

Table VI.

Tests of significance of the difference between  $R_{1-234}$  and  $r_{12}$ .

| Selection. | $z_{1.234-12}$ | Degrees of freedom. |       | P      |
|------------|----------------|---------------------|-------|--------|
|            |                | $n_1$               | $n_2$ |        |
| P. T. 17-G | 1.68           | 2                   | 126   | < 0.01 |
| P. T. 17-P | 1.08           | 2                   | 126   | < 0.01 |
| P. T. 72   | 1.30           | 2                   | 126   | < 0.01 |
| P. T. 248  | 1.60           | 2                   | 81    | < 0.01 |
| P. T. 331  | 1.63           | 2                   | 126   | < 0.01 |
| M. S. 1354 | 1.31           | 2                   | 121   | < 0.01 |

## THE TOBACCO TRADE OF MADRAS,—PART I.

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**Introduction.** In the solution of marketing problems in the different crops, the study of the existing trade with special reference to general world position occupies an important part. With the exception of United States of America, India is the largest producer of tobacco (1000 million lb.) in the world. In the production of tobacco of commerce, Madras occupies the premier position among the provinces. In response to the preference for Empire tobacco accorded in 1919 and subsequently in 1925 there has been a corresponding increase in acreage and production, though not in the quality of the product, the character for which this commodity is most valued; consequently India has not derived as much benefit out of the preference as was expected. As the balance of trade in tobacco is unfavourable consideration of the external trade in this commodity with other countries requires earlier attention than that of the internal trade.

The imports of the following countries given below indicate the magnitude of the demand for tobacco. Quinquennial averages for such purposes are preferred to a single annual import figures from the consideration of peculiarities of the trade in this commodity.

Table I. Imports of Principal Countries in million lb.

| Importing Countries. | Average of<br>1925-'29. | 1930. |
|----------------------|-------------------------|-------|
| Germany              | 218                     | 235   |
| United Kingdom       | 203                     | 223   |
| China                | 105                     | 124   |
| France               | 92                      | 155   |
| Netherlands          | 70                      | 70    |
| Spain                | 54                      | 57    |
| Belgium              | 45                      | 49    |
| Czecho Slovakia      | 39                      | 23    |
| Poland               | 34                      | 42    |
| Austria              | 31                      | 22    |
| Argentina            | 24                      | 23    |
| Australia            | 22                      | 20    |

|                  |    |      |
|------------------|----|------|
| Canada           | 17 | 17   |
| Egypt            | 17 | 16   |
| Italy            | 16 | 12   |
| Switzerland      | 13 | 17   |
| Japan            | 13 | 10   |
| Sweden           | 12 | 10   |
| Denmark          | 12 | 14   |
| Irish free state | 9  | 12   |
| Finland          | 7  | 10   |
| Norway           | 5  | 5    |
| Total ... 1058   |    | 1166 |

The figures of production and exports of the principal producing countries disclose the probable competitors in the market.

**Table 2.** *Production and export in million lb.*

| Country.                 | Production.<br>1930-'31. | Exports. |      | Remarks.                                |
|--------------------------|--------------------------|----------|------|---|
|                          |                          | 1925-29  | 1930 |   |
| United States of America | 1635                     | 525      | 580  | * Figures for production not available. |
| Dutch East Indies*       | —                        | 170      | 131  |   |
| Greece                   | 153                      | 109      | 108  |   |
| Brazil*                  | —                        | 68       | 81   |   |
| Bulgaria                 | 53                       | 57       | 49   |   |
| Philippine Islands       | 102                      | 48       | 50   |   |
| Cuba                     | 82                       | 42       | 59   |   |
| British India            | 1404                     | 40       | 39   |   |
| Dominion Republic*       | —                        | 36       | 28   |   |
| Algeria                  | 43                       | 34       | 26   |   |
| Paraguay*                | —                        | 14       | —    |   |
| Hungary*                 | —                        | 12       | 23   |   |
| Russia                   | 305                      | 10       | 20   |   |
| Yugoslavia*              | —                        | 5        | 3    |   |
| Ceylon*                  | —                        | 2        | 1    |   |

The above figures indicate that India occupies the 8th rank in the magnitude of exports, a place not at all commensurate with its 2nd rank in the list of production. In India Madras ranks first in the production of tobacco of commerce.

**External Trade (a) Exports.** The exports of Indian tobacco to foreign countries and the share of Madras therein are examined with reference to the rebate of import duty. The quinquennial periods of 1914-15 to 1918-19, 1921-22 to 1925-26 and 1926-27 to 1930-31 are selected for elucidating the effect of the different amounts of rebate of import duty on Empire tobacco into United Kingdom. The first quinquennium represents the pre-preference period, the second the period of  $\frac{1}{6}$  rebate and the third the period of  $\frac{1}{4}$  rebate of import duty.

The total export trade of India in tobacco rose up from Rs. 56 to 110 lacs from the first to the third period; and the share of Madras which once formed only one seventh of the total exports (i.e. Rs. 9 lakhs) has now risen to over half of the exports (Rs 56 lakhs). The quantity and cost of exports given in table 3 indicate the growth in the value of exports and the share of Madras therein.

Table 3. Share of Madras in the Tobacco Trade of India.

| Period.          | Manufactured.               |                        |                              |                         | Manufactured.                |                         |                              |                         |
|------------------|-----------------------------|------------------------|------------------------------|-------------------------|------------------------------|-------------------------|------------------------------|-------------------------|
|                  | Quan-<br>tity in<br>100 lb. | Cost in<br>Rs.<br>1000 | Cigars.                      |                         | Cigarettes.                  |                         | Other sorts.                 |                         |
|                  |                             |                        | Quan-<br>tity in<br>1000 lb. | Cost in<br>Rs.<br>1000. | Quan-<br>tity in<br>1000 lb. | Cost in<br>Rs.<br>1000. | Quan-<br>tity in<br>1000 lb. | Cost in<br>Rs.<br>1000. |
| Pre-preference.  | 24045                       | 4155                   | 1260                         | 1125                    | 175                          | 230                     | 415                          | 115                     |
| Share of Madras. | 2961                        | 630                    | 502                          | 302                     | —                            | —                       | 35                           | 25                      |
| 1/6 rebate.      | 31581                       | 9072                   | 369                          | 422                     | 60                           | 72                      | 701                          | 301                     |
| Share of Madras. | 9106                        | 3166                   | 94                           | 118                     | 48.1                         | 53                      | 61                           | 49                      |
| 1/4 rebate.      | 28769                       | 10290                  | 266                          | 292                     | 288                          | 280                     | 495                          | 133                     |
| Share of Madras. | 14085                       | 5242                   | 67                           | 78                      | 280                          | 271                     | 12.1                         | 5.4                     |

Though the quantity of unmanufactured tobacco exported remained constant the value had risen from 41 to 102 lakhs in spite of the fall in the price per pound of tobacco. It is therefore evident that there is vast improvement in the quality of the produce. The share of Madras increased from 6 to 52 lakhs. There is a decline in the cigar trade from 11 to 2 lakhs owing to the fact that the cigarette has gained favour since the war, the end of pre-preference period. Though an increase is indicated in the cigarette trade, the cost of the total Indian Exports has not increased much, while the participation therein of Madras has tantamount identified itself with the total exports.

**Tobacco Unmanufactured.** In the demand for unmanufactured tobacco it is found that the British Empire takes a major portion of the exports and that other foreign countries have very unsteady demands for Indian tobacco. France, in the pre-preference period and Germany in the 1/6 rebate period have shown some attention to Indian tobacco while Japan and Netherlands have been regularly purchasing a fairly large quantity of their requirements from India since the institution of the rebate. Among the British Empire, the United Kingdom, Aden and Dependencies, Straits Settlements, Hongkong and Federated Malay States come in the order of their purchases of Indian tobacco. It is interesting to note the growth of their purchases given in table 4.

Table 4.

Quantity of Exports to British Empire Countries. (In million lb.)

| Country.   | Period          |             |             |
|--|-----------------|-------------|-------------|
|  | Pre-preference. | 1/6 rebate. | 1/4 rebate. |
| United Kingdom                                     | 3.0             | 5.6         | 10.0        |
| Aden and Dependencies                              | 5.6             | 4.9         | 5.9         |
| Straits Settlements                                | 2.2             | 3.7         | 3.6         |
| Hongkong   | 1.9             | 2.8         | 1.7         |
| Federated Malay States                             | —               | 1.2         | 1.5         |
| Total British Empire                               | 14.5            | 20.5        | 22.6        |
| Total Indian Exports of<br>Un-manufactured tobacco | 24.0            | 31.5        | 28.8        |

We will next proceed to examine the needs and requirements of each of the importing countries.

**Table 3.** *Share of Madras in the Tobacco Trade of India.*

| Period.          | Manufactured.               |                        |                              |                         | Manufactured.                |                         |                              |                         |
|------------------|-----------------------------|------------------------|------------------------------|-------------------------|------------------------------|-------------------------|------------------------------|-------------------------|
|                  | Quan-<br>tity in<br>100 lb. | Cost in<br>Rs.<br>1000 | Cigars.                      |                         | Cigarettes.                  |                         | Other sorts.                 |                         |
|                  |                             |                        | Quan-<br>tity in<br>1000 lb. | Cost in<br>Rs.<br>1000. | Quan-<br>tity in<br>1000 lb. | Cost in<br>Rs.<br>1000. | Quan-<br>tity in<br>1000 lb. | Cost in<br>Rs.<br>1000. |
| Pre-preference.  | 24045                       | 4155                   | 1260                         | 1125                    | 175                          | 230                     | 415                          | 115                     |
| Share of Madras. | 2961                        | 630                    | 502                          | 302                     | —                            | —                       | 35                           | 25                      |
| 1/6 rebate.      | 31581                       | 9072                   | 369                          | 422                     | 60                           | 72                      | 701                          | 301                     |
| Share of Madras. | 9106                        | 3166                   | 94                           | 118                     | 48.1                         | 53                      | 61                           | 49                      |
| 1/4 rebate.      | 28769                       | 10290                  | 266                          | 292                     | 288                          | 280                     | 495                          | 133                     |
| Share of Madras. | 14085                       | 5242                   | 67                           | 78                      | 280                          | 271                     | 12.1                         | 5.4                     |

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**Table 4.***Quantity of Exports to British Empire Countries. (In million lb.)*

| Country.   | Period          |             |             |
|--|-----------------|-------------|-------------|
|  | Pre-preference. | 1/6 rebate. | 1/4 rebate. |
| United Kingdom                                     | 3.0             | 5.6         | 10.0        |
| Aden and Dependencies                              | 5.6             | 4.9         | 5.9         |
| Straits Settlements                                | 2.2             | 3.7         | 3.6         |
| Hongkong   | 1.9             | 2.8         | 1.7         |
| Federated Malay States                             | —               | 1.2         | 1.5         |
| Total British Empire                               | 14.5            | 20.5        | 22.6        |
| Total Indian Exports of<br>Un-manufactured tobacco | 24.0            | 31.5        | 28.8        |

We will next proceed to examine the needs and requirements of each of the importing countries.

**United Kingdom.** Barring Germany, United Kingdom is the largest tobacco market in the world. With the increase in the consumption of tobacco per capita and with the change in the method of usage from the pipe to the cigarette since the Great-war, the kind and quality of tobacco required for this market are different from what they were before. Tobacco suited to cigarette manufacture is in greater demand than the pipe and cigar tobaccos which have a fairly good position. Of the total purchases of 200-225 million pounds of leaf, 160-180 million pounds are obtained from United States of America. Against such a large quantity, purchases from India figuring to the extent of only 10 million pounds cut a very poor figure considering the Indian production of leaf and the rebate of import duty on Empire tobaccos. The bright flue cured tobacco from the Virginia Carolina belts is largely purchased.

Of the Indian Exports, only about 10 to 15 percent is fit for use in cigarettes, while the rest is used for pipes. Most of the tobacco of Madras is raised on heavy clay soils of Guntur etc, which give heavy 'body' to the leaf. Very little is produced on the sandy loams resembling those of Virginia and Carolina and as such the prospect of most of the Indian flue cured leaf to participate in the cigarette tobacco trade of United Kingdom is not yet near at hand.

**Other Countries.** Japan and Netherlands are the only two countries which purchase a fairly large quantity of tobacco from India. The requirements of the former is of two-fold nature, one, for the preparation of cigarettes suitable for home consumption and for re-export to India, and two, for exporting to China after the necessary treatment. Netherlands purchase leaf suitable for cigars.

**Tobacco Manufactured Cigars.** The export of cigars has dwindled from about  $1\frac{1}{4}$  million pounds to a  $\frac{1}{4}$  million pounds and Straits Settlements used to be the chief customer, Madras supplying nearly half the demand.

**Table 5.** *Quantity of Exports in million lb.*

| Country,              | Period.         |             |             |
|-----------------------|-----------------|-------------|-------------|
|                       | Pre-preference. | 1/6 rebate. | 1/4 rebate. |
| Straits settlements.  | 1.05            | 0.19        | 0.14        |
| Total Indian Exports. | 1.26            | 0.37        | 0.27        |
| Share of Madras       | 0.50            | 0.09        | 0.07        |

Burma is one of the chief competitors in this trade. Owing to the settling of Indians permanently in Straits Settlements the particular kind of Cigar-makers also found greater employment there. Since then she had reduced her purchases of manufactured cigars, while she increased her purchases of unmanufactured tobacco for local manufacture of cigars.

**Tobacco Manufactured Cigarettes.** Trade in this form of export is of recent origin and of very little quantity as compared to

other forms of export, Ceylon is the chief purchaser and Madras is the largest supplier.

Table 6. Quantity of Cigarettes (in 1000 lb.)

| Country.             | Period.     |             |
|----------------------|-------------|-------------|
|                      | 1/6 rebate. | 1/4 rebate. |
| Ceylon.              | 47          | 206         |
| Total Indian Exports | 60          | 288         |
| Share of Madras.     | 48          | 280         |

(b) *Imports.* The imports have improved in more than one direction. The rise in the imports of unmanufactured tobacco is about 15 times what it was in the pre-preference period, while the rise in the import of unmanufactured cigarettes is only twice the imports in the pre-preference period. The reason for this is obvious as there is at present larger manufacture in India of cigarettes from leaf imported from foreign countries.

Table 7. Quantity of Indian Imports in 1000 lb.

| Form of Import.         | Period.        |            |            |
|-------------------------|----------------|------------|------------|
|                         | Pre-preference | 1/6 rebate | 1/4 rebate |
| Unmanufactured          | 325            | 3765       | 4522       |
| Share of Madras         | 118            | 2018       | 2406       |
| Manufactured—Cigars     | 53             | 29         | 35         |
| Share of Madras         | 0.9            | 0.4        | 0.26       |
| Manufactured Cigarettes | 2623           | 3288       | 4573       |
| Share of Madras         | 167            | 231        | 402        |
| Other sorts             | 640            | 306        | 268        |
| Share of Madras         | 30             | 223        | 19         |

In the imports of unmanufactured tobacco into India over 95 per cent. is from United States of America. The leaf from United States of America is considered to be superior in all the qualities required for the manufacture of high class cigarettes. Similarly over 96 per cent. of the imports of Cigarettes, and tobacco for pipes and cigarettes is from United Kingdom.

III. *Tariff and Protection.* All forms of tobacco imports are taxed. The tariff on imported tobacco has been Rs. 2 per pound and 1/4 rebate (Rs. 0—8—0) was accorded since 1926 for leaf from British colonies. This was originally programmed to be in effect for 10 years. The budget 1934—35 has passed increased taxation to Rs. 2—6—0 per pound (Standard) and Rs. 1—14—0 preferential. Cigarettes cost not exceeding Rs. 10—8—0 per 1000 have been taxed at Rs. 8—8—0 per 1000 and those cost exceeding above Rs. 10—8—0 have been taxed at Rs. 12 per 1000. This however was somewhat protective to the cigarette industry of India. But in 1934—35 this has been changed to Rs. 5—15—0 per 1000 cigarettes plus 25 per cent *ad valorem*. This change has been proposed by the Finance Member, Sir George Schuster as he felt that the heavy duty existing prior to 1934—35 on cigarettes had adversely affected the imports and reduced the revenue. He felt

that the cigarettes made wholly or mainly of Indian leaf has always enjoyed the shelter of a somewhat heavy revenue duty on the imported commodity. He said "My remarks relate to a very important trade that exists in this country in a type of cigarettes which even when made in India are made exclusively or almost exclusively from imported tobacco and experience indicates that we have not adjusted probably the relation between the import duty on raw leaf and the import duty on finished article. Under our present tariff, the duty on cigarettes works out at *something like* double the duty on the tobacco used in making similar cigarettes in India, and the result has been to divert the manufacture of the great majority of the leading brands of cigarettes to factories in India belonging to the same interests as previously imported these brands from abroad". The results of the alteration is very serious and significant on its effect as can be observed from table 8.

Table 8.

| Level of price of cigarettes per 1000.                  | Prior to 1934-35. |        |         | From 1934-35. |                |        |         | Difference between column No. 4 & 8. | Remarks. |
|---|-------------------|--------|---------|---------------|----------------|--------|---------|--------------------------------------|----------|
|   | Cost.             | Duty.  | Total.  | Cost.         | 25% advalorem. | Duty   | Total.  |                                      |          |
| 1   | 2                 | 3      | 4       | 5             | 6              | 7      | 8       | 9                                    | 10       |
| <i>Cigarettes—Cost not exceeding Rs. 10/8 per 1000.</i> |                   |        |         |               |                |        |         |                                      |          |
| Rs.   | Rs.               | Rs.    | Rs.     | Rs.           | Rs.            | Rs.    | Rs.     | Rs.                                  |          |
| 1 0 0   | 1 0 0             | 8 8 0  | 9 8 0   | 1 0 0         | 0 4 0          | 5 15 0 | 7 3 0   | -2 5 0                               |          |
| 1 4 0*  | 1 4 0             | 8 8 0  | 9 12 0  | 1 4 0         | 0 5 0          | 5 15 0 | 7 8 0   | -2 4 0                               |          |
| 5 0 0   | 5 0 0             | 8 8 0  | 13 8 0  | 5 0 0         | 1 4 0          | 5 15 0 | 12 3 0  | -1 5 0                               |          |
| 10 0 0  | 10 0 0            | 8 8 0  | 18 8 0  | 10 0 0        | 2 8 0          | 5 15 0 | 18 7 0  | -0 1 0                               |          |
| 10 4 0  | 10 4 0            | 8 8 0  | 18 12 0 | 10 4 0        | 2 9 0          | 5 15 0 | 18 12 0 | Nil.                                 |          |
| 10 8 0  | 10 8 0            | 8 8 0  | 19 0 0  | 10 8 0        | 2 10 0         | 5 15 0 | 19 1 0  | +0 1 0                               |          |
| <i>Cigarettes—Cost exceeding Rs. 10/8 per 1000.</i>     |                   |        |         |               |                |        |         |                                      |          |
| 10 10 0   | 10 10 0           | 12 0 0 | 22 10 0 | 10 10 0       | 2 10 6         | 5 15 0 | 19 3 6  | -3 6 6                               |          |
| 15 0 0  | 15 0 0            | 12 0 0 | 27 0 0  | 15 0 0        | 3 12 0         | 5 15 0 | 24 11 0 | -2 5 0                               |          |
| 20 0 0  | 20 0 0            | 12 0 0 | 32 0 0  | 20 0 0        | 5 0 0          | 5 15 0 | 30 15 0 | -1 1 0                               |          |
| 24 4 0  | 24 4 0            | 12 0 0 | 36 4 0  | 24 4 0        | 6 1 0          | 5 15 0 | 36 4 0  | Nil.                                 |          |
| 24 8 0  | 24 8 0            | 12 0 0 | 36 8 0  | 24 8 0        | 6 2 0          | 5 15 0 | 36 9 0  | +0 1 0                               |          |
| 30 0 0  | 30 0 0            | 12 0 0 | 42 0 0  | 30 0 0        | 7 8 0          | 5 15 0 | 43 7 0  | +1 7 0                               |          |

Cost of some of the cheapest Cigarettes Manufactured in India.

It is therefore obvious that the difference between the duty prior to 1934-35 and that from 1934-35 per 1000 together with advalorem becomes a minimum at a cost of Rs. 10-4-0 per cheap cigarettes and Rs. 24-4-0 for costly ones. Though he felt and meant that the cheap cigarette made wholly or made mainly in Indian leaf has always and should also in future continue to enjoy the shelter of a heavy revenue duty on the imported commodity, the change in the tariff existing prior to 1934-35 to what is experienced now, frustrates the above object and is by no means an insidious one. The cheap cigarette of Indian manufacture has been dealt a blow and the costly imported cigarette has been given a pat and even the erstwhile manufacture of costly cigarettes in India almost exclusively from imported

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| Cost of some of the cheapest<br>Cigarettes Manufactured<br>in India. | Remarks. |
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tobacco has been threatened with ruin. The reasons are not far to seek. India imports every year about 4.5 million pounds of unmanufactured leaf costing only Rs. 37 lakhs, over 95 per cent. of which is from United States of America, and 4.7 million pounds of cigarettes, costing about Rs. 1.9 crores, over 96 per cent. of which is from United Kingdom.

The increase in duty on unmanufactured tobacco, by restricting the imports of fine flavoured leaf, acts detrimentally on Indian manufacture of Cigarettes as such leaf is undoubtedly required for purposes of blending. The above duty coupled with the lowering of import duty on costly cigarettes, favouring larger imports of cigarettes into India, stifle the growing industry in India of the manufacture of costly cigarettes mainly and partly from the imported leaf. This industry when allowed to grow under the shadow of progressively increasing tariffs on imported cigarettes is likely to further stimulate the production of similar leaf in India and the exploration of tracts and methods suited to the same, as such stimulus has already indicated in itself in the wider cultivation of cigarette types. The state of affairs as they stand at present are in no way favourable to the cigarette industry of India.

*Taxation.* Tobacco taxation is being considered in India. At the present there is no excise tax on the production of Cigarettes and other tobacco products in India. The Government of India considers it most difficult, if not impossible, to administer an excise tax law, so long as production of tobacco products is in the hands of a large number of small producers.

However, the Government of India recently invited the provincial governments to increase their revenue through a license tax on retailers of tobacco products and the Government of Bombay Presidency has announced its intention of extending to the entire Presidency the dealer-license-system, which already exists in the Bombay city. A license will have to be purchased by all dealers in tobacco products except the grower. It is likely that all the provinces will follow the lead taken by the Bombay Presidency. At present the tobacco licensing bill is published and being discussed in the Madras legislative council. The bill provides that no person shall sell or expose for sale any tobacco except under a license granted by the Collector. But exception is made in the case of growers and manufacturers who will be free to sell tobacco grown or manufactured by them to other growers or manufacturers or licensed vendors. Manufactured tobacco is divided into 2 classes (1) Class A comprising cigars, cheroots, cigarettes, cigarette—tobacco and (2) class B, comprising all other kinds of manufactured tobacco.

The bill also provides for the grant of licenses for the exclusive privilege of selling by retail in defined areas all forms of tobacco

which bear even higher duties, and even far less agriculturally developed countries like Nyasaland etc. are able to compete successfully with India. Obviously therefore the exporting agencies should be behind this kind of show. Under the above circumstances the present tax will further enhance the middleman's charges much to the detriment of the tobacco grower. Though it appears more advantageous to reduce the percentage of moisture to less than 10 per cent in which case the advantage in the preference duty will be  $3\frac{1}{8}$ d per pound of unstripped leaf and  $2\frac{5}{8}$ d per pound of stripped leaf, the disparity in the prices cannot intelligibly be explained except by the presumption arrived at above.

**Table 10.** Table showing the rates of full and preferential duty.

| Customs duties.                  | Rates of duty per pound |          |                        |       |
|----------------------------------|-------------------------|----------|------------------------|-------|
|                                  | Full Preferential.      |          | Preference difference. |       |
| <i>Tobacco Unmanufactured.</i>   |                         |          |                        |       |
| <i>Unstripped.</i>               | £. s. d.                | £. s. d. | s. d.                  | s. d. |
| Containing 10% or more moisture. | 0-9-6                   | 0-7-5½   | 2-0½                   | 0-3½  |
| " less than 10%                  | 0-10-6                  | 0-8A2¾   | 2-35½                  |       |
| <i>Stripped.</i>                 |                         |          |                        |       |
| Containing 10% or more moisture. | 0-9-6½                  | 0-7-5¾   | 2-05½                  | 0-25½ |
| " less than 10% "                | 0-10-6½                 | 0-8-3¼   | 2-3¼                   |       |

Now in view of the exporting agencies jeopardising the interests of the Indian tobacco grower in the United Kingdom market it is hoped the Government will be able to investigate into the causes and rescue the grower from this predicament.

If by the tobacco licensing bill the intention of the Government was only to raise more revenue, the increasing imports of cigarettes should have been taxed further. When the tobacco was treated as a luxury, the consumer should be taxed. Among the consumers the consumer of the costly goods should be taxed more than the consumer of the cheaper goods as with the former only it is a luxury. Increased tax on imported cigarettes and imported leaf, the latter being at a slower pace, while swelling the revenues, would have contributed to greater protection for local manufacture, and stimulation of growing suitable types for the same. It is more desirable that the tax should be administered at the factory itself as in the case of matches, than at intermediate places as the wholesale and retail dealers and this was characterised by the Government itself as "Vexatious".

Most of the Indian tobacco exported is best suited to pipe tobaccos. Generally there is keen competition in the pipe tobacco market, but a fair amount of room exists in the cigarette tobacco market for suitable types. The internal Indian market is also of great importance as the cost of imports in cigarettes is as great as Rs. 19 crores. The growing demands for cigarette tobacco both in India and in foreign markets indicate the rich future that lies in the lap of lighter

types of tobacco. Samples of American types grown in India were generally liked in the United Kingdom market. The Indian Sun-cured cigarette types of tobacco could not be relied upon due to larger quantities of moisture than required. The flue-cured types had met with a fair amount of appreciation, but the price quoted was too high to attract attention. Therefore in view of the change in the outlook of the commerce in tobacco, survey and fixation of definite zones for cigarette and pipe tobaccos have to be made towards a progressive stabilisation and improvement in the trade.

With the establishment of more responsible agencies for marketing and espousing the cause of Indian tobacco in the foreign markets, the balance of trade would ultimately become favourable to India commensurate to her unique position as a tobacco producer of the world.

**Acknowledgments.** I am very much indebted to Dr. B. P. Pal Esq., M. Sc. Ph. D. (Cantab), Second Economic Botanist for his valuable suggestions and Mr. K. Venkataraman, M. A. (Hons.), Superintendent, Agricultural Research Station, Maruteru for his valuable criticisms.

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## CHEMICAL PROBLEMS IN CROP PRODUCTION

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The classic chemical problems in crop production centre round the feeding of plants. It was in 1840 that Liebig by chemical reasoning and Lawes by empirical trials applied in practice the knowledge gained by plant physiologists about the nutrition of plants. Up to that time many agriculturists, knowing nothing about the scientific evidence to the contrary, had assumed that plants feed on the organic matter in soil. Liebig in his vigorous writings showed them that this was not so; he pieced together the scientific knowledge and gave a convincing picture of the plant deriving most of its food from the air in the form of carbon dioxide and oxygen, and the remainder from the soil, water and simple compounds of nitrogen, phosphorus, sulphur, potassium, calcium, magnesium, iron and other elements. These are then built up into the complex carbohydrates, proteins and other substances which finally form the plant tissues. Liebig argued that the soil resources could be increased by the addition of the appropriate chemical compounds, and Lawes showed how to do it; he set up experimental fields at Rothamsted and a factory in London, thus starting the artificial fertiliser industry which has now grown to such enormous dimensions that some 35 to 40 million tons are made annually in the different countries of the world. There are many technical problems connected with the industry that could profitably be discussed, but I shall confine myself to those relating to