lifts which carry them to the first or second floor refrigerating chambers as required. The lifts discharge the skids into the traverser alley; the skids are pushed out from the lift on to an electric trolley which runs them along the alley to the chamber that is being filled. Each chamber has an iron track along which the six skids that fill the one side of the chamber are pushed. When the twelve skids are in position, the chamber is full and it is closed.

The unloading process in the same way except that the traverser alley at the quay-side is used. Thus loading into the ship is carried on without interference with the filling of other chambers from the inspection floor. The whole is a merit of clear planning for downright efficient service for an end is made of the wasteful labour of carrying every box by hand. Once the boxes are in the skids, they are not handled again until the skid has been lowered into the ship's hold. Each "lift" of the quayside crane carries five tons of fruit from the unloading platforms, of which there are eight all on the first floor, direct into the ship.
In times of stress it might happen that fruit arrives late and has to be shipped the following day. In this case the customary method of handling is impossible and another method has to be used. Their "airlocks" (receiving depot) which is very ingeniously constructed saves the situation. The whole reception depot is closed and made airtight, the temperature decreased and the fruit is precooled for twenty-four hours before being shipped to the cool chambers of the waiting ship.

The Perishable Products Export Control Board has complete control of arrangements in connection with cold storage, shipping space, etc. At Cape Town then there are shipping facilities for fruit equal to any in the world.

At Durban.

Owing to the fact that precooiling facilities at Durban have been very limited and that they have been all privately owned firms, most of the citrus fruits shipped thus far have passed through Cape Town.

Realising the fact that Durban was by far the most convenient of the Union Harbours through which to ship the Eastern Transvaal fruit and the natural harbour of Natal, a precooiling station with cooling chambers of a capacity of 3,000 shipping tons similar to the one at Cape Town is being constructed. A section of the cooling chamber is completed and fruit was cooled therein for the first time on the 3rd June 1929.

The completion of these facilities will be a great improvement to Durban harbour and no doubt place that harbour as the dispatching port for all fruit from Eastern and Northern Transvaal as well as from Natal.
Port Elizabeth.

Port Elizabeth is the natural harbour for the export of fruit from the Eastern Province. Unfortunately there are no cold storage facilities such as those at Cape Town. The shed and storage capacity, however, is over two million cubic feet and four refrigerating lighters of a capacity of 400 tons have been specially constructed for the export fruit traffic.

A breakwater (7,800 feet long) is being constructed and owing to the fact that the fruit industry in Eastern Province is rapidly developing, a precooling station will most likely be constructed when the breakwater is completed.

Mossel Bay and Buffalo Harbour.

Owing to the very small quantity of citrus fruit that is being shipped through these two harbours, it is very doubtful whether precooling stations will ever be constructed at either.

To obtain an idea of the amount of citrus fruit shipped through each of the main South African ports reference can be made to the following table: (amounts given in cases).

<table>
<thead>
<tr>
<th>Port</th>
<th>1927</th>
<th>1928</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cape Town</td>
<td>562,815 cases</td>
<td>621,790</td>
</tr>
<tr>
<td>Mossel Bay</td>
<td>4,263</td>
<td>4,058</td>
</tr>
<tr>
<td>Port Elizabeth</td>
<td>152,991</td>
<td>91,398</td>
</tr>
<tr>
<td>East London</td>
<td>18,613</td>
<td>27,200</td>
</tr>
<tr>
<td>Durban</td>
<td>180,231</td>
<td>135,415</td>
</tr>
</tbody>
</table>

Lourenço.............
Lourenco Marques.

Although this is the natural port for the Eastern Transvaal, it is at present in possession of the Portuguese and although at one time it could have become the property of the Union of South Africa for a comparatively small sum, the Portuguese are absolutely unwilling to part with it at present. It is not, however, the writer's intention to enter into a discussion of the politics concerning the question, but merely to discuss the merits of the harbour from the point of view of the Citrus Industry Precooling facilities claimed to be similar to those at Cape Town are being constructed. Port improvements are being made and provided the quantity of fruit shipped through Lourenco Marques warrants it, a regular mail boat service, will most likely come into operation. There seems to be every reason to expect that, provided a suitable agreement from the political point of view can be arrived at and provided the transport and shipping charges are not too high, this will eventually be the port of export for all the citrus fruits from Northern and Eastern Transvaal.

Shipping.

It became necessary, as exports increased, to secure the most favourable terms from the shipping companies with regard to ocean freight rates and the Cape Government utilised the mail contract as a lever by which better terms could and would be secured. It may be mentioned that a fairly heavy subsidy was paid to the Union Castle Company every year for carrying the mails.

The..............
The terms previous to 1912 were not too favourable to fruit exporters but the Union Castle Steamship Company were persuaded to grant a concession in the shape of lowered rates on all fruit which had passed the Government Fruit Inspector.

During the war fabulous prices were realised. The war, however, had played havoc with South African shipping facilities and the Union Castle Steamship Company's fleet was considerably reduced and quite unable to cope with the constantly increasing quantities offered for shipment. In 1921 notwithstanding all their efforts and the hiring of freights from outside sources, the accumulation of fruit at Cape Town became a matter of the utmost concern. Many thousands of boxes of oranges arrived daily and the weekly mail steamers were only able to reduce the numbers by very small shipments.

Under these circumstances very considerable losses were incurred. Thousands of boxes awaited shipment for from two to three months with little or no opportunity of cold storage and on their arrival at their destination were neither a credit to South Africa or a source of profit to the sender.

It was at this time that the need of some organised body was felt most acutely. Offers of ships had been made to the Union Castle Company by other lines but there was no-body of any kind to represent the Fruit Industry by or with whom arrangements could be made and as a consequence the opportunities were lost.

On the 15th September, 1921, a meeting was held to establish an Exchange and in 1922 the Fruitgrowers' Co-operative Exchange of South Africa was registered.
One of the first activities of the Exchange was to deal with the export of fruit and to undertake the securing of adequate shipping space at the right time so that the fruit for export could be removed from South African Ports and transported to the markets overseas in as perfect condition and as expeditiously as possible.

In 1923 on the initiative of the Exchange a Shipping Committee composed of three members of the Directorate was appointed to make arrangements for the shipping of deciduous fruit and at the special request of the Citrus Sub-Board the same personnel acted for citrus fruits during that season.

Early in the season of 1924 in so far as the citrus fruit was concerned the arrangements were for the shipping space to be allocated to the several ports by the Union Castle Steamship Company after consultation with the Exchange but subsequently arrangements were made by which the whole export space of the Union Castle Steamships at the several ports excluding Durban was placed at the disposal of the Shipping Committee. In the early part of the season all reservations of cold-storage space in the Australian Lines proceeding to Europe via South Africa were made through the Union Castle Company and all space so reserved had to be guaranteed as to payment. Later on direct negotiations with the Australian Lines resulted in those Lines agreeing to reserve space on the same basis as was done by the Union Castle Steamship Company, i.e. on condition that the fullest data available was to be provided and space reserved accordingly but without any definite guarantee or responsibility beyond bona fide action....
The shipping Committee also arranged with the Australian Line that instead of the agencies at Cape Town and Durban as previously acting independently of each other, the Cape Town Office was to be the controlling centre for this freight.

This control of the whole of the cool chamber and fan-room freight space commenced on August 1, 1924, and broke down on August 14, 1924.

Having arranged for the allocation of shipping-space, the Exchange decided that fruit should be shipped at the various ports strictly in order of priority of arrival firstly in the cold storage in the Union Castle ships, secondly in cold storage on the Australian ships and thirdly when no more cold storage was available in fan ventilated holds in either Union Castle or Australian ships.

Owing to the impossibility to obtain sufficient shipping space hold-ups of five to twenty days took place during the month of July, 1924.

On the 14th August the Durban agent for the "Muripides" contrary to the arrangements of the Cape Town agent booked space for about 1,500 cases of citrus which resulted in the whole system of shipment on priority of arrival being jeopardised at Durban and caused a reversion to the unsatisfactory conditions where anyone could make arrangements directly with the ship's agent.

Fortunately this did not interfere to any great extent with shipping at other ports but although the shipping arrangements for 1924 were a great improvement on former years, complaints from various quarters led to a committee being appointed by the Government to investigate the...........
the conditions prevailing during 1924.

As a result of their investigations, the Committee recommended that a representative control board be appointed to deal with all shipping matters.

By Act No. 12, 1925 a Fruit Export Control Board was constituted by the Government to provide for the control of the export of fruit from the Union and of the shipment of fruit at Union ports.

Although the fact that the Board was appointed by the Governor-General and not elected, caused much opposition from the farmers. The benefits derived from its work were of such a promising nature that by Act 53 of 1926 the Government constituted the Perishable Products Export Control Board (hereinafter referred to as the Control Board) to provide for the control of perishable products intended to be exported from the Union and of the shipment and export of such products and for the repeal of the Fruit Export Control Act of 1925.

The Control Board is composed of three members appointed by the Governor-General who nominates one of these as chairman and three members recommended by the Fruit Exchange and appointed by the Governor-General.

The Citrus Industry has one representative, the Deciduous Fruit Industry one and the egg and poultry Industry one. In all cases where the voting on both sides of a question is equal, the chairman has the casting vote. This gives the three non-representative members an assured majority in all cases.

This fact together with the fact that the Control Board did make a few serious errors in the beginning, caused...
caused much discontent among growers and even the Fruit Exchange was strongly opposed to the Act.

The present attitude of the Fruit Growers' Exchange is embodied in the following resolution:—

"That we, the Directors of the Board of the South African Fruitgrowers' Exchange Limited, feel it our duty to commend to all fruit exporters of the Union and Rhodesia whether members of the respective Citrus and Deciduous Exchanges or not, our conviction that it is a duty incumbent upon them, one and all, to whole-heartedly co-operate with the control Board in every way possible and render to them any assistance in their power because we feel that all the services, we hope and expect they may be able to render to exporters, depend upon the goodwill of us all, and we issue this strong plea to our members and other growers for their whole-hearted help in every way possible. This Board whilst not in agreement on all points unreservedly declare themselves out to secure its smooth working in the general interest of all exporters of perishable products over which the Board exercises control."

It may be stated at this point that the principle of a Government constituted control (they themselves reserving the right to nominate the permanent members of the Control Board with their assured majority whether producers have confidence in their nominations or not) was unique in the annals of legislation. No country had ever propounded such a proposition. However, the Control Board gained wisdom by experience and is doing excellent work at present. Its methods of operation, as far as the citrus export fruit is concerned, are to send out estimation.
tion forms to the growers in February or March each season. The grower estimates what his crop for the season will be and fills in the form returning it to the Control Board. Later further estimation forms are sent out and the growers fill in the amounts of fruit that they expect to ship each week. The Control Board then with these estimates together with their experience gained in former years book the amount of shipping space required at the various periods. This booking is done a long time in advance but may be changed on six weeks' notice before the date of loading. All growers are expected to be very careful in their estimates so as to facilitate the working of the Control Board as far as possible. If any grower finds that he has made an error in his estimation and gives due notification thereof, the Control Board assists as far as possible to get the space booked filled up with fruit from other sources or with other products.

All citrus fruits are shipped on the system of priority of arrival. To the writer it appears that the introduction of the act may have been responsible for a diminishing of confidence in the Fruit Exchange and therefore it may have had a retarding effect on co-operative development in the Fruit Industry. To enjoy the full confidence of all growers and to foster the co-operative development, the members of the Control Board should be appointed by the South African Fruitgrowers' Exchange Limited.

On the repeated recommendations of the Fruit Exchange, the Control Board and various other shipping interests........
interests in South Africa, the Union Government entered into a contract for a period of ten years to take effect from January 1, 1929, with the Union Castle Steamship Company. The result of this is that sufficient refrigerating space of a satisfactory quality will be available to meet the demands for years to come. In the event of the increasing space available in the Union Castle Steamships not being sufficient, the Union Castle Company is responsible for making arrangements with other lines to remove the bulk of the remaining products that cannot be removed by the regular steamers.

The agreement makes provision for the increase in quantity of refrigerating space, the quality of refrigerated space, ports of delivery, speed of delivery etc., but on the other hand space that is contracted for and not filled, will have to be paid for and what is more serious, any fruit arriving late will be shut out from shipment. It will thus be apparent that in future the need for giving estimates and giving correct estimates, will be greater than ever for space in mail boats must be booked on the Saturday before each mail ship is due to arrive at Cape Town from Europe, in Intermediate and other regular ships four weeks before the ship is due to sail from Cape Town and in other ships two months notice is required. The estimates must reach the Control Board at least four weeks before shipping.

In 1929 a Shipping Board was enacting to give advice on matters of freight charges, allocation of space etc.

The Union Castle Steamships carry most of their cargoes to Southampton and make provision for the con-
Voyance of fruit to Nine Elms Station, London, free of extra charges.

For shipments direct to the European Continent, the East, or the New World, other lines which are rapidly improving in efficiency are available but transhipment has in some cases to be resorted to.

In general it may be stated that the shipping facilities at present at the disposal of the Citrus Fruit Industry in South Africa are very favourable and are rapidly improving.

The Future Development of the Industry.

The expectations of high returns in a few years to come and of the rapid development of the Citrus Industry have in general not been realised, though fairly rapid development has taken place. The reasons for this disappointment were:— generally unsound cultural methods, the presence in the groves of large percentages of worthless trees due to faulty propagation, the absence of sound organisation and the erratic market returns.

Unfortunately little has been done in the past in the way of experimental work and though an Experimental Station has been started at Nelspruit, it will be at least ten years before it will produce any reliable results. This means that growers must evolve their own methods of production but unfortunately the majority do not have the necessary training, the time or the money to carry out their own field experiments.

During the past two or three years the great majority of growers and nurserymen have realised the importance of such problems as bud selection, fertilisation, fumigation, .......

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fumigation etc., with the result that a better class of tree has been planted in the majority of the more recent orchards.

As already pointed out over a million-and-a-half trees have not yet reached their full bearing capacity, while close on a million of these have only just started bearing. Taking these figures into consideration one is led to believe that the export trade from South Africa will be close on five million cases of citrus fruits by 1935 even after allowing for a certain amount of working over of trees that are of off-type strains.

South Africa has a very large area of land (probably over a million acres) suited to the culture of citrus fruits but future plantings will be limited by the very important question of profitable marketing. As will be seen later citrus planting is going on rapidly in certain other parts of the world but taking the potential markets into consideration, it is very doubtful whether the much feared over-production point will be reached at any time in the near future, providing high quality fruit is produced.

It is the writer's opinion that providing South Africa produces a high standard quality of fruit, she has nothing to fear as far as finding a profitable market for the fruit is concerned. She can produce a high quality fruit providing well selected trees of popular varieties are planted in well adapted areas where the fruits mature at the right time and provided that these fruits be marketed through a very efficient organisation.

It may be found necessary to market locally the fruit from areas such as the Eastern Transvaal, where the Valencia........
Valencia Late variety of fruit matures too late to be profitably marketed on the overseas markets. It may be necessary to hold this fruit over to market it during the Xmas season and plantings in such areas should be restricted so as to co-ordinate supply and demand.

The foundation of a marketing organisation - the South African Co-operative Citrus Exchange - has already been established but to provide the best services it must handle at least 80% of the fruit produced and to make and maintain citrus growing a profitable industry in South Africa, it is essential for citrus farmers to give their whole-hearted support to their Exchange.

It is only by the sale of a highly standardized product through an efficiently functioning organisation that South African citrus growers can hope to place their Industry on a sound basis - a basis which will assure their future prosperity.
CHAPTER III.

THE COST OF PRODUCTION.

The rapid increase in production of all types of fruit will no doubt be accompanied by a gradual decrease in price realisations for citrus fruits on the overseas markets.

While organisation on both producer's and consumer's sides is tending to eliminate unnecessary intermediaries in the marketing machinery, it is doubtful whether such organisation will accomplish any great saving in the actual cost of marketing as it stands today. Where it can effect economy, however, is by wholesale purchase of the farmers' requisites and by giving the farmer beneficial advice on all the problems connected with the industry. Moreover, organisation tends to minimise the risks entailed in marketing, as far as the individual is concerned, by pooling of the product.

Seeing then that very little saving can be effected in the cost of marketing and that the price return to the farmer per unit of fruit will tend to decrease rather than increase, producers will be forced to cut down their production costs to a minimum and to realise the highest possible price per unit of fruit.

To effect savings in the cost of production, one of the first necessities is that all the trees in the orchard should produce abundant fruit of a superior quality for cost of planting, pruning, fumigation, cultivation, irrigation and interest on capital invested are the same whether........
whether the tree is high producing or low producing and whether it produces high quality fruit or fruit of a low quality. To ascertain which trees are uneconomical, it is essential to keep individual tree-performance records and trees that are unprofitable should be worked over to or replaced by ones that are known to be profitable. In this way the maximum returns will be assured from the more or less constant costs and thereby the cost of production per unit of product will be at a minimum. It may be noted here that high yielding capacity is usually correlated with high quality of fruit.

Economy in production can further be effected by the co-operation of producers in processes such as pruning, fumigation, transport etc. The limits of such co-operation will naturally be determined by local factors.

Costs of production naturally vary from place to place, from season to season, from orchard to orchard and from tree to tree depending on a number of factors such as distance from railway, the certainty or otherwise of obtaining a crop for insurance against risk increases the cost of production; the presence or absence of an effective citrus organisation, irrigation charges, amount of cultivation, cost of labour, etc.

As can be deduced from the above, the cost of production per box of fruit varies inversely with the production of fruit per acre i.e. a high yield per acre is usually accompanied by a low production cost per box of fruit.
The factors that are taken as production factors are:

A. Manual and Animal Labour
   1. Ploughing, harrowing and cultivation;
   2. Irrigating;
   3. Manuring;
   4. Spraying;
   5. Fumigating;
   6. Pruning.

B. Cash expenses.

C. Depreciation and Maintenance costs.

D. Interest on improved orchard plus interest on machinery and working capital.

All other factors from picking onwards will be considered as costs of marketing.

The results of a survey on the costs of production of Citrus Fruit showed that these varied greatly in the different areas as can be seen from the following figures:

<table>
<thead>
<tr>
<th>Operation</th>
<th>Cost per acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ploughing, harrowing and cultivating</td>
<td>From 16/- to 43.17. -</td>
</tr>
<tr>
<td>Irrigating</td>
<td>4/- 1.13. 2</td>
</tr>
<tr>
<td>Manuring</td>
<td>5/- 1.16. 6</td>
</tr>
<tr>
<td>Spraying</td>
<td>1½d 1. 1. -</td>
</tr>
<tr>
<td>Fumigating</td>
<td>0 1. 5.11</td>
</tr>
<tr>
<td>Pruning</td>
<td>2½d 12. 7½</td>
</tr>
<tr>
<td>Cash Expenses</td>
<td>£22.10. 8 11.10. 5</td>
</tr>
<tr>
<td>Depreciation &amp; Maintenance costs</td>
<td>19. - 4.18. 6</td>
</tr>
<tr>
<td>Interest</td>
<td>7.15.- 20. 8.10</td>
</tr>
</tbody>
</table>

Total cost of production From £14.17.- to £39.14. -
From these figures which were compiled by the Division of Economics and Markets, an idea of the great variation existing in costs of production for trees, six to seven years of age, can be obtained.

It is interesting to note that where the cost per acre was the highest, the yield was the highest and the corresponding profit per acre the highest. This, however, is not always the case but it was found to be a general rule that where the trees all carried commercial crops and where consequently the yield per acre was high, the cost of production per box of fruit was the lowest and hence the profit the highest.

The yield per acre was found to be anything from 42 packed cases to 711 cases. In one orchard where the yield was 52 cases per acre, it was found that the producer was operating under a loss of £9 per acre whereas the farmer obtaining 711 cases per acre showed a profit of £33/10/- per acre.

In general then it will be in the farmers' best interests to replace any low yielding and off-type fruit trees by high yielding ones of known superior quality so as to obtain a high yield per acre and thereby be assured of a reasonable profit after deducting all operating costs.

According to these figures, the cost of production per box of fruit varies from 2/3d to about 8/7d while in California the corresponding cost of production is about £52/10/- per acre or 5/- to 6/6d per box of fruit.

Owing........
Owing to the relative cheapness of South African labour and other advantages, the cost of production for citrus fruits in South Africa should be lower than in California.

Unfortunately the agricultural producer is always subject to the law of diminishing returns and it is found that any additional outlay after a certain limit, produces a decreased return. The point at which the most economical return will be obtained naturally varies with local conditions but each farmer should determine that point for himself so as to be sure that he is operating on the most sound economical basis.
CHAPTER IV.

THE MARKETING OF SOUTH AFRICAN CITRUS FRUITS.

Three general systems of marketing their fruit on the overseas markets are utilised by producers in South Africa. In the first system the individual producer consigns his fruit to an overseas salesman either directly or by means of that salesman's agent in this country; in the second, the fruit is consigned by a body of farmers to the salesman either directly or by means of the agent, and in the third case several bodies of farmers consign their fruit through their own South African Co-Operative Citrus Growers' Exchange to the overseas representative of the Exchange who distributes and supervises the sale of the fruit.

For convenience the first two systems will be dealt with together under the heading "unorganised marketing" and the third system under the heading "organised marketing".

Unorganised Marketing.

As already pointed out the fruit marketed under this system is consigned by the producer either individually or jointly with other individuals to a fruit broker (or commission salesman) at one or other of the main overseas receiving points. The primary sale takes place at these points where the brokers usually have their headquarters and receive the fruit as it is disembarked on the quay-side. The sale may be by auction or "private treaty" and is usually on a commission basis on account of the shipper overseas.

Auction......
**Auction Sales.**

Auctions are held at practically all of the larger receiving points and are generally owned and controlled by a few of the larger fruit brokers resident at the respective market centres.

As soon as possible after the fruit is discharged at the docks, it is classified, sorted and catalogued in readiness for the buyers before inspection and samples are drawn and forwarded to the sale rooms. Some auctioneers only show the fruit samples as lots are sold whereas others have sample rooms for the display of the fruit. Usually the fruit is sold ex-docks and the buyers are often permitted to examine the bulk there.

Auctions are held on fixed days of the week and the brokers, prior to the arrival of the fruit, notify all buyers by circular as to the quantity and class of the fruit to be sold so as to obtain as large an attendance of buyers as possible thereby ensuring the highest bids and selling the bulk of the fruit as rapidly as possible. The brokers are in the unfortunate position of having to protect values but at the same time disposing of consignments quickly in order that they may not be swamped by the large number and bulk of incoming shipments of which the South Africans are only a very minor portion.

The method followed, of course, ensures quick and apparent correct returns to the shipper for the prices are open to inspection. There exists, however, the possibility of brokers keeping two sets of books and in some instances false returns have actually been made but the old established firms are usually to be considered reliable.
In the event of the bulk of the consignment not being up to the standard of the displayed sample, a buyer on the United Kingdom market can reject any shipment within 24 hours after the auction and this privilege can be used as a lever to bring about a price adjustment. On the other hand if the sample is inferior to the bulk and the sale is made with the sample as representing the quality of the whole, the buyer naturally says nothing and the shipper has received a lower price than he would have received if the sample had been truly representative.

Most auction sales are open, i.e. anybody, at the discretion of the auctioneer, is allowed to go in and buy but certain auctions such as those at Liverpool and Manchester are closed and only members of the Buyers' Association are allowed to buy.Where the number of buyers is small, closed auctions are very undesirable for there exists the danger of a "ring" of buyers being formed but where the membership of the Buyers' Association is large, it is said that there is little danger of this occurring. The closed auctions of course facilitate credit.

At practically all auctions both buyers and brokers usually form associations in order to deal with matters which may arise between the two in a co-operative manner and also to ensure correct selling and facilitate such.

Most of the auction firms are old and well established, owning well-built modern sale and sample rooms with up-to-date facilities and the buyers coming from wide-spread areas act as distributing agents.

Auction....
Auction sales are excellent on a rising or standing market but are not so good on a falling market, for in the latter wholesalers tend to hold off until no further depression occurs.

The essential feature at auction sales is the concentrated competition between buyers but at private-treaty sales the competition between the sellers is the principal factor.

**Private Treaty Sales:**

These take place mainly at the larger ports but there are private treaty salesmen at other ports also. Most of these private treaty firms receive their fruit direct from the producer or through their own agents. As in the case of the brokers they all sell on shippers' account at an agreed rate of commission and subject to the deduction of handling charges.

In connection with the commission charges, it may be stated that some salesmen have been found to charge a commission on the sale of the fruit when prices have been high but when prices have been low, they have charged a flat rate per box of fruit sold. This is naturally to safeguard their own interests but is nevertheless undesirable from the grower's point of view.

"Private Treaty" salesmen dispose of fruit by the method of personal bargaining with their customers and the facilities they possess for warehousing which naturally increase their overhead charges, give them more latitude in holding for higher values than is possessed by the auction broker. In some conditions of market this is a definite advantage. On the other hand when fresh shipments........
shipments are coming in every week which is the normal situation during a great part of the season, their slower methods of distribution tend from time to time to result in the accumulation of stocks which must eventually be disposed of by auction at depreciated values. Very often the private treaty salesman has to take his prices as determined by the auction if the two coincide in time and place. The publicity check on returns is lacking. In the case of transaction based on personal negotiation, the retention of the good-will of the purchaser must necessarily loom largely in the salesman's eye and buyers may obtain fruit at a lower price than it is actually selling for on the auctions by playing one salesman off against the other. In the absence of any check on the part of the shipper, discrimination may from time to time arise under such a system in the matter of price between lot and lot. It is also known that the private treaty salesman may sell one type of fruit, e.g. oranges, at a discount on condition that the buyer also purchases another lot of fruit e.g. apples. In such a case the owner of the oranges looses. Where fruit is of doubtful quality speculators, street-barkers and others take their opportunities and it is here where South Africa suffers on account of the uncertain standard of many of her marks. Greater satisfaction is obtained from the auction system in cases where large quantities of fruit on regular consignment have to be dealt with especially when such fruit has gone off condition slightly during transit; whereas for really fancy fruit, the private treaty salesman has........
has better opportunities for demanding a higher price. The latter often has wide-spread branches of his business in other markets thus bringing the product to the door of the buyers and retailers of nearly every large city and town of importance. For the orange trade of South Africa, both systems are serving their purpose. Several auction brokers have connections in both English and Continental markets. On the account of the irregularity of supply in large enough quantities to the various auctions, price comparisons on returns from firms for both auction and private treaty sales would show no data of importance and would certainly not warrant the adoption of one of the two on that basis only although auctions do appear to be the most popular.

In addition to the above mal-practices in the "Linlithgow Departmental Committee Report on Distribution and Prices of Agricultural Produce in Great Britain", reference is made to the illegal practice of "averaging returns" and to the method of rendering sales accounts in such a way that the detailed costs are not shown.

Of course both these practices are detrimental to the interests of the producers. It is argued that the report referred only to produce produced in Great Britain - this is true but seeing that growers close to the markets were subject to such disorders, is it not more than probable that growers situated more than six thousand miles away would receive even worse treatment?

The report further refers to the practice of commission salesmen buying and selling on their own account at the same time as they were operating on a commission basis........
basis.

There exists great competitions among the oversea brokers to obtain fruit for their sales. As a consequence many of the brokers have in their efforts to increase their business ceased to be commission salesmen pure and simple. To secure more and more fruit they have gradually elaborated methods of attaching the producers to them by assisting them to finance the picking and packing of the fruit. In this way there has grown up a system of brokers advances to growers in the absence of any other method of covering their immediate expenses.

Many brokers have established agencies in the producing countries. The agents visit the producers while the crops are still growing and endeavour to secure control of the fruit on behalf of their principals. Competition thus arises between these brokers' agents who in the same district bid against one another for the better qualities of fruit by offering greater and greater immediate financial advantages.

From advances to cover the bare cost of the ocean freight, this system has grown so that advances are now sufficient to meet the cost of packing and shipment and in some cases even a portion of the expenses of harvesting. It has even gone further to a point where the broker has on occasion bought a half interest in the fruit which is then shipped not on a commission basis but on the joint account of shipper and broker. It may also happen that the broker has special salaried men to buy the fruit for him at his own sale in which case he collects a commission for selling the fruit to himself and he then becomes a speculator buying the fruit on a low market and...
after gathering the commission for selling it to himself, selling it in his own interests on a higher market. It may also happen that he reports the shipment in a poor condition and so returns a low price to the grower than was actually realised for the fruit. So it happens that on the same day a broker may have on sale at the United Kingdom markets fruit in which he is interested in three capacities: as salesman without advances made or as salesman with advances or as part or whole owner. Naturally fruit in which the broker is interested, may be given preference by him. On the other hand he may sell fruit on which he has made advances at any price as long as he is assured of his advances and his commission.

That this diversity of interest in the case of the salesman is an undesirable state of affairs is unquestionable. In certain Continental countries brokers are compelled by law to confine their activities to their proper function and it would be in the best interests of all shippers if all salesmen had to conform to similar regulations.

The present methods of auction and "private treaty" sales have grown with the growth of the trade. In essence the system is based on the assumption that the broker receives fruit from the grower and sells it to a wholesale merchant for re-sale through the retail trade to the consumer.

As pointed out above the brokers may act merely as selling agents on behalf of distant growers or as wholesale merchants who purchase outright on their own account. Both usually act in the market and sell either
to other wholesale dealers or through buying agents to
wholesale merchants or retailers in other markets or
towns. About 90 per cent of the fruit passing through
wholesale markets is handled on commission.

Wholesale merchants may purchase fruit direct
and sell direct or through market to other wholesalers
or retailers.

The commission buyer acts as buying agent for
a provincial wholesaler or retailer purchasing supplies
on behalf of his principal from the commission salesman,
wholesaler, or occasionally direct from growers and usual-
ly making a flat rate charge for his services, he also
arranges for the transport of goods to their destination.

In extreme cases the grower may sell his fruit
to a local dealer. The dealer sells it through a com-
mission salesman to a commission buyer acting for a whole-
sale buyer who may sell the fruit to a second wholesaler
before it reaches the retailer and finally the consumer.

It will be clear from the preceding description
of the existing marketing process that occasionally the
services and costs of as many as six intermediaries may
be interposed between the grower and the consumer. At
each stage the produce is handled two or three times by
porters or railway employees making in some cases as many
as sixteen to twenty different handlings, while between
each stage long hauls by rail or road may increase the
tally of distributive charges.

THE INTERMEDIARIES:

The HAGGLERS: These are dealers or secondary
wholesalers who buy produce for resale as opportunity of-
fers. Frequently they have a considerable business with

larger............
larger consumers such as restaurants, hotels etc., for whom they act as buying agents or contractors thus rendering a service which their customers could not perform so efficiently or economically themselves.

The Commission Buyer: may buy on his own account or on his principal's account. In the first case he usually charges a commission of 4\% to 7\% per cent on the cost price which may include portage. If he is buying for a principal, he usually charges a flat rate of 1d-3d per package. He is a skilled buyer and in view of the constant fluctuations in supply and value, the skilled agent having the whole of the market supplies on which to operate, has a distinct advantage over the wholesaler who is limited to his own stocks. It is this condition which permits and justifies the continued existence of the commission buyer and keen competition tends to keep his charges low.

The Wholesaler: The principal for whom the commission buyer is acting may be either a distant wholesaler or a large retailer. The business of the wholesaler is speculative in character and adds from five to ten per cent on the cost price of the fruit to the price paid by the consumer. He usually has heavy overhead charges and often suffers severe losses through deterioration. In general it may be stated that he does not obtain more than a fair livelihood from his business although in some cases a clear profit of more than 30 per cent has gone to the wholesaler. The primary wholesaler may sell to another wholesaler before the fruit reaches the retailer. These secondary wholesalers only duplicate the cost of the primary wholesaler and seem to be........
be unnecessary for in such cases the combined costs of wholesaling absorb an abnormal proportion of the total costs of the service of distribution.

The Retailer: The business of retailing consists of sale to consumers of a wide variety of products which are assembled at the retailers premises for that purpose sufficient in variety and quantity to meet the requirements of a large number of individual householders. This naturally means that the retailer is not going to take particular trouble in the sale of any one particular article such as citrus fruits for instance.

The diversity of retail services demanded by the community and the wide range of costs entailed have resulted in the development of certain types of retail business. The large departmental stores for instance deliver to customers scattered over a wide urban and suburban area. Their trade is usually of a high class character which necessitates in more than ordinary care in market dealing and generally only the highest priced goods are bought. Extensive services in the direction of calling for orders and delivery of goods is also rendered by individual traders with a more or less select trade in the better class residential districts whose customers are concentrated within a convenient and comparatively short range of each self-contained retail establishment. Other businesses sell almost exclusively to customers who call personally for their goods. As a result of the elimination of service costs, such retailers are able to sell at lower prices giving "rock bottom" value.....
value. Finally there is the street trader or coster whose expenses are practically confined to the hire of a barrow or the upkeep of a horse and cart. These types are not rigidly definable and the larger business frequently merge the services, charges and characteristics of them all.

Generally retailing is confined to relatively small business units mainly on account of the keen competition that exists in the trade. Consideration of the position, however, appears to show that there must be a point beyond which any further increase will not necessarily react favourably on retail prices.

In general the retailer may be considered the "weak link" in the marketing system. Owing to the relative ease with which retail business can be started and to the insignificant trading capital required to commence operations practically anyone can start a retailing business. Due to lack of experience and knowledge of the trade many of them fail.

Owing to the general inefficiency and "weakness of their organisation, to the sudden deterioration of fruit in some cases and to the relatively small quantity of fruit handled by each leading to high overhead charges retailers in general appear to estimate that under normal circumstances the goods they handle must be sold at near 50 per cent above their purchase price if the costs of distribution are to be met and a reasonable remuneration provided. In other words one-third of the price paid by the consumer is normally required by the retailer to cover his expenses and profits. The chief complaint th
prefers to operate upon a small turnover and a relatively large margin of gross profit rather than by reducing prices to secure an equal or possibly greater financial return from a larger turnover. Retailers in general do not appear to adjust retail prices to conform with the reduced prices at which supplies are in some years procurable. The result is restricted demand at a time when increased consumption is the only means of saving the situation from the growers standpoint.

The establishments which undertake delivery and other services necessarily work on a relatively high margin of gross profit and representatives of consumers themselves have admitted that a large part of the cost of distribution in such cases must be laid at the door of the consumers who grow daily more exacting in their demands. His casual and erratic purchases, frequently of small quantities, and his general lack of method are further contributory factors. If consumers would place a regular order, some reduction in distributive costs would be possible while retailers would be able to adjust supply to requirements with greater precision. The retailer who charges the larger margin of profit, exists to a large extent by reason of a specific demand on the part of the public for services which, however, agreeable and convenient, are costly and not always necessary.

In general the competition from street traders and other retailers is sufficiently important to ensure that retailers generally do not take too heavy a toll upon the goods they handle but in order to reduce their costs, better organisation leading to more business and greater business efficiency is necessary.
Street Traders.

Street vendors, sometimes known as hawkers, costers, or hucksters are retailers who by reason of the almost complete elimination of overhead charges or by performing the minimum of service are enabled to work on a smaller margin of gross profit than the regular shop-keeper. Some deal in fruit and vegetables, others in fruit alone. Many are purely casual and only operate during the summer season. Their practice is buying fruit at the wholesale markets from merchants when prices have fallen sufficiently low to make the proposition attractive. By working on the principal of "small profits, quick returns" they bring produce within the reach of all. Their chance of successful business depends on the extent to which they can thus undersell the retail shops. The hawker is a most useful factor in the existing distributive system and forms a valuable protection to the consumer.

One of the main services that the hawker renders to the industry is that of clearing the market of surplus produce which would otherwise deteriorate and be wasted.

From the above it is clear that under this unorganised system of distribution and marketing much more handling of fruit than necessary takes place and as each handling means an additional charge, the percentage of the ultimate price paid by the consumer and absorbed in the process of marketing is greater than warranted for the services rendered. Further when fruit is consigned to a market irrespective of the relation of the supply to demand on the market at the time, there can be no certainty that........
that remunerative prices will be received for if there is a "glut" of fruit on the market, prices realised will be abnormally low and if there is an insufficiency of fruit, the prices will be high - an unsatisfactory condition if extended over any length of time for the higher prices will be repulsive to the poorer classes and hence the demand will be lessened.

A quotation from the "Review of the British Apple Market" by the Agricultural Committee for the United States Department of Agriculture is of interest:

"There are gilt edge firms that have been in the business for years whose word is as good as their bond and who are really anxious to secure the largest possible returns for the producer ....... Unfortunately there are, however, firms whose carelessness in picking samples, in putting the fruit up for sale when conditions of the market do not warrant it, in throwing the produce on any market so they can pocket their commission and even making private sales at their own convenience is often the cause of heavy loss. There is under the present system no way of checking these dishonest firms since they can easily say the fruit arrived out of condition and that the prices obtained were due to that cause. Again fruit is thrown on one market in a period of depression when it really should have been consigned to another. Thus the Glasgow market will be up and the London down. The London dealer, however, will throw the produce on the London market at a low price and get his commission rather than tranship and get a good price for the shipper in Glasgow......."
Glasgow and get no commission. The answer to complaints is that the goods were shipped to London and should be sold there."

This state of affairs results in a great deal of speculation which takes place because of the fluctuations in price caused by poor distribution and the middle-man or speculator profits at the expense of the producer as the ultimate price paid by the consumer remains more or less constant. Speculative buying can be beneficial as in the case where speculators make heavy purchases on a low market and thereby cause an upward tendency to come about. Low markets, however, would not exist under a well organised marketing system.

The importance of the question of the distribution of fruit to the most suitable market is only now commencing to receive due attention from producers. It is no reflection on the integrity and efficiency of auction brokers or commission salesmen to say that the interest of shippers can never be identical with theirs. Shippers are concerned to secure the best price for their fruit, brokers must depend for their earning on their securing supplies from every available source.

It is obvious that brokers who are established at one port, cannot recommend shipments to ports other than their own even though conditions may be such as to render such a course advisable in the interest of the shipper. The port authorities and the railway companies have an obvious interest in favouring a particular port. Some port authorities and railway companies have gone so far as to send a mission or maintain a representative......
sentative in another country for the purpose of influencing trade in their direction. Thus the interest of the port and railway authorities must be regarded as reinforcing that of the brokers in favour of concentration at their own port.

If the producer desires the best use to be made of the overseas marketing facilities, they must themselves undertake the delicate and responsible function of controlling and supervising distribution as between the different consuming areas in the overseas countries.

This as will be realised, can best be done through an organisation of producers.

Organised Marketing.

In a rapidly expanding industry such as the Citrus Industry of South Africa, the farmers are often confronted with several problems, the immediate solution of which is essential to place the industry on a stable basis and where these problems effect all producers alike, it is beyond the power of any individual to bring about a far reaching remedy. But where any single individual is helpless, the combined efforts of a group of individuals can bring about the desired results. It is through organisation alone that the farmer can hope to meet his present problems and by doing so take his rightful place in the economic life of the world. Until farmers can realise that their helpless position is due to independent action, agriculture will continue to be the least effective portion of the economic life of the world. Co-operative organisation is the only possible means whereby
the interests and desires of farmers as a whole can be
given full expression. A great deal of interest has
centred around co-operation in agriculture in recent
years and especially true has this been in South Africa
and in order to prevent any misconception as to the
possibilities of co-operative marketing, a brief outline
of its possibilities and limitations will be given.
Just what they are, will depend upon a number of factors
such as the nature of the commodity, the degree to which
private business has already perfected distribution of it,
upon the degree to which people are trained in co-operation
and upon whether the co-operation considered is of a local
or of a larger nature.

It will be long before all the possibilities
mentioned are fully realised. As a matter of fact
many of them are beyond the range of probability for
the immediate future though well within the range of
possibility if sought by men of ability and clear vision.
Moreover, all of them depend on good management.

Some of the outstanding possibilities of co-
operative marketing may be summarised as follows:
1. Standardization and improvement of production so that
   better quality may result.
2. Standardization and improvement of grade and pack for
   both local and distant markets.
3. Stabilising the production.
4. Controlling flow to markets so that all have a suffi-
   cient supply and yet none are over-supplied.
5. Improving distribution between markets.

6.............
6. Co-ordination of physical transport both on land and sea.
7. Advertising and the development of new markets to increase demand.
8. Collective bargaining thereby more or less stabilizing prices on the market and reducing costs.
10. Making marketing more efficient and eliminating speculation on the part of the trade.
11. Maintaining favourable public relations by presenting evidence against proposed harmful legislation or by presenting facts in favour of desirable legislation or by presenting justification for any contemplated actions on the part of the producers as a whole.
12. Erection and control of storage houses at shipping and receiving points.
13. General improvement of all trade and production practices.

Three limitations are set out particularly because they are so often listed as possibilities of cooperation. They are:

1. Co-operative associations cannot arbitrarily "fix" prices although they can and do exercise a favourable influence on prices.

2. Co-operative organisations cannot "eliminate the middle-man" except in the sense of combining the function performed by a number of dealers at any given stage in the marketing process. What they really do is:
   a. to substitute a co-operative agency for a private, and
   b. to combine a series of steps in the marketing process under one management.

................................
3. Co-operative marketing cannot cut costs greatly. That is, a co-operative organisation cannot operate a given business unit any more cheaply than a private concern could operate the same unit. They may, however, cut their costs if they can increase the volume of business over that of the larger private dealers or if they can operate as efficiently as the more efficient of these.

There are also some inherent difficulties which capable management may and often does overcome. Most important among these are:

1. It is difficult to maintain harmony between management and members.
2. Members become careless as co-operative citizens failing to vote or making poor selections of officers.
3. There is often a tendency towards extravagance.
4. Outsiders sometimes get higher prices than members even when an organisation is functioning efficiently.
5. Members of a new organisation often expect impossibilities.

The management of a co-operative association must not only be an efficient manager but must keep his membership with him. He must have such a vision of what a strong organisation can do that his enthusiasm becomes contagious without leading to extravagant expectations.

Many co-operative organisations have been formed in various parts of the world in recent years, large numbers of which have been failures or at best only partially successful. A few have been outstandingly successful and........
and if a careful survey of these is made, it will be seen that they are based on certain fundamental principles. On the other hand it is clear that the organizations that have not been outstandingly beneficial to their members have failed chiefly through violation or disregard of these underlying principles.

**Principles underlying Co-Operative Organisation.**

The late G. Harold Powell, former general manager of the Californian Fruit Growers' Exchange states "Co-operation among farmers may be defined as an enterprise in which the members form an agency through which they conduct their business for their greatest mutual advantage". Of the soundness of this doctrine there can be no doubt.

The general principles upon which all the successful co-operations are based may be summarised as follows:

1. It must arise from economic necessity.

2. Definite, well-marked economic benefits must result soon after organisation in order to strengthen the position of the organisation.

3. Membership must be confined solely to producers engaged in the production of the particular commodity handled by the organisation in order to maintain the interest and confidence of members.

4. A co-operative organisation must be based chiefly on the loyalty and full confidence of the members in one another and one of the best means of expressing this mutual trust is in the adoption of equality of voting. If equality of voting is not adopted a definite limit should be placed on the number of votes accruing to one man.

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© University of Perusa
able associates and generous financial provision in this respect is one of the prime factors in success.

11. The operations of an organisation should be conducted at cost plus, if necessary, current interest on the capital stock.

12. Pooling is essential for the building up of a uniform brand and it enables the management to distribute one product uniformly. It reduces operating expenses and protects the individual against unavoidable price fluctuations, loss, etc. Pooling should be purely local in nature and the type of pool must be determined by local conditions.

13. The members must feel that they are a vital part of the organisation and that it exists not only for them but of them.

14. The manager must be fair in all his dealings and the organisation should actively encourage and stimulate members' interest in their organisation by keeping them fully informed as to its policies and work.

15. To be successful the organisation must have complete control of at least 50 per cent of the crop handled and it must find and open up markets for this produce.

16. The organisation must be a free and voluntary association in order to maintain the loyalty, mutual confidence and trust of its members, and no compulsion must be brought to bear on members to compel them to become co-operators. A small percentage of the produce should be outside the organisation in order to keep up competition. Co-operation in agriculture
can best develop if it is carried on by producers and producers alone. The function of the government should be to assure legal power to co-operative organisations, help in standardization and see that fair play is accorded to all interests.

Co-operation in agriculture is not a theory - it is a sound business doctrine which has been subjected to the most severe tests and where the fundamental principles have been followed and fully understood, it has been a complete success.

A few further points that are worthy of note in the formation of a successful co-operation are:

17. Important differences in nationality, religion and language may prove to be obstacles to success and the population should be stable.

18. The character of the enterprise must not be too ambitious or complex. No promises incapable of fulfilment should be made otherwise dissatisfaction arises.

19. The organisation must not interest itself in politics.

Having thus briefly enumerated the fundamental principles underlying successful co-operation for commodities such as citrus fruits, the writer will now pass on to a discussion of the South African Fruitgrowers' Exchange from the viewpoint of the citriculturist.

The Fruitgrowers' Exchange of South Africa Limited.

Historical Development.

As early as 1918 the Rustenburg growers made an attempt at some form of organisation of growers throughout South Africa. Fortunately or unfortunately, however, there..............
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The organization must be a co-operative one which

necessary be continued.

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these developments as necessary for other organizations, but

-129-
2. It must be built up from the bottom i.e. the growers must form locals and the locals must form a Federated Central Body and the whole must be run on the lines of the Californian Exchange.

3. An executive committee must be appointed to act temporarily until such time as the federated exchange is formed by the district associations.

The duties of this committee should be:

a. To assist in the organisation of citrus growers into associations.

b. To enter into negotiations with the Government and the Union Castle Steamship Company to ensure shipping space for the next season.

c. To begin the necessary marketing arrangements for the next season.

d. To obtain quotations for the requisite supply of packing materials.

e. To engage a temporary manager and secretary pending appointment of permanent offices by the Exchange.

f. To perform all other work appertaining to the Exchange.

It was also proposed to finance the Exchange by a self-imposed levy of 5/- per ton on all fruit exported. Legislation to this effect was introduced and the levy money was handed over to the Exchange to dispose of in the best interests of the industry.

Among those taking part in the movement for organisation were those who envisioned a scheme of co-operation that would embrace the fruit growing fraternity generally and proposed that the enlarged organisation should........
should be designated accordingly – that is in place of the
Citrus Exchange it should be called the Fruitgrowers' Ex-
change.

Among the members of the Committee appointed
at the September Conference and supplemented by members
from the Western Province, a very sharp division of opinion
took place on this point. Nine of the members were in
favour of a Fruitgrowers' Exchange while three members held
that they could not over-rule the declared policy of the
September Conference and that a Citrus Exchange had to be
registered.

Those opposed to the larger idea set out their
reasons in a Minority Report that was circulated to all
the growers. They could not see how a general union of
fruit growers could solve problems peculiar to the citrus
industry, claimed that the movement was against true co-
operative principles and experience and fore-spelled diffi-
culty over the allocation of revenue and expenses to the
respective industries.

However, in April 1922, a conference was held
in Johannesburg and a scheme was agreed to by a majority
of 62 votes against 15, by which each division – citrus,
deciduous and pineapples – should be managed by a sub-
board forming together the board of the Exchange having
charge of the interests common to all. The proportionate
importance of the respective divisions was acknowledged in
the principles adopted for the election of the sub-boards
namely eight for citrus, five for deciduous and two for
pineapples.

The.......
The motion proposed against the above was for separate exchanges which would co-operate in questions of common interest.

Provision was made in the articles for the election of the central board members on a tonnage basis after December 1923. Fortunately the Minister of Agriculture recognised that this was ultra - co-operative and would not confirm it with the result that the members were chosen on a provincial basis.

A temporary board of thirteen members who were preponderantly citrus carried on the work of the Exchange until March 1923.

While the general interest and purpose of any combination or co-operative movement may be understood by the constituent members at its inception, radical differences of opinion are apt to arise later concerning the exact interpretation of the word co-operation and the manner in which the common object will best be achieved.

Such a difference of opinion arose in connection with the activities of the Fruitgrowers Co-Operative Exchange which was brought into being in April, 1923, and this difference threatened if not to wreck the whole movement, to curtail its usefulness and influence and to do insatiable harm to an industry which had reached a stage where co-ordinated co-operative control and direction was essential if the industry was to progress and its pursuit made worthwhile.

Behind all the manifestation of dissatisfaction and discontent was a spirit of distrust and suspicion regarding the bona-fides and disinterestedness of individuals who...
who were administrating the affairs of the Exchange and in a lesser degree there was also apparent the distrust and jealousy born of that attitude with which one section of an industry regards another and with which different Provinces are inclined to regard each other.

In addition to all this, powerful forces were working behind the scenes to frustrate the co-operative movement. Those most opposed to the co-operative movement were the local agents of the overseas salesmen and a few of the large-estate proprietors with a minor portion of the individual growers who were under the influence of the anti-co-operators.

Every conceivable weapon was used from attacks on the integrity, judgment and capability of the management to accusations that the Exchange was doing nothing for the grower and wasting his money. This lead to a government enquiry into the expenditure of the levy money and justification of this expenditure was thereby shown. The manager was accused of being connected with the interests of a London Fruit Firm, the structure of the Exchange was attacked, it was claimed that the Western Province was "pulling the strings" that the Exchange favoured Cape Town and attacks were even made on the fairness of the fruit inspectors at the docks.

These and numerous other causes, genuine and otherwise, constitute the chief grounds on which objections to the Exchange and its policy or alleged want of policy were based.

A careful study of the objections and existing conditions has led the writer to the conclusion that the chief...
chief cause of the objections can be traced back to the
difference of opinion as to the form the Exchange should
take at its inception and to the fact that the growers
were in too great a hurry to derive direct benefits from
the Exchange. Together with these causes it appears
that the Exchange management was tactless and neither had
nor could inspire the growers with full confidence in
itself.

In the face of all the objections, however, the
Exchange accomplished important work and this in spite of
the fact that the conditions were such that the Exchange
had to be built from the top downwards instead of from the
bottom upwards owing to the insufficiency of the local
co-operatives in existence and to the fact that important
work such as shipping awaited immediate attention. It
appointed a field advisor to act in an advisory capacity
to all growers on all questions in connection with the in-
dustry and was instrumental in getting two inspectors
stationed inland. The Exchange approached the Govern-
ment on the questions of transport and of cold storage at
the docks, prevented all confusion and saw to the orderly
shipping of the fruit, secured better terms from the Land
Bank, caused a reduction in the duty on box wood from 20
per cent to 3 per cent, secured a reduction in railway
rates and many other improvements can be ascribed to the
efforts of the Exchange.

At a Conference convened at Pretoria on August 8,
1923 to discuss the grievances of all the growers a commit-
tee of six, three Exchange members and three of the com-
plainants........
The

place as soon as possible.

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The above proposal was agreed to and came into operation in 1924.

The Provincial System worked satisfactorily but dissatisfaction still existed. This became more acute with the shipping trouble in September with the result that the Citrus Sub-board interviewed the Transvaal Citrus Growers' Association and after four meetings the revised articles of association were agreed to in December 1924.

In January 1925 the first overseas representative of the Exchange was appointed in London and a further reduction in railway rates was obtained.

As a result of the enquiry into shipping matters in 1924 the Export Control Board was appointed in 1925. This relieved the Exchange of its most important functions viz: that of shipping its members fruit. The functions of the Exchange during the 1925 season were reduced to a minimum with the result that by the end of the season it had practically collapsed.

The dissatisfaction with the shipping arrangements at Durban and the difficulty of sending Transvaal fruit overseas are some of the reasons for the establishment of the National Fruit Growers' Association of South Africa by five or six of the big-estate proprietors in 1925. This Association was anti-co-operative in essence and was established to rival the Co-operative Exchange.

During 1925, however, prices realised for citrus fruits were low and over a hundred thousand cases of fruit were rejected at the ports. The Exchange was financially crippled owing to the Minister of Agriculture deducting £3,000 for the Control Board and a further £2,500 for any purpose...
purpose he may think fit from the levy money. The result was that the industry was on anything but a stable basis.

To improve the situation the Minister convened a general meeting in Pretoria on December 1st, 1925 to discuss the position. A committee of fifteen, five Exchange, five National Fruit Growers and five independent members, was appointed to come to some acceptable agreement and it was decided by eight votes to six that a separate Citrus Exchange should be established. The general meeting were unanimous with the exception of five or six in their adoption of this resolution.

After a great deal of controversy during the early part of 1926 the South African Co-operative Citrus Exchange was registered on 1st September.

The most significant features of the new constitution were the independent existence of the Citrus and Deciduous Exchanges respectively co-operating only where interests common to both were concerned and the abolition of the Provincial Companies. This latter step met with severe criticism from all quarters.

An idea of the growth of the co-operative movement among citrus growers can be obtained from the following figures:

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Local Organisations</th>
<th>Total Membership</th>
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<tbody>
<tr>
<td>1920</td>
<td>1</td>
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<tr>
<td>1921</td>
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During......
During the year 1929 an additional six co-operative societies were registered. Of the 31 societies and companies in existence in March 1929 fifteen of the companies with limited liability and two societies with unlimited liability were in the Transvaal, twelve limited companies in the Cape Province, two in Natal and one in Rhodesia.

During the 1927 Citrus season the South African Citrus Exchange handled 25 per cent of the citrus fruit shipped from South Africa. By 1928 this had risen to 45% of the total while the estimates for 1929 was over 75 per cent. Thus the progress so far has been very satisfactory.


The accompanying diagram will serve as an illustration of the manner in which the Exchange is built up:

[Diagram showing the structure of the Citrus and Deciduous Growers' associations and their relationship with the Citrus and Deciduous Exchanges, and ultimately the Federal Fruit Exchange.]
The individual growers unite to form local organisations and these local organisations co-operate to form the Central Exchanges which federate to form the Federal Fruit Exchange.

The Local Organisations.

The functions of the local organisation vary greatly according to the work entrusted to it by the growers. The number of growers belonging to the local also varies but may not be less than seven according to the Co-Operative Act under which all the locals must be registered - Act No. 28 of 1922 is to provide for the formation, registration and management of Co-operative Agricultural Societies with unlimited liability, Co-operative Agricultural Companies with limited liability and Co-operative Trading Societies with limited liabilities.

Schedules A, B and C give model regulations and statutes for these Co-operative associations respectively.

As stated in the Act generally and applied in such regulations, the objects of such Associations of Citrus Fruit Growers are amongst others:

(a) to dispose of the fruit of its members in the most profitable manner;
(b) to manufacture or treat the fruit of its members and to dispose of the products so manufactured or partly manufactured in the most profitable manner;
(c) to commence, acquire and carry on supply stores under co-operative system for disposing of and supplying fruit;

(d)...........
(d) to purchase, hire or otherwise acquire and to work on behalf of its members, agricultural implements or machinery;
(e) to acquire and distribute information as to the best manner of carrying on fruit farming operations profitably;
(f) to acquire and distribute information on the markets of the world and on co-operation in general;
(g) to raise money on loan for any of the lawful objects of the Association and for that purpose mortgage the movable and immovable property of the Association.
(h) to engage competent persons to carry out any of its objects and to give instruction and advice to its members concerning fruit farming operations.

Whatever the legal form the association takes on, whether a co-operative company with limited liability or a Co-operative Society with unlimited liability, the purpose it must serve is common, and members must, in forming, decide on this as they themselves are best prepared to bind themselves. As laid down in the regulations the members will bind themselves by contract and the one purpose in these regulations must be to promote the cause of co-operation. To do this the principles underlying co-operation must be observed.

Into the details of the various operations in the local packhouse, it is not necessary to go. One of the essentials, however, as stated before is efficient management. The growers choose a board of directors who must be efficient men. They in turn engage a manager who......
who must be highly efficient. Much of the trouble experienced during the 1929 season due to the decay and inefficient packing and grading of fruit can be traced back to careless management.

It is the secret of co-operation, in Citrus at least, that a pool of the members fruit be formed to meet the fluctuation in price, to check it, and to put out a large quantity of fruit of standard quality and uniform grade thereby bringing it to the notice of the consuming public.

The pool in South Africa is generally made for one grade, one variety over the whole season. In some cases a pool is formed for each individual count. This is due to preference on the part of buyers for certain sizes. In other counts are grouped:

- eg. 96 and 112 - one pool
- 126, 156, 176 - one pool
- 200 and 216 - one pool
- 226, 252 etc. - one pool.

Owing to the great amount of clerical work involved in single count pooling, group-pooling is to be preferred. If any apparent seasonal fluctuation in price takes place regularly, it will be necessary to form seasonal pools as is done in California. This is not apparent as yet. However, all packhouses should keep careful data of the prices so as to be able, after several years, to draw up a definite pooling system.

All expenses in connection with packing etc., are met by percentage or box assessment. The latter is apparently........
apparently the fairest, though the act stipulates a percentage assessment not exceeding five per cent.

A few of the advantages derived through co-operative pack-houses may be summed up as follows:

1) One efficient packing plant is erected centrally instead of each individual having a cheaper plant which is, in many cases inefficient. Hence efficient packing, handling etc., is ensured (Providing the Manager is efficient). The efficient machinery required is expensive and cannot be afforded by the average farmer.

2) Pooling: by this risk is reduced, more fruit is put out under one brand and the result is facilities for wider distribution and better advertisement.

3) Efficient storage space and shelter for the fruit is provided.

4) The estimates made for the Control Board are made by the Manager and he has more chance of keeping to these estimates than have individual growers.

5) The co-operative purchase of requisites reduces costs owing to bulk purchasing.

6) More efficient handling owing to specialisation in operations such as picking, grading etc. The labour becomes specialised in the particular work.

7) The cost of packing over a number of years is reduced.

8) Specialised management, supervision and advice can be obtained.

9) The Grower has more time to devote to his cultural practices, etc., and the necessity of cash expenditure in paying for packing obviated.

These............
These as well as many other advantages previously mentioned are derived.

Co-operative picking: this is practiced with success in several cases. It is a local problem to be decided on by the management. However, owing to specialized handling and picking gangs, the fruit is more efficiently handled and it is picked at the convenience of the pack-house.

Co-operative fumigation: Because of the large capital outlay to install fumigation and spraying services, the individual farmer finds difficulty in buying the necessary machinery, tents, etc. Local associations often undertake such work and can thus procure experienced workmen to do it. In a few isolated cases the association also co-operatively buys the more expensive implements needed for cultivation. By employing the staff of the pack-house to do the fumigation work and other work during the time when there is no packing, overhead-charges are reduced considerably and hence also packing costs.

The Co-operative Society often supplies its members with implements and requisites other than actual packing material and citrus requirements with the result that the merchants' profit is eliminated. The first object of the local must be citrus and where other functions are undertaken these must not be to the detriment of the citrus industry and must develop gradually.

Some locals only undertake to dispose of the fruit of its members after it has been packed by the growers......
growers themselves. It is found to be more economical for them to extend their work than to specialise in only one line.

Some of the societies are nearly dormant, their sole object being representation on the Citrus Exchange. This should be discouraged for it should be the aim of the locals to lower the cost of production, picking, packing etc. Some give advice to farmers on cultural methods, type of trees to plant etc. This is highly satisfactory where the adviser is capable. Some provide all the transport required for the members' fruit.


As can be realised from the foregoing discussion, the association needs a considerable amount of capital to ensure success, for sufficient capital is one of the underlying principles of success.

The funds required by the association are of a two-fold nature:

1. a long time loan to be raised for the purchasing of ground, erecting, equipment of packing-house, etc;

2. a cash credit account, for the period of one year for running cost, packing material, export loans.

Communication with both the Standard Bank of South Africa Limited and the National (Barclays') Bank shows that it is not possible for these banks to cater for the first item since money is not invested for such long periods by them.

For the second there is no reason why they should not, but each case is treated on its merits.

There.......

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There is of course the possibility of raising the money from such banks for one year provided it is known that the money can be obtained elsewhere after that period.

Provision for such loans is made in the Land Bank Act No. 15 of 1912 in which various other Acts are incorporated. Article 26 of the Act sets out to lay down the legal points which have to be considered in the financing of co-operative societies and companies.

The Legal Necessities are given full attention in the Act and are discussed lengthily; they are available from the Government Printer and it is not necessary to dwell on the subject in this paper.

The model constitution drawn up by the Co-operative Citrus Exchange meets all the requirements of the Act pertaining to Co-operative Societies; this again is so constructed as to meet the requirements of the Land Bank Act.

Further the Exchange has available a circular: "How to form a Co-operative Association".

A few points, touching more on the practical application and the value of the facilities offered by the said Land and Agricultural Bank of South Africa are, however, worthy of mention.

At present this Bank has advanced money for such matters as the purchase of land, erecting of a house, equipment of same, packing materials required, running costs, fumigation equipment, binding department etc.

Upon an application for a loan in the first instance fixed to provide for the packing house, being filed with........
with the Bank, it is essential that:

1. the Company be registered under the Co-operative Society Act;
2. the fruit be shipped through an agent recognised by the Bank e.g. Overseas Federated Farmers.

The Security offered may be adequate in accordance with the Law, but certain general points are considered also. The Bank will e.g. obtain a report from some person acquainted by them. Attention is amongst other things given to:

1. waterfurrows and permanency of water;
2. packing sheds in existence;
3. the economy of establishing a Co-operative packing-house; how much will be saved;
4. aspirations and future of settlers;
5. total production and the number of growers;
6. personal impression of proposition;
7. quality of fruit, diseases and pests;
8. types of settlers;
9. permanency of settlement, climate and health;
10. prospect of a railroad and development of area, and
11. obligations towards other companies, agents etc., from which the Land Bank is keen to liberate.

These are incidently all points which have been given high consideration by the growers before associating themselves to form a company.

The security of the bank in advancing is based on legitimacy of object, demonstrated success of growers and whether or not the unpaid amount of shares would be easily recoverable; thus a consideration is given to the financial........
financial position of the individual members of the society.

Further the Bank stipulates that insurance is essential. There is provision made for insurance under export loans as advanced by the Bank.

First hand information and advice can always be obtained on the point of Co-operation from the Manager of the Exchange.

The money required for the building of pack-houses etc., is raised from the growers on a patronage basis based on the amount of fruit to be handled. The farmer is required to pay up ten per cent of the capital that he has to contribute towards the expenses and signs a promissory note for the balance. This note is then used as security to raise money from the Land Bank and the grower's debt is gradually paid off by box assessment.

The Regulations of the South African Co-operative Citrus Exchange Limited lay down the regulations regarding the membership of the Local Societies or Companies.

On such a Society or Company making application for membership to the Exchange and being accepted, it is bound by contract but may withdraw at the end of the financial year by giving three months notice.

For further information as to the organisation of Locals and as to the functions of same, reference can be made to the Manager of the Exchange.

The SOUTH AFRICAN Co-Operative Citrus Exchange Limited.

Each Local Association or Company elects one director to the Central Board of the Exchange. This Board.........
Board of Directors consists of 36 in number at present and appoints a General Manager and staff to execute the work of the Exchange. This staff at present consists of an assistant manager, a field-advisor who is vacating office shortly, a general clerk, three office girls, and an office boy.

An annual general meeting is held at the beginning of the year, the minutes of the last annual meeting confirmed and the adoption of the following reports moved:

I. Balance Sheet;
II. Income and Expenditure Account;
III. Auditors Report, and
IV. General report by the Directors.

Any criticisms forthcoming from the growers will be given due consideration.

In terms of clause 29 of the regulations of the Exchange the Chairman of the meeting now calls upon each proxy-holder to nominate the representative of his local society on the board of directors and the formal election of directors to hold office for the coming year takes place. Then second representatives or alternates to substitute their respective directors in their absence are nominated by the proxy holder and such nominations are subject to the approval of the meeting.

After this auditors are appointed for the next season and their remuneration fixed.

The meeting then elects five representatives on the Board of the Fruit Exchange and these name their alternates.

Any.............
Any special subject needing the approval or opinion of the General Meeting may now be brought up for discussion or a Special General Meeting may be called for the purpose.

After the Annual General Meeting it is customary that the New Board of Directors proceed with their first meeting of the year. A Chairman and vice-chairman are appointed and the following committees elected:

(a) Executive committee;
(b) Finance committee;
(c) Grading committee;
(d) Shipping and Overseas Marketing committee;
(e) Packing material committee.

General matters of importance are discussed after the agenda arranged by the retiring Board of Directors has been adequately dealt with.

The Regulations of the South African Co-operative Citrus Exchange, Limited give detailed information regarding the objects etc., of the Exchange and may be obtained from the Exchange Manager.

In addition to the above committees the Exchange also employs the services of a Technical Advisor to give advice on all matters in connection with citrus growing.

The Executive Committee

This Committee consists of eight members including the Chairman and Vice-Chairman of the Full Board. It is elected for the year and is constituted of representatives...
The Financial Committee

The committee also has the power to suspend and discharge

The Financial Committee

Renewal meetings

are appointed to function until the following annual
are authorized to form by the full board and all committees
are such

are empowered to do all such things as the full board

duly do, and

such appointments without specification.

I. to accept appointments for membership or to reject
deteriorate certain functions to the committee. They are:
proration and your for the financial. The full board
sentiment of modesty. one of heart, two for the gap

- 250 -
Shipping and Overseas Marketing Committee:
This Committee consists of five members who are to deal with all matters relating to the shipment of citrus fruits.

Packing Material Committee:
This is a committee of four members whose duty is to deal with all matters relating to the purchase by the Exchange, on behalf of its members, of packing material.

It is of interest to note here that the most important items purchased through the Exchange during the 1928 season were:

Orange and other Box boards 904,900
Strapping 962 cases

All from the United Kingdom.

Nails 45 tons

All from South Africa for the first time.

Wrappers 83 millions

All matters affecting the Exchange are published in the "Citrus Grower" which is a paper issued quarterly.

To obtain an idea of the expenditure and income of the Exchange the Income and Expenditure Account for the year ended 31st December 1928 may be reviewed and is as follows:

Income........
### Income and Expenditure Account for the Year Ended 31st December 1926

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Advertising</td>
<td></td>
</tr>
<tr>
<td>Budwood, travelling expenses</td>
<td>7.10</td>
</tr>
<tr>
<td>Citrus Grower - Publicity</td>
<td>48.17 6</td>
</tr>
<tr>
<td>Directors expenses</td>
<td>192.10</td>
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<tr>
<td>Directors travelling</td>
<td>439.12.7</td>
</tr>
<tr>
<td>Sundry expenses</td>
<td>752.11.5</td>
</tr>
<tr>
<td>Gifts to ships' officers</td>
<td>184.15.2</td>
</tr>
<tr>
<td>Grading Committee expenses</td>
<td>75.3.9</td>
</tr>
<tr>
<td>Organising expenses and travelling</td>
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</tr>
<tr>
<td>Postage, telephones, telegrams, and cables</td>
<td>528.13.11</td>
</tr>
<tr>
<td>Rent</td>
<td>155.10</td>
</tr>
<tr>
<td>Salaries</td>
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<tr>
<td>Stationary and printing</td>
<td>243.12.6</td>
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<tr>
<td>Travelling expenses</td>
<td>85.9</td>
</tr>
<tr>
<td>Balance, Excess of Income over Expenditure, transferred to Reserve</td>
<td></td>
</tr>
<tr>
<td>for Contingent Liabilities for loss</td>
<td>1,032.4.2</td>
</tr>
<tr>
<td></td>
<td>7,119.13.3</td>
</tr>
</tbody>
</table>

By Balance transferred from Levy Account 7,099.16.11

Interest on Fixed deposit 11.14.11

Commission on local sales of citrus fruit 6.1.5

The item “Budwood” is the expenses incurred in the selection of bud-wood undertaken by the Exchange.

As.............
As far as the Directors' expenses are concerned, it may be stated that to hold a full board meeting it costs close on £50. This is a large sum of money and is the cause of so few full board meetings being held. It is a matter calling for careful consideration as frequent meetings are essential for efficient working and organisation and for stimulating the Directors' interest in their work.

It may be mentioned that for their services as the distributors of the Exchange, the Overseas Farmers' Co-operative Federations charged £2,461/1/8 during the 1928 season. Their remuneration is based on two pence a case for "free" fruit and one-half penny a case for "nominated" fruit. This is paid out of the Levy Fund. As all the activities of the Exchange are financed out of this fund which is proving inadequate to meet the requirements of the Exchange and thereby curtailing its activities, the opinion of the writer is that all charges for distribution should be made against the grower and met by a box assessment by the Local Associations. This would mean more cash at the disposal of the Exchange for such activities as advertising etc.

Owing to the difficulty of financing the shipping agency service during the 1928 season, the Exchange was given the right by the Special General Meeting in the beginning of 1929 to raise from the Land and Agricultural Bank of South Africa an amount not exceeding £10,000 to finance this service whose costs include railage, port charges, and all other expenditure reasonably incurred in placing and selling the produce on a market overseas.

As........
As already pointed out the Exchange is financed by a levy of 5/- a ton on all citrus exported. Out of this, however, the citrus proportion of the cost of the Control Board has to be paid. The proportion of these expenses paid by the Citrus Exchange during the 1927 and 1928 seasons was 10/30 while the Deciduous paid 7/30 and Eggs 3/20. The total paid by the Citrus section for 1928 was £2,222/5/6.

Having briefly considered the manner of the working, the financing and the expenditure of the Exchange, an attempt will now be made to briefly analyse the activities of the Exchange overseas:

Representation Overseas:

As already pointed out under disorganised marketing there are many evils in that type of dis-organisation such as non-co-ordination of supply and demand false returns etc. The only way of checking these is by organisation and this requires representation in the markets. A move was made in this direction in 1925 but owing to the expense of keeping a special office in London, the representation was transferred by the Fruit Exchange to the Overseas Farmers' Co-operation Federations of London early in 1927. This organisation consists of representatives of South Africa, New Zealand and Australia.

While the Federal Fruit Exchange is responsible for the appointment, the Citrus Exchange is responsible for payment of the services of the representative arising out of the distribution of citrus fruits. Indeed in practice....
practice the Citrus Exchange and the Overseas Federations work direct in all matters relating to citrus without reference to the Federal body.

As a result of the apparently satisfactory work of the representative during 1927, a contract was entered into with the Overseas Farmers Federations as distributors of citrus fruits on the overseas markets for a period of three years reckoned from the 1929 season.

The functions of this representative are mainly to receive the fruit sent by the Citrus Exchange and (a) if consigned to the Overseas Representative, to distribute it to reliable agents in the best markets and (b) if consigned to a particular salesman, to receive it and to despatch it to that salesman.

This means that the representative must have available the latest information regarding all the markets in the United Kingdom as well as on the Continent and must have a reliable salesman in each market. The representative then distributes the fruit according to his own discretion keeping in mind the supply to that market from other sources, the demand in the market and the continuity of supply to the market. Naturally the South African supply is not sufficient at present to supply all markets but all the markets must gradually be opened up and preference given to the most promising. These are, however, all matters for the representative to settle for himself.

Then there is the question of choosing reliable salesman and obtaining favourable terms from them; this

is............
is also a matter for the representative to decide.

It may be mentioned here that the Exchange has the right to enforce rule 67 and compel members to consign all fruit to the Overseas representative for distribution at his own discretion. This rule has not been enforced as yet but the time for its enforcement is not very far distant.

It must be remembered that the representative is a distributor of the fruit pure and simple.

For effective distribution the representative must have complete control of over 70 per cent of the fruit exported. When such control is obtained, it may be possible for the South African Representative to work in conjunction with the California Representative and so distribute the fruit as to prevent any oversupplying of the markets. For the Overseas Representatives of the different countries to work in conjunction with each other there are many practical difficulties to be removed, but it is the writer's firm conviction that such an action would be in the best interests of all the countries' marketing citrus fruits at the same time in the same markets.

As can be seen the functions of the representative are such that he must be of the highest capability procurable.

Judging from all available statistics, London is the most suitable place to have the distribution done from for it is in very easy reach of all the leading markets.

Propaganda........
Propaganda and Advertising Overseas.

The desirability of this cannot be questioned and it is the writer's firm belief that while it is essential overseas, it should also be undertaken in South Africa where there is plenty of room for increased consumption.

The Exchange has undertaken this overseas and their first step was the appointment at the beginning of 1929 of a Publicity Agent in London. His work is to study general conditions and organize methods of popularising and increasing the demand for South African Citrus. His salary and other expenses amount to about £2,000 a year. His appointment was a step in the right direction and growers should try and follow his advice carefully. He stresses the great variability of the South African Citrus fruits and the importance of having only a few brands of standard quality, pack, etc., in large quantities and encourages the formation of District Associations as pointed out in the former Chapter of this paper.

Anything on advertising and propaganda would be incomplete from South Africa's point of view unless some reference is made to the work of the Imperial Economic Committee and the Empire Marketing Board.

The ultimate object of both is to foster increased consumption of Empire produce from home and overseas in Great Britain and to assist measures—especially those in the field of co-ordinated research—directed towards that end. But in constitution, methods of work and duties the two bodies are entirely distinct.
The Imperial Economic Committee is representative of all parts of the Empire and can only investigate subjects remitted to it with the consent of all the Governments of the Empire and it derives its authority from the Imperial conferences. Its object is to improve the preparation and marketing of Empire products.

The Empire Marketing Board is entrusted with funds and executive powers by His Majesty's Government in Great Britain to further the marketing of Empire produce from Home and Overseas in the United Kingdom. It is thus responsible to H. M. Government.

These two bodies have done much to increase the consumption of South African products overseas, but they also stress the importance of a few large and well standardized brands.

For results achieved through advertisement and propaganda to increase consumption, reference can be made to the Californian Citrus Exchange, Sun Maid Raisins, Eat More Fruit Campaign, etc. Think of what standardization supported by adequate advertisement has done for California - "Sunkist" oranges are known throughout the world. This incidently also serves as an example of a big brand well popularised. It stands to reason that a number of small brands compete with each other and the fruit under any one single small brand is in too small a quantity to command respect. The choosing of a short crisp and attractive name for such a brand is of the utmost importance.

Before any marked results can be obtained from advertising, the brand advertised must consist of a large volume........
volume of thoroughly standardized fruit well distributed on the overseas market and continually kept before the consumers.

There is sometimes a disposition to regard propaganda and publicity in terms of newspaper advertising. Newspaper advertising is a most excellent thing but good results can be expected only if it is tackled in a big way and that means spending large sums of money. Other methods of advertising need careful study. When one thinks of the introduction of the "Juice Extraction" by the Californian Exchange to increase consumption and the excellent results achieved thereby, you cannot but realize the importance of investigation in similar directions to increase consumption. Another step that may be considered is the choosing of a number of the larger retailers to "push" the sale of South African oranges by window displays and advertisements. Then another line that has been exploited by South Africa is displays at shows and other big public gatherings. The methods of advertising are numerous and need careful study to ascertain which are the most effective, Trade Commissioners have also done much advertising work.

The Federal Exchange.

As already stated the Deciduous and Citrus Exchanges federate to form the Fruitgrowers' Co-operative Exchange whose function is to deal with all matters affecting the common interests of all fruit growers.

In practice the expenses of the Federal body are paid by the Citrus Exchange and the Deciduous Exchange in.............
in the same proportion as the proceeds of the respective levies bear to each other.

The proportions for the year 1925 were:
- Citrus 64.2% or £597.14.5
- Deciduous 35.8% or £330.18.9

Further particulars regarding the Federal Exchange can be obtained from the General Manager of the Citrus Exchange.

See accompanying diagram on the Export and Distribution Channels of South African Fruit.

The California Fruit Growers Exchange.

The accompanying diagram illustrates the organisation of the California Exchange and will serve as a comparison of that organisation with the organisation of the South African Citrus Exchange.

The essential differences between the two Exchanges may be summarised as follows:

1. In California the Industry is concentrated in a comparatively small area and thus co-operation is easier than in South Africa.

2. The California Exchange handles over 70 per cent of the total citrus production of that State and can thus have more effective distribution of its crop.

3. The total crop handled by the California Exchange is about fifteen times as large as the amount handled by the South African Exchange with the result that through large scale handling and large scale bargaining overhead charges are reduced and a larger total amount of money is available for expenses;
this makes efficient and extensive organisation possible and enables the Exchange to undertake a wide scope of activities as can be seen by the number of departments, each one with its own special function, indicated in the diagram;

(4) The financing of the Exchange in California is done by box assessment. In South Africa it is by a levy imposed on the growers by the Government.

(5) In California all shipping matters are in the hands of the Exchange. In South Africa an independent Control Board instituted by the Government sees to the booking of space and shipping of all fruit.

(6) The California Exchange deals with a standardised article and maintains its own inspectors to keep up the standards. It sells its fruit under one or two brands. In South Africa the quality of the fruit is very variable and over 700 brands exist.

(7) District Exchanges form a link between the locals and the Central California Exchange and enables weekly meetings of the directors of the Central Board. In South Africa the locals affiliate directly with the Central with the result that Full Board meetings only take place two or three times a year owing to the large expense involved.

(8) The contracts holding together the whole organisation in California are for a certain specified number of years. In South Africa they are indefinite and are binding until such times as either party withdraws on notice.
(9) The California Exchange has a large local market for its fruit with the result that it only exports those counts popular in the overseas markets. The South African Exchange only concerns itself with export fruit and must export all counts.

(10) Inspection in South Africa is by Government Fruit Inspectors.

(11) The District Exchange has the final say in the price to be accepted for its fruit. In the case of the South African Exchange no price stipulations are made. The Californian Exchange lays down the areas of consumption for its fruit and thereby eliminates unnecessary transport and speculation.

(12) The California Exchange is over thirty years older than the South African Organisation and is therefore much wider in its organisation and the men have been educated to their particular posts.

The organisation may be briefly outlined as follows:

As in South Africa the growers form locals and elect a board of directors for business purposes. The functions of the locals are the same as those of some of the more progressive locals of South Africa. Some large producers, individuals and co-operations, who pack the fruit from their orchards through privately owned packing houses, are also classed as locals. In addition commercial packing companies grade and pack fruit of individual growers at a fixed charge per box. A number of these, as well as producers owning large orchards............
obands and operating their own packing houses are members of the exchange and have the same status as the associations.

Associations are of both stock and non-stock types. In the first shares are issued in proportion to the number of trees, acreage, or amount of fruit harvested while in the second the capital required is raised by entrance fees.

The members of the district exchange are the local associations, individual shippers and packing companies affiliated. Each local unit chooses a representative and these representatives form the board of directors of the district exchange. The district exchange acts as the sales agent of its members. The manager keeps in constant touch with the sales and traffic departments of the control, and, acting on available information, puts a price upon the various grades he is dispatching. The central sales agent and the distant market agent cannot accept a lower price without referring back to the district manager, who usually consults the local manager. The district charges a fixed amount per box to cover the cost of the district, the maintenance of the control including all branch offices, advertisement costs and payments by instalments for stock in the Fruit Growers Supply Company. Other deductions may be made if the local supports the orange or lemon by-products companies.

The district manager usually gives assistance to affiliated groups in matters of membership and organisation. Some make efforts at improving field and packing house handling and to improve the quality and grade of........
of their output of their respective areas.

The representatives of the 20 districts become directors of the control exchange which is a non-stock corporation financed by assessments per box retained by the districts. The work of the departments are as follows:

(1) The orange sales division handles the sale of oranges, grapefruit, and tangerines, keeping in touch with the districts and with the salesmen and brokers who represent the exchange in its different markets; the lemon sales department works in the same way. There are 52 sales offices in the U. S. A. and Canada, comprising six divisional managers and 46 district agents; the exchange deals directly with 8 brokers in large markets and has brokerage representatives in 25 smaller centres. The policy aimed at is an equable distribution, avoiding gluts and scarcities; each season the sales agents, general manager, and divisional salesmen confer, and afterwards an estimate is made of supply and demand each week; locals may be urged to ship more or less each week according to the situation, and factors such as weather maturity of fruit, car supply, and available labour affect the position.

(2) The traffic department advises locals regarding rates, routes, cars, embargoes, claims for loss or damage to shipments.

(3) The advertisement department centres in trade brands such as Sunkist. All the chief media such as magazines, newspapers, posters, street-car advertising and......
and display are used to advertise:

a. the advantages of eating more oranges and lemons;
b. the gains in consuming Sunkist brands.

Personal contact is made with the retailer through dealers service men, who call on grocers and stores, distribute advertisements and arrange displays of fruit.

(4) The field department is organised to deal with those problems that arise in the production, harvesting and packing of fruit. It is concerned with handling practices, preservation of the standard of brands such as Sunkist; in the busy seasons inspectors from the central will visit packing plants practically every day. Other work is research into pest control and citrus by-products. A growers’ service bureau is maintained to organise new associations and to consolidate the position of old ones; it also deals with the complaints and dissatisfaction of members.

(5) A law department deals with legislation, court decisions, preparation of contracts, bye-laws, and in part with finance.

(6) An accounting and statistical department examines the factors influencing marketing margins and makes efforts to introduce more effective merchandising methods.

(7) The Fruit Growers Supply Co. is owned and operated by the locals. Its purpose is to supply for its members the essential supplies, packing house and orchard. Failure to obtain box material, for example, would be disastrous to growers. It is, however......
however, an entirely separate undertaking from the Sales and Marketing Organisation.

(8) The Exchange Orange Products Co. is a corporation also owned by the locals, and designed to deal with the poor quality or "sull" oranges. It makes marmalade, orange oil, orange vinegar, orange peel and cattle feed.

(9) The Exchange Lemon Products Co. was created to provide an outlet for culled lemons, and manufactures citric acid and lemon oil.

This brief outline of the California Fruit Growers Exchange serves to show that the South African organisation is, at its best, but a poor imitation. This, however, must not be taken as meaning that it will not grow for with the growth of the industry and the increase in the percentage of the total crop handled the Exchange is bound to grow also, just as the California Exchange has grown, but such growth will be slow and it is doubtful whether it will ever reach the same high standard as the California Exchange owing to the comparative smallness of the South African crop.
THE MARKETS AND THEIR POTENTIALITIES FOR SOUTH
AFRICAN CITRUS FRUIT.

The Local Markets.

The complaint is often made that it is impossible to obtain first class oranges in South Africa, as all the best fruit is exported. It is true that such fruit is not readily available but with a little trouble, first class fruit can be obtained from both private growers and co-operative associations at prices equal approximately to export prices less export charges. One of the companies, in order to popularise its good fruit, has a "penny campaign" whereby first class oranges are sold at 1d each plus transport charges. The campaign is meeting with a fair amount of success and during the 1927 season approximately 4,000 cases were disposed of in this way in South Africa. During the 1928 season, owing to the good prices overseas, there was not much of an increase in the amount sold here. Generally the prices obtained for such fruit compare very favourably with the net price obtained overseas.

The real difficulty, however, is not the marketing of fruit of export quality, but the marketing at satisfactory prices of fruit unfit for export. This class of fruit is increasing annually at an enormous rate. The existing organisation is totally inadequate to handle such fruit, and a tremendous amount of wastage and loss occurs each year. Markets are frequently glutted with fruit unfit for consumption. This brings down the price of good fruit as well. Oranges are often sent from one fruit......
fruit area to another, thus occasioning unnecessary railway expenses. Prices realised as a result are often so low, that packing and transport charges are not covered. It seems that the time has arrived when an attempt should be made to organise the South African market for fruit so as to avoid this highly unsatisfactory state of affairs. Reliable and readily available market-news, showing prices prevailing and quantities handled should be of immense value to growers in their choice of when and where to sell.

To the writer it is inconceivable how fruit can profitably be marketed locally without some form of organisation. It is true that the potentialities of the local markets are not great when the European population is taken into account. The total European population is not more than 1,750,000, but there is no reason why consumption cannot greatly be stimulated by careful advertisement, grading and packing, standardisation of fruit marketed locally and better distribution etc. In this way all the better class culled fruit could be marketed profitably in South Africa. The only way in which this can be done is by co-operative organisation of producers with a centralised control to assemble the produce if necessary, provide market intelligence and advise as to the best means of distribution. The machinery for such a system is at hand in the organisation of the Exchange, which, with a few extra officials and a little extra expense, could in all probability deal with the situation in a profitable manner. The extra expense could be met

by............
by a box assessment on the fruit so marketed and then
good class fruit could also be marketed with less risk
and a profitable return.

Such a sub-section of the Exchange could inves-
tigate and put into practice methods of increasing consump-
tion such as prevailing upon the Railway Administration and
other organisations to instal Sunkist Juice Extractors,
persuading those in charge of the various gold mines etc
to purchase citrus fruits for their servants. They
could also be instrumental in reducing the costs of market-
ing, transport and making the marketing efficient by a sys-
tem of advising retailers and wholesalers as to how to ob-
tain a bigger turnover with smaller margins through more
efficient organisation.

What the actual consumption per capita of citrus
fruits in the Union is not known but the general opinion
is that it is not more than five or six pounds in the fresh
form. This shows the room for increasing local consump-
tion for the United States of America consumes about twenty-
three pounds per capita per annum.

Then there is the possibility of encouraging the
native to purchase and consume oranges. At present the
average wage of the native will not allow him to buy fruit.
However, it is certain that as his standard of living as-
sumes a higher scale oranges and even grape-fruit must form
part of his diet. This is very speculative but neverthe-
less does seem to form an outlet for the distant future.

Another valuable outlet is the sale of oranges
to by-product manufacturing companies such as the African

Ganning.
Canning Company and H. L. Hall and Son. While by-products will find ready sale in South Africa providing supply does not exceed demand, it is doubtful whether an overseas market at remunerative prices, could be found for them owing to competition from Italy, Sicily, Spain, France, California, etc. There seems, however, a possibility of selling concentrated orange juice in England and on the Continent. By-product manufacture is a very expensive undertaking requiring large sums of money to be spent on research. Its greatest difficulty as far as citrus fruits are concerned is the problem of providing markets.

It must be realised that in by-product manufacture sound fruit must be used otherwise by-products of a uniform high class quality cannot be manufactured. The methods of manufacture will have to be evolved and it has cost California £150,000 to perfect her methods. The problem for the grower then is to produce a high standard product with a small percentage of culls rather than to try and manufacture by-products from his low grade fruit.

In general it may be stated that the potentialities of the local market are not great but consumption can be greatly stimulated by the systematic organisation of the local markets and the efficient and economic distribution of the fruit. To accomplish this standardisation of packing, grading and quality is essential. This will enable profitable advertisement of the product marketed.

It is of interest to note that two cities in the Union have a population of over 100,000 and two more of 42,000 and 53,000 respectively, while there are two others 20,000 and 29,000 respectively. Seven have populations of.........
of between 10,000 and 20,000 respectively while quite a number have populations of over five thousand.

The Overseas Markets.

Seeing then that the local market for South African citrus fruits is at its best but a small one it is evident that the overseas markets become South Africa's primary markets.

The United States are closed to South African fruit because of the danger of importing the Mediterranean fruit fly. Even should this quarantine be removed, there would be little sale for oranges from here as they would come in direct competition with the Florida crop and the California crop, the latter being about twenty-four million cases a year. Shipments go to the markets every day in the year so that no opening exists for South African fruits in the United States.

Canada is at present well supplied with California oranges and to compete with the California organisation in this territory would require better organisation, market news and distribution than could be secured at present or for a long time to come. It may be mentioned that a trial shipment of citrus fruit to Canada in 1928 realised fairly good prices but the fact that the 1928 season was an exceptionally good season must not be lost sight of.

The logical market for South African citrus is the United Kingdom, the European countries on the Continent and to a lesser extent the Eastern markets especially India.

The.........
The United Kingdom as a Market.

To-day the United Kingdom is the largest importer of citrus fruit in the world, and yet many parts of that country, if not all, have not been taxed to their full capacity as far as consumption of fruit is concerned. This of course is most certainly the case with citrus fruits from the Southern Hemisphere arriving on those markets when there is practically no citrus fruits from elsewhere.

The total quantity of oranges retained for home consumption in the United Kingdom decreased slightly in the years before the war. Since the war, however there has been a very substantial increase. The consumption in 1927 was 18.3 lbs or about 75 oranges per head per year. This includes the amount manufactured into marmalade so that the quantity eaten fresh is much smaller.

As can be seen from the following tables over 80% of the total supply is eaten during the winter months. If the winter rate were continued throughout the year the average individual would eat at least 120 oranges. This indicates the scope which exists for the expansion of the trade.

**Imports of oranges into the United Kingdom each month 1925-27**

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<thead>
<tr>
<th>Month</th>
<th>Spain Palestine</th>
<th>South Africa</th>
<th>U.S.A.</th>
<th>Italy</th>
<th>South British Other America-West Indies</th>
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<th>E.I.</th>
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*February ..............*
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October......
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<th>South Africa</th>
<th>U.S.A.</th>
<th>Italy</th>
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<td>136</td>
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<td>2</td>
<td>3</td>
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</table>

From these figures 95% of the South African fruit arrives on the British market during the six summer months June to November inclusive. During these months 1,482,000 cwt. of oranges arrive in England while during the whole year 3,283,000 cwt. arrive. This gives an idea of the wide scope for increasing consumption of citrus fruits during the summer months, especially during the months of July, August, September and October respectively. During these four months, taking the average for the three years 1925, 1926 and 1927 respectively, only 686,000 cwt. of fruit were consumed. Exports to the United Kingdom during these months are gradually increasing as the exports from the United States of America, South America and South Africa increase, but in general it will be several years before the demand for citrus fruits in the United Kingdom is saturated.

The........
The main sources of supply of oranges to the United Kingdom and the amounts they supply can be seen from the following figures:

**Imports of oranges into the United Kingdom in thousands of cart.**

<table>
<thead>
<tr>
<th>Country whence consigned</th>
<th>1925</th>
<th>1926</th>
<th>1927</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>6,010</td>
<td>6,096</td>
<td>5,291</td>
</tr>
<tr>
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<td>1,004</td>
<td>1,359</td>
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<td>377</td>
<td>524</td>
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<td>156</td>
<td>431</td>
</tr>
<tr>
<td>Egypt</td>
<td>82</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Italy</td>
<td>58</td>
<td>54</td>
<td>92</td>
</tr>
<tr>
<td>British West Indies</td>
<td>70</td>
<td>86</td>
<td>61</td>
</tr>
<tr>
<td>Portugal</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Canary Islands</td>
<td>8</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Argentine</td>
<td>3</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Australia</td>
<td>21</td>
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<td>2</td>
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<tr>
<td>Germany</td>
<td>4</td>
<td>23</td>
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<tr>
<td>France</td>
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<td>1</td>
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<tr>
<td>Other Countries</td>
<td>11</td>
<td>32</td>
<td>45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7,729</td>
<td>7,973</td>
<td>7,898</td>
</tr>
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</table>

This fruit did not necessarily originate in the country whence consigned, e.g. the bulk of the fruit from Egypt is Palestine fruit that was reconsigned. These figures bring out the significant fact that South African exports only 6 to 7 per cent of the total imports of oranges into the United Kingdom.
South Africa is fortunate in being one of the Empire for by being such, besides all the other advantages, she enjoys the privilege of preferential sentiment that is being encouraged to such a great extent by the Empire Marketing Board. To draw full benefit from this it is necessary for her to market highly standardised graded fruit under a few well advertised trade marks and to distribute this fruit in an efficient manner. For efficient distribution it is essential that at least 85 per cent of the exported fruit from South Africa be handled by the Exchange and the Exchange representative should have a free hand in the distribution of this fruit. The Representative must have agents in all the important markets, both in the United Kingdom and on the Continent, and must ration these markets according to their requirements. To do this he must have a thorough knowledge of the daily markets as regards weather conditions, supply of competing fruit both in the market and on the way to market, and the demand for fruit in the market. This information can be supplied by the agents if reliable men are chosen. The greatest difficulty in distribution is that the bulk of South African fruit is consigned to London, and the shipping contract only makes provision for it being landed at Nine Elms Station, so that it cannot be diverted to other ports unless it is on chartered or continental steamers. The Railway charges and handling charges from London to the North on the other hand are very high as.

London to Glasgow or Edinburgh over 2/- per box,

London to Liverpool or Hull nearly 1/3 per box,
in spite of the fact that Glasgow is 600 miles further than Liverpool. It is doubtful whether these charges will

be.............
be lowered in the immediate future and the only way of
affecting economy will be by regularity of supply and
gradual development.

It is not necessary to go into a full
discussion of the merits of each market for they are
amply set out in Mr. H. van den Hoek's article on
marketing fruit in the United Kingdom.

The South African crop handled by the Exchange Representatives in 1928 totalled 335,719 cases of
which 45,455 cases were nominated for special agents.
This total represents 36% of the total shipments from
South Africa. The remaining 64% was distributed at
random and consequently often lead to the flooding of
markets. The fruit distributed by the Exchange Represen-
tative was as follows:

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<th>Town</th>
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<th>Percentage</th>
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<td>2.02</td>
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<td>2.01</td>
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</tr>
<tr>
<td>Edinburgh</td>
<td>1,619</td>
<td>.58</td>
</tr>
<tr>
<td>Newcastle</td>
<td>1,449</td>
<td>.50</td>
</tr>
<tr>
<td>Leeds</td>
<td>592</td>
<td>.20</td>
</tr>
<tr>
<td>Dewsbury</td>
<td>136</td>
<td>.05</td>
</tr>
</tbody>
</table>

These............
These figures then show that over 70% of the fruit was sold in London. In contrast to this only about 13% of the Californian fruit was marketed there.

To obtain a better idea of the weakness of the above distribution reference must be made to the populations in the different centres:

<table>
<thead>
<tr>
<th>Area</th>
<th>No. of Countries</th>
<th>Radius</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>London</td>
<td>21</td>
<td>5 - 100 miles</td>
<td>15,000,000</td>
</tr>
<tr>
<td>Liverpool &amp; Man-</td>
<td>15</td>
<td>10 - 50</td>
<td>13,933,000</td>
</tr>
<tr>
<td>chester.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glasgow</td>
<td>33</td>
<td>10 - 150</td>
<td>4,861,000</td>
</tr>
<tr>
<td>Hull</td>
<td>4</td>
<td>10 - 60</td>
<td>5,100,000</td>
</tr>
<tr>
<td>Belfast</td>
<td>33</td>
<td>10 - 150</td>
<td>4,500,000</td>
</tr>
<tr>
<td>Bristol</td>
<td>7</td>
<td>10 - 100</td>
<td>3,200,000</td>
</tr>
<tr>
<td>New Castle</td>
<td>3</td>
<td>10 - 50</td>
<td>2,500,000</td>
</tr>
<tr>
<td>Cardiff</td>
<td>8</td>
<td>10 - 50</td>
<td>2,200,000</td>
</tr>
</tbody>
</table>

The distribution then was not in proportion to the population i.e. the demand. This is no doubt the reason for the great amount of speculation that goes on with the South African fruit, and the reason for the fact that the difference between the wholesale and retail prices is so great (often as much as 13/- a box according to Mr. Rusk). If this is true for the fruit handled by the Exchange how much more true is it not for the fruit sent at random. This all proves the necessity of control of the bulk of the South African fruit by the Exchange and its systematic distribution by the Exchange Representative.

The six principal ports of entry for the primary sale of fruit by auction or private treaty are the following......
London, Southampton, Liverpool, Manchester, Hull and Glasgow. Of these London and Liverpool are the most important as far as direct consignments are concerned, the former including through Bill of Lading traffic via Southampton. These two ports are favoured by America, Australia and also Spain.

Judging from the populations in the vicinity of the ports it will undoubtedly be a great advantage and saving if direct shipment can take place to the several ports, or at least the more important of them.

The most important market is naturally Covent Garden, but according to data it appears to be inadequately equipped for the rapidly expanding fruit trade. This will necessitate its expansion or the opening up of a new market in London.

Liverpool is the natural port to a large industrial centre, and in conjunction with Manchester, a population of nearly the same as that of the London area is in its vicinity. The facilities at the docks as well as the auction rooms are to be highly recommended.

As a port for the primary sale of South African fruit it should be certainly one of the first to be exploited. No market can show profitable returns however when the commodity is suddenly put up for auction in fairly large quantities at irregular intervals. What is needed is to supply the markets regularly with high class fruit and to develop the provincial markets in the United Kingdom by a carefully planned system of advertisement.

London and Liverpool to a certain extent are the only two ports of any importance to the South African orange...
orange trade at present. But several of the other ports
may in the future become of great value to the South
African export trade e.g. Hull may be of importance for
the re-export trade with the Continent as she has regular
services to the various countries there. Southampton
seems to be growing in importance especially because its
railroad connections with points in its natural area,
are such that attendance of buyers to the sale rooms and
delivery are most satisfactory and speedy. Both Ire-
land and Scotland offer good markets for South African
fruit. There is no doubt great possibilities in the
development of the provincial markets but they can only
be developed by beginning with small regular supplies and
then gradually increasing these supplies.

Both Auction and Private Treaty sales are car-
rried out in England and the distribution is as pointed out
in an earlier section of this paper.

There are about 19 primary wholesale salesmen
in the United Kingdom who deal with South African Fruit
and about 3,000 retailers. By these salesmen lowering
their prices to the consumer and organising their busines-
sees efficiently they would increase their sales and have
a more rapid turnover and consequently bigger net profit.
This would be of benefit to the consumer and salesman as
well as to the producer. During this season (1929) the
California Citrus Exchange appointed three dealerservice
men in England to instruct, and show how to improve the
efficiency of the Salesmen. This is something for the
South African Exchange to do when they have adequate fin-
ances.

What.........
What is essential is a large volume of standardised graded fruit of high quality marketed under a few (three or four in the case of South Africa) well advertised trade marks and distributed over a wide area according to the demands of the respective markets. This will minimise speculation, increase demand and assure the grower of a fair return.

The Continental Markets.

The Continental markets have about the greatest potentialities as regards future consumption of citrus fruits, for not only are continental countries provided with large populations, but the populations are mostly concentrated in small areas making distribution easy. Owing to the great competition in transport between England and the Continent transport is efficient and the charges therefore comparatively low e.g. it takes a night to reach Antwerp and Rotterdam and two to three days to reach Bremen, Hamburg or any of the Scandinavian ports.

In general it seems that the best method of supplying these markets at present is by trans-shipment from England, for ships en route to England cannot be diverted to the Continent, and Continental Steamers between South Africa and the Continent do not carry a regular cargo of citrus fruit.

As pointed out before the most convenient centre from which to distribute South Africa's fruit to both the English and Continental markets is London. The Exchange representative should keep in touch with a salesman in each of the markets so as to be able to estimate the requirements....
requirements of each market. A start should be made to regularly distribute small quantities of high class fruit to some of the most important of these markets so as to get South African fruit known there. As production then increases these markets will serve as outlets for the increased exports.

At present it appears that preference in Continental markets is given to Brazilian and California fruit. The main reason for this is that their fruit is better known and in the case of California it is of a uniformly high standard. In this connection it may be mentioned that some South African fruit had to be reshipped again from the Continent back to England during this season (1929). The main reason being that it was not known and dumped in a market without consideration to the requirements of that market. To create a demand for her fruit on the Continental markets South Africa must send forward regular quantities of uniformly high quality fruit starting with small quantities in the beginning even if they are sold at a comparatively low price and increasing these quantities as demand and supply increases.

Paris as a Fruit Market.

On account of the fluctuation in the value of the Franc after the war the fresh fruit market in Paris suffered greatly, but there is no doubt that when France regains her former stability she will take a fair supply of oranges and grape-fruit during July, August, September and October. From November to July she is supplied with citrus fruits from Spain, Algeria and Italy, and home-grown soft fruits, so that during these months there is little...
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little prospect of a market for South African citrus. The import duty on citrus fruits is about 1/-10 per case and the principle method of sale is the "private treaty" system.

Paris is centrally situated in France, and is the main centre for distribution though the market is not so conveniently situated with regard to the railway as some of the markets in Germany for instance. This necessitates extra transport and handling charges. On account of the high price of citrus fruit in France during the months of August, September and October it is a luxury, but nevertheless Paris should be able to take at least 400 - 500 cases weekly during these months. The per capita consumption of citrus fruit in France is about 7 lbs. This shows the great increase in consumption that can still take place when compared with the per capita consumption of 23 lbs in California.

The following table giving the population and per capita consumption of the various countries is of interest:

<table>
<thead>
<tr>
<th>Country</th>
<th>lbs. per head</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>U. S. A.</td>
<td>23</td>
<td>105,710,620 (1920)</td>
</tr>
<tr>
<td>Australia</td>
<td>20</td>
<td>6,262,720 (1928)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>19</td>
<td>42,919,710 (1921)</td>
</tr>
<tr>
<td>Canada</td>
<td>19</td>
<td>8,788,483 (1921)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>12</td>
<td>1,344,469 (1926)</td>
</tr>
<tr>
<td>Norway</td>
<td>10 x</td>
<td>2,649,775 (1920)</td>
</tr>
<tr>
<td>Belgium</td>
<td>10 x</td>
<td>7,465,782 (1920)</td>
</tr>
<tr>
<td>Switzerland</td>
<td>9</td>
<td>3,987,000 (1927)</td>
</tr>
</tbody>
</table>

Germany............
<table>
<thead>
<tr>
<th>Country</th>
<th>Lbs per head</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>7</td>
<td>62,410,619 (1925)</td>
</tr>
<tr>
<td>France</td>
<td>7 x</td>
<td>40,743,897 (1926)</td>
</tr>
<tr>
<td>Irish Free State</td>
<td>6</td>
<td>2,971,992 (1920)</td>
</tr>
<tr>
<td>Denmark</td>
<td>5</td>
<td>3,434,555 (1925)</td>
</tr>
<tr>
<td>Austria</td>
<td>5</td>
<td>6,534,481 (1923)</td>
</tr>
<tr>
<td>Sweden</td>
<td>4</td>
<td>6,087,923 (1927)</td>
</tr>
<tr>
<td>Czechoslovakia</td>
<td>3</td>
<td>14,356,600 (1926)</td>
</tr>
<tr>
<td>Hungary</td>
<td>2</td>
<td>7,980,143 (1920)</td>
</tr>
<tr>
<td>Poland</td>
<td>1</td>
<td>30,213,000 (1928)</td>
</tr>
</tbody>
</table>

x Including Lemons.

This table shows what a great amount of room there is for increasing the consumption of citrus fruits in the European countries and so widening the market. However it is doubtful whether the prospective increase in the exportable surplus from producing countries can be fully absorbed by these countries unless consumers are enabled to purchase the fruit at lower prices than those now current. One of the chief obstacles to increased consumption of citrus fruits in many European countries is to be found in the duties imposed upon imports, and the removal of these tariffs would undoubtedly stimulate consumption and help to solve the problem of disposing of the world's citrus production.

Holland as a Market for Fruit.

There is perhaps little difference as regards the importance of the two ports Rotterdam and Amsterdam except that Rotterdam is the main transit port or gateway to the Rhineland and Westphalia, and is situated more favourably for this purpose. A very large percentage...
of the fruit imported into Holland is exported into Germany. Both the above mentioned ports have excellent facilities for the handling and re-expedition of fruit.

Oranges, mandarins and lemons are imported into Holland free of charge but it is difficult to ascertain what it costs to market oranges in France.

The bulk of fruit imported into Holland has to pass the auction which is of a closed type first. Little, if any, private selling is done by the auction brokers. Auctioneers may only sell to members of the "Bond van Nederlandse Groeiers in Verse Zuidvruchten en Aanverwante Artikelen" of which there are about 300 Dutch members. The auctioneers are not allowed to do any wholesaling in connection with the most important perishable. In the smaller markets the electrical dial system of sale is in operation - it has not been applied to the sale of citrus fruits in large quantities however.

There is apparently a shortage of citrus fruits in Holland during the months July to October inclusive. South African citrus should find a good market there during this period and the shipping charge from London to Rotterdam works out at about 10d per box.

Transport in Holland is fairly efficient and cheap. Besides supplying Germany Rotterdam also supplies Switzerland with fruit.

The population of Rotterdam is about 500,000 and that of Amsterdam about 650,000. Eighteen towns have populations of between 30,000 and 285,000, the total population for Holland being about 7,000,000.
The Fruit Trade in Belgium.

Antwerp is the port for importation of fruit into Belgium and its importance as a transit port for the Ruhr and Westphalia is practically equal to that of Rotterdam. Belgium is, to a great extent, dependent on western Germany as an outlet for the large quantities of fruit handled, especially by the importers in Antwerp. Good railway facilities exist between this port and the Ruhr district.

Antwerp is the principal distributing centre and most of the fruit-brokers are situated there. Sales are of the open auction type and buyers from Belgium, Luxembourg, Holland and the Ruhr more or less regularly attend.

Most European countries passed through a severe depression after the war and are only gradually regaining their former stability. Railway rates are fairly low in Belgium chiefly on account of the low rate of exchange.

There is a regular daily service from London to Antwerp and the freight is about 1/-6 per box. The import duty is about 3d per box. In general Belgium, with Antwerp as a distributing centre, has good potentialities as far as South African citrus fruit is concerned during the months July to October inclusive. The marketing charges, duties, etc., as for all European countries, however, need to be considerably reduced in order to reduce South African citrus fruits from the present luxury class of goods to the every day diet class, and still......

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still return a fair return to the grower.

Antwerp has a population of 300,000 while Belgium alone has 18 towns of population of over 30,000 each. The portion of Germany served by Antwerp has a population of 11,000,000 while the total population of Belgium is 7,600,000.

Germany as a Fruit Market.

Owing to the war the fruit trade collapsed in Germany and, although her present economic condition is far from satisfactory on account of the low purchasing power and unemployment, the fruit trade has again developed considerably during the past few years and is increasing rapidly in extent.

Owing to the country's decentralised position, the distribution is very extensive, because, naturally, the big towns form the main consuming centres. There are 45 towns with a population of over 100,000 most of which are highly industrial. Every town has its central market and on the whole all have a flourishing retail trade.

It is about time that South Africa commenced opening up these markets with a regular supply in order to become established in them, for of all the Continental countries Germany is the largest importer of fruit and she owns the most potential markets, receiving her fruit through Holland and Belgium as well as her own ports.

Hamburg, Bremen and Berlin are auction centres. The auctions, being closed, only sell to members of the buyer's.......
buyers' association. The port of Hamburg, as well as Bremen, is admirably equipped for the handling of fruit and other perishables. The ship off-loads at the one side of the auction rooms and at the other the commodities can be immediately loaded into the railway trucks. A considerable amount of fruit is consigned directly to a number of firms in the interior but the auction in these two ports distribute large quantities weekly, mainly throughout Germany. For small quantities of fruit the dial system of sale is often used in Bremen.

Many of the auction, as well as the wholesale buyer firms have branches of their business spread out through the European countries and in this way much of the fruit is distributed.

Although perhaps cramped for space, the Berlin market has as fine facilities as Hamburg, the only inconvenience being the lack of river connections.

As in the case with other European countries the German markets are open to South African fruit from July to October inclusive.

South Africa enjoys a reduced duty on citrus fruits in accordance with the Trade Treaty with Germany.

In general apart from other citrus fruits South African citrus fruits will come into competition in Germany, as in all European countries, with home grown and imported soft fruits. This means that European nations must be gradually educated to appreciate and value the South African fruit. The only way of doing this is by regular supplies and systematic advertisement. Providing these markets are gradually developed they hold great future potentialities.
The Fruit Trade in Denmark.

Owing to the war Germany was shut off as far as the fruit trade was concerned and this encouraged sales in Northern countries with the result that Copenhagen has developed quite an important trade, using the greater portion of her imports for her own consumption. The surrounding countries, Norway and Sweden, Finland and Poland obtain certain supplies via Copenhagen which has apparently developed a high class trade in fruit.

Most of the fruit sold in Copenhagen is obtained directly from the foreign countries, although a small amount is sent via Hamburg by firms situated there. South African Fruit is transhipped from Hull and Copenhagen should be able to dispose of about 500 tons weekly, but the market must be built up slowly and systematically.

Copenhagen appears to be the most favourably situated distributing centre for Scandinavia, Finland, the Baltic Provinces and also for Poland and Danzig.

Oranges are sold by auction, very similar to the method of sale in Hamburg, and the transport facilities are good. The total population of Denmark is about 3,300,000.

Norway as a Market.

Oslo with a population of 250,000 is the most important city for fruit consumption in Norway. Through this port imported fruits are distributed to the southern parts of the country. The city has direct transportation with New York and good shipping connections with Hamburg and Copenhagen, as well as with England through Bergen.
and Gothenburg. Most of the fruit is obtained at European auctions. Auctions in Oslo have proved a failure. The total population is about 2,650,000 and transport is cheap.

**Sweden.** Gothenburg is the most important shipping city here. As regards the American trade the shipper is represented by a local broker who has the quotation of his shipper and obtains the orders from the Gothenburg trade. Transport is cheap and the population about 6,000,000 of which 660,000 occupy two towns. Supplies are also obtained through several European auctions.

**Finland.** has a population of about 3,500,000 with five towns of over 30,000 inhabitants. Local transport is efficient and cheap.

About 69,000 cwt of oranges were imported into Finland in 1927 and the annual imports show an increase. There are no oranges on the market during the months August, September, October and November respectively.

There will apparently be an excellent market in Norway, Denmark and Sweden during the tourist season which coincides with the South African export season.

From this brief survey of the most important European fruit markets it is apparent that there is room for expansion in citrus consumption in these countries. The survey indicates that citrus consumption in the summer months is practically negligible, and suggest that eventually a market for the increasing production of South America, Australia, the U. S. A. and South Africa, may be found in these markets. It is largely, however, a

matter.......
matter of regular supplies at a price which consumers are able and willing to pay. This means a reduction in handling and marketing charges and a diminishing of import duties. Handling and marketing charges will be reduced by regular shipments of high class fruit and by the direct shipment of this fruit from South Africa to the European port from whence it is to be distributed. The latter step will not be possible to any great extent for a long time to come.

It is interesting to note that Mr. Woomaw estimates a potential summer market in the United Kingdom and on the continent of at least 5,000,000 cases a year.

In most European countries there are more or less plentiful supplies of home-produced fruit available, and consumers have a choice of fruits at fairly low prices. The improvement in the economic condition of Europe should, however, facilitate the sale of imported luxury fruits, among which summer oranges may be classed, although, in view of the prospective increase in supplies in the near future, it would be hazardous to prophesy that the whole of the summer surplus a few years hence will be disposable at the price levels of recent years.

In the above analysis of the markets no attention has been given to comparative costs of marketing and production, nor to climatic influences on per capita consumption in the different countries. While they all play their part they are matters for more local and intensive study than can be contemplated in this paper.

Trade.............
Trade with India.

Up to the present little trade between South Africa and India has taken place and transport facilities as far as citrus fruits are concerned are very poor. Political relations between the two countries, however, are improving and this naturally improves trade possibilities. Should there be sufficient demand for South African fruit in India ocean and railway facilities will be forthcoming. India’s possibilities as a market must not be lost sight of and Bombay and Calcutta may prove important distribution centres in the future. An attempt to open up these markets is at present being made by Rhodesia. Further East, however, South Africa will have to compete with Australia and Eastern produced fruit which does not seem a very profitable proposition.

Factors Affecting Demand and Supply.

Competition from the Northern Hemisphere.

In general the principal producers of oranges are the United States with about 27,357,000 cwt per year, Spain with about 22,000,000 cwt, Italy with over 5,000,000 cwt and Japan with about 5,500,000 cwt. (Report of the Empire Marketing Board). Many other countries produce large supplies but the above four countries supply fully three-quarters of the world’s output.

Most of the United States production is consumed within the country and Spain is easily the world’s greatest exporter, its exports being roughly twice as great as those of all other exporting countries combined. Italy takes second.......

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second place with a quantity about one-fifth that of Spain, and the United States is third while Palestine is of growing importance, being now not far behind the United States. Smaller quantities are exported by the other producers, the chief contributors to world supplies being the Union of South Africa, Australia, Algeria, Japan, Syria, Cuba, Porto Rico, China and the countries of South America.

The principal markets for exported oranges, as seen from above, are in Europe. The United Kingdom takes fully one-third of the oranges entering the world trade, Germany is second, importing in 1927 about one-half the quantity of the United Kingdom, while other important markets in Europe are France, Belgium, Holland, Poland, Czechoslovakia, Switzerland, Norway, Sweden, Hungary, Denmark, Irish Free State and Rumania.

**Competition from the United States.**

California and Florida together produce 27,071,000 cwt of the total production of the States and of this amount California produces about 19,619,000 cwt.

While only moderate expansion in the productive capacity of California orange groves is to be looked for during the next few years, in Florida developments are likely to be much more pronounced. It was estimated that Florida by 1932 would show an increase of 50 per cent on the bearing acreage for 1927 the year for which most of the above figures are given.

The bulk of the exports from the United States goes to Canada but the export to the United Kingdom and
the European countries is rapidly increasing, especially during the summer months. During this year (1929) it is estimated that from June to November California shipped over 500,000 cases of citrus fruit to the United Kingdom. The Florida season extends from October to June. Only 24 per cent of the total United States crop is marketed during the five months, June - October inclusive.

The ability of European markets to absorb large quantities of United States oranges between November and April is limited on account of the large supplies of comparatively cheap Mediterranean fruit during that season, but it is precisely during those months that United States production is likely to show the greatest increase.

At present California Sunkist oranges are South Africa’s greatest competitor on the European and English markets. The quality and distribution of this fruit is excellent, and to compete favourably with it South Africa must export a higher class of fruit under a few well standardised trade-marks. It would be a great advantage to both countries if their respective representatives could work together in distributing the fruit, for the United Kingdom and Europe could very well absorb all the high quality fruit from both countries at reasonable prices, especially since exports from California during the summer months can not increase to any great extent. What is essential is systematic distribution backed by careful advertisement and propaganda. It is stated that there is a considerable demand for citrus fruits in the far East and California and Australia are gradually opening up these markets, which will form a valuable outlet for...
for both countries as far as their summer (June to October inclusive) fruit is concerned.

Spain as a Competitor.

South African fruit arrives on the United Kingdom and European markets from May to December inclusive. The Spanish crop dominates these markets from November (sometimes the end of October) to May, continuing into June and sometimes July, so that South African fruit must compete with Spanish at the beginning and at the end of the export season.

According to the Empire Marketing Board Spanish imports into the United Kingdom for the three years 1925-27 respectively averaged 570,000 cwt during May, 520,000 cwt during June and 120,000 cwt during July being negligible in August, September, October and rising to 200,000 cwt in November. These figures will tend to show the comparatively serious nature of this competition which is even more severe on the Continent. The reason for the comparatively high prices paid for South African fruit at the beginning of the season is that the people are tired of the Spanish fruit.

The Spanish article is not of standard quality, nor is it of very good quality, but this matter is now receiving serious attention in Spain and the quality, grading and packing of Spanish fruit is rapidly improving. It costs Spain about 12/- a case to land fruit in the World's fruit markets (England and the European markets). To compete profitably with this fruit South Africa must develop a demand for her fruit and this can only be accomplished with a superior class article systematically distributed....
tributed and well advertised.

Competition from the Mediterranean Countries.

It is mainly due to the Italian lemon production that South African lemons cannot find a profitable market in Europe, and citrus-by-products from these countries together with those from Spain eliminate the possibility of profitably marketing large quantities of by-products on the European markets.

The total production of oranges and mandarins in Italy is about 300,000 tons produced mainly in Sicily. Her principal exporting months are from December to June so that early shipments of South African oranges would meet a slight competition here, especially in Germany which is Italy's largest market. Improvement is taking place in quality, grading etc., but production is more or less stationary. South Africa has not much to fear from Italian competition.

The importance of Palestine as a citrus producer is increasing rapidly both in quality and quantity. Her export season is from late November to April so that apart from competition in December she is not of much concern to South Africa as a competitor. She exports about 2,000,000 cwt of oranges a year mainly to the United Kingdom, though direct shipments to Continental markets are increasing as also to Egypt.

Small quantities of citrus fruits are produced in France and Portugal. Cyprus exports are said to be increasing especially to Egypt and Greece. Algeria is steadily increasing its citrus production which it markets mainly in France owing to favoured tariff preferences.

Syria.......
Syria as a citrus producing country has a production of about 400,000 cwt which it markets mainly in Egypt and Turkey but small quantities are sent to the United Kingdom.

The Japanese production is apparently stationary and mostly locally consumed. Considerable quantities of mandarins and a few oranges are exported to Kwantung and fair quantities to the United States and Canada.

China is a fairly large producer of citrus fruits exporting to Singapore, the Strait Settlements, Hong-Kong, Siam and French Indo-China but she also imports considerable quantities from Japan mainly and the United States. Imports are increasing and these Eastern markets will prove a valuable outlet for the Australian and American surplus.

**Competition from the Southern Hemisphere.**

Of the countries in the Southern Hemisphere South Africa seems to be the most favourably situated of all, for, as markets are opened up they must gravitate south and east into the radius of economic supply geographically belonging to South Africa and Australia.

To bear this statement out we may take the distance of the Southern Hemisphere countries from the Principal markets. The distances are calculated in days taking 10 knots per day.

<table>
<thead>
<tr>
<th>Markets</th>
<th>Argentine</th>
<th>Australia</th>
<th>S.Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>27½</td>
<td>40</td>
<td>23</td>
</tr>
<tr>
<td>London</td>
<td>25½</td>
<td>40</td>
<td>25½</td>
</tr>
<tr>
<td>Antwerp</td>
<td>20½</td>
<td>32</td>
<td>27½</td>
</tr>
<tr>
<td>Bombay</td>
<td>39</td>
<td>-</td>
<td>15½</td>
</tr>
<tr>
<td>Rangoon</td>
<td>-</td>
<td>14</td>
<td>-</td>
</tr>
<tr>
<td>Far East</td>
<td>46</td>
<td>15</td>
<td>27</td>
</tr>
</tbody>
</table>
The most important competitor of South Africa, as far as the Southern Hemisphere is concerned, is South America and here Brazil is at present outstanding.

Brazil

The total production of citrus fruits in Brazil is not known but plantings have been considerably increased of late as also in the Argentine, and a greatly increased production is expected. The quality of fruit arriving on the English and Continental Markets has been inferior to that of South Africa, but export regulations have been put into operation and a great improvement in grading and packing can be expected. Most of the fruit is exported to neighbouring countries in South America, Buenos Aires and Montevideo being the chief markets, but exports to Europe were tried in 1927 and it is estimated that during 1929 about 200,000 cases arrived in England from June to November. The fruit was usually sold at lower prices than South African but it also brought down the price of the South African product. It is from South America in general and Brazil in particular that South Africa will receive most competition, and unless she rapidly establishes herself on the European markets Brazil will capture those markets from her for the landed cost per box of citrus on the European markets is only slightly higher for Brazil than for South Africa.

Brazil is about 10 per cent larger than Continental United States, outside of Alaska and all of it has a climate capable of producing citrus fruits. It has a population of some $5,000,000$ people and there is still great stretches of the interior country that is relatively uninhabited.....
uninhabited. In the State of Minas Geraes alone which is one of twenty there are more square miles of citrus land than occur in Florida and California combined.

Up to the present time only an indifferent attention has been paid to the growing of citrus fruits with the result that the fruit is very variable in quality, but it ripens throughout the year.

Co-operative organisation among producers has started and the Government is taking an active interest in helping these organisations.

The State of Sao Paulo, according to P. H. Rolfs, has gone a step further by starting a project to plant twenty million citrus seeds and the state of Minas is also making some preparations for a large production of good citrus stock.

The only way South Africa can meet this coming competition is by waking up immediately and putting her industry on a sound basis.

Australia cannot become an important competitor in the United Kingdom and Continental markets because of her distance from the markets. Her best export markets are undoubtedly India and the Far East.

**Competition from other Fruits.**

Citrus growers in general are faced with the problem of the possibility of growers of other classes of fruits developing a consumers demand for these fruits above that for citrus fruits. Especially is this the case with the home grown soft fruits on the Continental
and United Kingdom markets. These soft fruits are relatively abundant and cheap while citrus fruits are regarded as a luxury, and will only find a demand by replacing some of the soft fruits in the daily consumption.

Pineapples are available throughout the year but are not very popular at present because of the high prices caused by the heavy decay in transit.

As transport improves exports will increase and public taste will become cultivated. They may become a serious competitor with citrus fruits and at present enjoy a 3/- per ton levy favour above citrus.

The weekly amount spent in fruit will always be about the same so that if more soft fruit is bought citrus will suffer. Propaganda and efficient distribution is all that can prevent this. Strawberries are a very popular home grown fruit both in Great Britain and on the Continent. Exports from South Africa in this line, in early spring and summer at close of citrus season, are increasing yearly. The effect of strawberries on the citrus prices can be seen in June and July.

Deciduous fruits produced in the Northern Hemisphere come on to the markets at the same time as South Africa's citrus fruits and the volume of soft fruits exported from America and Europe is on the increase.

In general then South African citrus fruit comes into competition with that from Spain at the end and in the beginning of the export season. Besides this Californian and Brazilian fruit competes with it throughout as also other fruits. Providing, however, that South Africa...
Africa exports only high quality fruit under a few well advertised trade marks, and distributes this in accordance with the supply and demands of the various markets, she will obtain remunerative prices for several years to come.

It is self evident that the demand for citrus fruits will depend on many more factors than merely populations and supplies. Such factors as weather, race meetings, holidays etc., have a marked effect.

As far as Grape fruit is concerned South Africa exports fruit from May to September. During this period no other Grape fruit is available on the European markets except some from California and a small amount from the West Indies. Consumption of Grape fruit per capita is very low at present and it will apparently take a great amount of advertising to increase it. Providing, however, that the market is gradually developed growers of this product should receive fair returns for many years to come.

South Africa, however, cannot extend her Grape fruit export season without meeting severe competition, and it may be mentioned that the quality of the bulk of South African Grape fruit cannot compare favourably with that from other sources.
CHAPTER IV.

THE MARKETING OF SOUTH AFRICAN CITRUS FRUITS.

Three general systems of marketing their fruit on the overseas markets are utilised by producers in South Africa. In the first system the individual producer consigns his fruit to an overseas salesman either directly or by means of that salesman's agent in this country; in the second, the fruit is consigned by a body of farmers to the salesman either directly or by means of the agent, and in the third case several bodies of farmers consign their fruit through their own South African Co-Operative Citrus Growers' Exchange to the overseas representative of the Exchange who distributes and supervises the sale of the fruit.

For convenience the first two systems will be dealt with together under the heading "unorganised marketing" and the third system under the heading "organised marketing".

Unorganised Marketing.

As already pointed out the fruit marketed under this system is consigned by the producer either individually or jointly with other individuals to a fruit broker (or commission salesman) at one or other of the main overseas receiving points. The primary sale takes place at these points where the brokers usually have their headquarters and receive the fruit as it is disembarked on the quay-side. The sale may be by auction or "private treaty" and is usually on a commission basis on account of the shipper overseas.

Auction.......
Auction Sales.

Auctions are held at practically all of the larger receiving points and are generally owned and controlled by a few of the larger fruit brokers resident at the respective market centres.

As soon as possible after the fruit is discharged at the docks, it is classified, sorted and catalogued in readiness for the buyers before inspection and samples are drawn and forwarded to the sale rooms. Some auctioneers only show the fruit samples as lots are sold whereas others have sample rooms for the display of the fruit. Usually the fruit is sold ex-docks and the buyers are often permitted to examine the bulk there.

Auctions are held on fixed days of the week and the brokers, prior to the arrival of the fruit, notify all buyers by circular as to the quantity and class of the fruit to be sold so as to obtain as large an attendance of buyers as possible thereby ensuring the highest bids and selling the bulk of the fruit as rapidly as possible. The brokers are in the unfortunate position of having to protect values but at the same time disposing of consignments quickly in order that they may not be swamped by the large number and bulk of incoming shipments of which the South Africans are only a very minor portion. The method followed, of course, ensures quick and apparent correct returns to the shipper for the prices are open to inspection. There exists, however, the possibility of brokers keeping two sets of books and in some instances false returns have actually been made but the old established firms are usually to be considered reliable.

In........
In the event of the bulk of the consignment not being up to the standard of the displayed sample, a buyer on the United Kingdom market can reject any shipment within 24 hours after the auction and this privilege can be used as a lever to bring about a price adjustment. On the other hand if the sample is inferior to the bulk and the sale is made with the sample as representing the quality of the whole, the buyer naturally says nothing and the shipper has received a lower price than he would have received if the sample had been truly representative.

Most auction sales are open, i.e. anybody, at the discretion of the auctioneer, is allowed to go in and buy but certain auctions such as those at Liverpool and Manchester are closed and only members of the Buyers' Association are allowed to buy. Where the number of buyers is small, closed auctions are very undesirable for there exists the danger of a "ring" of buyers being formed but where the membership of the Buyers' Association is large, it is said that there is little danger of this occurring. The closed auctions of course facilitate credit.

At practically all auctions both buyers and brokers usually form associations in order to deal with matters which may arise between the two in a co-operative manner and also to ensure correct selling and facilitate such.

Most of the auction firms are old and well established, owning well-built modern salerooms and sample rooms with up-to-date facilities and the buyers coming from wide-spread areas act as distributing agents.

Auction...
Auction sales are excellent on a rising or standing market but are not so good on a falling market, for in the latter wholesalers tend to hold off until no further depression occurs.

The essential feature at auction sales is the concentrated competition between buyers but at private-treaty sales the competition between the sellers is the principal factor.

**Private Treaty Sales:**

These take place mainly at the larger ports but there are private treaty salesmen at other ports also. Most of these private treaty firms receive their fruit direct from the producer or through their own agents. As in the case of the brokers they all sell on shippers' account at an agreed rate of commission and subject to the deduction of handling charges.

In connection with the commission charges, it may be stated that some salesmen have been found to charge a commission on the sale of the fruit when prices have been high but when prices have been low, they have charged a flat rate per box of fruit sold. This is naturally to safeguard their own interests but is nevertheless undesirable from the grower's point of view.

"Private Treaty" salesmen dispose of fruit by the method of personal bargaining with their customers and the facilities they possess for warehousing which naturally increase their overhead charges, give them more latitude in holding for higher values than is possessed by the auction broker. In some conditions of market this is a definite advantage. On the other hand when fresh shipments........
Shipments are coming in every week which is the normal situation during a great part of the season, their slower methods of distribution tend from time to time to result in the accumulation of stocks which must eventually be disposed of by auction at depreciated values. Very often the private treaty salesman has to take his prices as determined by the auction if the two coincide in time and place. The publicity check on returns is lacking. In the case of transaction based on personal negotiation, the retention of the good-will of the purchaser must necessarily loom largely in the salesman's eye and buyers may obtain fruit at a lower price than it is actually selling for on the auctions by playing one salesman off against the other. In the absence of any check on the part of the shipper, discrimination may from time to time arise under such a system in the matter of price between lot and lot. It is also known that the private treaty salesman may sell one type of fruit, e.g. oranges, at a discount on condition that the buyer also purchases another lot of fruit e.g. apples. In such a case the owner of the oranges looses. Where fruit is of doubtful quality speculators, street-bankers and others take their opportunities and it is here where South Africa suffers on account of the uncertain standard of many of her marks.

Greater satisfaction is obtained from the auction system in cases where large quantities of fruit on regular consignment have to be dealt with especially when such fruit has gone off condition slightly during transit; whereas for really fancy fruit, the private treaty salesman has...........

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has better opportunities for demanding a higher price. The latter often has wide-spread branches of his business in other markets thus bringing the product to the door of the buyers and retailers of nearly every large city and town of importance. For the orange trade of South Africa, both systems are serving their purpose. Several auction brokers have connections in both English and Continental markets. On the account of the irregularity of supply in large enough quantities to the various auctions, price comparisons on returns from firms for both auction and private treaty sales would show no data of importance and would certainly not warrant the adoption of one of the two on that basis only although auctions do appear to be the most popular.

In addition to the above mal-practices in the "Linlithgow Departmental Committee Report on Distribution and Prices of Agricultural Produce in Great Britain", reference is made to the illegal practice of "averaging returns" and to the method of rendering sales accounts in such a way that the detailed costs are not shown. Of course both these practices are detrimental to the interests of the producers. It is argued that the report referred only to produce produced in Great Britain — this is true but seeing that growers close to the markets were subject to such disorders, is it not more than probable that growers situated more than six thousand miles away would receive even worse treatment?

The report further refers to the practice of commission salesmen buying and selling on their own account at the same time as they were operating on a commission basis.
basis.

There exists great competitions among the oversea brokers to obtain fruit for their sales. As a consequence many of the brokers have in their efforts to increase their business ceased to be commission salesmen pure and simple. To secure more and more fruit they have gradually elaborated methods of attaching the producers to them by assisting them to finance the picking and packing of the fruit. In this way there has grown up a system of brokers advances to growers in the absence of any other method of covering their immediate expenses.

Many brokers have established agencies in the producing countries. The agents visit the producers while the crops are still growing and endeavour to secure control of the fruit on behalf of their principals. Competition thus arises between these brokers' agents who in the same district bid against one another for the better qualities of fruit by offering greater and greater immediate financial advantages.

From advances to cover the bare cost of the ocean freight, this system has grown so that advances are now sufficient to meet the cost of packing and shipment and in some cases even a portion of the expenses of harvesting. It has even gone further to a point where the broker has on occasion bought a half interest in the fruit which is then shipped not on a commission basis but on the joint account of shipper and broker. It may also happen that the broker has special salaried men to buy the fruit for him at his own sale in which case he collects a commission for selling the fruit to himself and he then becomes a speculator buying the fruit on a low market and...
after gathering the commission for selling it to himself, selling it in his own interests on a higher market. It may also happen that he reports the shipment in a poor condition and so returns a low price to the grower than was actually realised for the fruit. So it happens that on the same day a broker may have on sale at the United Kingdom markets fruit in which he is interested in three capacities: as salesman without advances made or as salesman with advances or as part or whole owner. Naturally fruit in which the broker is interested, may be given preference by him. On the other hand he may sell fruit on which he has made advances at any price as long as he is assured of his advances and his commission.

That this diversity of interest in the case of the salesman is an undesirable state of affairs is unquestionable. In certain Continental countries brokers are compelled by law to confine their activities to their proper function and it would be in the best interests of all shippers if all salesmen had to conform to similar regulations.

The present methods of auction and "private treaty" sales have grown with the growth of the trade. In essence the system is based on the assumption that the broker receives fruit from the grower and sells it to a wholesale merchant for re-sale through the retail trade to the consumer.

As pointed out above the brokers may act merely as selling agents on behalf of distant growers or as wholesale merchants who purchase outright on their own account. Both usually act in the market and sell either
to other wholesale dealers or through buying agents to
wholesale merchants or retailers in other markets or
towns. About 90 per cent of the fruit passing through
wholesale markets is handled on commission.

Wholesale merchants may purchase fruit direct
and sell direct or through market to other wholesalers
or retailers.

The commission buyer acts as buying agent for
a provincial wholesaler or retailer purchasing supplies
on behalf of his principal from the commission salesman,
wholesaler, or occasionally direct from growers and usual-
ly making a flat rate charge for his services, he also
arranges for the transport of goods to their destination.

In extreme cases the grower may sell his fruit
to a local dealer. The dealer sells it through a com-
mission salesman to a commission buyer acting for a whole-
sale buyer who may sell the fruit to a second wholesaler
before it reaches the retailer and finally the consumer.

It will be clear from the preceding description
of the existing marketing process that occasionally the
services and costs of as many as six intermediaries may
be interposed between the grower and the consumer. At
each stage the produce is handled two or three times by
porters or railway employees making in some cases as many
as sixteen to twenty different handlings, while between
each stage long hauls by rail or road may increase the
tally of distributive charges.

THE INTERMEDIARIES:

The Brokers: These are dealers or secondary
wholesalers who buy produce for resale as opportunity of-
fers. Frequently they have a considerable business with
larger........
larger consumers such as restaurants, hotels etc., for whom they act as buying agents or contractors thus rend-
dering a service which their customers could not perform so efficiently or economically themselves.

The Commission Buyer: may buy on his own account or on his principal's account. In the first case he usually charges a commission of $\frac{2}{3}$ to $\frac{7}{8}$ per cent on the cost price which may include portage. If he is buying for a principal, he usually charges a flat rate of 1d-3d per package. He is a skilled buyer and in view of the constant fluctuations in supply and value, the skilled agent having the whole of the market supplies on which to operate, has a distinct advantage over the wholesaler who is limited to his own stocks. It is this condition which permits and justifies the continued existence of the commission buyer and keen competition tends to keep his charges low.

The Wholesaler: The principal for whom the commission buyer is acting may be either a distant wholesaler or a large retailer. The business of the wholesaler is speculative in character and adds from five to ten per cent on the cost price of the fruit to the price paid by the consumer. He usually has heavy over-
head charges and often suffers severe losses through deterioration. In general it may be stated that he does not obtain more than a fair livelihood from his business although in some cases a clear profit of more than 30 per cent has gone to the wholesaler. The primary wholesaler may sell to another wholesaler before the fruit reaches the retailer. These secondary wholesalers only duplicate the cost of the primary wholesaler and seem to be........
be unnecessary for in such cases the combined costs of wholesaling absorb an abnormal proportion of the total costs of the service of distribution.

The Retailer: The business of retailing consists of sale to consumers of a wide variety of products which are assembled at the retailers premises for that purpose sufficient in variety and quantity to meet the requirements of a large number of individual householders. This naturally means that the retailer is not going to take particular trouble in the sale of any one particular article such as citrus fruits for instance.

The diversity of retail services demanded by the community and the wide range of costs entailed have resulted in the development of certain types of retail business. The large departmental stores for instance deliver to customers scattered over a wide urban and suburban area. Their trade is usually of a high class character which necessitates in more than ordinary care in market dealing and generally only the highest priced goods are bought. Extensive services in the direction of calling for orders and delivery of goods is also rendered by individual traders with a more or less select trade in the better class residential districts whose customers are concentrated within a convenient and comparatively short range of each self-contained retail establishment. Other businesses sell almost exclusively to customers who call personally for their goods. As a result of the elimination of service costs, such retailers are able to sell at lower prices giving "rock bottom"

Value......
value. Finally there is the street trader or coster whose expenses are practically confined to the hire of a barrow or the upkeep of a horse and cart. These types are not rigidly definable and the larger business frequently merge the services, charges and characteristics of them all.

Generally retailing is confined to relatively small business units mainly on account of the keen competition that exists in the trade. Consideration of the position, however, appears to show that there must be a point beyond which any further increase will not necessarily react favourably on retail prices.

In general the retailer may be considered the "weak link" in the marketing system. Owing to the relative ease with which retail business can be started and to the insignificant trading capital required to commence operations practically anyone can start a retailing business. Due to lack of experience and knowledge of the trade many of them fail.

Owing to the general inefficiency and "weakness of their organisation, to the sudden deterioration of fruit in some cases and to the relatively small quantity of fruit handled by each leading to high overhead charges retailers in general appear to estimate that under normal circumstances the goods they handle must be sold at near 50 per cent above their purchase price if the costs of distribution are to be met and a reasonable remuneration provided. In other words one-third of the price paid by the consumer is normally required by the retailer to cover his expenses and profits. The chief complaint th
prefers to operate upon a small turnover and a relatively large margin of gross profit rather than by reducing prices to secure an equal or possibly greater financial return from a larger turnover. Retailers in general do not appear to adjust retail prices to conform with the reduced prices at which supplies are in some years procurable. The result is restricted demand at a time when increased consumption is the only means of saving the situation from the growers’ standpoint.

The establishments which undertake delivery and other services necessarily work on a relatively high margin of gross profit and representatives of consumers themselves have admitted that a large part of the cost of distribution in such cases must be laid at the door of the consumers who grow daily more exacting in their demands. His casual and erratic purchases, frequently of small quantities, and his general lack of method are further contributory factors. If consumers would place a regular order, some reduction in distributive costs would be possible while retailers would be able to adjust supply to requirements with greater precision. The retailer who charges the larger margin of profit, exists to a large extent by reason of a specific demand on the part of the public for services which, however, agreeable and convenient, are costly and not always necessary.

In general the competition from street traders and other retailers is sufficiently important to ensure that retailers generally do not take too heavy a toll upon the goods they handle but in order to reduce their costs, better organisation leading to more business and greater business efficiency is necessary.
Street Traders.

Street vendors, sometimes known as hawkers, costers, or hucksters are retailers who by reason of the almost complete elimination of overhead charges or by performing the minimum of service are enabled to work on a smaller margin of gross profit than the regular shop-keeper. Some deal in fruit and vegetables, others in fruit alone. Many are purely casual and only operate during the summer season. Their practice is buying fruit at the wholesale markets from merchants when prices have fallen sufficiently low to make the proposition attractive. By working on the principal of "small profits, quick returns" they bring produce within the reach of all. Their chance of successful business depends on the extent to which they can thus undersell the retail shops. The hawker is a most useful factor in the existing distributive system and forms a valuable protection to the consumer.

One of the main services that the hawker renders to the industry is that of clearing the market of surplus produce which would otherwise deteriorate and be wasted.

From the above it is clear that under this unorganised system of distribution and marketing much more handling of fruit than necessary takes place and as each handling means an additional charge, the percentage of the ultimate price paid by the consumer and absorbed in the process of marketing is greater than warranted for the services rendered. Further when fruit is consigned to a market irrespective of the relation of the supply to demand on the market at the time, there can be no certainty that........
that remunerative prices will be received for if there is a "glut" of fruit on the market, prices realised will be abnormally low and if there is an insufficiency of fruit, the prices will be high - an unsatisfactory condition if extended over any length of time for the higher prices will be repulsive to the poorer classes and hence the demand will be lessened.

A quotation from the "Review of the British Apple Market" by the Agricultural Committee for the United States Department of Agriculture is of interest:

"There are gilt edge firms that have been in the business for years whose word is as good as their bond and who are really anxious to secure the largest possible returns for the producer ....... Unfortunately there are, however, firms whose carelessness in picking samples, in putting the fruit up for sale when conditions of the market do not warrant it, in throwing the produce on any market so they can pocket their commission and even making private sales at their own convenience is often the cause of heavy loss. There is under the present system no way of checking these dishonest firms since they can easily say the fruit arrived out of condition and that the prices obtained were due to that cause. Again fruit is thrown on one market in a period of depression when it really should have been consigned to another. Thus the Glasgow market will be up and the London down. The London dealer, however, will throw the produce on the London market at a low price and get his commission rather than tranship and get a good price for the shipper in Glasgow......."
Glasgow and get no commission. The answer to complaints is that the goods were shipped to London and should be sold there.

This state of affairs results in a great deal of speculation which takes place because of the fluctuations in price caused by poor distribution and the middle-man or speculator profits at the expense of the producer as the ultimate price paid by the consumer remains more or less constant. Speculative buying can be beneficial as in the case where speculators make heavy purchases on a low market and thereby cause an upward tendency to come about. Low markets, however, would not exist under a well organised marketing system.

The importance of the question of the distribution of fruit to the most suitable market is only now commencing to receive due attention from producers. It is no reflection on the integrity and efficiency of auction brokers or commission salesmen to say that the interest of shippers can never be identical with theirs. Shippers are concerned to secure the best price for their fruit, brokers must depend for their earning on their securing supplies from every available source.

It is obvious that brokers who are established at one port, cannot recommend shipments to ports other than their own even though conditions may be such as to render such a course advisable in the interest of the shipper. The port authorities and the railway companies have an obvious interest in favouring a particular port. Some port authorities and railway companies have gone so far as to send a mission or maintain a representative......
sentative in another country for the purpose of influencing trade in their direction. Thus the interest of the port and railway authorities must be regarded as reinforcing that of the brokers in favour of concentration at their own port.

If the producer desires the best use to be made of the overseas marketing facilities, they must themselves undertake the delicate and responsible function of controlling and supervising distribution as between the different consuming areas in the overseas countries.

This as will be realised, can best be done through an organisation of producers.

Organised Marketing.

In a rapidly expanding industry such as the Citrus Industry of South Africa, the farmers are often confronted with several problems, the immediate solution of which is essential to place the industry on a stable basis and where these problems affect all producers alike, it is beyond the power of any individual to bring about any far reaching remedy. But where any single individual is helpless, the combined efforts of a group of individuals can bring about the desired results. It is through organisation alone that the farmer can hope to meet his present problems and by doing so take his rightful place in the economic life of the world. Until farmers can realise that their helpless position is due to independent action, agriculture will continue to be the least effective portion of the economic life of the world. Co-operative organisation is the only possible means whereby

the........
the interests and desires of farmers as a whole can be given full expression. A great deal of interest has centred around co-operation in agriculture in recent years and especially true has this been in South Africa and in order to prevent any misconception as to the possibilities of co-operative marketing, a brief outline of its possibilities and limitations will be given. Just what they are, will depend upon a number of factors such as the nature of the commodity, the degree to which private business has already perfected distribution of it, upon the degree to which people are trained in co-operation and upon whether the co-operation considered is of a local or of a larger nature.

It will be long before all the possibilities mentioned are fully realised. As a matter of fact many of them are beyond the range of probability for the immediate future though well within the range of possibility if sought by men of ability and clear vision. Moreover, all of them depend on good management.

Some of the outstanding possibilities of co-operative marketing may be summarised as follows:

1. Standardization and improvement of production so that better quality may result.
2. Standardization and improvement of grade and pack for both local and distant markets.
3. Stabilizing the production.
4. Controlling flow to markets so that all have a sufficient supply and yet none are over-supplied.
5. Improving distribution between markets.

6............
6. Co-ordination of physical transport both on land and sea.
7. Advertising and the development of new markets to increase demand.
8. Collective bargaining thereby more or less stabilizing prices on the market and reducing costs.
10. Making marketing more efficient and eliminating speculation on the part of the trade.
11. Maintaining favourable public relations by presenting evidence against proposed harmful legislation or by presenting facts in favour of desirable legislation or by presenting justification for any contemplated actions on the part of the producers as a whole.
12. Erection and control of storage houses at shipping and receiving points.
13. General improvement of all trade and production practices.

Three limitations are set out particularly because they are so often listed as possibilities of cooperation. They are:

1. Co-operative associations cannot arbitrarily "fix" prices although they can and do exercise a favourable influence on prices.

2. Co-operative organisations cannot "eliminate the middle-man" except in the sense of combining the function performed by a number of dealers at any given stage in the marketing process. What they really do is:
   a. to substitute a co-operative agency for a private, and
   b. to combine a series of steps in the marketing process under one management.
3. Co-operative marketing cannot cut costs greatly.
That is, a co-operative organisation cannot operate a
given business unit any more cheaply than a private
concern could operate the same unit. They may, how-
ever, cut their costs if they can increase the volume
of business over that of the larger private dealers
or if they can operate as efficiently as the more ef-
ficient of these.

There are also some inherent difficulties which
capable management may and often does overcome. Most
important among these are:
1. It is difficult to maintain harmony between management
and members.
2. Members become careless as co-operative citizens fail-
ing to vote or making poor selections of officers.
3. There is often a tendency towards extravagance.
4. Outsiders sometimes get higher prices than members
even when an organisation is functioning efficiently.
5. Members of a new organisation often expect impossi-
bilities.

The management of a co-operative association
must not only be an efficient manager but must keep his
membership with him. He must have such a vision of
what a strong organisation can do that his enthusiasm
becomes contagious without leading to extravagant expec-
tations.

Many co-operative organisations have been formed
in various parts of the world in recent years, large num-
bers of which have been failures or at best only partially
successful. A few have been outstandingly successful
and........
and if a careful survey of these is made, it will be seen that they are based on certain fundamental principles. On the other hand it is clear that the organizations that have not been outstandingly beneficial to their members have failed chiefly through violation or disregard of these underlying principles.

**Principles underlying Co-Operative Organisation.**

The late G. Harold Powell, former general manager of the Californian Fruit Growers' Exchange states "Co-operation among farmers may be defined as an enterprise in which the members form an agency through which they conduct their business for their greatest mutual advantage". Of the soundness of this doctrine there can be no doubt.

The general principles upon which all the successful co-operations are based may be summarised as follows:

1. It must arise from economic necessity.
2. Definite, well-marked economic benefits must result soon after organisation in order to strengthen the position of the organisation.
3. Membership must be confined solely to producers engaged in the production of the particular commodity handled by the organisation in order to maintain the interest and confidence of members.
4. A co-operative organisation must be based chiefly on the loyalty and full confidence of the members in one another and one of the best means of expressing this mutual trust is in the adoption of equality of voting. If equality of voting is not adopted a definite limit should be placed on the number of votes according to one man.
The matter must be treated with the same care in the workshop as in the laboratory. The worker must be minutely instructed in the operation. The procedure and precautions of the organization must be so large that upon the efficiency of the management rests a large proportion of the success of the work. He must be given all the necessary data on the subject of the object to be accomplished, be thoroughly acquainted with the subject, and be able to outline the process for the workman. The main points must be clearly shown. When the workman knows the process and the object to be accomplished, he can carry it out with success. If the workman is not familiar with the process and the object to be accomplished, he cannot carry it out with success.

Theatre is an essential part of the work. It is one of the most important operations. Therefore, the workman should be able to make a theatre in the most essential part of the work. If he is not able to make a theatre in the most essential part of the work, he cannot carry it out with success. The theatre must succeed in the practical object.

Your or another's Failure

From the point of view of the law, failure is a certain predicted time event. We should be required to prepare for the event. You are not going to preserve a certain object on the facts of the case.
able associates and generous financial provision in this respect is one of the prime factors in success.

11. The operations of an organisation should be conducted at cost plus, if necessary, current interest on the capital stock.

12. Pooling is essential for the building up of a uniform brand and it enables the management to distribute one product uniformly. It reduces operating expenses and protects the individual against unavoidable price fluctuations, loss, etc. Pooling should be purely local in nature and the type of pool must be determined by local conditions.

13. The members must feel that they are a vital part of the organisation and that it exists not only for them but of them.

14. The manager must be fair in all his dealings and the organisation should actively encourage and stimulate members' interest in their organisation by keeping them fully informed as to its policies and work.

15. To be successful the organisation must have complete control of at least 50 per cent of the crop handled and it must find and open up markets for this produce.

16. The organisation must be a free and voluntary association in order to maintain the loyalty, mutual confidence and trust of its members, and no compulsion must be brought to bear on members to compel them to become co-operators. A small percentage of the produce should be outside the organisation in order to keep up competition. Co-operation in agriculture
can best develop if it is carried on by producers and producers alone. The function of the Government should be to assure legal power to co-operative organisations, help in standardization and see that fair play is accorded to all interests.

Co-operation in agriculture is not a theory— it is a sound business doctrine which has been subjected to the most severe tests and where the fundamental principles have been followed and fully understood, it has been a complete success.

A few further points that are worthy of note in the formation of a successful co-operation are:

17. Important differences in nationality, religion and language may prove to be obstacles to success and the population should be stable.

18. The character of the enterprise must not be too ambitious or complex. No promises incapable of fulfilment should be made otherwise dissatisfaction arises.

19. The organisation must not interest itself in politics.

Having thus briefly enumerated the fundamental principles underlying successful co-operation for commodities such as citrus fruits, the writer will now pass on to a discussion of the South African Fruitgrowers' Exchange from the viewpoint of the citriculturist.

The Fruitgrowers' Exchange of South Africa Limited,

Historical Development.

As early as 1918 the Rustenburg growers made an attempt at some form of organisation of growers throughout South Africa. Fortunately or unfortunately, however,
The conclusion of the facts and with the

It must be concluded that the

In the organization must be a co-operative one in which

metted by the conclusion of the meeting may be seen

The facts as to proceed by the committee and

Agreement of the minutes. Upon the minutes, therefore

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which the body of the. presentation and the whole and determined from the report presented, the

committee held a meeting at the Presidian on the

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-29-
2. It must be built up from the bottom i.e. the growers must form locals and the locals must form a Federated Central Body and the whole must be run on the lines of the Californian Exchange.

3. An executive committee must be appointed to act temporarily until such time as the federated exchange is formed by the district associations.

The duties of this committee should be:

a. To assist in the organisation of citrus growers into associations.

b. To enter into negotiations with the Government and the Union Castle Steamship Company to ensure shipping space for the next season.

c. To begin the necessary marketing arrangements for the next season.

d. To obtain quotations for the requisite supply of packing materials.

e. To engage a temporary manager and secretary pending appointment of permanent offices by the Exchange.

f. To perform all other work appertaining to the Exchange.

It was also proposed to finance the Exchange by a self-imposed levy of 5/- per ton on all fruit exported. Legislation to this effect was introduced and the levy money was handed over to the Exchange to dispose of in the best interests of the industry.

Among those taking part in the movement for organisation were those who envisioned a scheme of cooperation that would embrace the fruit growing fraternity generally and proposed that the enlarged organisation should........
should be designated accordingly — that is in place of the Citrus Exchange it should be called the Fruitgrowers' Exchange.

Among the members of the Committee appointed at the September Conference and supplemented by members from the Western Province, a very sharp division of opinion took place on this point. Nine of the members were in favour of a Fruitgrowers' Exchange while three members held that they could not over-rule the declared policy of the September Conference and that a Citrus Exchange had to be registered.

Those opposed to the larger idea set out their reasons in a Minority Report that was circulated to all the growers. They could not see how a general union of fruit growers could solve problems peculiar to the citrus industry, claimed that the movement was against true co-operative principles and experience and fore-spelled difficulty over the allocation of revenue and expenses to the respective industries.

However, in April 1922, a conference was held in Johannesburg and a scheme was agreed to by a majority of 62 votes against 15, by which each division — citrus, deciduous and pineapples — should be managed by a sub-board forming together the board of the Exchange having charge of the interests common to all. The proportionate importance of the respective divisions was acknowledged in the principles adopted for the election of the sub-boards namely eight for citrus, five for deciduous and two for pineapples.

The......
The motion proposed against the above was for separate exchanges which would co-operate in questions of common interest.

Provision was made in the articles for the election of the central board members on a tonnage basis after December 1923. Fortunately the Minister of Agriculture recognised that this was ultra - co-operative and would not confirm it with the result that the members were chosen on a provincial basis.

A temporary board of thirteen members who were preponderatingly citrus carried on the work of the Exchange until March 1923.

While the general interest and purpose of any combination or co-operative movement may be understood by the constituent members at its inception, radical differences of opinion are apt to arise later concerning the exact interpretation of the word co-operation and the manner in which the common object will best be achieved.

Such a difference of opinion arose in connection with the activities of the Fruitgrowers Co-operative Exchange which was brought into being in April, 1923, and this difference threatened if not to wreck the whole movement, to curtail its usefulness and influence and to do irreparable harm to an industry which had reached a stage where co-ordinated co-operative control and direction was essential if the industry was to progress and its pursuit made worth while.

Behind all the manifestation of dissatisfaction and discontent was a spirit of distrust and suspicion regarding the bona-fides and disinterestedness of individuals who.......
who were administering the affairs of the Exchange and in a lesser degree there was also apparent the distrust and jealousy born of that attitude with which one section of an industry regards another and with which different Pro-
vinces are inclined to regard each other.

In addition to all this, powerful forces were working behind the scenes to frustrate the co-operative movement. Those most opposed to the co-operative movement were the local agents of the overseas salesmen and a few of the large-estate proprietors with a minor portion of the individual growers who were under the influence of the anti-co-operators.

Every conceivable weapon was used from attacks on the integrity, judgment and capability of the management to accusations that the Exchange was doing nothing for the grower and wasting his money. This lead to a government enquiry into the expenditure of the levy money and justification of this expenditure was thereby shown. The manager was accused of being connected with the interests of a London Fruit Firm, the structure of the Exchange was attacked, it was claimed that the Western Province was "pulling the strings" that the Exchange favoured Cape Town and attacks were even made on the fairness of the fruit inspectors at the docks.

These and numerous other causes, genuine and otherwise, constitute the chief grounds on which objections to the Exchange and its policy or alleged want of policy were based.

A careful study of the objections and existing conditions has led the writer to the conclusion that the chief........
chief cause of the objections can be traced back to the
difference of opinion as to the form the Exchange should
take at its inception and to the fact that the growers
were in too great a hurry to derive direct benefits from
the Exchange. Together with these causes it appears
that the Exchange management was tactless and neither had
nor could inspire the growers with full confidence in
itself.

In the face of all the objections, however, the
Exchange accomplished important work and this in spite of
the fact that the conditions were such that the Exchange
had to be built from the top downwards instead of from the
bottom upwards owing to the insufficiency of the local
co-operatives in existence and to the fact that important
work such as shipping awaited immediate attention. It
appointed a field advisor to act in an advisory capacity
to all growers on all questions in connection with the in-
dustry and was instrumental in getting two inspectors
stationed inland. The Exchange approached the Govern-
ment on the questions of transport and of cold storage at
the docks, prevented all confusion and saw to the orderly
shipping of the fruit, secured better terms from the Land
Bank, caused a reduction in the duty on box wood from 20
per cent to 3 per cent, secured a reduction in railway
rates and many other improvements can be ascribed to the
efforts of the Exchange.

At a conference convened at Pretoria on August 8,
1923 to discuss the grievances of all the growers a commit-
tee of six, three Exchange members and three of the com-
plainants.......

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The exchange should be in proportion to the value of the goods or services involved. If the exchange is not made in a timely manner, the transaction may not be valid. It is important to ensure that the exchange is made in a fair and transparent manner.

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The above proposal was agreed to and came into operation in 1924.

The Provincial System worked satisfactorily but dissatisfaction still existed. This became more acute with the shipping trouble in September with the result that the Citrus Sub-board interviewed the Transvaal Citrus Growers' Association and after four meetings the revised articles of association were agreed to in December 1924.

In January 1925 the first overseas representative of the Exchange was appointed in London and a further reduction in railway rates was obtained.

As a result of the enquiry into shipping matters in 1924 the Export Control Board was appointed in 1925. This relieved the Exchange of its most important functions viz: that of shipping its members fruit. The functions of the Exchange during the 1925 season were reduced to a minimum with the result that by the end of the season it had practically collapsed.

The dissatisfaction with the shipping arrangements at Durban and the difficulty of sending Transvaal fruit overseas are some of the reasons for the establishment of the National Fruit Growers' Association of South Africa by five or six of the big-estate proprietors in 1925. This Association was anti-co-operative in essence and was established to rival the Co-operative Exchange.

During 1925, however, prices realised for citrus fruits were low and over a hundred thousand cases of fruit were rejected at the ports. The Exchange was financially crippled owing to the Minister of Agriculture deducting £3,000 for the Control Board and a further £2,500 for any purpose.....
purpose he may think fit from the levy money. The result was that the industry was on anything but a stable basis.

To improve the situation the Minister convened a general meeting in Pretoria on December 1st, 1925 to discuss the position. A committee of fifteen, five Exchange, five National Fruit Growers and five independent members, was appointed to come to some acceptable agreement and it was decided by eight votes to six that a separate Citrus Exchange should be established. The general meeting were unanimous with the exception of five or six in their adoption of this resolution.

After a great deal of controversy during the early part of 1926 the South African Co-operative Citrus Exchange was registered on 1st September.

The most significant features of the new constitution were the independent existence of the Citrus and Deciduous Exchanges respectively co-operating only where interests common to both were concerned and the abolition of the Provincial Companys. This latter step met with severe criticism from all quarters.

An idea of the growth of the co-operative movement among citrus growers can be obtained from the following figures:

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Local Organisations</th>
<th>Total Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>1921</td>
<td>2</td>
<td>138</td>
</tr>
<tr>
<td>1922</td>
<td>10</td>
<td>263</td>
</tr>
<tr>
<td>1923</td>
<td>12</td>
<td>373</td>
</tr>
<tr>
<td>1924</td>
<td>12</td>
<td>494</td>
</tr>
<tr>
<td>1925</td>
<td>18</td>
<td>656</td>
</tr>
<tr>
<td>1926</td>
<td>24</td>
<td>840</td>
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<tr>
<td>1927</td>
<td>25</td>
<td>879</td>
</tr>
<tr>
<td>1928</td>
<td>32</td>
<td>1,010</td>
</tr>
<tr>
<td>1929</td>
<td>31</td>
<td>1,018</td>
</tr>
</tbody>
</table>

During......
During the year 1929 an additional six co-operative societies were registered. Of the 31 societies and companies in existence in March 1929 fifteen of the companies with limited liability and two societies with unlimited liability were in the Transvaal, twelve limited companies in the Cape Province, two in Natal and one in Rhodesia.

During the 1927 Citrus season the South African Citrus Exchange handled 25 per cent of the citrus fruit shipped from South Africa. By 1928 this had risen to 45% of the total while the estimates for 1929 was over 75 per cent. Thus the progress so far has been very satisfactory.


The accompanying diagram will serve as an illustration of the manner in which the Exchange is built up:

```
\[\text{Citrus Growers} \rightarrow \text{36 Local Citrus Associations} \rightarrow \text{Citrus Exchange} \rightarrow \text{Federal Fruit Exchange} \]
\[\text{Deciduous Growers} \rightarrow \text{Local Deciduous Associations} \rightarrow \text{Deciduous Exchange} \]
```

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The individual growers unite to form local organisations and these local organisations co-operate to form the Central Exchanges which federate to form the Federal Fruit Exchange.

The functions of the local organisation vary greatly according to the work entrusted to it by the growers. The number of growers belonging to the local also varies but may not be less than seven according to the Co-Operative Act under which all the locals must be registered. Act No. 28 of 1922 is to provide for the formation, registration and management of Co-operative Agricultural Societies with unlimited liability, Co-operative Agricultural Companies with limited liability and Co-operative Trading Societies with limited liabilities.

Schedules A, B and C give model regulations and statutes for these Co-operative associations respectively.

As stated in the Act generally and applied in such regulations, the objects of such Associations of Citrus Fruit Growers are amongst others:

(a) to dispose of the fruit of its members in the most profitable manner;

(b) to manufacture or treat the fruit of its members and to dispose of the products so manufactured or partly manufactured in the most profitable manner;

(c) to commence, acquire and carry on supply stores under co-operative system for disposing of and supplying fruit;

(d)............
(d) to purchase, hire or otherwise acquire and to work on behalf of its members, agricultural implements or machinery;

(e) to acquire and distribute information as to the best manner of carrying on fruit farming operations profitably;

(f) to acquire and distribute information on the markets of the world and on co-operation in general;

(g) to raise money on loan for any of the lawful objects of the Association and for that purpose mortgage the movable and immovable property of the Association.

(h) to engage competent persons to carry out any of its objects and to give instruction and advice to its members concerning fruit farming operations.

Whatever the legal form the association takes on, whether a co-operative company with limited liability or a Co-operative Society with unlimited liability, the purpose it must serve is common, and members must, in forming, decide on this as they themselves are best prepared to bind themselves. As laid down in the regulations the members will bind themselves by contract and the one purpose in these regulations must be to promote the cause of co-operation. To do this the principles underlying co-operation must be observed.

Into the details of the various operations in the local packhouse, it is not necessary to go. One of the essentials, however, as stated before is efficient management. The growers choose a board of directors who must be efficient men. They in turn engage a manager who.. . . .
who must be highly efficient. Much of the trouble experienced during the 1929 season due to the decay and inefficient packing and grading of fruit can be traced back to careless management.

It is the secret of co-operation, in Citrus at least, that a pool of the members' fruit be formed to meet the fluctuation in price; to check it, and to put out a large quantity of fruit of standard quality and uniform grade thereby bringing it to the notice of the consuming public.

The pool in South Africa is generally made for one grade, one variety over the whole season. In some cases a pool is formed for each individual count. This is due to preference on the part of buyers for certain sizes. In other counts are grouped:

- eg. 96 and 112 = one pool
- 126, 156, 176 = one pool
- 200 and 216 = one pool
- 226, 252 etc. = one pool.

Owing to the great amount of clerical work involved in single count pooling, group-pooling is to be preferred. If any apparent seasonal fluctuation in price takes place regularly, it will be necessary to form seasonal pools as is done in California. This is not apparent as yet. However, all packhouses should keep careful data of the prices so as to be able, after several years, to draw up a definite pooling system.

All expenses in connection with packing etc., are met by percentage or box assessment. The latter is apparently........
apparently the fairest, though the act stipulates a percentage assessment not exceeding five per cent.

A few of the advantages derived through co-operative pack-houses may be summed up as follows:

(1) An efficient packing plant is erected centrally instead of each individual having a cheaper plant which is, in many cases inefficient. Hence efficient packing, handling etc., is ensured (Providing the Manager is efficient). The efficient machinery required is expensive and cannot be afforded by the average farmer.

(2) Pooling: by this risk is reduced, more fruit is put out under one brand and the result is facilities for wider distribution and better advertisement.

(3) Efficient storage space and shelter for the fruit is provided.

(4) The estimates made for the Control Board are made by the Manager and he has more chance of keeping to these estimates than have individual growers.

(5) The co-operative purchase of requisites reduces costs owing to bulk purchasing.

(6) More efficient handling owing to specialisation in operations such as picking, grading etc. The labour becomes specialised in the particular work.

(7) The cost of packing over a number of years is reduced.

(8) Specialised management, supervision and advice can be obtained.

(9) The Grower has more time to devote to his cultural practices, etc., and the necessity of cash expenditure in paying for packing obviated.

These............
These as well as many other advantages mentioned previously are derived.

Co-operative picking: this is practiced with success in several cases. It is a local problem to be decided on by the management. However, owing to specialised handling and picking gangs, the fruit is more efficiently handled and it is picked at the convenience of the pack-house.

Co-operative fumigation: Because of the large capital outlay to install fumigation and spraying services, the individual farmer finds difficulty in buying the necessary machinery, tents, etc. Local associations often undertake such work and can thus procure experienced workmen to do it. In a few isolated cases the association also co-operatively buys the more expensive implements needed for cultivation. By employing the staff of the pack-house to do the fumigation work and other work during the time when there is no packing, overhead-charges are reduced considerably and hence also packing costs.

The Co-operative Society often supplies its members with implements and requisites other than actual packing material and citrus requirements with the result that the merchants' profit is eliminated. The first object of the local must be citrus and where other functions are undertaken these must not be to the detriment of the citrus industry and must develop gradually.

Some locals only undertake to dispose of the fruit of its members after it has been packed by the growers.......

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growers themselves. It is found to be more economical for them to extend their work than to specialise in only one line.

Some of the societies are nearly dormant, their sole object being representation on the Citrus Exchange. This should be discouraged for it should be the aim of the locals to lower the cost of production, picking, packing etc. Some give advice to farmers on cultural methods, type of trees to plant etc. This is highly satisfactory where the adviser is capable. Some provide all the transport required for the members' fruit.

**The Financing of the Co-Operative Association.**

As can be realised from the foregoing discussion, the association needs a considerable amount of capital to ensure success, for sufficient capital is one of the underlying principles of success.

The funds required by the association are of a two-fold nature:
1. a long time loan to be raised for the purchasing of ground, erecting, equipment of packing-house, etc;
2. a cash credit account, for the period of one year for running cost, packing material, export loans.

Communication with both the Standard Bank of South Africa Limited and the National (Barclays') Bank shows that it is not possible for these banks to cater for the first item since money is not invested for such long periods by them.

For the second there is no reason why they should not, but each case is treated on its merits.

There.......
There is of course the possibility of raising the money from such banks for one year provided it is known that the money can be obtained elsewhere after that period.

Provision for such loans is made in the Land Bank Act No. 16 of 1912 in which various other Acts are incorporated. Article 26 of the Act sets out to lay down the legal points which have to be considered in the financing of co-operative societies and companies.

The Legal Necessities are given full attention in the Act and are discussed lengthily; they are available from the Government Printer and it is not necessary to dwell on the subject in this paper.

The model constitution drawn up by the Co-operative Citrus Exchange meets all the requirements of the Act pertaining to Co-operative Societies; this again is so construed as to meet the requirements of the Land Bank Act.

Further the Exchange has available a circular: "How to form a Co-operative Association".

A few points, touching more on the practical application and the value of the facilities offered by the said Land and Agricultural Bank of South Africa are, however, worthy of mention.

At present this Bank has advanced money for such matters as the purchase of land, erecting of a house, equipment of same, packing materials required, running costs, fumigation equipment, binding department etc.

Upon an application for a loan in the first instance fixed to provide for the packing house, being filed with........
with the Bank, it is essential that:

1. the Company be registered under the Co-operative Society Act;
2. the fruit be shipped through an agent recognised by the Bank e.g. Overseas Federated Farmers.

The Security offered may be adequate in accordance with the Law, but certain general points are considered also. The Bank will e.g. obtain a report from some person acquainted by them. Attention is amongst other things given to:

1. waterfurrows and permanency of water;
2. packing sheds in existence;
3. the economy of establishing a Co-operative packing-house; how much will be saved;
4. aspirations and future of settlers;
5. total production and the number of growers;
6. personal impression of proposition;
7. quality of fruit, diseases and pests;
8. types of settlers;
9. permanency of settlement, climate and health;
10. prospect of a railroad and development of area, and
11. obligations towards other companies, agents etc., from which the Land Bank is keen to liberate.

These are incidentally all points which have been given high consideration by the growers before associating themselves to form a company.

The security of the bank in advancing is based on legimacy of object, demonstrated success of growers and whether or not the unpaid amount of shares would be easily recoverable; thus a consideration is given to the financial........
financial position of the individual members of the society.

Further the Bank stipulates that insurance is essential. There is provision made for insurance under export loans as advanced by the Bank.

First hand information and advice can always be obtained on the point of Co-operation from the Manager of the Exchange.

The money required for the building of pack-houses etc., is raised from the growers on a patronage basis based on the amount of fruit to be handled. The farmer is required to pay up ten per cent of the capital that he has to contribute towards the expenses and signs a promissory note for the balance. This note is then used as security to raise money from the Land Bank and the grower's debt is gradually paid off by box assessment.

The Regulations of the South African Co-operative Citrus Exchange Limited lay down the regulations regarding the membership of the Local Societies or Companies.

On such a Society or Company making application for membership to the Exchange and being accepted, it is bound by contract but may withdraw at the end of the financial year by giving three months notice.

For further information as to the organisation of Locals and as to the functions of same, reference can be made to the Manager of the Exchange.

The SOUTH AFRICAN Co-Operative Citrus Exchange Limited.

Each Local Association or Company elects one director to the Central Board of the Exchange. This Board........
Board of Directors consists of 36 in number at present and appoints a General Manager and staff to execute the work of the Exchange. This staff at present consists of an assistant manager, a field-advisor who is vacating office shortly, a general clerk, three office girls, and an office boy.

An annual general meeting is held at the beginning of the year, the minutes of the last annual meeting confirmed and the adoption of the following reports moved:

I. Balance Sheet;
II. Income and Expenditure Account;
III. Auditors Report, and
IV. General report by the Directors.

Any criticisms forthcoming from the growers will be given due consideration.

In terms of clause 29 of the regulations of the Exchange the Chairman of the meeting now calls upon each proxy-holder to nominate the representative of his local society on the board of directors and the formal election of directors to hold office for the coming year takes place. Then second representatives or alternates to substitute their respective directors in their absence are nominated by the proxy holder and such nominations are subject to the approval of the meeting.

After this auditors are appointed for the next season and their remuneration fixed.

The meeting then elects five representatives on the Board of the Fruit Exchange and these name their alternates.

Any............
Any special subject needing the approval or opinion of the General Meeting may now be brought up for discussion or a Special General Meeting may be called for the purpose.

After the Annual General Meeting it is customary that the New Board of Directors proceed with their first meeting of the year. A Chairman and vice-chairman are appointed and the following committees elected:

(a) Executive committee;
(b) Finance committee;
(c) Grading committee;
(d) Shipping and Overseas Marketing committee;
(e) Packing material committee.

General matters of importance are discussed after the agenda arranged by the retiring Board of Directors has been adequately dealt with.

The Regulations of the South African Co-operative Citrus Exchange, Limited give detailed information regarding the objects etc., of the Exchange and may be obtained from the Exchange Manager.

In addition to the above committees the Exchange also employs the services of a Technical Advisor to give advice on all matters in connection with citrus growing.

The Executive Committee:

This Committee consists of eight members including the Chairman and Vice-Chairman of the Full Board. It is elected for the year and is constituted of representative....
The Finance Committee

It is the committee’s function to control and manage all the finances of the club.

The Finance Committee

Rental meetings

are approved to function under the following conditions
are determined to be run by the Full Board and all committees
are submitted to all the committees are such
so that power to do

go and do what such things as the Full Board

are required to accept applications for membership to the committee, they are:

sent notices of an election, one of which, for the
Shipping and Overseas Marketing Committee:

This Committee consists of five members who are to deal with all matters relating to the shipment of citrus fruits.

Packing Material Committee:

This is a committee of four members whose duty is to deal with all matters relating to the purchase by the Exchange, on behalf of its members, of packing material.

It is of interest to note here that the most important items purchased through the Exchange during the 1928 season were:

- Orange and other box boards 904,900
- Strapping 962 cases
- Nails 45 tons

All from the United Kingdom.

- Wrappers 83 millions
- All materials affecting the Exchange are published in the "Citrus Grower" which is a paper issued quarterly.

To obtain an idea of the expenditure and income of the Exchange, the Income and Expenditure Account for the year ended 31st December 1928 may be reviewed and is as follows:

Income........
INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st December 1926.

To Advertising

- Budwood, Travelling expenses 7.10.
- Citrus Grower - Publicity 48.17.6
- Directors Expenses 192.10.
- Directors travelling 439.12.7
  Directors travelling 353.17.10 752.11.5
- Sundry expenses 184.15.2
- Gifts to ships' officers 75.3.9
- Grading Committee expenses 22.6.
- Organising expenses and travelling 481.2.3
- Postage, Telephones, Telegrams and Cables 528.13.11
- Rent 155.10.
- Salaries 3,310.1.2
- Stationary and printing 243.12.6
- Travelling Expenses 85.6.

Balance, Excess of Income over Expenditure, transferred to Reserve for Contingent Liabilities for Loss

1,032.4.2

27,119.12.3

By Balance transferred from Levy Account 7,099.16.11

Interest on Fixed deposit 11.14.11

Commission on local sales of citrus fruit 6.1.5

27,119.13.3

The item "Budwood" is the expenses incurred in the selection of bud-wood undertaken by the Exchange.

As............
As far as the Directors' expenses are concerned, it may be stated that to hold a full board meeting it costs close on £500. This is a large sum of money and is the cause of so few full board meetings being held. It is a matter calling for careful consideration as frequent meetings are essential for efficient working and organisation and for stimulating the Directors' interest in their work.

It may be mentioned that for their services as the distributors of the Exchange, the Overseas Farmers' Co-operative Federations charged £2,461/1/6 during the 1926 season. Their remuneration is based on two pence a case for "free" fruit and one-half penny a case for "nominated" fruit. This is paid out of the Levy Fund. As all the activities of the Exchange are financed out of this fund which is proving inadequate to meet the requirements of the Exchange and thereby curtailing its activities, the opinion of the writer is that all charges for distribution should be made against the grower and met by a box assessment by the Local Associations. This would mean more cash at the disposal of the Exchange for such activities as advertising etc.

Owing to the difficulty of financing the shipping agency service during the 1926 season, the Exchange was given the right by the Special General Meeting in the beginning of 1929 to raise from the Land and Agricultural Bank of South Africa an amount not exceeding £10,000 to finance this service whose costs include railage, port charges, and all other expenditure reasonably incurred in placing and selling the produce on a market overseas.

As........
As already pointed out the Exchange is financed by a levy of 5/- a ton on all citrus exported. Out of this, however, the citrus proportion of the cost of the Control Board has to be paid. The proportion of these expenses paid by the Citrus Exchange during the 1927 and 1928 seasons was 10/30 while the Deciduous paid 7/30 and Figs 3/30. The total paid by the Citrus section for 1928 was £3,222/5/6.

Having briefly considered the manner of the working, the financing and the expenditure of the Exchange, an attempt will now be made to briefly analyse the activities of the Exchange overseas:

Representation Overseas:

As already pointed out under disorganised marketing there are many evils in that type of dis-organisation such as non-co-ordination of supply and demand, false returns, etc. The only way of checking these is by organisation and this requires representation in the markets. A move was made in this direction in 1925 but owing to the expense of keeping a special office in London, the representation was transferred by the Fruit Exchange to the Overseas Farmers' Co-operation Federations of London early in 1927. This organisation consists of representatives of South Africa, New Zealand and Australia.

While the Federal Fruit Exchange is responsible for the appointment, the Citrus Exchange is responsible for payment of the services of the representative arising out of the distribution of citrus fruits. Indeed in practice....
practice the Citrus Exchange and the Overseas Federations work direct in all matters relating to citrus without reference to the Federal body.

As a result of the apparently satisfactory work of the representative during 1927, a contract was entered into with the Overseas Farmers Federations as distributors of citrus fruits on the overseas markets for a period of three years reckoned from the 1929 season.

The functions of this representative are mainly to receive the fruit sent by the Citrus Exchange and
(a) if consigned to the Overseas Representative, to distribute it to reliable agents in the best markets and
(b) if consigned to a particular salesman, to receive it and to despatch it to that salesman.

This means that the representative must have available the latest information regarding all the markets in the United Kingdom as well as on the Continent and must have a reliable salesman in each market. The representative then distributes the fruit according to his own discretion keeping in mind the supply to that market from other sources, the demand in the market and the continuity of supply to the market. Naturally the South African supply is not sufficient at present to supply all markets but all the markets must gradually be opened up and preference given to the most promising. These are, however, all matters for the representative to settle for himself.

Then there is the question of choosing reliable salesman and obtaining favourable terms from them; this is............
is also a matter for the representative to decide.

It may be mentioned here that the Exchange has the right to enforce rule 67 and compel members to consign all fruit to the Overseas representative for distribution at his own discretion. This rule has not been enforced as yet but the time for its enforcement is not very far distant.

It must be remembered that the representative is a distributor of the fruit pure and simple.

For effective distribution the representative must have complete control of over 70 per cent of the fruit exported. When such control is obtained, it may be possible for the South African Representative to work in conjunction with the California Representative and so distribute the fruit as to prevent any oversupplying of the markets. For the Overseas Representatives of the different countries to work in conjunction with each other there are many practical difficulties to be removed, but it is the writer's firm conviction that such an action would be in the best interests of all the countries' marketing citrus fruits at the same time in the same markets.

As can be seen the functions of the representative are such that he must be of the highest capability procurable.

Judging from all available statistics, London is the most suitable place to have the distribution done from for it is in very easy reach of all the leading markets.

Propaganda........
Propaganda and Advertising Overseas.

The desirability of this cannot be questioned and it is the writer’s firm belief that while it is essential overseas, it should also be undertaken in South Africa where there is plenty of room for increased consumption.

The Exchange has undertaken this overseas and their first step was the appointment at the beginning of 1929 of a Publicity Agent in London. His work is to study general conditions and organize methods of popularising and increasing the demand for South African Citrus. His salary and other expenses amount to about £2,000 a year. His appointment was a step in the right direction and growers should try and follow his advice carefully. He stresses the great variability of the South African Citrus fruits and the importance of having only a few brands of standard quality, pack, etc., in large quantities and encourages the formation of District Associations as pointed out in the former Chapter of this paper.

Anything on advertising and propaganda would be incomplete from South Africa’s point of view unless some reference is made to the work of the Imperial Economic Committee and the Empire Marketing Board.

The ultimate object of both is to foster increased consumption of Empire produce from home and overseas in Great Britain and to assist measures—especially those in the field of co-ordinated research—directed towards that end. But in constitution, methods of work and duties the two bodies are entirely distinct.

The........
The Imperial Economic Committee is representative of all parts of the Empire and can only investigate subjects remitted to it with the consent of all the Governments of the Empire and it derives its authority from the Imperial conferences. Its object is to improve the preparation and marketing of Empire products.

The Empire Marketing Board is entrusted with funds and executive powers by His Majesty's Government in Great Britain to further the marketing of Empire produce from Home and Overseas in the United Kingdom. It is thus responsible to H. M. Government.

These two bodies have done much to increase the consumption of South African products overseas, but they also stress the importance of a few large and well standardized brands.

For results achieved through advertisement and propaganda to increase consumption, reference can be made to the Californian Citrus Exchange, Sun Maid Raisins, Eat More Fruit Campaign, etc. Think of what standardization supported by adequate advertisement has done for California - "Sunkist" oranges are known throughout the world. This incidently also serves as an example of a big brand well popularised. It stands to reason that a number of small brands compete with each other and the fruit under any one single small brand is in too small a quantity to command respect. The choosing of a short crisp and attractive name for such a brand is of the utmost importance.

Before any marked results can be obtained from advertising, the brand advertised must consist of a large volume...
volume of thoroughly standardized fruit well distributed
on the overseas market and continually kept before the
consumers.

There is sometimes a disposition to regard pro-
paganda and publicity in terms of news-paper advertising.
News-paper advertising is a most excellent thing but good
results can be expected only if it is tackled in a big
way and that means spending large sums of money.
Other methods of advertising need careful study. When
one thinks of the introduction of the "Juice Extraction"
by the Californian Exchange to increase consumption and the
excellent results achieved thereby, you cannot but realize
the importance of investigation in similar directions
to increase consumption. Another step that may be con-
sidered is the choosing of a number of the larger retailers
to "push" the sale of South African oranges by window dis-
plays and advertisements. Then another line that has
been exploited by South Africa is displays at shows and
other big public gatherings. The methods of advertising
are numerous and need careful study to ascertain which
are the most effective, Trade Commissioners have also
done much advertising work.

The Federal Exchange.

As already stated the Deciduous and Citrus Ex-
changes federate to form the Fruitgrowers' Co-operative
Exchange whose function is to deal with all matters
affecting the common interests of all fruit growers.

In practice the expenses of the Federal body
are paid by the Citrus Exchange and the Deciduous Exchange

in.............
in the same proportion as the proceeds of the respective
levies bear to each other.

The proportions for the year 1928 were:

- Citrus 64.2% or £597.14. 6
- Deciduous 35.8% or £330.18. 9

Further particulars regarding the Federal Exchange can
be obtained from the General Manager of the Citrus Ex-
change.

See accompanying diagram on the Export and
Distribution Channels of South African Fruit.

The California Fruit Growers Exchange.

The accompanying diagram illustrates the or-
ganisation of the California Exchange and will serve as
a comparison of that organisation with the organisation
of the South African Citrus Exchange.

The essential differences between the two
Exchanges may be summarised as follows:

(1) In California the Industry is concentrated in a
comparatively small area and thus co-operation is
easier than in South Africa.

(2) The California Exchange handles over 70 per cent
of the total citrus production of that State and can
thus have more effective distribution of its crop.

(3) The total crop handled by the California Exchange is
about fifteen times as large as the amount handled
by the South African Exchange with the result that
through large scale handling and large scale bar-
gaining over-head charges are reduced and a larger
total amount of money is available for expenses;

this........
this makes efficient and extensive organisation possible and enables the Exchange to undertake a wide scope of activities as can be seen by the number of departments, each one with its own special function, indicated in the diagram;

(4) The financing of the Exchange in California is done by box assessment. In South Africa it is by a levy imposed on the growers by the Government.

(5) In California all shipping matters are in the hands of the Exchange. In South Africa an independent Control Board instituted by the Government sees to the booking of space and shipping of all fruit.

(6) The California Exchange deals with a standardised article and maintains its own inspectors to keep up the standards. It sells its fruit under one or two brands. In South Africa the quality of the fruit is very variable and over 700 brands exist.

(7) District Exchanges form a link between the locals and the Central California Exchange and enables weekly meetings of the directors of the Central Board. In South Africa the locals affiliate directly with the Central with the result that Full Board meetings only take place two or three times a year owing to the large expense involved.

(8) The contracts holding together the whole organisation in California are for a certain specified number of years. In South Africa they are indefinite and are binding until such times as either party withdraws on notice.
(9) The California Exchange has a large local market for its fruit with the result that it only exports those counts popular in the overseas markets. The South African Exchange only concerns itself with export fruit and must export all counts.

(10) Inspection in South Africa is by Government Fruit Inspectors.

(11) The District Exchange has the final say in the price to be accepted for its fruit. In the case of the South African Exchange no price stipulations are made. The Californian Exchange lays down the areas of consumption for its fruit and thereby eliminates unnecessary transport and speculation.

(12) The California Exchange is over thirty years older than the South African Organisation and is therefore much wider in its organisation and the men have been educated to their particular posts.

The organisation may be briefly outlined as follows:

As in South Africa the growers form locals and elect a board of directors for business purposes. The functions of the locals are the same as those of some of the more progressive locals of South Africa. Some large producers, individuals and co-operations, who pack the fruit from their orchards through privately owned packing houses, are also classed as locals. In addition commercial packing companies grade and pack fruit of individual growers at a fixed charge per box. A number of these, as well as producers owning large orchards.
chard and operating their own packing houses are members of the exchange and have the same status as the associations.

Associations are of both stock and non-stock types. In the first shares are issued in proportion to the number of trees, acreage, or amount of fruit harvested while in the second the capital required is raised by entrance fees.

The members of the district exchange are the local associations, individual shippers and packing companies affiliated. Each local unit chooses a representative and these representatives form the board of directors of the district exchange. The district exchange acts as the sales agent of its members. The manager keeps in constant touch with the sales and traffic departments of the control, and, acting on available information, puts a price upon the various grades he is dispatching. The central sales agent and the distant market agent cannot accept a lower price without referring back to the district manager, who usually consults the local manager. The district charges a fixed amount per box to cover the cost of the district, the maintenance of the control including all branch offices, advertisement costs and payments by instalments for stock in the Fruit Growers Supply Company. Other deductions may be made if the local supports the orange or lemon by-products companies.

The district manager usually gives assistance to affiliated groups in matters of membership and organisation. Some make efforts at improving field and packing house handling and to improve the quality and grade of........
of their output of their respective areas.

The representatives of the 20 districts become directors of the control exchange which is a non-stock corporation financed by assessments per box retained by the districts. The work of the departments are as follows:

(1) The orange sales division handles the sale of oranges, grapefruit, and tangerines, keeping in touch with the districts and with the salesmen and brokers who represent the exchange in its different markets; the lemon sales department works in the same way. There are 52 sales offices in the U. S. A. and Canada, comprising six divisional managers and 46 district agents; the exchange deals directly with 8 brokers in large markets and has brokerage representatives in 25 smaller centres. The policy aimed at is an equable distribution, avoiding gluts and scarcities; each season the sales agents, general manager, and divisional salesmen confer, and afterwards an estimate is made of supply and demand each week; locals may be urged to ship more or less each week according to the situation, and factors such as weather maturity of fruit, car supply, and available labour affect the position.

(2) The traffic department advises locals regarding rates, routes, cars, embargoes, claims for loss or damage to shipments.

(3) The advertisement department centres in trade brands such as Sunkist. All the chief media such as magazines, newspapers, posters, street-car advertising and......
and display are used to advertise:
a. the advantages of eating more oranges and lemons;
b. the gains in consuming Sunkist brands.

Personal contact is made with the retailer through dealers service men, who call on grocers and stores, distribute advertisements and arrange displays of fruit.

(4) The field department is organised to deal with those problems that arise in the production, harvesting and packing of fruit. It is concerned with handling practices, preservation of the standard of brands such as Sunkist; in the busy seasons inspectors from the central will visit packing plants practically every day. Other work is research into pest control and citrus by-products. A growers' service bureau is maintained to organise new associations and to consolidate the position of old ones; it also deals with the complaints and dissatisfaction of members.

(5) A law department deals with legislation, court decisions, preparation of contracts, bye-laws, and in part with finance.

(6) An accounting and statistical department examines the factors influencing marketing margins and makes efforts to introduce more effective merchandising methods.

(7) The Fruit Growers Supply Co. is owned and operated by the locals. Its purpose is to supply for its members the essential supplies, packing house and orchard. Failure to obtain box material, for example, would be disastrous to growers. It is, however.......
however, an entirely separate undertaking from the Sales and Marketing Organisation.

(8) The Exchange Orange Products Co. is a corporation also owned by the locals, and designed to deal with the poor quality or "sulph" oranges. It makes marmalade, orange oil, orange vinegar, orange peel and cattle feed.

(9) The Exchange Lemon Products Co. was created to provide an outlet for culled lemons, and manufactures citric acid and lemon oil.

This brief outline of the California Fruit Growers Exchange serves to show that the South African organisation is, at its best, but a poor imitation. This, however, must not be taken as meaning that it will not grow with the growth of the industry and the increase in the percentage of the total crop handled the Exchange is bound to grow also, just as the California Exchange has grown, but such growth will be slow and it is doubtful whether it will ever reach the same high standard as the California Exchange owing to the comparative smallness of the South African crop.
THE MARKETS and THEIR POTENTIALITIES for SOUTH
AFRICAN CITRUS FRUIT.

The Local Markets.

The complaint is often made that it is impossible
to obtain first class oranges in South Africa, as all the
best fruit it exported. It is true that such fruit is
not readily available but with a little trouble, first
class fruit can be obtained from both private growers and
co-operative associations at prices equal approximately
to export prices less export charges. One of the com-
panies, in order to popularise its good fruit, has a "penny
campaign" whereby first class oranges are sold at 1d each
plus transport charges. The campaign is meeting with a
fair amount of success and during the 1927 season approxi-
mately 4,000 cases were disposed of in this way in South
Africa. During the 1928 season, owing to the good prices
overseas, there was not much of an increase in the amount
sold here. Generally the prices obtained for such fruit
compare very favourably with the net price obtained over-
seas.

The real difficulty, however, is not the market-
ing of fruit of export quality, but the marketing at satis-
factory prices of fruit unfit for export. This class of
fruit is increasing annually at an enormous rate. The
existing organisation is totally inadequate to handle such
fruit, and a tremendous amount of wastage and loss occurs
each year. Markets are frequently glutted with fruit
unfit for consumption. This brings down the price of
good fruit as well. Oranges are often sent from one
fruit.......
fruit area to another, thus occasioning unnecessary railway expenses. Prices realised as a result are often so low, that packing and transport charges are not covered. It seems that the time has arrived when an attempt should be made to organise the South African market for fruit so as to avoid this highly unsatisfactory state of affairs. Reliable and readily available market-news, showing prices prevailing and quantities handled should be of immense value to growers in their choice of when and where to sell.

To the writer it is inconceivable how fruit can profitably be marketed locally without some form of organisation. It is true that the potentialities of the local markets are not great when the European population is taken into account. The total European population is not more than 1,750,000, but there is no reason why consumption cannot greatly be stimulated by careful advertisement, grading and packing, standardisation of fruit marketed locally and better distribution etc. In this way all the better class culled fruit could be marketed profitably in South Africa. The only way in which this can be done is by co-operative organisation of producers with a centralised control to assemble the produce if necessary, provide market intelligence and advise as to the best means of distribution. The machinery for such a system is at hand in the organisation of the Exchange, which, with a few extra officials and a little extra expense, could in all probability deal with the situation in a profitable manner. The extra expense could be met

by.............
by a box assessment on the fruit so marketed and then good class fruit could also be marketed with less risk and a profitable return.

Such a sub-section of the Exchange could investigate and put into practice methods of increasing consumption such as prevailing upon the Railway Administration and other organisations to instal Sunkist Juice Extractors, persuading those in charge of the various gold mines etc to purchase citrus fruits for their servants. They could also be instrumental in reducing the costs of marketing, transport and making the marketing efficient by a system of advising retailers and wholesalers as to how to obtain a bigger turnover with smaller margins through more efficient organisation.

What the actual consumption per capita of citrus fruits in the Union is not known but the general opinion is that it is not more than five or six pounds in the fresh form. This shows the room for increasing local consumption for the United States of America consumes about twenty-three pounds per capita per annum.

Then there is the possibility of encouraging the native to purchase and consume oranges. At present the average wage of the native will not allow him to buy fruit. However, it is certain that as his standard of living assumes a higher scale oranges and even grape-fruit must form part of his diet. This is very speculative but nevertheless does seem to form an outlet for the distant future.

Another valuable outlet is the sale of oranges to by-product manufacturing companies such as the African Canning.......

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Canning Company and H. L. Hall and Son. While by-products will find ready sale in South Africa providing supply does not exceed demand, it is doubtful whether an overseas market at remunerative prices, could be found for them owing to competition from Italy, Sicily, Spain, France, California, etc. There seems, however, a possibility of selling concentrated orange juice in England and on the Continent.

By-product manufacture is a very expensive undertaking requiring large sums of money to be spent on research. Its greatest difficulty as far as citrus fruits are concerned is the problem of providing markets.

It must be realised that in by-product manufacture sound fruit must be used otherwise by-products of a uniform high class quality cannot be manufactured. The methods of manufacture will have to be evolved and it has cost California £250,000 to perfect her methods. The problem for the grower then is to produce a high standard product with a small percentage of culls rather than to try and manufacture by-products from his low grade fruit.

In general it may be stated that the potentialities of the local market are not great but consumption can be greatly stimulated by the systematic organisation of the local markets and the efficient and economic distribution of the fruit. To accomplish this standardisation of packing, grading and quality is essential. This will enable profitable advertisement of the product marketed.

It is of interest to note that two cities in the Union have a population of over 100,000 and two more of 42,000 and 53,000 respectively, while there are two others 20,000 and 29,000 respectively. Seven have populations of.........
of between 10,000 and 20,000 respectively while quite a number have populations of over five thousand.

The Overseas Markets.

Seeing then that the local market for South African citrus fruits is at its best but a small one it is evident that the overseas markets become South Africa's primary markets.

The United States are closed to South African fruit because of the danger of importing the Mediterranean fruit fly. Even should this quarantine be removed, there would be little sale for oranges from here as they would come in direct competition with the Florida crop and the California crop, the latter being about twenty-four million cases a year. Shipments go to the markets every day in the year so that no opening exists for South African fruits in the United States.

Canada is at present well supplied with California oranges and to compete with the California organisation in this territory would require better organisation, market news and distribution than could be secured at present or for a long time to come. It may be mentioned that a trial shipment of citrus fruit to Canada in 1928 realised fairly good prices but the fact that the 1928 season was an exceptionally good season must not be lost sight of.

The logical market for South African citrus is the United Kingdom, the European countries on the Continent and to a lesser extent the Eastern markets especially India.

The...
The United Kingdom as a Market.

To-day the United Kingdom is the largest importer of citrus fruit in the world, and yet many parts of that country, if not all, have not been taxed to their full capacity as far as consumption of fruit is concerned. This of course is most certainly the case with citrus fruits from the Southern Hemisphere arriving on those markets when there is practically no citrus fruits from elsewhere.

The total quantity of oranges retained for home consumption in the United Kingdom decreased slightly in the years before the war. Since the war, however there has been a very substantial increase. The consumption in 1927 was 18.3 lbs or about 75 oranges per head per year. This includes the amount manufactured into marmalade so that the quantity eaten fresh is much smaller.

As can be seen from the following tables over 80% of the total supply is eaten during the winter months. If the winter rate were continued throughout the year the average individual would eat at least 120 oranges. This indicates the scope which exists for the expansion of the trade.

Imports of oranges into the United Kingdom each month 1925-27

(cwt).

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<th>Month</th>
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<th>U.S.A.</th>
<th>Italy</th>
<th>South British Other</th>
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<td>-</td>
<td>120</td>
<td>19</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>1927</td>
<td>8</td>
<td>-</td>
<td>54</td>
<td>71</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>September</td>
<td>1925</td>
<td>1</td>
<td>-</td>
<td>84</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1926</td>
<td>-</td>
<td>-</td>
<td>66</td>
<td>22</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1927</td>
<td>1</td>
<td>-</td>
<td>88</td>
<td>73</td>
<td>-</td>
<td>8</td>
</tr>
</tbody>
</table>

October......
<table>
<thead>
<tr>
<th>Month</th>
<th>Spain</th>
<th>Palestine</th>
<th>South Africa</th>
<th>U.S.A.</th>
<th>Italy</th>
<th>South America</th>
<th>British West Indies</th>
<th>Other Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>1925</td>
<td>-</td>
<td>-</td>
<td>61</td>
<td>2</td>
<td>-</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>1926</td>
<td>2</td>
<td>-</td>
<td>34</td>
<td>22</td>
<td>-</td>
<td>31</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1927</td>
<td>1</td>
<td>1</td>
<td>128</td>
<td>83</td>
<td>-</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>November</td>
<td>1925</td>
<td>143</td>
<td>5</td>
<td>49</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>1926</td>
<td>153</td>
<td>4</td>
<td>2</td>
<td>16</td>
<td>-</td>
<td>-</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>1927</td>
<td>313</td>
<td>45</td>
<td>65</td>
<td>24</td>
<td>3</td>
<td>1</td>
<td>34</td>
</tr>
<tr>
<td>December</td>
<td>1925</td>
<td>1,032</td>
<td>85</td>
<td>16</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>1926</td>
<td>1,099</td>
<td>183</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>1927</td>
<td>1,284</td>
<td>136</td>
<td>21</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>20</td>
</tr>
</tbody>
</table>

From these figures 95% of the South African fruit arrives on the British market during the six summer months June to November inclusive. During these months 1,432,000 cwt's of oranges arrive in England while during the whole year 3,283,000 cwt's arrive. This gives an idea of the wide scope for increasing consumption of citrus fruits during the summer months, especially during the months of July, August, September and October respectively. During these four months, taking the average for the three years 1925, 1926 & 1927 respectively, only 636,000 cwt's of fruit were consumed. Exports to the United Kingdom during these months are gradually increasing as the exports from the United States of America, South America and South Africa increase, but in general it will be several years before the demand for citrus fruits in the United Kingdom is saturated.

The........
The main sources of supply of oranges to the United Kingdom and the amounts they supply can be seen from the following figures:

**Imports of oranges into the United Kingdom in thousands of cwt.**

<table>
<thead>
<tr>
<th>Country whence consigned</th>
<th>1925</th>
<th>1926</th>
<th>1927</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>6,010</td>
<td>6,096</td>
<td>5,291</td>
</tr>
<tr>
<td>Palestine</td>
<td>975</td>
<td>1,004</td>
<td>1,359</td>
</tr>
<tr>
<td>Syria</td>
<td>23</td>
<td>55</td>
<td>3</td>
</tr>
<tr>
<td>British South Africa</td>
<td>426</td>
<td>377</td>
<td>524</td>
</tr>
<tr>
<td>United States</td>
<td>23</td>
<td>156</td>
<td>431</td>
</tr>
<tr>
<td>Egypt</td>
<td>82</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Italy</td>
<td>58</td>
<td>54</td>
<td>92</td>
</tr>
<tr>
<td>British West Indies</td>
<td>70</td>
<td>86</td>
<td>61</td>
</tr>
<tr>
<td>Portugal</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Canary Islands</td>
<td>8</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>Argentine</td>
<td>3</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Australia</td>
<td>21</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Germany</td>
<td>4</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td>France</td>
<td>5</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Other Countries</td>
<td>11</td>
<td>32</td>
<td>45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7,729</strong></td>
<td><strong>7,973</strong></td>
<td><strong>7,898</strong></td>
</tr>
</tbody>
</table>

This fruit did not necessarily originate in the country whence consigned, e.g., the bulk of the fruit from Egypt is Palestine fruit that was reconsigned. These figures bring out the significant fact that South African exports only 6 to 7 per cent of the total imports of oranges into the United Kingdom.
South Africa is fortunate in being one of the Empire for by being such, besides all the other advantages, she enjoys the privilege of preferential sentiment that is being encouraged to such a great extent by the Empire Marketing Board. To draw full benefit from this it is necessary for her to market highly standardised graded fruit under a few well advertised trade marks and to distribute this fruit in an efficient manner. For efficient distribution it is essential that at least 85 per cent of the exported fruit from South Africa be handled by the Exchange and the Exchange representative should have a free hand in the distribution of this fruit. The Representative must have agents in all the important markets, both in the United Kingdom and on the Continent, and must ration these markets according to their requirements. To do this he must have a thorough knowledge of the daily markets as regards weather conditions, supply of competing fruit both in the market and on the way to market, and the demand for fruit in the market. This information can be supplied by the agents if reliable men are chosen. The greatest difficulty in distribution is that the bulk of South African fruit is consigned to London, and the shipping contract only makes provision for it being landed at Nine Elms Station, so that it cannot be diverted to other ports unless it is on chartered or continental steamers. The Railway charges and handling charges from London to the North on the other hand are very high at.

London to Glasgow or Edinburgh over 2/- per box,

London to Liverpool or Hull nearly 1/3 per box,
in spite of the fact that Glasgow is 600 miles further than Liverpool. It is doubtful whether these charges will be............
be lowered in the immediate future and the only way of effecting economy will be by regularity of supply and gradual development.

It is not necessary to go into a full discussion of the merits of each market for they are amply set out in Mr. H. van den Hoek's article on marketing fruit in the United Kingdom.

The South African crop handled by the Exchange Representatives in 1928 totalled 335,719 cases of which 45,455 cases were nominated for special agents. This total represents 36% of the total shipments from South Africa. The remaining 62% was distributed at random and consequently often lead to the flooding of markets. The fruit distributed by the Exchange Representative was as follows:

<table>
<thead>
<tr>
<th>Town</th>
<th>Quantity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>London</td>
<td>207,062</td>
<td>71.33</td>
</tr>
<tr>
<td>Liverpool</td>
<td>21,229</td>
<td>7.31</td>
</tr>
<tr>
<td>Hull</td>
<td>8,769</td>
<td>3.02</td>
</tr>
<tr>
<td>Glasgow</td>
<td>6,536</td>
<td>2.25</td>
</tr>
<tr>
<td>Birmingham</td>
<td>5,427</td>
<td>2.01</td>
</tr>
<tr>
<td>Bristol</td>
<td>4,593</td>
<td>1.58</td>
</tr>
<tr>
<td>Worthing</td>
<td>4,203</td>
<td>1.46</td>
</tr>
<tr>
<td>Cardiff</td>
<td>2,930</td>
<td>1.01</td>
</tr>
<tr>
<td>Southampton</td>
<td>2,435</td>
<td>.84</td>
</tr>
<tr>
<td>Manchester</td>
<td>2,386</td>
<td>.82</td>
</tr>
<tr>
<td>Edinburgh</td>
<td>1,619</td>
<td>.58</td>
</tr>
<tr>
<td>Newcastle</td>
<td>1,449</td>
<td>.50</td>
</tr>
<tr>
<td>Leeds</td>
<td>592</td>
<td>.20</td>
</tr>
<tr>
<td>Dewsbury</td>
<td>136</td>
<td>.05</td>
</tr>
</tbody>
</table>

These........
These figures then show that over 70% of the fruit was sold in London. In contrast to this only about 13% of the Californian fruit was marketed there.

To obtain a better idea of the weakness of the above distribution reference must be made to the populations in the different centres:

<table>
<thead>
<tr>
<th>Area</th>
<th>No. of Countries</th>
<th>Radius.</th>
<th>Population.</th>
</tr>
</thead>
<tbody>
<tr>
<td>London</td>
<td>21</td>
<td>5 - 100 miles</td>
<td>15,000,000</td>
</tr>
<tr>
<td>Liverpool &amp; Man-</td>
<td>15</td>
<td>10 - 60 *</td>
<td>13,933,000</td>
</tr>
<tr>
<td>chester</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glasgow</td>
<td>33</td>
<td>10 - 150 *</td>
<td>4,661,000</td>
</tr>
<tr>
<td>Hull</td>
<td>4</td>
<td>10 - 60 *</td>
<td>5,100,000</td>
</tr>
<tr>
<td>Belfast</td>
<td>33</td>
<td>10 - 150 *</td>
<td>4,500,000</td>
</tr>
<tr>
<td>Bristol</td>
<td>7</td>
<td>10 - 100 *</td>
<td>3,200,000</td>
</tr>
<tr>
<td>New Castle</td>
<td>3</td>
<td>10 - 50 *</td>
<td>2,500,000</td>
</tr>
<tr>
<td>Cardiff</td>
<td>8</td>
<td>10 - 80 *</td>
<td>2,200,000</td>
</tr>
</tbody>
</table>

The distribution then was not in proportion to the population i.e. the demand. This is no doubt the reason for the great amount of speculation that goes on with the South African fruit, and the reason for the fact that the difference between the wholesale and retail price is so great (often as much as 15/- a box according to Mr. Rusk). If this is true for the fruit handled by the Exchange how much more true is it not for the fruit sent at random. This all proves the necessity of control of the bulk of the South African fruit by the Exchange and its systematic distribution by the Exchange Representative.

The six principal ports of entry for the primary sale of fruit by auction or private treaty are the following...
London, Southampton, Liverpool, Manchester, Hull and Glasgow. Of these London and Liverpool are the most important as far as direct consignments are concerned, the former including through Bill of Lading traffic via Southampton. These two ports are favoured by America, Australia and also Spain.

Judging from the populations in the vicinity of the ports it will undoubtedly be a great advantage and saving if direct shipment can take place to the several ports, or at least the more important of them.

The most important market is naturally Covent Garden, but according to data it appears to be inadequately equipped for the rapidly expanding fruit trade. This will necessitate its expansion or the opening up of a new market in London.

Liverpool is the natural port to a large industrial centre, and in conjunction with Manchester, a population of nearly the same as that of the London area is in its vicinity. The facilities at the docks as well as the auction rooms are to be highly recommended.

As a port for the primary sale of South African fruit it should be certainly one of the first to be exploited. No market can show profitable returns however when the commodity is suddenly put up for auction in fairly large quantities at irregular intervals. What is needed is to supply the markets regularly with high class fruit and to develop the provincial markets in the United Kingdom by a carefully planned system of advertisement.

London and Liverpool to a certain extent are the only two ports of any importance to the South African orange.
orange trade at present. But several of the other ports may in the future become of great value to the South African export trade eg. Hull may be of importance for the re-export trade with the Continent as she has regular services to the various countries there. Southamptons seems to be growing in importance especially because its railroad connections with points in its natural area, are such that attendance of buyers to the sale rooms and delivery are most satisfactory and speedy. Both Ireland and Scotland offer good markets for South African fruit. There is no doubt great possibilities in the development of the provincial markets but they can only be developed by beginning with small regular supplies and then gradually increasing these supplies.

Both Auction and Private Treaty sales are carried out in England and the distribution is as pointed out in an earlier section of this paper.

There are about 19 primary wholesale salesmen in the United Kingdom who deal with South African Fruit and about 3,000 retailers. By these salesmen lowering their prices to the consumer and organising their businesses efficiently they would increase their sales and have a more rapid turnover and consequently bigger net profit. This would be of benefit to the consumer and salesman as well as to the producer. During this season (1929) the California Citrus Exchange appointed three dealers service men in England to instruct, and show how to improve the efficiency of the Salesmen. This is something for the South African Exchange to do when they have adequate finances.

What........
What is essential is a large volume of standardised graded fruit of high quality marketed under a few (three or four in the case of South Africa) well advertised trade marks and distributed over a wide area according to the demands of the respective markets. This will minimise speculation, increase demand and assure the grower of a fair return.

The Continental Markets.

The Continental markets have about the greatest potentialities as regards future consumption of citrus fruits, for not only are continental countries provided with large populations, but the populations are mostly concentrated in small areas making distribution easy. Owing to the great competition in transport between England and the Continent transport is efficient and the charges therefor comparatively low e.g. it takes a night to reach Antwerp and Rotterdam and two to three days to reach Bremen, Hamburg or any of the Scandinavian ports.

In general it seems that the best method of supplying these markets at present is by trans-shipment from England, for ships en route to England cannot be diverted to the Continent, and Continental Steamers between South Africa and the Continent do not carry a regular cargo of citrus fruit.

As pointed out before the most convenient centre from which to distribute South Africa's fruit to both the English and Continental markets is London. The Exchange representative should keep in touch with a salesman in each of the markets so as to be able to estimate the requirements......
requirements of each market. A start should be made to regularly distribute small quantities of high class fruit to some of the most important of these markets so as to get South African fruit known there. As production then increases these markets will serve as outlets for the increased exports.

At present it appears that preference in Continental markets is given to Brazilian and California fruit. The main reason for this is that their fruit is better known and in the case of California it is of a uniformly high standard. In this connection it may be mentioned that some South African fruit had to be reshipped again from the Continent back to England during this season (1929) The main reason being that it was not known and dumped in a market without consideration to the requirements of that market. To create a demand for her fruit on the Continental markets South Africa must send forward regular quantities of uniformly high quality fruit starting with small quantities in the beginning even if they are sold at a comparatively low price and increasing these quantities as demand and supply increases.

Paris as a Fruit Market.

On account of the fluctuation in the value of the Franc after the war the fresh fruit market in Paris suffered greatly, but there is no doubt that when France regains her former stability she will take a fair supply of oranges and grape-fruit during July, August, September and October. From November to July she is supplied with Citrus fruits from Spain, Algeria and Italy, and home-grown soft fruits, so that during these months there is little...
requirements of each market. A start should be made to regularly distribute small quantities of high class fruit to some of the most important of these markets so as to get South African fruit known there. As production then increases these markets will serve as outlets for the increased exports.

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little prospect of a market for South African citrus. The import duty on citrus fruits is about 1/-10 per case and the principle method of sale is the "private treaty" system.

Paris is centrally situated in France, and is the main centre for distribution though the market is not so conveniently situated with regard to the railway as some of the markets in Germany for instance. This necessitates extra transport and handling charges. On account of the high price of citrus fruit in France during the months of August, September and October it is a luxury, but nevertheless Paris should be able to take at least 400 - 500 cases weekly during those months. The per capita consumption of citrus fruit in France is about 7 lbs. This shows the great increase in consumption that can still take place when compared with the per capita consumption of 23 lbs in California.

The following table giving the population and per capita consumption of the various countries is of interest:

<table>
<thead>
<tr>
<th>Country</th>
<th>lbs. per head</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>U. S. A.</td>
<td>23</td>
<td>105,710,620 (1920)</td>
</tr>
<tr>
<td>Australia</td>
<td>20</td>
<td>6,262,720 (1928)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>19</td>
<td>42,919,710 (1921)</td>
</tr>
<tr>
<td>Canada</td>
<td>19</td>
<td>8,788,483 (1921)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>12</td>
<td>1,344,469 (1926)</td>
</tr>
<tr>
<td>Norway</td>
<td>10 x</td>
<td>2,649,775 (1920)</td>
</tr>
<tr>
<td>Belgium</td>
<td>10 x</td>
<td>7,465,782 (1920)</td>
</tr>
<tr>
<td>Switzerland</td>
<td>9</td>
<td>3,987,000 (1927)</td>
</tr>
</tbody>
</table>

Germany...........
<table>
<thead>
<tr>
<th>Country</th>
<th>Lbs per head</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>7</td>
<td>62,410,619 (1928)</td>
</tr>
<tr>
<td>France</td>
<td>7,6</td>
<td>40,743,897 (1926)</td>
</tr>
<tr>
<td>Irish Free State</td>
<td>6</td>
<td>2,971,992 (1920)</td>
</tr>
<tr>
<td>Denmark</td>
<td>5</td>
<td>3,434,555 (1925)</td>
</tr>
<tr>
<td>Austria</td>
<td>5</td>
<td>6,534,486 (1923)</td>
</tr>
<tr>
<td>Sweden</td>
<td>4</td>
<td>6,087,923 (1927)</td>
</tr>
<tr>
<td>Czechoslovakia</td>
<td>3</td>
<td>14,356,600 (1926)</td>
</tr>
<tr>
<td>Hungary</td>
<td>2</td>
<td>7,980,143 (1920)</td>
</tr>
<tr>
<td>Poland</td>
<td>1</td>
<td>30,213,000 (1928)</td>
</tr>
</tbody>
</table>

* Including Lemons.

This table shows what a great amount of room there is for increasing the consumption of citrus fruits in the European countries and so widening the market. However it is doubtful whether the prospective increase in the exportable surplus from producing countries can be fully absorbed by these countries unless consumers are enabled to purchase the fruit at lower prices than those now current. One of the chief obstacles to increased consumption of citrus fruits in many European countries is to be found in the duties imposed upon imports, and the removal of these tariffs would undoubtedly stimulate consumption and help to solve the problem of disposing of the world's citrus production.

**Holland as a Market for Fruit.**

There is perhaps little difference as regards the importance of the two ports Rotterdam and Amsterdam except that Rotterdam is the main transit port or gateway to the Rhineland and Westphalia, and is situated more favourably for this purpose. A very large percentage of........
of the fruit imported into Holland is exported into Germany. Both the above mentioned ports have excellent facilities for the handling and re-expedition of fruit.

Oranges, mandarins and lemons are imported into Holland free of charge but it is difficult to ascertain what it costs to market oranges in France.

The bulk of fruit imported into Holland has to pass the auction which is of a closed type first. Little, if any, private selling is done by the auction brokers. Auctioneers may only sell to members of the "Bond van Nederlandse Groeiers in Verso Suidvruchten en Aanverwante Artieken" of which there are about 300 Dutch members. The auctioneers are not allowed to do any wholesaling in connection with the most important perishable. In the smaller markets the electrical dial system of sale is in operation - it has not been applied to the sale of citrus fruits in large quantities however.

There is apparently a shortage of citrus fruits in Holland during the months July to October inclusive. South African citrus should find a good market there during this period and the shipping charge from London to Rotterdam works out at about 10d per box.

Transport in Holland is fairly efficient and cheap. Besides supplying Germany Rotterdam also supplies Switzerland with fruit.

The population of Rotterdam is about 500,000 and that of Amsterdam about 650,000. Eighteen towns have populations of between 30,000 and 255,000, the total population for Holland being about 7,000,000.
The Fruit Trade in Belgium.

Antwerp is the port for importation of fruit into Belgium and its importance as a transit port for the Ruhr and Westphalia is practically equal to that of Rotterdam. Belgium is, to a great extent, dependent on western Germany as an outlet for the large quantities of fruit handled, especially by the importers in Antwerp. Good railway facilities exist between this port and the Rhur district.

Antwerp is the principal distributing centre and most of the fruit-brokers are situated there. Sales are of the open auction type and buyers from Belgium, Luxembourg, Holland and the Rhur more or less regularly attend.

Most European countries passed through a severe depression after the war and are only gradually regaining their former stability. Railway rates are fairly low in Belgium chiefly on account of the low rate of exchange.

There is a regular daily service from London to Antwerp and the freight is about 1/-6 per box. The import duty is about 3d per box. In general Belgium, with Antwerp as a distributing centre, has good potentialities as far as South African citrus fruit is concerned during the months July to October inclusive. The marketing charges, duties, etc., as for all European countries, however, need to be considerably reduced in order to reduce South African citrus fruits from the present luxury class of goods to the every day diet class, and still......
still return a fair return to the grower.

Antwerp has a population of 300,000 while Belgium alone has 15 towns of population of over 30,000 each. The portion of Germany served by Antwerp has a population of 11,000,000 while the total population of Belgium is 7,600,000.

**Fruit as a Fruit Market.**

Owing to the war the fruit trade collapsed in Germany and, although her present economic condition is far from satisfactory on account of the low purchasing power and unemployment, the fruit trade has again developed considerably during the past few years and is increasing rapidly in extent.

Owing to the country's decentralised position, the distribution is very extensive, because, naturally, the big towns form the main consuming centres. There are 45 towns with a population of over 100,000 most of which are highly industrial. Every town has its central market and on the whole all have a flourishing retail trade.

It is about time that South Africa commenced opening up these markets with a regular supply in order to become established in them, for of all the Continental countries Germany is the largest importer of fruit and she owns the most potential markets, receiving her fruit through Holland and Belgium as well as her own ports.

Hamburg, Bremen and Berlin are auction centres. The auctions, being closed, only sell to members of the buyer's.......

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buyers' association. The port of Hamburg, as well as Bremen, is admirably equipped for the handling of fruit and other perishables. The ship off-loads at the one side of the auction rooms and at the other the commodities can be immediately loaded into the railway trucks. A considerable amount of fruit is consigned directly to a number of firms in the interior but the auction in these two ports distribute large quantities weekly, mainly throughout Germany. For small quantities of fruit the dial system of sale is often used in Bremen.

Many of the auction, as well as the wholesale buyer firms have branches of their business spread out through the European countries and in this way much of the fruit is distributed.

Although perhaps cramped for space, the Berlin market has as fine facilities as Hamburg, the only inconvenience being the lack of river connections.

As in the case with other European countries the German markets are open to South African fruit from July to October inclusive.

South Africa enjoys a reduced duty on citrus fruits in accordance with the Trade Treaty with Germany.

In general apart from other citrus fruits South African citrus fruits will come into competition in Germany, as in all European countries, with home grown and imported soft fruits. This means that European nations must be gradually educated to appreciate and value the South African fruit. The only way of doing this is by regular supplies and systematic advertisement. Providing these markets are gradually developed they hold great future potentialities.
The Fruit Trade in Denmark.

Owing to the war Germany was shut off as far as the fruit trade was concerned and this encouraged sales in Northern countries with the result that Copenhagen has developed quite an important trade, using the greater portion of her imports for her own consumption. The surrounding countries, Norway and Sweden, Finland and Poland obtain certain supplies via Copenhagen which has apparently developed a high class trade in fruit.

Most of the fruit sold in Copenhagen is obtained directly from the foreign countries, although a small amount is sent via Hamburg by firms situated there. South African Fruit is transhipped from Hull and Copenhagen should be able to dispose of about 600 tons weekly, but the market must be built up slowly and systematically.

Copenhagen appears to be the most favourably situated distributing centre for Scandamavia, Finland, the Baltic Provinces and also for Poland and Danzig.

Oranges are sold by auction, very similar to the method of sale in Hamburg, and the transport facilities are good. The total population of Denmark is about 3,300,000.

Norway as a Market.

Oslo with a population of 250,000 is the most important city for fruit consumption in Norway. Through this port imported fruits are distributed to the southern parts of the country. The city has direct transportation with New York and good shipping connections with Hamburg and Copenhagen, as well as with England through Bergen and...
and Gothenburg. Most of the fruit is obtained at European auctions. Auctions in Oslo have proved a failure. The total population is about 2,650,000 and transport is cheap.

Sweden. Gothenburg is the most important shipping city here. As regards the American trade the shipper is represented by a local broker who has the quotation of his shipper and obtains the orders from the Gothenburg trade. Transport is cheap and the population about 6,000,000 of which 660,000 occupy two towns. Supplies are also obtained through several European auctions.

Finland, has a population of about 3,500,000 with five towns of over 30,000 inhabitants. Local transport is efficient and cheap.

About 69,000 cwt's of oranges were imported into Finland in 1927 and the annual imports show an increase. There are no oranges on the market during the months August, September, October and November respectively.

There will apparently be an excellent market in Norway, Denmark and Sweden during the tourest season which coincides with the South African export season.

From this brief survey of the most important European fruit markets it is apparent that there is room for expansion in citrus consumption in these countries. The survey indicates that citrus consumption in the summer months is practically negligible, and suggest that eventually a market for the increasing production of South America, Australia, the U. S. A. and South Africa, may be found in these markets. It is largely, however, a

matter.........
matter of regular supplies at a price which consumers are able and willing to pay. This means a reduction in handling and marketing charges and a diminishing of import duties. Handling and marketing charges will be reduced by regular shipments of high class fruit and by the direct shipment of this fruit from South Africa to the European port from whence it is to be distributed. The latter step will not be possible to any great extent for a long time to come.

It is interesting to note that Mr. Koomaw estimates a potential summer market in the United Kingdom and on the continent of at least 5,000,000 cases a year.

In most European countries there are more or less plentiful supplies of home-produced fruit available, and consumers have a choice of fruits at fairly low prices. The improvement in the economic condition of Europe should, however, facilitate the sale of imported luxury fruits, among which summer oranges may be classed, although, in view of the prospective increase in supplies in the near future, it would be hazardous to prophesy that the whole of the summer surplus a few years hence will be disposable at the price levels of recent years.

In the above analysis of the markets no attention has been given to comparative costs of marketing and production, nor to climatic influences on per capita consumption in the different countries. While they all play their part they are matters for more local and intensive study than can be contemplated in this paper.

Trade.............
Trade with India.

Up to the present little trade between South Africa and India has taken place and transport facilities as far as citrus fruits are concerned are very poor. Political relations between the two countries, however, are improving and this naturally improves trade possibilities. Should there be sufficient demand for South African fruit in India ocean and railway facilities will be forthcoming. India's possibilities as a market must not be lost sight of and Bombay and Calcutta may prove important distribution centres in the future. An attempt to open up these markets is at present being made by Rhodesia. Further East, however, South Africa will have to compete with Australia and Eastern produced fruit which does not seem a very profitable proposition.

Factors Affecting Demand and Supply.

Competition from the Northern Hemisphere.

In general the principal producers of oranges are the United States with about 27,357,000 cwt per year, Spain with about 22,000,000 cwt, Italy with over 5,000,000 cwt and Japan with about 5,500,000 cwt. (Report of the Empire Marketing Board). Many other countries produce large supplies but the above four countries supply fully three-quarters of the world's output.

Most of the United States production is consumed within the country and Spain is easily the world's greatest exporter, its exports being roughly twice as great as those of all other exporting countries combined. Italy takes second.......
second place with a quantity about one-fifth that of Spain, and the United States is third while Palestine is of growing importance, being now not far behind the United States. Smaller quantities are exported by the other producers, the chief contributors to world supplies being the Union of South Africa, Australia, Algeria, Japan, Syria, Cuba, Porto Rico, China and the countries of South America.

The principal markets for exported oranges, as seen from above, are in Europe. The United Kingdom takes fully one-third of the oranges entering the world trade, Germany is second, importing in 1927 about one-half the quantity of the United Kingdom, while other important markets in Europe are France, Belgium, Holland, Poland, Czechoslovakia, Switzerland, Norway, Sweden, Hungary, Denmark, Irish Free State and Rumania.

**Competition from the United States.**

California and Florida together produce 27,071,000 cwt of the total production of the States and of this amount California produces about 19,619,000 cwt.

While only moderate expansion in the productive capacity of California orange groves is to be looked for during the next few years, in Florida developments are likely to be much more pronounced. It was estimated that Florida by 1932 would show an increase of 50 per cent on the bearing acreage for 1927 the year for which most of the above figures are given.

The bulk of the exports from the United States goes to Canada but the export to the United Kingdom and
the European countries is rapidly increasing, especially during the summer months. During this year (1929) it is estimated that from June to November California shipped over 500,000 cases of citrus fruit to the United Kingdom. The Florida season extends from October to June. Only 24 per cent of the total United States crop is marketed during the five months, June - October inclusive.

The ability of European markets to absorb large quantities of United States oranges between November and April is limited on account of the large supplies of comparatively cheap Mediterranean fruit during that season, but it is precisely during those months that United States production is likely to show the greatest increase.

At present California Sunkist oranges are South Africa's greatest competitor on the European and English markets. The quality and distribution of this fruit is excellent, and to compete favourably with it South Africa must export a higher class of fruit under a few well standardised trade-marks. It would be a great advantage to both countries if their respective representatives could work together in distributing the fruit, for the United Kingdom and Europe could very well absorb all the high quality fruit from both countries at reasonable prices, especially since exports from California during the summer months can not increase to any great extent. What is essential is systematic distribution backed by careful advertisement and propaganda. It is stated that there is a considerable demand for citrus fruits in the far East and California and Australia are gradually opening up these markets, which will form a valuable outlet for....
for both countries as far as their summer (June to October inclusive) fruit is concerned.

Spain as a Competitor.

South African fruit arrives on the United Kingdom and European markets from May to December inclusive. The Spanish crop dominates these markets from November (sometimes the end of October) to May, continuing into June and sometimes July, so that South African fruit must compete with Spanish at the beginning and at the end of the export season.

According to the Empire Marketing Board Spanish imports into the United Kingdom for the three years 1925-27 respectively averaged 570,000 cwt's during May, 520,000 cwt's during June and 120,000 cwt's during July being negligible in August, September, October and rising to 200,000 cwt's in November. These figures will tend to show the comparatively serious nature of this competition which is even more severe on the Continent. The reason for the comparatively high prices paid for South African fruit at the beginning of the season is that the people are tired of the Spanish fruit.

The Spanish article is not of standard quality, nor is it of very good quality, but this matter is now receiving serious attention in Spain and the quality, grading and packing of Spanish fruit is rapidly improving. It costs Spain about 12/- a case to land fruit in the World's fruit markets (England and the European markets). To compete profitably with this fruit South Africa must develop a demand for her fruit and this can only be accomplished with a superior class article systematically dis-

tributed.....
tributed and well advertised.

**Competition from the Mediterranean Countries.**

It is mainly due to the Italian lemon production that South African lemons cannot find a profitable market in Europe, and citrus-by-products from these countries together with those from Spain eliminate the possibility of profitably marketing large quantities of by-products on the European markets.

The total production of oranges and mandarins in Italy is about 300,000 tons produced mainly in Sicily. Her principal exporting months are from December to June so that early shipments of South African oranges would meet a slight competition here, especially in Germany which is Italy's largest market. Improvement is taking place in quality, grading etc., but production is more or less stationary. South Africa has not much to fear from Italian competition.

The importance of Palestine as a citrus producer is increasing rapidly both in quality and quantity. Her export season is from late November to April so that apart from competition in December she is not of much concern to South Africa as a competitor. She exports about 2,000,000 cases of oranges a year mainly to the United Kingdom, though direct shipments to Continental markets are increasing as also to Egypt.

Small quantities of citrus fruits are produced in France and Portugal. Cyprus exports are said to be increasing especially to Egypt and Greece. Algeria is steadily increasing its citrus production which it markets mainly in France owing to favoured tariff preferences.

Syria......
Syria as a citrus producing country has a production of about 400,000 cwt which it markets mainly in Egypt and Turkey but small quantities are sent to the United Kingdom.

The Japanese production is apparently stationary and mostly locally consumed. Considerable quantities of mandarins and a few oranges are exported to Kwantung and fair quantities to the United States and Canada.

China is a fairly large producer of citrus fruits exporting to Singapore, the Strait Settlements, Hong-Kong, Siam and French Indo-China but she also imports considerable quantities from Japan mainly and the United States. Imports are increasing and these Eastern markets will prove a valuable outlet for the Australian and American surplus.

**Competition from the Southern Hemisphere.**

Of the countries in the Southern Hemisphere South Africa seems to be the most favourably situated of all, for, as markets are opened up they must gravitate south and east into the radius of economic supply geographically belonging to South Africa and Australia.

To bear this statement out we may take the distance of the Southern Hemisphere countries from the Principal markets. The distances are calculated in days taking 10 knots per day.

<table>
<thead>
<tr>
<th>Markets</th>
<th>Argentina</th>
<th>Australia</th>
<th>S. Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>27½</td>
<td>40</td>
<td>23</td>
</tr>
<tr>
<td>London</td>
<td>25½</td>
<td>40</td>
<td>25½</td>
</tr>
<tr>
<td>Antwerp</td>
<td>20½</td>
<td>32</td>
<td>27½</td>
</tr>
<tr>
<td>Bombay</td>
<td>39</td>
<td>-</td>
<td>18½</td>
</tr>
<tr>
<td>Rangoon</td>
<td>-</td>
<td>14</td>
<td>-</td>
</tr>
<tr>
<td>Far East</td>
<td>46</td>
<td>15</td>
<td>27</td>
</tr>
</tbody>
</table>
The most important competitor of South Africa, as far as the Southern Hemisphere is concerned, is South America and here Brazil is at present outstanding.

Brazil

The total production of citrus fruits in Brazil is not known but plantings have been considerably increased of late as also in the Argentine, and a greatly increased production is expected. The quality of fruit arriving on the English and Continental Markets has been inferior to that of South Africa, but export regulations have been put into operation and a great improvement in grading and packing can be expected. Most of the fruit is exported to neighbouring countries in South America, Buenos Aires and Montevideo being the chief markets, but exports to Europe were tried in 1927 and it is estimated that during 1929 about 200,000 cases arrived in England from June to November. The fruit was usually sold at lower prices than South African but it also brought down the price of the South African product. It is from South America in general and Brazil in particular that South Africa will receive most competition, and unless she rapidly establishes herself on the European markets Brazil will capture those markets from her for the landed cost per box of citrus on the European markets is only slightly higher for Brazil than for South Africa.

Brazil is about 10 per cent larger than Continental United States, outside of Alaska and all of it has a climate capable of producing citrus fruits. It has a population of some 35,000,000 people and there is still great stretches of the interior country that is relatively uninhabited.
In the State of Minas Geraes alone which is one of twenty there are more square miles of citrus land than occur in Florida and California combined.

Up to the present time only an indifferent attention has been paid to the growing of citrus fruits with the result that the fruit is very variable in quality, but it ripens throughout the year.

Co-operative organisation among producers has started and the Government is taking an active interest in helping these organisations.

The State of Sao Paulo, according to F. H. Rolfs, has gone a step further by starting a project to plant twenty million citrus seeds and the state of Minas is also making some preparations for a large production of good citrus stock.

The only way South Africa can meet this coming competition is by waking up immediately and putting her industry on a sound basis.

_Australia_ cannot become an important competitor in the United Kingdom and Continental markets because of her distance from the markets. Her best export markets are undoubtedly India and the Far East.

**Competition from other Fruits.**

Citrus growers in general are faced with the problem of the possibility of growers of other classes of fruits developing a consumers demand for these fruits above that for citrus fruits. Especially is this the case with the home grown soft fruits on the Continental and........
and United Kingdom markets. These soft fruits are relatively abundant and cheap while citrus fruits are regarded as a luxury, and will only find a demand by replacing some of the soft fruits in the daily consumption.

Pineapples are available throughout the year but are not very popular at present because of the high prices caused by the heavy decay in transit.

As transport improves exports will increase and public taste will become cultivated. They may become a serious competitor with citrus fruits and at present enjoy a 3/- per ton levy favour above citrus.

The weekly amount spent in fruit will always be about the same so that if more soft fruit is bought citrus will suffer. Propaganda and efficient distribution is all that can prevent this. Strawberries are a very popular home grown fruit both in Great Britain and on the Continent. Exports from South Africa in this line, in early spring and summer at close of citrus season, are increasing yearly. The effect of strawberries on the citrus prices can be seen in June and July.

Deciduous fruits produced in the Northern Hemisphere come on to the markets at the same time as South Africa's citrus fruits and the volume of soft fruits exported from America and Europe is on the increase.

In general then South African citrus fruit comes into competition with that from Spain at the end and in the beginning of the export season. Besides this Californian and Brazilian fruit competes with it throughout as also other fruits. Providing, however, that South Africa.....
Africa exports only high quality fruit under a few well advertised trade marks, and distributes this in accordance with the supply and demands of the various markets, she will obtain remunerative prices for several years to come.

It is self evident that the demand for citrus fruits will depend on many more factors than merely populations and supplies. Such factors as weather, race meetings, holidays etc., have a marked effect.

As far as Grape fruit is concerned South Africa exports fruit from May to September. During this period no other Grape fruit is available on the European markets except some from California and a small amount from the West Indies. Consumption of Grape fruit per capita is very low at present and it will apparently take a great amount of advertising to increase it. Providing, however, that the market is gradually developed growers of this product should receive fair returns for many years to come.

South Africa, however, cannot extend her Grape fruit export season without meeting severe competition, and it may be mentioned that the quality of the bulk of South African Grape fruit cannot compare favourably with that from other sources.

- - - - -
CHAPTER 5

THE COST OF MARKETING CITRUS FRUIT AND
THE RETURN TO THE GROWER.

The functions of marketing are briefly as follows:

1. Collection and assembly;
2. Transportation;
3. Wholesale dealing and processing;
4. Retailing;
5. Risk taking.

The marketing of agricultural produce unlike agricultural cultivation is subject to the law of increasing returns. Therefore large scale marketing units are more economical than small ones because of the internal economies that can be effected. This allows of specialisation in particular steps in the marketing.

With the increase in world production of citrus fruits a decrease in price realisations for such fruit can be expected and, owing to the law of diminishing returns, an increase in the cost of production. For the producer to make a profit he must lower his cost of production by the production of a higher percentage of good quality fruit and a higher yield per tree, and by the reduction of his marketing expenses by wholesale dealing and large scale organisation.

At present there is little data on the cost of marketing South African citrus fruit.

In 1923 the manager of the South African Fruit Exchange issued a report on the comparison between the 1914 marketing charges and those for 1923 and showed that

there......
there was an increase in costs of just over 3/- per box.

In their report on fruit the Imperial Economic Committee give the cost of marketing South African oranges in London in 1926 as follows:

<table>
<thead>
<tr>
<th>From Point of Primary Sale in the United Kingdom to Producer.</th>
<th>Per Box of 70 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Sale in London</strong></td>
<td>£</td>
</tr>
<tr>
<td>Charges in United Kingdom -</td>
<td></td>
</tr>
<tr>
<td>Commission 7½ per cent</td>
<td></td>
</tr>
<tr>
<td>Consolidated handling charges</td>
<td></td>
</tr>
<tr>
<td>Transportation Costs -</td>
<td></td>
</tr>
<tr>
<td>Ocean freight</td>
<td></td>
</tr>
<tr>
<td>Marine insurance</td>
<td></td>
</tr>
<tr>
<td>Dock and Harbour dues</td>
<td></td>
</tr>
<tr>
<td>South African Railway freight</td>
<td></td>
</tr>
<tr>
<td>Costs at South African Port -</td>
<td></td>
</tr>
<tr>
<td>Cold Storage (one week)</td>
<td></td>
</tr>
<tr>
<td>Export Levy</td>
<td></td>
</tr>
<tr>
<td>Government Inspection</td>
<td></td>
</tr>
<tr>
<td>Gross return to grower</td>
<td></td>
</tr>
</tbody>
</table>

---

Analysis...........

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Analysis of Gross Return to Grower.

<table>
<thead>
<tr>
<th>Per box of 70 lbs.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of box, materials and making</td>
<td>2/-4</td>
</tr>
<tr>
<td>Cost of picking and haulage to packing house</td>
<td>0/-2</td>
</tr>
<tr>
<td>Grading and packing</td>
<td>0/-1.5</td>
</tr>
<tr>
<td>Haulage to rail-head</td>
<td>0/-1</td>
</tr>
<tr>
<td>Return to grower out of which he must meet all expenses of cultivation (including interest, taxes, equipment, fertilising, pruning, irrigation, thinning, propping trees etc.)</td>
<td>5/-11.1 37%</td>
</tr>
<tr>
<td>Net return to grower (see above)</td>
<td>Cannot be estimated</td>
</tr>
<tr>
<td></td>
<td>4/-7.6 53.9%</td>
</tr>
</tbody>
</table>

In an article by Dr. J. M. Tinly, Inspector of Co-operative Societies, Division of Agricultural Economics and Markets, an analysis of the expenses of various Co-operative associations who marketed citrus fruits during the 1927 season is given as follows:

Statement........
## Statement No. 1 - Co-Operative Citrus Companies

### Receipts, Expenses and Gross Payments

**Per case for Exported Fruit**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Com. No. of Gross Overseas Cases</th>
<th>S.A. Charges</th>
<th>Co-Oper. Pick-</th>
<th>Total</th>
<th>Return to Grower</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>s. d.</td>
<td>s. d.</td>
<td>s. d.</td>
<td>s. d.</td>
<td>s. d.</td>
</tr>
<tr>
<td>Grape</td>
<td>A 707</td>
<td>17.2</td>
<td>5.9</td>
<td>1.10</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>B 2,610</td>
<td>15.3</td>
<td>5.2</td>
<td>1.10</td>
<td>3.1</td>
</tr>
<tr>
<td></td>
<td>C 7,438</td>
<td>22.2</td>
<td>5.10</td>
<td>-0.11</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>D 182</td>
<td>13.1</td>
<td>7.1</td>
<td>2.1</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td>E 1,012</td>
<td>21.9</td>
<td>5.6</td>
<td>1.11</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5.8</td>
<td>1.3</td>
<td>4.7</td>
</tr>
<tr>
<td>Navelas</td>
<td>A 810</td>
<td>20.6</td>
<td>5.9</td>
<td>1.10</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>B 55,589</td>
<td>19.9</td>
<td>5.9</td>
<td>1.10</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>C 13,222</td>
<td>18.9</td>
<td>5.7</td>
<td>1.10</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>D 7,684</td>
<td>19.1</td>
<td>5.9</td>
<td>1.1</td>
<td>4.4</td>
</tr>
<tr>
<td></td>
<td>E 14,378</td>
<td>17.10</td>
<td>5.5</td>
<td>2.1</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>F 1,313</td>
<td>17.1</td>
<td>5.1</td>
<td>2.2</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5.8</td>
<td>1.3</td>
<td>4.7</td>
</tr>
<tr>
<td>Valencia</td>
<td>A 2,473</td>
<td>15.0</td>
<td>5.9</td>
<td>1.10</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>B 4,664</td>
<td>19.5</td>
<td>5.6</td>
<td>2.2</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>C 4,218</td>
<td>16.4</td>
<td>5.8</td>
<td>1.1</td>
<td>4.4</td>
</tr>
<tr>
<td></td>
<td>D 18,994</td>
<td>19.11</td>
<td>4.11</td>
<td>2.3</td>
<td>3.4</td>
</tr>
<tr>
<td></td>
<td>E 1,306</td>
<td>15.0</td>
<td>5.11</td>
<td>2.2</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5.3</td>
<td>2.3</td>
<td>3.6</td>
</tr>
<tr>
<td>Seedlings</td>
<td>A 9</td>
<td>12.7</td>
<td>5.9</td>
<td>1.10</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>B 395</td>
<td>18.0</td>
<td>6.5</td>
<td>2.2</td>
<td>3.4</td>
</tr>
<tr>
<td></td>
<td>C 34,726</td>
<td>14.2</td>
<td>4.10</td>
<td>1.10</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>D 35,132</td>
<td>14.2</td>
<td>4.10</td>
<td>1.10</td>
<td>0.4</td>
</tr>
</tbody>
</table>

With one or two exceptions the total cost of handling export fruit is remarkably uniform. Overseas charges show......
show little variation and what variation there is can be
ascribed to differences in commission charges and to
different price realizations for the fruit.

South African charges on the other hand show a
considerable amount of variation, due largely to the dis-
tance of the company from the point of shipment and the
length of time fruit may have to lay in cold storage.
Insurance, inspection fees and dock dues are practically
of uniform cost.

Variation in co-operative charges may be due to
a large number of causes e.g. cost of material, services
rendered by the company, size of packhouse and efficiency
of operation, gross turnover and commission charged.

In case of Company B and Company C a consolidated
packing charge is levied. Company B picks and trans-
ports its members' fruit to the pack house at the very low
rate of 4d per case. Company E transports its members'
fruit from the orchard to the pack house.

It should be pointed out that most of the co-
operative companies are organised to handle far larger
quantities of fruit in the future. As their turnover
increases, the co-operative charges for packing etc.,
will diminish.

This is shown in Statement 2 where, with the
exception of Company A there has been a decided de-
crease in handling charges of each company, illustrating that
the efforts to economy are meeting with some success.
Statement No. 2 - Comparison of Expenses

for 1926 and 1927.

<table>
<thead>
<tr>
<th>Company</th>
<th>Overseas Charges</th>
<th>S. A. Charges</th>
<th>Co-Operative Charges</th>
<th>Total Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>6/- 0</td>
<td>1/-6</td>
<td>3/-0</td>
<td>10/-6</td>
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Most companies levy a commission of 5 per cent on the proceeds of sales to cover their administrative charges. During years of low prices it is difficult to meet these charges with this commission. As the packing house is primarily there for packing and has very little, if any, control on the prices realised, and as the overhead and other expenses to be paid out of the commission do not vary in accordance with prices obtained, it is considered that the directors should fix the packing charges each season.

As far as local packing of fruit is concerned it has already been pointed out that co-operation will reduce the cost of operations such as picking, hauling, packing etc. Administrative charges can be lowered by employing the administrative staff in fumigating etc., during the season when no packing is done. Another point that.....
that needs stressing is efficient organisation within each co-operative company. If the various companies would co-operate in helping each other to reduce their expenses by showing how they manage to run their own packhouse economically much more would be gained than by the present system of keeping everything secretive.

By efficient grading and standardisation the costs of advertising will be lessened, a wider market stimulated and thereby the overhead charges lowered. There is less risk on an efficiently graded and standardised article and, since insurance against risk increases cost of production by increasing interest charges on money required to market the article, lessening the risk will reduce the cost of marketing.

Efficient packing into standardised containers reduces the cost of transport.

The regular supply of large quantities of fruit and the stabilising of the industry in general will not only tend to lower transport charges but also the cost of distribution which is very high at present. By introducing dealer service men more efficient organisation will result and retail charges will be reduced. This will in turn stimulate a greater demand which indirectly means lower costs of production.

In general the fruit brokers of Europe make two charges for their services. One a commission charge; the other is a consolidated handling charge which includes disbursements at the port of discharge for dock or wharfage dues; labour for receiving, piling, and delivering;

Various........
various market tolls and porterage fees; and revenue for themselves.

The services of various brokers differ greatly and their commission charges vary just as much being from 2% to 10%. In some cases the higher charge is justified, in other cases not.

The consolidated handling charge is the same within each port but varies greatly between the different ports. In Southampton it is about 1/-6 per box oranges, in Liverpool 1/-3, in Rotterdam 4d, in Hamburg 1 mark and in Copenhagen .75 Krone.

After a very thorough investigation the Imperial Economic Committee concludes:— "there does not seem to be any justification for any difference in commission to-day, when South African shipments have reached considerable dimensions". This was because it was found that a higher commission was charged on South African fruit than on any from Spain or Palestine. Further it is of the opinion "that consolidated handling charges should be capable of detailed and satisfactory analysis into the several items of out-of-pocket expenses...... that the commission should be sufficient to cover all other expenses incurred in connection with the business."

They found that a certain percentage of the consolidated charge could not be accounted for except as an additional charge.

Any further information on the details of the cost of marketing in European markets are obtainable in a U.S.D.A......
Weekly Prices for S. African Oranges
sold by Auction in London

Navals, 174 count

Valencias, 174 count


© University of Pretoria
Weekly Prices for Oranges
SOLD BY AUCTION IN LONDON

Seedlings: 176 count

See Appendix.
U.S.D.A. circular No. 90 by Edwin Smith entitled "Marketing Fresh Fruit in Europe."

A further point of interest is that under the present system of distribution the shipping freight charges from South Africa, on fruit shipped through the Exchange, are pooled in the so called system of "equalisation of freight rates" but the charges for sending fruit from London to Glasgow, for instance, are charged to the shipper. Seeing that the representative distributes the fruit passing through his hands in such a way as to benefit all the shippers of fruit and not only those whose fruit is shipped to Glasgow, it is the opinion of the writer that all expenses connected with the distribution of citrus fruits by the Exchange Representative should be pooled and the expenses paid on a patronage basis by the members whose fruit is so distributed.

The accompanying graph shows the general trend of prices for fruit on the London market and the reason for the fluctuation.

In general then there is much room for reducing the marketing charges. The best and only way of effecting such reduction is by large scale business, which can be accomplished by the decentralised co-operation of over 85% of the growers and the provision of efficient management in all the units of such an organisation.

The prices realised by the farmer, less the costs of marketing and production, give the farmer his profit. To maintain a remunerable profit the farmer must stimulate demand and this can only be done by co-operation and the pooling of his fruit which must be of high quality.

Fluctuations...
Fluctuations in the purchasing power of a nation will naturally cause fluctuating and weak markets.

Other factors affecting the cost of marketing and consequently the return to the grower are trade and preference treaties existing between the different countries, because such treaties determine the duties on the products imported into consuming countries; weather conditions affect the demand for fruit as also holidays, social events e.g. racing — it is found that whenever any big racing event is taking place in England the demand for fruit is less owing to the fact that money that would otherwise have been spent on fruit is spent in betting, etc.

The orange producer is further faced with the danger of substitution of oranges by some other fruit or even some other trade mark of oranges. Another danger is the possibility of extending the citrus export season of the producing countries in the Northern Hemisphere and of the invention of some method of storing citrus fruit in its fresh form.

In general however the grower of a good quality product will receive remunerable prices for several years to come, providing the precautions mentioned above are observed.
CHAPTER 6.

RECOMMENDATIONS.

In concluding this paper, in which many deductions have been made from time to time, the writer wishes to stress a few general recommendations, which he considers are essential if the Citrus Industry of South Africa is to be stabilised.

In general the quality of South African citrus fruits can still be greatly improved. To do this low yielding and inferior trees must be replaced by high yielding trees of superior quality; up-to-date methods of cultivation must be resorted to; pruning and fumigation must be efficient; and a sufficiency of manure, nitrogen fertilisers and water should be available.

At least 35% of the growers should be members of co-operative associations which are affiliated to the Central Citrus Exchange. Such co-operative associations should pick, grade, pool and pack their members' fruit. For maximum economy the pack-houses should be run at maximum capacity.

Efficient management of any co-operative concern is essential. The manager must be a very capable man. Much of the waste during the present season can be traced to poor management coupled with untimely rains.

Each local should market all its fruit through the Central Citrus Exchange whose Overseas Representative should have a free hand in the distribution of the fruit. A sub-section should be created in the Exchange to see to the orderly marketing of local-marketed fruit.

In......
In order to keep growers constantly informed of the activities of the Exchange, and to provide a connecting link between the locals and the Central Citrus Exchange, District Exchanges should be instituted. These would enable more efficient organisation of the Exchange with less expense.

When at least 55% of the citrus fruits of South Africa are marketed through the Exchange an endeavour should be made to put the citrus section of the Export Control Board in the hands of the Exchange. This would mean complete control of the fruit from the grower to the market and would possibly be more economical for the Exchange.

Research into the many problems of marketing and producing is essential. Such research should be undertaken by the Exchange but funds, at present, are inadequate. Growers, themselves, must provide the money for such activities — preferably on a patronage basis.

South African citrus fruits should be marketed under as few trade marks as possible. This can be put into practice by establishing district trade marks as previously outlined. These trade marks must then be advertised to the consumers and to the trade and must be stamped on the rind of the orange.

The Overseas Representative should be kept well informed of the condition of the markets, amount of competing fruit, weather conditions and amount of South African citrus fruit the market can take. He must then distribute the fruit to his agent in each market according to requirements. He should set the minimum price at which........
which the fruit is to be sold and should limit the area within which it can be sold. In general he should work along the same lines as the California representative, with whom he should always endeavour to co-operate as far as distribution is concerned.

New markets must gradually be opened up, and costs of distribution and overseas marketing should be pooled and met by a box-assessment made by the Exchange.

In general the strictest economy should be practised by the members as well as by the Exchange.

As the Industry develops the Exchange will also develop. One of the problems that needs attention is that of lowering the costs of distribution. This will be easier with a greater volume of produce for then such services as instruction to retailers as to the best way of organizing etc., can be undertaken.

In general it is essential that citrus growers co-operate whole-heartedly for only in co-operation between producers does the success of the Citrus Industry of South Africa lie.

International co-operation between all the citrus – producing countries of the world, though, at present, faced with many difficulties, may yet prove the salvation of the citrus grower as far as marketing is concerned.

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Conclusions drawn from the Graphs on the weekly prices for South African oranges in London.

The data presented in the above graphs is insufficient to draw any definite conclusions. The 176 count was chosen because it is the most popular and therefore the best indicator of the price trend.

In general it appears that the season opens with high prices falling during the strawberry season in June and July, at the end of which there is a slight rise again. Prices tend to fall steadily towards the end of the season when they rise again slightly to fall when the Spanish crop arrives.

The 1928 season saw abnormally high prices due to the extraordinary warm weather in Great Britain accompanied by a relative scarcity of California and South African oranges. The South African oranges, due to the introduction of the sugar-acid test, showed an improvement in quality.

The packing charts have been eliminated owing to their size but can be obtained from the Citrus Exchange Offices.