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ARANJUEZ

AGRICULTURAL DEVELOPMENT IN A SUBURBAN SETTING

- by -

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Since the Second World War, Aranjuez has enjoyed a dual reputation : to some it is the 'vegetable bowl of Trinidad and Tobago', while to others, it is the hub of crime and violence in the country. The people who live in Aranjuez remember outstanding crop years with the same vividness as accidents of gang warfare, robbery and murder. Country and town, agriculture and industry, confront each other in Aranjuez.

In this paper, it is our aim to show how the history of the last one hundred and twenty years has transformed Aranjuez from a sugar estate, saved from an untimely death by the transference of a new work force, into a thriving area of highly intensive market-gardening. The first part of the paper will be retrospective : in it we shall demonstrate how the history of the area, and of Trinidad as a whole, set the stage for the growth of an unusually successful market-gardening community in Aranjuez. In the second part we shall use contemporary evidence, drawn from a recent survey, to illustrate how the growth of an urban-orientated society within Aranjuez, and of a city beside it, has influenced the further development of agriculture in the area. Finally, we shall discuss the possibilities of the survival of the agricultural sector in an increasingly urban environment.

From Indenture To Market Gardening

A despatch of 1825 tells us that Aranjuez Estate was worked by 121 slaves, and that none of them had been punished in the previous year.¹ In 1840 the estate was bequeathed by its benevolent owner to an emancipated slave,² but it seems that even he was unable to retain the old labour force after the abolition of slavery for figures show that, by 1851, already 8% of the ward population

1

See : Despatch 600. Trinidad, 1825.

2

John Candler's Diary : His visit to Trinidad. Reprinted in *Caribbean Studies*, Vol. 4 No. 3 ; Oct. 1964 (pp. 67, 68).

were Indian immigrants³: the proportion had risen to 25% by 1861.⁴ Whether, like Gamble, we "can conscientiously say that a fairer system for the labourer could not well be devised"⁵, or whether we look askance at the system of Indian indenture, two important points must emerge. First, the Indian immigration brought to Trinidad the foundation stock of what is now a very important (and prolific) section of the national society, a section closely identified with agriculture. Secondly, the institution of the indenture system marked the beginning of the widespread payment of wages to the lowest levels of the rural working class.

Aranjuez seems to have shared in the general boom of the sugar industry in Trinidad which preceded the severe depression of the 1890's⁶. There was a period of very rapid expansion between 1886 and 1896, during which £9,000 was invested in new equipment⁷, and the labour force was more than doubled from 212 to 443⁸. In 1896 Aranjuez was numbered among the few estates in Trinidad on which no reduction in wages had been made⁹. Although, even during times of prosperity, wages remained low¹⁰, immigrants in Trinidad had accumulated £40,000 in the banks by 1875¹¹, and those who had returned to India after fulfilling their contracts had also carried large sums of money with them. The immigrant earned a reputation for saving: he was "frugal and saving to a fault, living on the plainest and coarsest of diets, often denying himself sufficient even of this fare to gratify his love for hoarding"¹². For many years the Indians continued to accumulate

³
See **Population Census, Trinidad 1851.**

⁴
See **Population Census, Trinidad 1861.**

⁵
See Gamble, Rev. W. H., **Trinidad — Historical and Descriptive**, 1866. (p. 35).

⁶
See Beachey, R. T. **The British West Indies Sugar Industry in the late 19th Century**, Oxford, 1957.

⁷
Report of the West India Royal Commission, 1897. (p. 308).

⁸
See **Trinidad Royal Gazette**, Reports of Inspectors of Immigrants (annual).

⁹
Report of the West India Royal Commission, 1897. (p. 312).

¹⁰
Wages and conditions of work were laid down in An Ordinance for encouraging Immigration into the Colony and the Industry of Immigrants, T'dad. 11th June, 1847.

¹¹
Annual Report of West India Committee, London, 1875. (p. 31).

¹²
See Collens, J. H., **Guide to Trinidad, 1866.** (p. 194.)

capital, for such was the economic and social structure of the country that few attractive opportunities for productive investment presented themselves. The Government of the time set up a number of 'Indian Villages' for the re-settlement of freed immigrants, but these failed to prosper because the markets for the most profitable cash crops — sugar and cocoa — were monopolised by the large estates¹³. Not until depression again struck the sugar industry in the 1890's was the labouring class confronted with an opportunity to enter the same market as the estates, investing their accumulated funds in export agriculture. Just as the depression of the 1840's forced a change in the system of plantation labour, the "squeeze" of the 1890's initiated another period of fundamental change in the structure of the sugar industry in Trinidad. Economic circumstances made the estate owners "fully alive to the advantages of the cane-farming system" for "both Creoles and East Indian immigrants prefer growing up canes on their own plots to working as labourers on the estates, and they are willing to sell their canes at a price below the cost at which the estates can produce them"¹⁴.

Because the system of cane farming off-loaded the burden of fluctuations in the sugar market on to the class least able to bear it, the immediate benefits of its introduction were short-lived. The long-term significance of its initiation, however, is of great importance. Cane-farming allowed the immigrant, previously a passive saver, to become an entrepreneur in his own right, participating more fully in the national economy: economic pressures had forced the capitalist planters and merchants to withdraw the protective socio-economic barrier which had rigidly separated them from the labouring immigrants. Moreover, just as the introduction of cane-farming was the first step for the Indian people towards greater equality of opportunity in the national society, so did it initiate important changes within the structure and thinking of the Indian society itself. In spite of the levelling effects of the indenture system, divisions by caste had persisted within the Indian immigrant society¹⁵. The transition from a class structure based on caste to one based on wealth, which is now almost complete, began as the opportunities for the profitable investment of capital became wider—from cane-farming to local supporting services (previously a monopoly of the Chinese immigrant), to business and, finally, to the professions.

13

Annual Report of the West India Committee, 1878 (p. 17.)

14

Report of the West India Royal Commission, 1897. (p. 36)

15

See Collens, J. H.. (1866) (p. 190 et seq.)

Cane farming began in Aranjuez in the late 1890's¹⁶, but, until the 1930's the history of the estate was not markedly different from other estates. The period was one of consolidation for the cane-farmers : they moved out of the barracks which used to line the Savannah, and set themselves up as independent house owners : a few opened retail businesses. There were sporadic attempts at diversification — rice in the swampy land in the Southern section of the estate, water-cress on the banks of the San Juan River, and tomatoes on the cane-banks after re-planting. Between 1930 and 1940, however, two things of fundamental importance to the future of Aranjuez happened. First, Aranjuez began to gain, while other areas suffered, from the expansion of Port-of-Spain. Such is their proximity to Port-of-Spain that the people of Aranjuez were able to take advantage of its outward growth without having to move there, at a time when the upper ranks of the new 'economic' society were leaving more distant villages to work and live in the city. Aranjuez was one of the few rural areas to retain a 'complete' society in which even the more enterprising continued to live. Secondly, a far-sighted estate manager provided the agricultural area of Aranjuez with the infrastructure necessary to facilitate the change-over from the production of sugar to that of vegetables. By building a dam, irrigation canals, drains and roads, the estate committed 500 acres of land to agriculture and created an effective buffer to the growth of Port-of-Spain. It was at this time that the dichotomy of town and country, now so characteristic of Aranjuez, was born.

The Outgrowth Of Port-of-Spain

During the last thirty years production from Aranjuez seems to have grown very rapidly. In 1966, the area produced over six million pounds of green vegetables, melongene and tomato, about one-third of the national production. In the sixteen years since 1950 cropping intensity has risen from less than one to 2.31 crops per year. A number of innovations have been adopted with extraordinary alacrity by the gardeners¹⁷. Without doubt the gardeners of Aranjuez are the most progressive small farmers in Trinidad. In the first part of this paper we have tried to show how historical circumstances equipped the people of Aranjuez for progress, by giving them land, some capital and a strong commercial outlook. In this second part, we aim to show that much of the recent progress in Aranjuez has been stimulated by the growth

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Report of the West India Royal Commission, 1897.

¹⁷

For a fuller consideration of innovation in Aranjuez see : Negus, T. R.. Adoption of New Practices by gardeners in Aranjuez, Trinidad. D.T.A. Report. 1964.

of Port-of Spain, and the consequent increase in the population of urban orientation within the area.

A. Rising Standards — Environmental Social Effects

The 1960 Census shows very clearly that Aranjuez is no longer predominantly an agricultural area¹⁸. Of the total male working population of 821 in the four Enumeration Districts (E.D.'s) in which the agricultural community is most highly concentrated, only 249 (or 30%) are employed mainly in agriculture. Other principal sources of employment are : transport and communication (14%), services (13%), commerce (10%) and construction (8%) : 4% are employed in professional or technical capacities. There is a considerable variation between E.D.'s in the proportion of non-farming to farming population, but, as house-grouping is still by family rather than by occupation, the urban orientated population is relatively well integrated with the rural population in all districts we can expect it to exert some influence on the standards accepted by gardeners.

The main source of urban influence is probably among the many people who have come to Aranjuez during the past twenty years. Only 54% of the non-gardening population are from families who have lived in Aranjuez more than twenty years : 26% have come into Aranjuez in the past ten years. This contrasts markedly with the permanence of the gardening families, 85% of which have been in Aranjuez for more than twenty years, and none of whom have arrived during the last 10 years.

The strongest influence of the growth of a non-agricultural population in Aranjuez is on the standards of living accepted by the gardeners. Three-quarters of the gardening households live at a standard below the mean of the non-gardening group and, conversely, only 31% of the non-gardeners live at a standard below the mean of the gardeners¹⁹ (see Appendix Table 1). Provided that the higher standards set by the 'urban' sector remain within the possible reach of the gardeners (as they do now), their existence within the same community must act as a powerful incentive to high productivity in the short-term. As we shall show later,

¹⁸

Census of Population, 1960. Central Statistical Office, Trinidad, 1961.

¹⁹

The figures quoted in this and later sections of the paper are taken from a random household survey : 59 households (8.3% of the total number of households) constituted the sample. Comparisons with the results of the 1960 Census suggest that the sample is representative.

long term increases in productivity may be adversely affected by the transfer of accumulated capital from the farm to the household, to achieve the standards set by the 'Joneses'.

One of the most interesting and marked effects of the growth of a non-farming population in Aranjuez has been on the recreational behaviour of the gardeners. While maintaining their own traditional forms of entertainment they have wholeheartedly adopted 'urban' pastimes. Regular attendance at funerals and weddings is significantly higher among gardeners than non-gardeners; but, at the same time, we find that they go to the cinema more often (see Appendix Table 2). Hard drinking, supposedly a rural characteristic, has persisted much more strongly among gardeners than among those doing town work (a reflection, perhaps, of the gardeners' more strenuous work); but many gardeners are now looking with disapproval on drinking in the rumshop, and prefer to carry their liquor home in the same way as their 'urban' neighbours. Membership of clubs and societies is similar in both groups, but, although most gardeners express an interest in travelling, nearly twice as many non-gardeners as gardeners have been outside Trinidad. Gambling is prevalent among both populations, and seems to have a considerable effect on the fortunes of some gardeners: while one boasts that he has financed a whole crop from his 'whe whe' winnings, another has had to sell his lands to pay for his losses. It could be argued that rising recreational standards divert time and cash resources from the gardens, but it seems much more likely that they act as incentives to greater efficiency and productivity. In addition, participation in urban forms of recreation, particularly the cinema, may introduce new ideas to the gardeners, and condition them to be receptive to modern methods of mass communication.

Environmental social incentives appear to influence the ambitions which gardeners entertain for their children's education and employment. Throughout Aranjuez both gardeners and non-gardeners place a very high value on education, but most people were reluctant to express an ambition for their children, saying that they should have a free choice. Some of the gardeners apparently found it difficult to reconcile their own hope that their children would succeed them in the garden with the recognition that the opportunities for work in the 'urban' sector would probably be more attractive. Whatever their ambitions, however, even the poorest of the gardeners were prepared to spend high proportions of their income on the education of their children: education, or the passing of examinations, is seen as the key to future success. The high cost of sending children to schools and University is one of the greatest incentives to greater productivity

for those gardeners who have growing children, for it is seen not only as a 'sacrifice' but also as a form of insurance for old age.

B. Expanding Markets — Direct Locational Effects

Aranjuez has been affected not only by the growing urban population within the area, but also by the expansion of Port-of-Spain 'on its doorstep'. Ruttan²⁰ has postulated that :

"in order for local urban-industrial development to have any differential effect at all on the income levels of farm families, the local non-farm economy must channel its impact through at least one of four markets :

1. The labour market : through which labour is allocated among agricultural and non-agricultural sections of the economy.
2. The capital market : through which purchases of capital assets and working capital are financed.
3. The product market : the markets for the products produced by agriculture.
4. The current input market : the market(s) for current inputs consumed in the process of agricultural production."

The framework suggested by Ruttan will serve as a basis on which to discuss the economic effects of a growth of an urban centre close to Aranjuez.

1. The Labour Market

The labour market in Trinidad is full of anomalies : it is flooded with a huge pool of unemployed²¹, but yet the price paid for labour is high, bearing no apparent relationship either to the supply or to the demand. Moreover, in spite of widespread unemployment, opportunities for work are easily available to the semi-skilled.

²⁰

See Ruttan, V.W., "The Potential of rural Industrialisation and Local Economic Development" in *Agricultural Adjustment Problems on a Growing Economy*, ed. Heady et al. Iowa, 1958, (p. 185).

²¹

For a full consideration of the labour market in Trinidad see Harewood, J. *Employment in Trinidad and Tobago in 1960*, C.S.O. Research Papers No. 1, Trinidad, 1963.

Being on the fringe of an urban area, Aranjuez is fully exposed to the inconsistencies of the labour market. Daily wage rates paid in the area for garden labour are 25% higher than those paid in South Trinidad and 40% higher than in Central Trinidad — not because the supply of labour is any less, but because the rising costs of living, felt more strongly in urban than in rural areas, are forcing workmen to put a higher premium on their services.

Seasonal (and even daily) fluctuations in the demand for labour in the gardens are acute, and the gardeners have learnt to manage the flexible market to great advantage. On the one hand they draw on it as a reservoir of casual labour — absolutely essential for the maintenance of the present system of production; while, on the other, they use it to procure work for themselves when the garden is not prospering. Of twenty-two gardeners keeping records with me, nine have found themselves off-farm employment in the last twelve months, and only three of these intend to return to gardening in the dry season. There is a danger that, with such fluid conditions in the labour market, the most able gardeners will be drawn into 'urban' employment, and that the remaining gardeners will be the laggards. It is encouraging to see, however, that a number of the better educated younger gardeners recognise that their education can assist them in the planning and development of their gardens, giving them a valuable advantage over their less educated colleagues: a strong demand exists among the younger gardeners for courses on the 'scientific' aspects of agriculture.

2. The Capital Market

Though the gardeners of Aranjuez are extremely commercial in their outlook towards agriculture, they have not yet fully exploited the capital market to which they have easy access. Just as any other rural community, they take advantage of the short-term credit facilities offered by money-lenders, agricultural credit societies, and shops²². Over one-half of the gardeners (and of the non-gardeners) have bank accounts, but they use banks more for saving than for borrowing. Thirty-five per cent of the gardeners (as against 59% of the non-gardeners) use hire purchase, and more say that they would be prepared to use such a form of credit to buy capital equipment for the garden if they saw the need. The urban influence seems to be such that gardeners are familiar with the somewhat complex machinery of the capital

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It is even possible to have a haircut on credit in Aranjuez!

market : as yet, however, few see any direct use for it as far as their gardens are concerned.

It is only very recently that a few of the larger and more progressive gardeners have decided that it would pay them to invest capital in their gardens as a substitute for labour at times of peak demand. Two gardeners now own sprinkler systems for irrigation ; another has ordered one and a number are thinking seriously about buying them. Encouraged by a subsidy some gardeners have, in the past year, bought pumps to raise water direct from the river, thus making themselves independent of the less reliable canalised irrigation system. In addition ten tractors, all owned by gardeners, operate on a contract basis within the area.

Even though the amount of investment in capital equipment has been very limited, one of the most favoured ways of investment is to increase the scale of enterprise by buying more land. One result of this is that tenancy rights have risen to a value of more than \$2,000 per acre. Other favoured forms of investment, promising better social or economic returns and less risk than agricultural equipment are : new houses, cars, business and real property — all 'urban' lines of investment.

It would be reasonable to conclude that the business sense of the gardeners of Aranjuez has been well developed by continuous exposure to urban influence and that, as soon as investment in capital equipment for the gardens becomes obviously more attractive than investment in other fields, they will begin to re-invest earnings in their gardens.

3. The Product Market

The installation of the irrigation system in 1930's enabled the gardeners of Aranjuez to grow crops which would exploit to the full the advantages of proximity to the main centre of population in Trinidad. Aranjuez is not only physically very close to the principal wholesale market in the island, but it is also linked to it by a good net-work of communications. This district is sandwiched between the two main arterial roads entering Port-of-Spain from the East, and is also served by the railway. This means that the Aranjuez gardener has a lower transport bill than gardeners from more distant districts : similarly, he spends less time travelling to and from the market to wholesale his goods — and the less time he spends marketing, the more time he can spend in the garden.

Aranjuez gardeners have, of course, benefited from the rapid increase in population in North Trinidad, not only because of the consequent rise in the demand for vegetables, but also because three districts, previously important sources of fresh vegetables, have been inundated with houses and factories. Any new vegetable growing areas must be located further away from the centre of Port-of-Spain than Aranjuez.

It is likely that the product market for fresh vegetables will continue to expand as population grows, and because *per capita* consumption will probably increase from its very low level as standards of living improve²³.

4. The Current Inputs Market

In the past, the proximity of Aranjuez to Port-of-Spain gave it a considerable advantage over more distant areas in the current inputs market; but now agricultural supply stores exist in most of the important country towns, so that Aranjuez has lost most of its advantages in this field. The price of bulky inputs, such as fertilisers, is less in Port-of-Spain than in outlying districts, but the savings are small and can hardly compensate for the extra cost involved in transporting the most bulky input — pen manure — from the country cattle-growing areas.

We would expect that the location of Aranjuez on the outskirts of the town would give its inhabitants greater access to 'indirect' inputs — particularly knowledge. A survey²⁴ has shown that gardeners do, in fact, make use of the mass media—particularly radio and cinema — which tend to be associated with urban areas. It does not seem, however, that much of the knowledge they receive from such sources is of direct value to their gardens; but the fact that they are accustomed to using them suggests that these channels of communication could be exploited with considerable success for the transmission of agricultural knowledge.

In the future we would expect that market gardeners in Aranjuez would gain more from their proximity to Port-of-Spain. As gardening becomes more capital intensive, machines will be introduced —and these will require regular maintenance and a ready supply of spares. It is possible, too, that the use of industrial

23

Future national food requirements are discussed in **Report of Inter-departmental Commission on Nutrition for National Defence**, Washington, 1961.

24

Negus, T. R., **Adoption of New Practices by gardeners in Aranjuez, Trinidad**, D. T. A. Report, 1964.

and urban waste for manuring and mulching crops could become important in the maintenance of soil fertility in Aranjuez. At the moment, however, the benefits of being on the fringe of a city are hardly appreciable in terms of advantage over other areas in the current inputs market.

Conclusions : Maintaining The Balance

We have tried to show how growth within and beside Aranjuez has influenced the productivity of its gardening population. Until now the effects of urban growth have been unusually favourable, but there is every reason to think that the almost overwhelming pressures exerted by an expanding urban area may eventually swamp the agricultural sector of Aranjuez. This would be unfortunate for several reasons : first, Aranjuez is one of the few areas in Trinidad with soils well suited to highly intensive vegetable production ; secondly, the gardeners of Aranjuez have amassed a large volume of knowledge and skill which could not quickly be acquired by 'newcomers' in other areas ; thirdly, the cost of installing a totally new infrastructure of the kind necessary to provide facilities for year-round vegetable production in another area would be much greater than the cost of modernising the existing structure in Aranjuez ; and fourthly, there are no other areas available for agricultural use so close to the product market, a locational advantage which should not be under-estimated.

In the future the problem will be to maintain the balance between the living standards of the gardening and non-gardening sectors of the community in Aranjuez. It is almost certain that 'urban' standards will continue to rise, so that the incentive to raise farm income will remain very strong. If the 'urban' standards rise too quickly, however, the gardening sector will become a backwater of the community in which the 'laggards' of society are grouped.

As the amount of land available in the area is now limited, further increases in farm income (if prices remain constant) can only come about through raising the productivity per acre by greater intensification, by bringing down unit production costs or by reducing the number of people dependent on gardening for a living. There are a number of possible innovations which would either increase crop yields or reduce unit costs. It seems very likely that a reduction in costs by further mechanisation and the increased use of weed killers would reduce the yields of individual crops, but it would make it possible to grow more crops per year, and so increase the total annual crop yield. The

simultaneous introduction of new chemicals, particularly of effective nematocides and bacteriocides, would more than compensate, however, for any yield reductions caused by the substitution of machine for hand labour. Even if the labour required for each crop is markedly reduced by partial mechanisation, the resultant land-use intensification will mean that the total annual labour input per acre will remain fairly constant. If, on the other hand, further intensification becomes impossible, and if the job opportunities to which gardeners are suited continue to occur in spite of widespread unemployment, there will be a reduction in the number of people employed in the gardens : fuller mechanisation would be the consequence and the smaller holdings would become unviable, so that amalgamation would follow.

Even if the gardeners succeed in "holding their own" socially and economically in Aranjuez, the future of the agricultural land is not entirely secure. The value of the land for building purposes is about \$15,000 per acre ; the landowners receive at the moment a maximum of \$10 per acre annual rent, and are expected to maintain the infra-structure. The nation's planners have allowed other highly productive areas to be swallowed up by Port-of-Spain, and the pressures on them to permit the owners of the Estate to build at Aranjuez are very high. The returns from market-gardening are good, but can hardly be equated with those from real property in an inflated market, and so the only way that the agricultural sector can be preserved is by law. Its final preservation will only be of real value, however, if the infra-structure, now decaying, is modernised to allow the gardeners to take full advantage of possible innovations.

APPENDIX TABLE I.

*Standard of Living Index : Aranjuez 1966**

Distribution of Scores

(20 gardeners and 39 non-gardeners)

Score	Gardeners		Non-gardeners		Total	
	(No.)	(%)	(No.)	(%)	No.	(%)
1	0	0	1	2.6	1	1.7
2	2	10	2	5.1	4	6.8
3	2	10	0	—	2	3.4
4	4	20	0	—	4	6.8
5	1	5	3	7.7	4	6.8
6	2	10	6	15.4	8	13.5
7	2	10	3	7.7	5	8.5
8	2	10	3	7.7	5	8.5
9	1	5	7	17.9	8	13.5
10	1	5	5	12.8	6	10.1
11	2	10	2	5.1	4	6.8
12	0	—	2	5.1	2	3.4
13	0	—	1	2.6	1	1.7
14	1	5	2	5.1	3	5.1
15	0	—	2	5.1	2	3.4
Total	20	100	39	99.9	59	100.0

Mean Scores :

Gardeners	6.4
Non-gardeners	8.5
Total	7.8

* The standard of living index is made up of the following components, scored arbitrarily : house type, house size, house value, inside/outside WC, Fridge, Radio, T.V., Electricity and type of cooking range. (Ownership of vehicles was not included because it was impossible to separate those owned for purely commercial purposes from those owned for personal use.)

APPENDIX TABLE 2

*Recreational Habits : a comparison between gardeners
and non-gardners — Aranjuez, 1966.*

Type of Recreation	Use by Gardeners (% all gardeners)	Use by Non-gardeners (% all non-gardeners)
Cinema	70	51.3
Court *	50	66.7
Drinking	35	15.4
Funerals : often	95	59.0
seldom	5	30.8
never	0	10.2
Weddings : often	95	53.8
seldom	5	15.4
never	0	30.8
Societies	40	41.0

* Attendance at Court is hardly a recreation, but it may serve to indicate the extent to which people indulge in antisocial forms of recreation!