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The Guernsey Tom: The Rise and Fall of An Island Economy

In the post-war period, fresh tomatoes had come to form an important part of the summer diet of people in the UK.[1] Mainly used in salads, the tomato was also served fried or grilled in the "traditional English breakfast". At this time local greengrocers were supplied by their local wholesale markets. In the North of England, many of these were supplied by growers in the Blackpool area and became know, with some affection, as the "Blackpool tomato". More generally however, British households received their supplies of tomatoes from the island of Guernsey. Situated off the French coast, the warm climate allowed the Guernsey growers to get their crop into the British market much earlier that their mainland competitors and it came to dominate the British market, with over 60% of sales.

Marketed as "the Guernsey Tom" and with a distinctively spherical shape, these tomatoes came to have a significant impact upon British domestic life. They were also completely central to the lives of the people of Guernsey. For more than two decades tomato production dominated the

[1] This paper is based upon research conducted by the authors as part of a wider project examining the dynamics of innovation and competition along the tomato supply chain. A small part of the data presented here was used in the book which came out of that project, Mark HARVEY, Stephen QUILLEY and Huw BEYNON, *Exploring the Tomato. Transformations in Nature, Society and Economy*, 2002. The authors would like to thank the many people they spoke to on Guernsey for their willing cooperation in the research, most notably Harold Dally, Jim Le Garff, Fred Gallienne, Fred Higgs, Bob Kimber, Fred Moffat and John Ogier. They would also like to acknowledge the help of Dr Darryl Ogier and his staff at the States of Guernsey Island Archives Service.

economy of the island. This was part of a complex production and marketing system built around the owner-producer and state supported, agricultural and marketing co-operative. As such in 1967 over 30% of the male labour force was dependent indirectly or directly on horticulture. During the exporting season the infrastructure of the island was overwhelmed by the movement of the tomato crop from the greenhouses to the packing sheds and onto the ships. Thirty years later, in 1997, the industry had become part of memory. With only a handful of men working in the greenhouses, the industry had come to depend to a great extent on imported seasonal labour. The great packing sheds are no more and the island provides just 0.70% of the UK market. The "Guernsey Tom" has disappeared and as an official report summarises, Guernsey's position in relation to the British market had changed dramatically:

> Sales (are) focused on multiples [i.e. supermarket chains] with the need to sell a distinctive value-added product (Ogier 1997)

The scale and dimension of this decline is quite remarkable and detailed in Table One.

Table 1: The Decline of the "Guernsey Round"

Year	1966	1976	1986	1990	1994	1996
Crop Area (ha)	298.3	221	36	19.4	8.3	5.4
Export Volume (000kg)	57,000, (e)	47, 595	9,243	5,424	2,777	1,850

A detailed examination of how it came about reveals a great deal about the ways in which the industry, and British society, has changed in the last three decades of the twentieth century. It also serves as a platform for a more detailed analysis of these changes.

The historical island.

Guernsey and the other Channel Islands have occupied an anomalous position within the British State for several centuries. Its historical links date back to the Norman Conquest (local historians will tell you, mockingly, that Britain is part of Guernsey and not the other way around) and have continued in different ways ever since. Stuck in a space (geographical, cultural and political) between Britain and France its inhabitants speak English but the Norman language, Guernsey French, survives in some degree. Enjoying the pleasures of the Southern climate the island

also (as a Crown Dependency) benefited from the support of Empire and subsequently of Commonwealth Preference. Once the centre of licensed piracy its merchants traded on the spoils of war. Subsequently, in a more prosaic mode, it became a centre of horticulture growing grapes, then tomatoes and flowers in hothouses. At the end of the twentieth century its unique political status saw it thrive as a centre of offshore finance.

A Papal Bull of 1481 directed against attacks on the island had the effect, beneficial to trade, of rendering St Peter Port neutral in times of Anglo-French hostilities. This arrangement survived until 1689.[2] Neutrality allowed the island to build upon the natural advantage of having the only decent harbour between England and France and facilitated its role as an *entrepôt* especially during times of war, which were frequent.

After 1689, neutrality was rescinded, leaving the door open to a more active privateering role. The revenues from this licensed piracy were substantial and provided a spur for significant growth in the 18th century. Writing of this period, the nineteenth-century essayist Andros described an 'island gorged with fat'. Eventually in 1807 the crown imposed tighter controls and established a Customs House. Recognising that the days of illicit trade were over, the more substantial of the Island merchants and traders established the island's Chamber of Commerce in 1808.

On this new basis, the island managed to retain an important degree of constitutional and fiscal autonomy. In servicing the British garrison it obtained significant revenue from the state[3]. However, in contrast with those earlier years, the nineteenth century was a period of relative depression. In these decades the buccaneering island slowly transformed itself, through trade, into a complex horticultural economy.

The processes that produced this change were slow and hesitant. Gillow has identified the emergence of the private hot house as early as1792, as a dependency of the house that now houses the Priaulx Library. This example seems to have set a trend and with it the commercial production of grapes.[4] Girard[5] has identified the building of the first

[2] D. OGIER. forthcoming.

[3] See Alan G. JAMIESON, *A People of the Sea: The Maritime History of the Channel Islands*, London, 1986: Also F. B. TUPPER, *A History of Guernsey and its Bailiwick* (2nd Edition), London, 1876; Jonathan DUNCAN, *A History of Guernsey, with occasional references to Jersey, Alderney and Sark*, London, 1841.

[4] G. J. GILLOW, *A Short Survey of Horticulture in Guernsey*, Guernsey, 1958.

[5] P. J. GIRRARD, *Peter Girard's Guernsey. A Miscellany of Guernsey History and Its People*, Guernsey, 1986.

glasshouse for profit in the1840s. The export trade was given a huge stimulus in 1861 when a regular steamer service was introduced. Connecting with the expanding of the railways in mainland Britain, the steamers provided a daily link with the mainland during the summer months. As a result, 277,400 packages of horticultural produce were exported in 1867[6]. In 1830 the domestically orientated system had produced a surplus of only 3, 474 lbs of grapes for export. Increasing gradually to a peak of 2,514 tons in 1915, this trade saw the hothouses emerging as commercial *vineries*; a term that survived long after the decline of the grape trade. In 1958 only 300 tons of grapes were exported. Well before this time, however, the vineries were becoming involved in the large-scale cultivation of tomatoes.

Although the first reference to the cultivation of tomatoes on Guernsey is in 1865, there is little sign of it extending beyond a domestic production until much later. In 1874, for example, J.W. Hill[7] reported on the widespread cultivation of figs, but his account of the island's commercial agricultural activity made no mention of the tomato. Over the next twenty years it seems that production did increase, and 1894 saw the formation of the Guernsey Tomato Growers Association. By the beginning of the twentieth century it seems that the tomato had become an integrated part of a domestic subsistence economy, with occasional surpluses being turned to export. It shared the vineries with a variety of other market garden produce, including lettuce, radish, peas, potatoes, melons beans and carrots. It seems also that this horticultural regime appealed to many people living in the South of England, especially in places like the Lea Valley in Kent. At the turn of the century many families from this area relocated to establish themselves in Guernsey's horticultural economy[8]. One of the growers we talked with in 1998, Fred Higgs, remembered that his family came to the island at that time:

> My uncle was growing tomatoes in Guernsey from ...1898. He was growing strawberries and so on in Kent – the family were mostly dairy farmers...Uncle heard about growing in Guernsey and came over here...He grew strawberries in England but in Guernsey it was just tomatoes. Although in that period quite a lot of other things were grown as well – peas and odd crops like that; some flowers and so on. Of course most of the growing then was for grapes, which is way the greenhouses are called vineries!. Then there was the changeover from grapes to tomatoes.

[6] E. C. BARRINGTON, "The Human Geography of Guernsey" in *The La Societe* Guernesiaise Report and Tranactions Volume XII Part III, for the year 1935, (published in 1936).

[7] J. W. HILL, *Historical Directory of the Channel Islands*, Guernsey, 1874.

[8] Girrard, (1951).

In this way, the industry expanded and the tomato became a significant export crop within the context of family subsistence economy. By the 1920s tomato production had overtaken that of grapes. Higgs again:

> In 1934 my father went into growing as well and my uncle Frank helped him set up a growing business. Then after the war I was manager for my uncle's side of the business and my brother was managing my father's side of the business – so we've been growing tomatoes for quite a long time.

Fred Gallienne's family was also involved in the early development of the industry and he reflects on patterns of development in the 1930s:

> So growing tomatoes was the thing and everyone started growing tomatoes. There [were] still a few traditionalists who kept up with grapes but they were few and far between. During the 1930s a lot of greenhouses were built. You had a lot of men who worked for large vineries and they started borrowing some money, build a greenhouse, they would work a full day and then in the evening and weekends and look after their greenhouse. They got up very early in the morning to stoke their boilers. Very often they started off with cold house tomatoes, then they got a boiler. And a few years later they built another greenhouse. Within about 7 or 8 years they'd probably got about 400 feet of glass, which was quite enough for man and wife to look after and give a very comfortable living. That's how they became growers. That's why there were so many small family concerns in Guernsey.

This expansion in the number of growers and in overall levels of production, was associated with a rapid increase in demand for vineries. Construction of the new greenhouses drew upon the carpentry skills of local boat-builders 'beached' by the increasing demand for steel-hulled vessels. In need of work, many turned their hand to the construction of vineries. We talked with John Ogier about this period in the tomato economy of Guernsey:

> It was very much family orientated and, initially on the farmhouses, they built lean-to wooden structures. At that time the boat-building industry was also in decline - which had been a big industry up until then. I tease my colleagues and growers in the industry, that what the island really did was turn the boat hulls upside down and knock out the wood and put some glass in between - and that's where you get the size and shape of the traditional Guernsey glasshouse. Initially it was some of the wealthy families, and some of the farming families but then individual families begar

> to see the opportunity. They built their own house and they built their first 100ft glass house behind their house. They'd make some money and then they'd build another hundred foot – so here you see the pattern of the glass-house industry developing. Little blocks of glass behind individual houses related to a family

Another observer noted how this produced a unique pattern of settlement on the island:

> Those sorts of units ... were generally sufficient. That's why you'll see so much ribbon development around the island. They wanted a plot of land which gave them road frontage but sufficient area to develop [a quarter acre of glass] behind the bungalow. That was the unit. So somebody else [then would] want to do the next [one]. That's why you'll see an awful lot of ribbon development in Guernsey – mainly as a result of that.

This arrangement continued over several decades. At the beginning of the 1960's one observer noted that:

> In the days when I came, the postman would have a glasshouse, and when he'd finished his letters, he was in the glasshouse. The fisherman did [as well]. Everybody had a glasshouse to produce tomatoes, and they followed the traditional techniques. Where four people were together chatting – it might be a postman, a fisherman – their chat was about producing tomatoes, because it produced a very worthwhile second income. They bought their boats for fishing or whatever, and went on holidays with the income from it[9].

This was the arrangement that was turned into Britain's first tomato monopoly.

The Guernsey Tomato Economy.

Ogier's father was in the greengrocery business and he remembers that in the heyday of Guernsey's tomato industry "there was still a seasonal trade in production, and there was definitely a premium for being the first on the market with the quality product". *Seasonality*, combined with the nature of

[9] Fred Moffat, *interview*, 2 November 1998.

the fruit, to give Guernsey an advantage over its neighbours in Jersey, and those more widely afield. Moffatt emphasised this:

> Jersey for instance, had a tradition for producing tomatoes outside, because Jersey's islands slope to the South, [whereas] we slope to the North. ...Jersey's soil warmed up early in the Spring, therefore they could plant their potatoes, and get early potatoes, so Jersey potatoes were their crop. Then when it came to June when they'd harvested their potatoes they used to then put tomatoes in, and had an autumn crop of tomatoes. That encouraged us to go early, because you are then competing with not only Jersey but the UK as well. The Jersey farmers were obviously ... built up over a lot of years [i.e. well established] and they were well off.

Ogier too:

> The tomato as a product, actually took off and consumption was increasing in Great Britain. Jersey developed a tomato industry, but because their land faces South generally, and the fields are that much larger, they went into outdoor production. That saved them the costs of building the glasshouses. The downside of it for them, is that they were never able to match the quality of the Guernsey fruit. It's reliability and also it's earliness in the season.

At this stage the tomato was highly perishable, more so than the grapes it had replaced.

> In those days the time from picking to ripeness and softness was relatively small, although it has been extended now with the slow ripening genes and the produce like that from the Canaries. But in those days the varieties were such that they would ripen quickly once picked. If you had too long a time they would go soft. And the distribution centre over there in the UK, was one with many handlings as well [i.e. the product changed hands many times between grower and final consumer]. So it needed time. So you needed to get it to those points relatively quickly.

In this way, Guernsey developed as a powerful supplier, on the basis of a monocultural form of horticulture. Historically such agricultural systems have often led to soil depletion, low yields and periodic economic collapses. In glasshouses monocultures have been associated, in particular, with problems of pest-control. During the period of its ascendancy, the Guernsey industry pioneered techniques of pest and disease control. In particular the system of steam sterilization allowed the soil to be effectively pasteurized at 100 degrees Celsius. When the tomatoes were grown in pots:

> [The grower would] take the soil out of the glass house... They had a big, metal chamber with spikes coming up, through which the steam passed.... You steamed [the soil] there, and then you took it back [into the glasshouse].... They later changed the technology to bury the pipes in the ground. So you could then steam the ground. It was tremendously labour intensive and once you start, once you've got the boiler stoked up, you would go for 24 – 48 hours to get that job done. It really was one of the horrendous jobs of the year, but one which was very, very necessary.

Needing more water than grapes, tomatoes also required more complex, powered systems of irrigation. One grower remembered how:

> I used to build these banks [i.e. raised, earth growing embankments served by a common hose] and water with a hose which was time consuming but if I'd had pots I'd have to be watering so often and I couldn't afford someone to go and water 2 or 3 times a day

In this system coal fired boilers played a critical part. The first heating systems used anthracite coal brought from Wales[10] and these coal-fired boilers combined with the wooden-framed greenhouse as essential features of the traditional Guernsey. This too was labour intensive, requiring a routine attentiveness from the grower:

> You had to stoke the boilers, and clinker them [remove the ash] in the morning and get them going with anthracite. In the evening you would look at them again and put some more coal on and all the ashes that you've got. You'd wet the ashes at about 8 or 9 o'clock at night, put these ashes on top of the coal you'd just put on [to damp the fire down] and that would last all night. It wasn't very accurate. Sometimes people used to go earlier at about 6 or 7 o'clock, but a lot of people would go at 9 o'clock to see. There used to be what was called a damper to regulate it. You pulled the damper out there would be more suction up the chimney, if you put it in there would be less. I used to do that, very often [going in] at 9 or 10 o'clock to see how it was doing, [to] feel the temperature, have a look at the boiler, pull the damper out a bit. You might even tickle underneath the bars to get it going. So yes it wasn't thermostatically controlled and coal was very cheap. But that's how it was done.

Here we have the basis of a tightly organised production system linked to one major market. Ogier summed it up in this way:

[10] E. C. BARRINGTON, "The Human Geography of Guernsey", *op. cit.*

> So with the glass house technology, the boat-builders turned their skills to building glass houses. The adoption of the technologies to control the diseases. The import of coal to provide the heating and the transport system, and the families there, available to and interested in being entrepreneurs – there was the genesis ... of an industry.

The Making of a Tomato Monopoly.

During the war Guernsey was bombed and then occupied. In the period after the war its economy was seriously weakened. However the glasshouses had been maintained during the war as a source of food. In good condition, they were easily converted back to tomato production at a time when the British population was desperate for fresh fruit and vegetables. Ogier recalled

> I remember someone who goes to our church was telling me the other Sunday, just how much money some of the growers made in those post war years... I think in the first year after the war, one of the families made, I think it was £2600 profit. Which in those days, after the war, was an absolute phenomenal amount of money, and in some of the subsequent years, the profits went up and up. Obviously the living standards around were going up, but the demand for fresh fruit, fresh food and tomatoes – with the technology and the varieties and the distribution system – really took off. And we are that much further south, so we were always that bit earlier on the market. So we established our early market presence [i.e. early in the year].

Fred Gallienne, a young grower at this time, also reminisced about the financial boom:

> I probably would have gone into teaching if I hadn't gone into growing but there was the opportunity to come into growing, there was money to be made at the time. Within the first year of growing I had a new car, a Morris Minor in fact. In those days you had to pay cash, there was no such thing as H.P. I gave him £330 I think for the Morris Minor, so within the first year I'd got a new car which wasn't bad going. If I'd been another two years – well probably a year at college and three years at University – I'd have been in my early twenties before I'd earned a penny, so as I say it was a good idea at the time.
>
> A lot of the boys from school their parents were growers and they too went into the growing business quite a number of them. I was my own boss at eighteen. I was a bit raw actually. I could have made more money if I had had more experience. I suppose the thing to have done would have been

> to go to horticultural college but no, I dived straight in! I had some help and advice that sort of thing but I could have done better. We learnt from experience.

As a result of this expansion, tomatoes had come to make up about 49% of the island's GNP. So central had the industry become to the local economy that the state became critically concerned to support it and to protect its position in the market place. From these early days the market place was basically the UK. In spite of its proximity to the French coast, almost all the Guernsey crop headed to the Portsmouth and Weymouth harbours. This concentration in the UK market was, in large part, a product of the system of Imperial Preference that operated effectively until the UK joined the EEC. As Ogier put it:

> Because we were, are part of the British Isles, we were not subject to the levy. There [was] a levy prior to Britain entering the Common Market, a tariff barrier for tomatoes, so that we had, if you like, an advantage, compared with the Dutch.

The large number of small producers engendered logistical problems for this burgeoning offshore industry. Fred Moffat explained how the trade was organized though the activities of a large number of small growers, all involved in private marketing arrangements with particular wholesalers on the mainland:

> Every grower was responsible for harvesting his tomatoes, grading them on his property... and then, when they were packaged, [for] sending them down to the depot to be exported. Every grower had a number and he got money from the wholesaler on his number. For example the wholesaler would say that '692 – he's a good grower' [And for this reason of traceability] they all valued their independence ... Of course, it gradually became clear that this was not a good way. [Some people would say] 'You really ought to have a co-operative, where the tomatoes are sent together as "Guernsey tomatoes"'. There was a lot of debate 'Mine are much better than Joe's down the road' ... 'mine's good quality'. In the end the majority followed and said 'we'll have a co-operative' and we had then the Guernsey Tomato Marketing Board .... Their sole responsibility was to collect the tomatoes, grade them and to send them to the wholesalers on the mainland.

The Guernsey Tomato Marketing Board (GTMB) subsequently emerged as a key institution in the island's economy.

> The growers then picked their tomatoes, sent them down to the Marketing Board, who then graded them uniformly. The grower might send down, shall we say, four tons of tomatoes. They would be graded out [with] so many [being ranked into] each grade. [The produce was then exported] and you got an average grade price back [within each grade]. [For a particularl grade] everybody got the same price for the day. Some growers didn't like that ... Some ... to such an extent that they said 'I'm not growing tomatoes any more' and grew flowers or something else.

Fred Gallienne also remembered the setting up of the Board and his own mixed feelings as a young grower:

> In 1949, the Guernsey Horticultural Committee decided that all tomatoes would be exported through the Tomato Marketing Board. They had a very bumpy ride to begin with, because growers, being individualists, preferred to sell [through their own contacts and salesmen who would have detailed knowledge of] the quality of the produce and so on. But eventually the Tomato Marketing Board went through and they were forced to export through the Board. This meant that if you were a grower and I was a grower, and you were growing superior quality fruit to me, I'd still have the same price as you! Tomatoes were graded and the top grade was known as "pink and white". We used to call them pink and white, because you put pink and white paper in the chip basket. This had a star on it – you stamped a star on the side of the chip basket. The next grade was [indicated by] the yellow paper [marked with a] diamond [symbol]. [These tomatoes] were slightly smaller, but [still] round. The blue [paper] which [indicated] the very smallest yet but [still] round [tomatoes]. Then you had ...what we called the roughs. They were misshapen and [the baskets] lined with white paper. So you were paid most for the pink and whites and not much less for the yellows.

The Guernsey Tomato Marketing Board was established against a wider background of state intervention and regulation of industry.

> It was at a time when compulsory boards were thought [to be] the way ahead for the industry, and people who grew tomatoes, had to export their tomatoes through the board and they had to be inspected by the inspectors. Inspectors became both loved and hated by the industry, because if an inspector could look at your tomatoes and he could reject them, just on what they looked [i.e. how they appeared] as they were going to leave the island ... You can imagine the sort of rows that happened. And you had to send your tomatoes for him to inspect them. However, the island had about 60% of the UK market, so you are getting to a monopoly type power there. It could actually influence price! Be careful how you put this down, but it did. If there was an oversupply it would dump fruit over here, to

> keep the price high in the UK, or to stop it going through the floor naturally.

The Board became a very powerful marketing organization, promoting and organizing the distribution of produce throughout the UK via a complex system of agents. It was also concerned with perfecting the production system, and supporting growers with technical advice.

> So that was really up to the 60s, which were really the boom years, when the island was exporting just under 50,000 tonnes of fresh product tomatoes into the UK. They developed a brand name "Guernsey Tom" [which] became recognised right throughout the trade as a quality product.

In our time on the island we talked to many people about these years and they gave a common response:

> It was a very big industry at that time. That time, in the 1960s, we were producing something like 50,000 tons. A tonne of tomatoes per inhabitant just about - the population was 50,000, so it was a tonne per person, and one fifth of the local population were involved in the tomato industry. You wouldn't believe it, looking at it now, but it was incredible

Features of the Guernsey System.

In the period of its ascendancy, the Guernsey tomato economy can be seen as a complex and highly successful set of 'instituted economic processes'.[11] A measure of its success is revealed in Jim le Garff's memory of the Dutch growers contacting him with the view to the Guernsey Marketing Board agreeing to also handle the Dutch crop. It is helpful at this point to outline the features of this highly successful mode of operation.

Household Economy.

Remarkably, the Guernsey production system was rooted in a system of family holdings. In this, the tomato crop was one part of the income generated by a family.

[11] Karl POLANYI, *The Great Transformation. The Political and Economic Origins of Our Time*, Boston, 1944; and "The economy as instituted economic process" in Karl POLANYI, Conrad ARENSBERG, Harry W. PEARSON (eds.) *Trade and Market in Early Empires. Economies in History and Theory*, New York, 1957.

> The local grower grew a crop of tomatoes, and then when it got to July/August [would] tend to lose interest, because there were lots of other things to do like fishing, and going out in your boat and all these sorts of things. So they lost interest in the crop at that time, and then they generally sort of took out their tomato crop and then planted with bulbs as a follow on crop: irises, freesias, daffodils, narcissi; all this was exported you see! So they had two crops rather than one[12]

Although there were a number of large producers whose role became increasingly important strategic re-organisation of the industry, during in the period of the stable tomato monopoly, the majority of the product came from the greenhouses of small family concerns.

High levels of lay knowledge.

A central feature of the traditional economy lay in the ways in which expertise was developed though practical experience, haphazard processes of discovery and problem solving. In relation to this, the small size and communitarian nature of the island fostered informal discussion and knowledge-sharing. Growers established status though seniority and the practical demonstration of expertise. This was often demonstrated in the various agricultural and produce shows and competitions that ordered the social calendar of the island. In these ways, men like Harold Naftel came to be revered as excellent house men and plant breeders.

> These growers had this keen observation for years and years and years. They used to select tomatoes in their crop [and say] 'we'll keep that for seed'. They would put a barrier around [such a] plant. Nobody [was] to pick this plant. And then consequently they would have a lot of red tomatoes and they would pick those for the seeds. [These varieties carried the] names of local growers e.g. Naftel's Discovery and quite a few [growers used] them. If you could get Naftel's Discovery, this was going to be really good. [So] they would select individual plants. They've observed this plant, it sets well, its got good vigour, good shape, and they would keep the seed.

The industry was based upon the indigenous production of seed and a particular Guernsey variety, the Potentate. Fred Gallienne:

[12] Interview with Fred Moffat, Guernsey, 2 November 1989.

> The Potentate is a very meaty tomato, something like the French tomato. You could get them some of them [that] were nice and round and some [that] were just odd shapes. But the odd shape ones which went in the white grade [i.e. the lowest grade – see above] were very large sometimes. I had one that weighed 14oz – one tomato!. I know a lot of growers they grew the Potentate and they grew not to get smooth, round, tomatoes but to get as many [as possible] of these rough shaped tomatoes which were heavy. But with Potentate you had mildew and you had to be very careful: Don't water when the weather is damp and dull, put plenty of heat! ... That sort of thing.

These arrangements taken together seem to have produced an efficient agricultural system in which proximity and sociability combined to maintain standards:

> The standard of cultivation was quite high. One of the more noticeable factors I suppose was the density of units of glasshouses. Pests and diseases were much more of a potential problem than they were on the mainland because of the distance between one unit and another. Here one man's bad husbandry affected a lot of people. So I think that was one of the more noticeable things that maintained standards

A network of horticultural service companies supported these arrangements. Gillow refers to a comprehensive range of contract and managerial services such as steam and chemical sterilization.[13] We asked Fred Gallienne how he came to learn the tomato trade as a young man:

> Oh trial and error I suppose. My family was in the growing business so I had some idea what it was all about. And I got advice. In those days it was big business in Guernsey. In the 50s/60s 5,000 people were employed in the growing industry. Another 2,000 probably were employed in the auxiliary services. A lot of people like those who supplied us with fertilizers, chip baskets that we sent our fruit in, and all that sort of thing. They had "canvassers", who came around, and there was great competition amongst them, and some were quite experienced in growing and they would give advice on what fertilizers to use, what feed to use. So a lot of advice could be got but it was a question of you learned as you went along, as I say. I learned pretty quickly. I had to ... and I made a few mistakes.

[13] G. J. GILLOW, *A Short Survey of Horticulture...*, *op. cit.*

State regulation.

Guernsey is a small island with a unique set of political and institutional arrangements. One astute observer contrasted the political organisation of the island with those at Westminster:

> The States [of Guernsey] here, they are not ministries. They just have a committee that looks after shall we say, health, or a committee for education [and in the same way] we have a committee for horticulture. They are local people, who are not professional politicians, they are simply elected by the parish of the island to represent their interests[14].

These policy makers therefore were directly involved in the day-to-day life of the island and its economy. Many (perhaps most – some were lawyers, shopkeepers, etc) of them had greenhouses of their own. Certainly they were members of families who earned income from horticulture. As such they were alert to the particular needs of the trade. At the same time they were also conscious of the need to promote a dynamic economy. Growth in the acreage of glasshouses could threaten to squeeze the physical space open to other activities. More importantly there was a labour-market tension between the need for labour in the relatively stable but low paid agricultural sector and development in other areas such as tourism, light industry and later the financial services. The development of these other sectors was often seen as problematic. The relatively higher wages could easily attract younger generations away from employment in the family horticultural business - possibly threatening its economic viability or at least stimulating the demand for 'imported labour' with attendant accommodation and welfare problems. Likewise without a clear generational succession, family businesses were liable to under-invest creating a structural 'modernisation dilemma' which was indeed apparent from the early 1960s.

In short, after the war horticulture was the island's economic mainstay responsible indirectly for more than a quarter of employment. But given the structure of thousands of small family firms, often with far less than an acre of glass per family, it also underwrote a definite pattern of social and cultural life on the island. In the broad regulation of the industry, policy makers were (perhaps dimly) conscious of a much wider web of interdependencies and relationships which made the balance between growth and control difficult to maintain.

[14] *interview*, Fred Moffat. This has changed as of May 2004. Guernsey now has a system of ministries, though not an executive-style govt.

Between 1936 and 1968 the States erred on the side of caution with a policy of restricting new growth. After 1936 a moratorium was placed on any glass houses in excess of 30,000 sq ft. In 1938 the maximum was further reduced to 666 sq. ft. This was partly due a perceived need to divert scarce materials and labour to other purposes but it also reflected a degree of complacency about the solidity of the horticultural base which with hindsight, seems mistaken. An indication of the effect of this strategy is seen in the fact that in 1950, at the height of the industry's 'golden years', the total acreage under tomatoes (911 acres) was actually less than the pre-war figure of 951 acres. However, the success of the industry and the viability of relatively small greenhouses, saw pressure to loosen controls, largely from young people wishing to set up families and supplement their incomes with a _ acre glass plot. After a short period of relaxation, building quotas were imposed again in 1956 when the maximum prescribed area for any one structure was 333 x 30 ft. The rationale for this policy of restriction was four fold: [15]

- excessive demand for labour in the horticultural sector could lead to immigration or wage inflation (hence the emphasis on small family plots unlikely to recruit much waged labour)
- pressure on water supplies
- limited land availability
- the fear that increased exports might flood the market leading to a drop in prices

At this time there was a growing awareness within the States Committee for Horticulture (SCH) and the Tomato Marketing Board (GTMB) of the need to modernize the industry. There was particular concern over the need to enlarge and consolidate holdings as well as replace outdated wooden framed constructions. However it was not until 1968 that the distinction between additional and replacement glass was removed thereby allowing producers to expand through buying up old glass and modernising it.

The marketing and distribution system.

One of the most significant features of the Guernsey system lay in the ways in which it organised the marketing and distribution of the tomato. The efficiency of the system impressed many observers who noted how the tomatoes were dispatched to the wholesale markets:

[15] see States of Guernsey, Island Archives Service (HC 8-2 7/2) *'Restrictions on Glass House building 1936-1968'.*

> Covent Gardens, Leeds, Newcastle, Manchester – you name it. All the tomatoes went from here and were exported, by lorries, to all the big wholesale markets throughout the UK. By boat from St Peter Port to Weymouth, and then offloaded. And in those days it wasn't roll on, roll off. It was all craned on and off by pallets – terrific industry really. Every day. Not Saturdays and Sundays obviously, but every day. It wasn't refrigerated. It just went in the bottom of the hold, and obviously if we were doing quality things [i.e. quality control], we would put thermographs in there to see what temperatures the tomato was subjected to, and had lots of discussions with the boat people to make certain that the hatches were lifted so that there was no build up of ethylene in the air, and things like this. So it was all covered to a large extent really. Then you had a transport agent who met the boat at Weymouth and then distributed [the produce] to all the markets. The technique in those days was marketing to wholesalers – largely on the west side of the UK, because the Dutch tomatoes used to come in to ... Harwich and Felixstowe and distribute to that side. And rather than compete, we would have our markets on the other side. Newcastle and Scotland were always very good markets. And so that was the distribution system, and it went very well.

The GTMB was set up in 1952. Jim Le Garff became the first general manager. He had previously been in change of the Guernsey Tomato Shipping Board set up by the States after the war to help the industry back on its feet after the occupation. Le Garff held the position until his retirement in 1972 when his assistant manager Bob Kimber replaced him[16]. We talked with Jim and Bob in 1998.

Growers would either pack their own produce or use an intermediary store-packer. In the case of the latter, the store-packer would be responsible for checking and grading the produce, boxing it and sending it to the central GTMB depot. The GTMB would organise for all Guernsey produce to be distributed across the wholesale markets of the UK using a network of agents or 'panellists' (740 in 1948 declining to a still substantial 180 by 1980). Produce was shipped to the UK via Portsmouth (serving the east) and Weymouth (serving the west) using two ships, one of which *The Cora* was chartered by British Rail. From the ports the tomatoes would be taken entirely by road, with the exception of the NE Scotland which was served by rail freight. Produce unloaded at ports early on Tuesday morning would usually

[16] The following description of the operation of the GTMB is based on interview with Jim Le Garff and Bob Kimber and upon readings of the Working Party on Tomato Marketing, *Minutes*, 7 March 1980 (States of Guernsey, Island Archives Service).

be on sale at the markets on the Wednesday. On arrival at market a designated panellist would divide up the load among other GTMB agents. The same panellist would ensure pallets were returned to a central point for collection. The relationships between the GTMB and the panellists were close and personal and sustained over many years. Regular visits supplemented daily telephone conversations by which market information was relayed back to the GTMB in Guernsey, allowing for the subsequent day's delivery to be matched with anticipated demand.

The GTMB worked by monitoring very closely the state of the wholesale markets and making constant adjustments in the volume and geographical fit of supplies of Guernsey tomatoes to demand in different parts of the UK. This required a sophisticated operation with many clerks, statisticians and analysts gathering the information, processing it and making distributional and logistical decisions and conveying these to the depot and hauliers etc. In practice this amounted to hundreds of telephone conversations every day. Whilst the relationship with panelists was close and sustained over long periods, it was not without tension or conflict and GTMB found it necessary to constantly monitor and regulate what their UK agents were doing An important statistic was the deviation of the clearing price at any market against the national average. This was calculated daily and provided a detailed picture of the changing market. In 1975 Bob Kimber had described the role of the GTMB in rather frank terms:

> Our objective if we could achieve perfection would be to have every market in the country selling at the same price. This would indicate that we had adjusted quantities and allocations to meet varying demand very precisely....By adjusting supplies to 170 wholesale markets and depots on the basis of information received we are able to regulate prices fairly successfully. In the same way we adjust supplies to our panellists – we have nearly 300 – according to results within individual markets. If one wholesaler or market or one area is above or below the general values pertaining for the country as a whole we take the necessary steps to correct the matter. For example if this morning we found that one market had received a large consignment of tomatoes from somewhere else or had very bad weather which might adversely affect sales we could even at this late stage re-allocate the tomatoes which left here last night and which are now being discharged at Weymouth or Portsmouth to another area.[17]

[17] Bob Kimber quoted in "Flexibility: The Key to the GTMB's Vital Role", *Supplement to Food Trades Journal* May 9th 1975: ix.

He went on:

> While this ideal is generally thwarted by various factors over which the Board has no control, a sophisticated information service based on a detailed two-way flow of information, aids them in balancing supply and demand in markets throughout the British Isles.

The nerve centre of the GTMB's marketing operation was the 'intelligence room' at the Board's St Sampson headquarters which the article compared to a military operations room, 'working against the clock on a continuous inflow of fresh information'.

This hub of contractual relationships was indicative of a strongly producer-oriented system mediated by state institutions and involving a legal remit GTMB. The latter was established in 1952 with a legal monopoly over tomato exports[18]. Although the constitution required that growers were represented and consulted over matters of policy, the institution effectively operated as a quasi state organisation. It worked closely with the States Committee for Horticulture and often made joint representations to the States of Guernsey, over questions of financial aid for price support or modernisation programmes. The GTMB was responsible for the store packers, the Guernsey hauliers who supplied the depot (operated on a three year rolling tender), contracts with the shipping agents, the UK road hauliers and a wide network of panellists at the UK wholesale markets. The central depot was in St Samson occupying 40,000 sq ft with 6 conveyer lines on each side and 20 bays. The GTMB always contracted out the local transport to local hauliers. At the height of the season the depot employed 100 people, including fourteen States inspectors. Seasonal workers included, in the mid-1970s, a number of French people who came around April to stay for around three months being housed in a GTMB hostelry nearby. There were five sailings a week to Portsmouth (Commodore Shipping Ltd) dropping to four at either end of the season. Weymouth was served by British Rail.

[18] The Board was composed of ten members. The term of office was 4 years with half the board retiring every 2 years but with members allowed to stand for re-election. The growers who were allocated 1 vote for every 500 packages exported the previous year elected members. 40 people were employed in the GTMB office with up to 140 in the depot at St Sampson – See Extract from Year Book of Agricultural Co-operation *Marketing of Guernsey's Glasshouse grown Tomato Crop*, Oxford, 1977.

The Application of Science.

In the early 1960s, the Horticultural Committee became particularly concerned about the possibility of the UK joining the European Community. Membership would, of course, threaten Guernsey's tomato monopoly and leave it open to direct competition from other European growers. Numerous meetings and reports considered how the island would deal with such an eventuality. One of these[19] concluded that the industry was ill-equipped for future competition and that even a small drop in the price of tomatoes would render large numbers of producers unprofitable. The report talks in the strongest terms about the need for 'modernisation'. This is understood as principally a technical process involving the upgrading of greenhouse management techniques and the replacement of obsolete glass and heating equipment. In tackling these issues the committee identifies plans for a new Experimental Station and the arrival of two scientific advisors from the UK mainland.

Fred Moffat and Harold Dally duly arrived in 1962 and 1963 respectively, to take up their positions as scientific advisors. Dally thought that "it wouldn't be a bad place for a couple of years". They both still live on the island and between them they had a considerable impact on its horticultural history. In fact they were already acquainted having worked together at Fisons Lenington Research Station in Ipswich. Although they arrived by rather different routes, both were well integrated into a developing science-based horticultural community. Moffat's career had begun on a large private estate in Cumbria:

> [I] served my normal twelve years apprenticeship in those days. After which I gained a senior scholarship to go to University - or College at first and then to University. I had the chance to work at Manchester University under Professor Swalbrick. He was doing experiments on lighting of strawberries to bring them on early. And I also had the opportunity at the same time, to go to Nottingham University, to work on tomatoes there. So that is when I first started on tomatoes. I did some research with Professor Hudson on the effects of water regimes on tomatoes, mainly it was to see the effect of the frequency and the amount of water that you applied to a tomato crop and its effect on the quality and its fruit production. This was the early 1950s. After my experience there I then obtained a job with Fisons Levington Research Station at Ipswich, where they wanted someone to work on the nutritional side of tomatoes. So that was a natural progression, having had quite a bit of experience with tomato growing ...and [so I] spent six years looking at the nutritional side of tomatoes...during which time Levington Peat Compost, and things like this, were coming into the field.

[19] SHC, *Report on Policy* Jan 2nd 1963 (States of Guernsey, Island Archives Service).

Dally had always wanted to work in horticulture and after a spell as an army conscript:

> I thought that I would have to go to college somewhere to study horticulture a bit more seriously. So I went to what was then Swanling which is now Padlow College in Kent and started glasshouse horticulture.[I then] decided ... that I didn't want to [specialise too] quickly. So I went to Kew for a couple of years [and] studied botanical horticulture. Then I went to Cardiff University as a horticulturist in the Botany Department. I was there for 3-4 years, [and] decided that research and experimentation was where I would like to go. So I went from there to Leamington Research Station in Suffolk and was involved there very largely with glasshouse production – not exclusively but quite a bit of glasshouse research. One of the things I was asked to do ... was to become involved in the development of the European horticultural products ... and as it happens Guernsey happened to be one of the places that came up within my [area of] responsibility.

Moffat remembers how in 1960/62:

> Guernsey ... wanted to upgrade their tomato industry and the States of Guernsey decided that they would establish a horticultural advisory service, to provide scientific advice to growers... There were none at the time [i.e. advisors]. They recruited a few ... horticultural advisors [including myself] ... We started off in Guernsey in 1962 with two/three horticultural advisors, and a director of course. We established an experimental station ... [and] persuaded the States to build glasshouses so that we could do experiments and research. And then of course we recruited more people – plant physiologists, pathologists, chemists and even economists. [We] looked at the horticulture industry and started doing some research and experiments to bring it up to date. Because, up to that time, there was a long history of producing tomatoes in Guernsey ... a long, long history. But it was all done on, shall we say, skill, tradition, keen observation ...We think we ought to do this [i.e. there is merit in this traditional approach] but [at the same time] there was no real and technical, scientific input into the industry

This development (involving a shift from lay knowledge to the application of science to production) was seen as an essential part of a re-orientation

of the industry with a view to improving yields and trialing of the most modern types of greenhouse[20]. This proved to be a major challenge:

> Now the interesting thing was that when we put forward to the States of Guernsey that we needed some modern glass in order to carry out some research. They said you can have some modern glass, but you've got to build traditional Guernsey glass houses – because you will never convince the Guernsey grower to follow your techniques if you are using modern glass and they are using traditional Guernsey glass.

Here, the introduction of scientific techniques went immediately to the heart of the traditional horticultural system. The idea of the modern glass house was to transmit as much light as possible. The traditional glass house industry at that time were built proximate to houses and roads and were often orientated North/South. A considerable part of their surface was taken up by the wooden frame and this was exacerbated by the small panes of glass, measuring 12" or 18". In contrast "modern glass" at that time would have metal frames, with 24" panes of glass and a consistent East/West orientation so as to get the maximum light transmission. But, in the first instance, Moffat recalled:

> We had to demonstrate our research in traditional glass houses, so they built us some traditional glass houses! However, it was quite striking, the effect we had in our research. And when the growers saw what we were producing – it was quite an eye-opener really – we were doubling the yields quite easily.

This increase in yields was being achieved in a number of ways, but they were failing to have the desired effect of changing the established horticultural culture:

> [Later] we had glasshouses [with] sixteen compartments. We were able to do climate experiments – controlling day temperatures, night temperatures, [and] replicating this over an area of four compartments, and gradually increase[ing] the yield. But the growers we were more interested in making more money rather than increasing the yield.

[20] also see States of Guernsey, Island Archives Service (HC/AS42-15) SHC Advisory Service; and also A.P. Mitchell (1964) *Modernisation of the Glass house Industry* – another general report comparing modernisation and investment in Holland with the failure to upgrade in Guernsey.

In attempting to unlock the established pattern of economic and horticultural arrangements, the scientists therefore decided to focus on profit rather than yield. Examining the two-crop system they calculated that the second crop of irises was seriously delaying the possible planting time for next season's tomato crop. This delay in the ripening of the tomato crop was, they reasoned, undermining the critical advantage that the islanders had over their northern competitors.

> We were timing very precisely the sowing dates.... and that second crop delayed the next crop of tomatoes, which they weren't sowing at what we thought was the optimum time. [Once] they saw that they could make more money [on one] rather than two ... they very quickly followed the techniques. So we decided we would look at the effect of the early tomato crop. In those days the earlier you got your crop onto the market the more money you made, because at that time, neither the UK nor Dutch grower were producing tomatoes to ripen until April/May. We showed that we could come [to the market] in March. Because at this latitude we get the sun early, and we could follow the Canaries quite quickly, and because we had better quality than them at the time, the markets would leave the Canaries and go immediately to Guernsey tomatoes.

This system was called "programme growing" and it involved an attempt to adjust the rhythm of the annual labour process on the island.

> This was kind of prescription growing. You sow on this date, you pot up on that date, you plant out on that date, you give them that much space, you use these temperatures night and day and you should then aim to have your first flowers on such and such a date and then you would have your first fruit on such and such a date. That would be valuable information from the marketing point of view as well as from the production point of view and in those days early tomato production was the profitable thing to be in, it had to be early if it was going to be profitable ... It was a matter of shifting. Introducing the programme which provided the maximum amount of tomatoes early in the season, even if the overall production may have been no greater. Because if you just grow in the season – we're talking about the importance of light – if you just wait until things develop naturally, you get an enormous peak of production. Whereas if you grew according to the programme, you had nothing like that peak of production but you had earlier and a much longer season, relatively stable. It's not quite stable, you tend to get two peaks instead of one, but nothing like as an enormous crop of glut proportions.

This development of the early Guernsey tomato was achieved in a number of ways. The experimental station encouraged the move away from soil

(with all the attendant problems of steam sterilization) and into peat held in containers raised above the soil. Dally recalled introducing a system that he termed "isolated growing":

> [This] is using a substrate which is not a soil. Previously the plants were grown in the soil [which caused] lots of problems. [The soil] had to be sterilised each year between one crop and the next [but still] the disease and pest development was also having a limiting effect on production to a large extent. [There were] serious diseases such as fusarium and vertisilium wilts ... [and] root knot earworm, which was a tremendous pest. Those things were only partially controlled by soil sterilization, again in some ways because of the techniques of growing in Guernsey. So we developed a system of growing in a bag of peat. We called it 'peat modules' which was a name I gave it. It's just a bag of peat with fertilisers and other conditioning ingredients in it and this was sufficient, with proper irrigation, to sustain the development of the crop throughout its life. The whole thing was discarded at the end of the growing season and a new bag of peat introduced, so there was no sterilization involved. It meant that the cropping period could be lengthened. The time involved in taking out a bag of peat and bringing in a new bag of peat was a lot less than digging the crop out of the soil, taking it out, steeling the soil, conditioning it and all the other things that went with it. [The new method] meant the season could be prolonged quite considerably so the productivity of the crop went up.

Moffat also remembered this shift to peat as a critical development and how it led to other things, most notably the use of carbon dioxide enrichment:

> [In] about 1964 we started enriching the glasshouse atmosphere with carbon dioxide. We imported dry ice, which had to be transported to growers' properties in refrigerated containers, and this was quite hectic. But the way they did it was to just [to] sprinkle it on the paths, [and] to let the dry ice evaporate itself. There was no control. Once we saw that introducing carbon dioxide encouraged the development of the tomato plant, and increased the early yields, we looked at burning propane gas [as a source of] carbon dioxide. And that was extremely satisfactory because you could control it. You had time clocks that controlled the enrichment. Then we looked at the most optimum time of the day in which to enrich, by measuring the natural carbon dioxide. Plants give off carbon dioxide overnight which is trapped in a glass house. [The question was] how soon is that depleted? We did tests measuring carbon dioxide through the night and early in the morning [and] as soon as their was a natural depletion we recommended that was the time to [introduce] CO2 ... to keep the level up. That increased the earliness, by something between three and half and four weeks. [There is a] curve of production when you produce tomatoes: You start slowly and you build up to a peak, then it goes down, and then you get a second summer peak and then it goes down. Well we got that first peak three and a half weeks early, and of course that made profitability remarkable – It made people a fortune actually. It was quite incredible.

They followed with innovation in the system of heating:

> When we came [the established system involved] burning coal ...It was a thermo-cycling system, where the boiler was put into a hole, a boiler-pit ... [The boiler provided heat] from the time plants went in, until June... [Hot] water circulated in 4" cast iron pipes and then back to the boiler as it got cold, and that was it. [This] was simply archaic, so we started putting circulating pumps in to pump the water round faster. Then our engineer advisors found [the optimal differential between inflow and outflow water temperatures] ...so we were able to be very precise on the size of circulation pumps, much to the disconcertion of all the local engineers, who had been engineers in horticulture since the year dot! Then we [looked at] coal [as a fuel]. We found it very difficult to automate the coal. You had to actually put it down with the shovel and clink it with a poker. [So] we developed with a couple of firms, [a system of] automatic stoking, but it was quickly found that oil was a far better, and more convenient fuel, because you could automate things. So gradually the coal was taken out – much to the disconcertion of the coal industry. The coal used to come from the mainland in great ships, [but] gradually [those imports] diminished and oil fires went in. [At the same time] 4" cast iron pipes were done away with [because they didn't allow much temperature control]. Once they were hot they were hot for a long time. We changed that to 1.25" pipes, so that you had a much smaller volume of water. The water got hot very quickly, got cool very quickly, [and] you could control it. So the 4" cast iron went out. There must have been shiploads of cast iron went to the mainland, taking all these things out ... modernising. Thermostats to control the day temperature, thermostats to control the night temperature, solar clocks to change it on light ...

This modernisation received the strong support of the Guernsey States and the Horticultural Committee (SHC):

> The States of Guernsey used to spend quite a lot of money on research and development and education – a lot of money. We could go to our committee [and] as technical people we would say "This is what we need!" ... [and] make a case for this/that. I must say, the States certainly encouraged the horticultural industry to modernize, to develop, to take modern techniques, because they felt [at that time] that this was our industry. We didn't really have anything else. There was a little light industry, but nothing else. So growers built modern glass houses. When they were convinced,

> they did build metal glass houses ... they did away with their wood. They increased the light, [changed the] orientation [to] east/west, put CO2 in, automatic ventilation, automatic heating and ventilation. It was all put in, in order to bring the industry up to date and there was no doubt the industry was really at the forefront of tomato production at that time.

On some occasions their scientific developments created political problems. Such was the case of the Experimental Station's innovations in the practice of pollination. Traditionally pollination was achieved by spraying the flowers with water or touching them manually. This was enormously time consuming and the wetting process encouraged high levels of humidity and the spread of fungal diseases. In their attempts to develop a more viable pollinating system the scientists produced an "artificial bee":

> This is a battery operated vibrator ... it is like a wire fastened to something that looks like a torch, and you press the torch button and the wire used to vibrate. You had to do this on each truss, once every day ... That was quite successful, but of course it's another task.

As such they began to look into the possibility of using "real bees"

> Then we got to know about this chap from Belgium who had developed a way of looking after bumble bees artificially – that is out of nature. We thought that this would be a good way of pollinating the tomatoes in the glasshouses. I put it to our committee that we should import a few bumble bees from this chap. The furore! "Bringing in insects which are not native to the island of Guernsey" [cried] the local conservation people. "This is dreadful. It will do away with our local bumble bees ..." There's a honey bee disease called Veroa. It is a mite, and the local bee keepers are concerned because it destroys honey bees. So I had to then find out whether Veroa affected bumble bees. I contacted the bee man in Bristol [who] came over ... and I was able to convince our committee that the bumble bee would be a different species than the one we have, [and that] it is not susceptible to Veroa at all. But we couldn't convince individual bee keepers. You had to go to the top and say it was all right. [In the end] the Agricultural President ... persuaded his committee that we should import some of the bumble bee nests... So we imported a few and – because you have to feed them with sugar and things – it is not just a simple thing to take on. But we had two or three growers that were prepared to have a go. And lo and behold, with observations, we saw that they were visiting the flowers quite regularly and they were doing a good job pollinating the tomatoes. So we did away with our electric bee and started bringing these bees in on a fairly big basis.

This process, and its aftermath, illustrated the institutional resistance to change and innovation within the islands political economy. At this moment Guernsey was in a key position to take the lead in developing this form of pollination in the tomato industry. However, the States insisted that every imported bumblebee nest had to be examined, and given a health check.

> This was holding things up, it really was. Particularly as the chap we were getting them from in Belgium at the time ... was a highly professional producer and he had his own levels of standards of hygiene. Very quickly the Dutch got onto it and they then developed and produced bumblebee hives ... There were two big Dutch firms who were doing it for Holland, because [tomato production] is a big scale in Holland.

This became the standard procedure for pollination in the industry. Here too however the structure of the Guernsey industry (with a large number of small houses) prevented the most economical and affective use of these industrious insects.

Finally, science intervened in the propagation process and in the development of new kinds of tomato plants designed specifically for the conditions of the Guernsey industry:

> We liaised very closely with the glasshouse crops research station at Littlehampton. [There were no direct grants] but we said "build a glasshouse and reserve that glasshouse to do things that we might want to do in it". And they were quite happy to do that because they had just moved from the Leigh Valley down to Littlehampton, and it was a new station then. So we liased very closely with them ... all the time. They put a plant breeder in there and we said to him "'These are the things that we want for an early tomato. Do you think you could incorporate this in your breeding programme?" ... and he produced varieties for Guernsey. These were new varieties. We wanted particular things: earliness was important; roundness was important; uniform[ity] of colour. He was plant breeder and had the lines to do it. He produced varieties for Guernsey, specifically tailor-made.

In these ways scientific procedures were introduced into the island's horticultural community. The Experimental Station broadcast their findings and their advice though newspaper articles, word and my mouth and in formal evening lectures. Advisors like Moffat were on call and would happily leave the station to visit local greenhouses. The size of the island allowed this to happen with ease. What they needed were exemplars; examples of good practice that worked. Because no matter how successful were the trials in the experimental greenhouses, they could not compete

with tradition. The advisors were young men, new to the island, fresh from university and commercial laboratories and keen to change everything. To the old house-men they were upstarts: "Can you wheel a wheel-barrow?" It became clear that men who had worked in their vineries for fifty years were not about to change. So the focus shifted to the younger people – those who would have a future in the industry. Moffat managed to persuade the reluctant committee that they should concentrate their efforts on a chosen group of twelve growers who were receptive to the new techniques. In the event, all of these twelve growers were successful, but one (who was a worker in a greenhouse) spectacularly so:

> After the first year he found that he had done so well that he packed in his job with the grower and said 'I'm going full time, for myself'. So he rented some glass, because you could rent glass, it was like renting a house. If a grower was getting on and he doesn't want to grow you can say 'I'll rent your glass'. His wife was a nurse, and the second year he said 'this is fantastic' I'm going to go to the bank and see if I can borrow money to build another vinery. [Helping him to raise the money by selling his bungalow, the bank manager also assisted with a business plan] His wife went back to nursing, they lived in a flat for one year, while he was building his glass. They build them in the autumn so they can grow – so he did [likewise]. He built this new glass house, modern glass house, and he did extremely well. The following year the bank manager said "[Do] you want to borrow money and build yourself [another] bungalow?" So he built a bungalow – I mean a bungalow! It was big ... and [he] carried on, built a bit more glass, built himself a swimming pool, bought himself a boat. He was very successful,[and] other people did the same sort of thing. They are retired like me now.

In many ways, the modernisation policy was preoccupied with the problems of challenging and transforming the culture of the household economy. However there were also a number of large growers on the island. These companies became enthusiastic supporters of the policy to utilise science in the production process. One such company was Kenilworth Vineries which soon became the largest tomato producer on the island. In the late sixties Harold Dally spent a considerable time with the company discussing aspects of production development. Dally was to become Managing Director of Kenilworth and in the last years of his time at the Advisory Service he became more and more concerned with issues relating to labour management:

> Kenilworth Vineries was atypical because of the number of people it employed and also because it was all one unit. That was unusual for Guernsey. So it had particular labour problems and perhaps a few advantages... If the individual growers employed 1 or 2 people it was very much a personal relationship... Kenilworth employed I suppose about 50 people, quite a number of them quite aged ...[because] there were no social security type pensions and things like that,[21] so the only way of overcoming problems such as that was to keep people employed longer and longer. It was quite apparent to me that it was necessary to get the average age of the workers down. So we introduced some work incentive schemes, based on work study because it was necessary to get the productivity up to reduce the number of individuals employed. So we had some (rather revolutionary for Guernsey) work- study incentive schemes and there is no doubt that it got the productivity up considerably and the output of the individual went up.

In the greenhouse, most of the tasks were routine – taking side shoots off, taking leaves off, picking the tomatoes and so on. These operations,

> [can] be studied by someone who knows what they are doing and a value applied to them, so the individual was rewarded. It wasn't piecework because everyone had the basic wage. It was an incentive bonus over and above the basic wage, depending on the speed and the skill with which [the workers] carried out the routine tasks.

The simplicity of the labour process was such that no detailed work-study programmes were necessary. "[Given that the work was inherently boring] ... to have broken it down so that some individuals only had one job to do would have increased the tedium". The programme of scientific management therefore initially involved little more than systematically allocating work, recording the levels of output by each group and adjusting payment accordingly.

> So the individual foreman had overall supervision and was involved in the labour anyway and he had individuals under him [who] all had a variety of jobs but [they]were individually responsible for recording their own individual productivity. So the number if plants they handled in the respective jobs, the number of trays of tomatoes they picked, were all easily recorded.

[21] Although contributory pensions were introduced in 1935, Howev. the self-employed and employees earning more than about 1.5 times the average wage were not forced to participate in the scheme, and the great majority did not. Social Insurance (Guernsey) commenced on the 4th January 1965 (Mike Jackson & Daryill Ogier – personal communication).

These adjustments to the labour process and payment system saw Kenilworth emerge as the premier and most profitable tomato producer in Guernsey. As the leading exponent of the raft of scientifically based innovations promoted by the Horticultural Advisory Service, Kenilworth established a critical position within the industry. As the production process was revolutionized, these scientific techniques extended further into the regulation of the labour process.

Fred Moffat gestured dramatically when he spoke to us about the changes and the contrasts between modernised production and the 'traditional vinery' that housed plants with around six trusses of tomatoes. He explained:

> [By the mid seventies]... we are talking about a tomato plant that starts its life in October. [The] seed is sown in October ... It is put into the main glasshouse at the end of November and it is there to November of the following year! In that time it has produced something like thirty feet of stalk, with as many as thirty trusses. Now that has got to be manipulated and trained in a certain fashion. The leaves have got to be removed, and even picking the tomatoes has got to be done correctly and properly. They are not things that you can mechanise. Now during our days when we were highlighting everything, we even looked at time and motion, so that we found the most dextrous way of handling a tomato, which way round to trim it, and how long it took to do certain jobs,

Throughout the sixties and seventies the Advisory Service maintained the momentum for change. They retained their close involvement with other horticultural scientists in Holland, Canada, Israel and around the world. They also took local growers away from the island to see comparable techniques elsewhere. In these ways, the traditional industry was slowly transformed and for a decade or so it was a world leader in the propagation and production of greenhouse tomatoes. Moffat:

> There was no doubt that Guernsey growers at that time, although I say it myself, were leaders of the field ..., certainly Europe, and even Australia and New Zealand. We had contacts out there too. Not only were we providing information, we were getting information (certainly from Holland) and seeing how can *we* could use their information to the best of our advantage, and obviously how can *they* [were using] our information. There was very free exchange of experts – scientists, experimentalists, growers, and so on, – and it built up to a very, shall we say, well-known, experimental research station and centre for growing tomatoes in Guernsey.

These scientific developments led to significant changes in the organisation of the Guernsey tomato industry. It saw the production of a more durable tomato and of large increases in yields. It laid the foundation for a highly innovative industry capable of competing in the European market. As one small grower describes:

> The advisory people had asked growers to modernise. The Dutch had these greenhouses with large panes, high fronts. The larger panes let in more light and light is very important to everything you grow. So of course you get more light, better light, better ventilation you produce more pounds per plant. As I say from the early beginnings, you might get about 6 lb per plant when I started growing. Then 12 lb per plant was the aim and then it became 20, 30 up to 35-36 lb per plant. Yes, there's nothing wrong with that in theory, more light, better control of the environment inside the greenhouse. But in the end a lot of people lost a lot of money.

How did this come about?

Changing Economies.

In the nineteen seventies, a tomato economy that had developed over the previous fifty years virtually collapsed. The story of its demise is complex and in discussions on the island you will find many villains blamed. These include the supermarkets, the Advisory Board, the Dutch, the big growers, and the Marketing Board. In truth, the momentum of the decline requires an examination of all of these factors, along with several others. We have argued that the Guernsey tomato economy can be seen as a classic example of an instituted economic process, where economic activity was deeply embedded into the fabric of social and political life. An explanation of its decline needs to account for the unravelling of these relationships. This, of necessity, implies an understanding of the ways in which particular regional economies became dislocated in this period. The collapse of the Guernsey tomato industry is one part of a more general story that also includes regional coal, textile and ship -building economies across Europe.

The Guernsey industry traditionally relied upon coal to fire its boilers. However in the 1960s, given the competitive price of oil, the large growers began to switch away from coal based heating and steam systems. In a letter to the National Coal Board at this time the SCH President pleaded against any price increases for anthracite coal as this was still used by the small growers. He pointed out that coal imports have declined in recent years as some growers have moved to oil burners and that price increases

would exacerbate this trend. With some foresight he noted that although choice of fuel was up to individual growers the States were concerned over a possible over-dependence on oil since "experience has shown that sudden changes in the international situation can seriously affect oil supplies"[22]. The rapid increases in oil prices in the early seventies confirmed the wisdom of this concern. This was particularly poignant given the fact that many of the Dutch growers were able to rely upon cheaper natural gas.

> That was the beginning of the demise of the growing industry in Guernsey, of tomatoes certainly. They just simply could not compete with the Dutch and the high cost of fuel and because the Advisory were saying you had to plant in November, you had November, December and January and even February can be cold at times.

The demise however was quite a complicated affair. The oil price increase, for example, did not produce a collapse but a dramatic push in the programme of modernisation. Harold Dally recalls that:

> Oh that was dramatic in 1973 ... that was a killer. There was not only a price rise, but there was a rationing. There was a shortage of fuel and ... after labour, fuel is the big cost in production. So it was dramatic. It went up so rapidly, it wasn't something you could adjust to or adapt to. But ....the modern metal glasshouse structures are more heat efficient, so to that effect, it increased the modernisation and also improved the controls of the heating units so that they were more efficient. They are more airtight, they seal better. The load bearing members are smaller and the light transmission is greater because there was less opaque material. The light transmission and the heat efficiency is much greater

For these reasons the growers in Guernsey were spurred on to invest in new modern glass. In this they were encouraged and assisted by grants from the States that covered a part of the modernization and rebuild. Fred Gallienne remembered:

> Yes a lot of growers in Guernsey I know who went bust. They'd taken advice of the Advisory Service to build new glass and wish they'd never heard of the Advisory Service. This may be hard on the Advisory Service, there were other things as I said, the cost of oil, the rise in interest rates and competition from the Dutch and the Spanish. All these things combined but nevertheless they wish they hadn't built new glass either. They lost their houses and like when I gave up I still had my house but a lot of growers didn't.

[22] SHC, *Minutes*, 30 December 1961 (States of Guernsey, Island Archives Service).

Rising interest rates and oil prices exacerbated the high costs of modernization.

> Come the early 1970s interest rates went through the roof, some were paying over 20%. Then the cost of oil. When I was buying oil in 1970 it would have been £50 for 1000 gallons of the 35/2nd oil, then all of a sudden in the early 1970s it started rising and in next to nothing it was about £300 for the same amount. So you had a combination of very high interest rates at the same time as you had this massive rise in the cost of fuel. If it had only been one, say higher interest rates and oil still at £50, a lot of them probably would have survived. But the two together was too much ... even though they were producing more tomatoes. It's the same thing again you've got to produce more and more ...[but] then you've got to sell more, don't you.

These accounts begin to establish some of the features of any explanation of the crisis that hit the Guernsey industry. It relies on evidence from the small growers who were severely hit. Although these growers dominated the industry numerically there were other larger members of the industry who exerted a critical influence upon events. By this time, of course, Harold Dally had moved from the Advisory Service across to Kenilworth Vineries. In his new position he quickly became a member of the Marketing Board (later he was elected as Chairman) and then of the Horticultural Committee. Through Dally, Kenilworth was placed at the very centre of the administrative and political apparatus of the industry. In this position Dally was able to intensify the modernization programme that he had helped to establish with the Advisory Service. Critically this involved the expansion of the greenhouse activity and increasing investment into modern glass. All of the company's greenhouses were taken though a process of modernisation. This began with the heating system:

> Temperature control is one of the key factors in programme growing, so that had to be more efficient than it was. So we chucked out all the old boilers and brought in new [ones] which were probably 75 or 80% efficient, still not wonderful, but a good high heat recovery from fuel that was put in and gave a much better control of the glasshouse temperature requirements. It was more responsive.

The next part of the strategy involved expansion. In its effort to build on the potential offered by Guernsey's comparative advantage in the UK market, and to prepare for competition with the Dutch, Kenilworth's green-

house acreage increased eight fold (from 11 acres to 85) in the period between 1969 and 1980. In Dally's view:

> That probably started off the general modernization programme on the island. As we were saying, there's nothing like example is there ... It was largely ... acquisition[of existing units] ... People [were] going out of business and quite a lot of them [with] modern units of glass that [they] had built, and then decided for whatever reason that they wanted to get out. So we were acquiring [these units] but the unfortunate thing, as I say, is it had to be scattered, because they were scattered units. They were not all very conveniently located – but we had a series of managers who looked after an area and had foremen and staff underneath them.

In the four years 1973-1976 the total number of holdings came down from 2,466 to 1,921. The greatest decline was in holdings of less than 400 sq ft; the number of these dropped from 1269 to 869, while holdings over 1200, 1600 and 2000 sq ft all increased. Such was the push toward concentration that by 1976 holdings in excess of 2000 sq. ft accounted for 33% of the total.

This process of contraction and consolidation around larger units was also associated with a move from wooden greenhouses to those with metal frames and 24 inch glass. (see Table Two)

Table 2: The Investment Squeeze

	1978	1979	1980	1981
% 24" Modern Glass of all glass	30%	35%	38%	39%
Acres of 24" glass	296	354	384	381
Acres of 24" glass for tomatoes	232	277	274	259
% of crop area	41%	51%	60%	65%

Source: States Committee of Horticulture, "Review of Guernsey Horticulture 1982 and Proposals for Support to 1993", 1982

These modern vineries accounted for 22% of the total in 1976 (compared with 14% in 1972) while the percentage of greenhouses deemed "obsolete" had dropped by to 39 % (previously 46%). The data on automatic ventilation (up to 23%), CO2 enrichment (52%) and the use of 'isolated growing system' (77%) all confirm the growth of the modern scientific approach to tomato cultivation on the island.[23] New varieties were also tri-

[23] 'A review of tomato experiments at the Guernsey Experimental Station', *Horticultural Committee minutes* (States of Guernsey, Island Archives Service HC/AS 43-45).

aled and the Horticultural Committee of the state monitored these changes and commented favourably on the increase in productivity. The feeling was that a combined modernization and gradual contraction of the horticultural sector, in conjunction with a wider process of diversification, would be good for the island. In the context of a sharp decline in acreage and holdings from 1978 it concludes that "without the enormous increases in productivity over the last five years the reduction would have been more drastic." However, it became clear that even these developments could not prevent a collapse in the industry. The competition was becoming increasingly sharp and prices were falling. The effect of these combined pressures in Table Three.

Table 3: The Price Squeeze

	1978	1979	1980	1981	1982
Crop area (acres)	567		456	401	318
Crop value	£26,476,260		£24,659,128	£20,581,266	N/A
Break even price per tray	N/A		£2.87	£3.38	£.3.77
Actual price per tray ex. GTMB	£2.53		£2.75	£2.50	N/A

Source: States Committee of Horticulture, "Review of Guernsey Horticulture 1982 and Proposals for Support to 1993", 1982.

Intriguingly, the company that had come to the drive for modernisation on the island – the key exemplar – was the first to decide to get out of the business. The strategic eye that it had directed on the application of science to production was brought, all the more keenly, to an assessment of the industry's future in the eighties. Dally again:

> After a year or two it became pretty apparent to me what was going to happen was production was going to move south. Guernsey had some of the advantages ...but [it also] had this tremendous disadvantage [in relation to] transportation .... I felt ... that people would move away from the UK to somewhere further south.... and having built the company up to that stage, I felt that this process was going to happen and advised the other directors that we should now be getting out of it. Having acquired these units, we set about disposing of them progressively and keeping the ones that were strategically best placed and were the most productive.

The thrust of the scientific growing regimes developed from the late 1960s had been to allow Guernsey growers to supply the lucrative early season market. However by the 1980s imports from Spain and the Canaries were

competing in relation to both the early and late crops. At the start of the season Guernsey product was targeted at Scotland and the North and only as supplies increased did this extend southwards because by 1980 Iberian produce dominated the southern early market. Later in the season "Guernsey Toms" were withdrawn from the East of England and Lancashire in the face of strong competition from local producers and also Dutch imports. The importance of this competition to the Guernsey growers is made clear in Tables 4 and 5.

Table 4: International competition for the UK market: UK sales by country in 1979 in tones.

Country	Sales volume (tonnes)
Netherlands	43,927
Ireland	5,737
Spain	22,347
Canaries	73,832
Others	2,787
Guernsey	49,867
Jersey	11,375
UK	126,800
Total	336,672

Source: States of Guernsey Archive, HC3-8

Table 5: The 1970s– The Structure of the Seasons

Month	Guernsey Crop – Approx Monthly %'s of the Season's Total	Sources of main competition
April	11	Canary islands mainly, plus Dutch and Romanian, and the start of the UK grown and Jersey (indoor)
May	21	Canary Islands (finishing) Dutch, UK grown and Jersey
June	20	UK grown (inc. Scottish) Dutch and Jersey and Irish
July	18	UK, Jersey. Irish and fewer Dutc
August	14	UK, Jersey. Irish and fewer Dutc
September	9	UK grown Jersey (indoor) and Dutch - all declining. Jersey (outdoor) now in production
October	4	UK grown and Jersey finishing. Spanish mainland starting
November – March	3	Spanish until Xmas – otherwise almost entirely Canary Islands

This rapid decline occurred much more quickly than had been expected, and in the early 1980s the island for the first time since the war began to experience high level of male unemployment. There were a number of reasons for this.

The period of rapid decline.

During the seventies, the market ascendance that Guernsey tomatoes had occupied, began to weaken. Moffat;

> But eventually, of course, the information [about modern methods of production] did get out to everybody, and everybody was beginning to do it. Then it became the person or the areas that had the biggest investments could do it best. Jersey is a very rich island and when they saw the tomato industry was going ... they then leap-frogged [us]. They said "we haven't got any glasshouses" [and went] straight in with the new, straight in with the techniques to produce ... without soil i.e. hydroponics, nutrient film or rockwool. [So] straight in, right at the top. And when they built glass, they built big glasshouses. Here you don't have large fields. The history here is that if a farmer had a field, when he died he had to divide it up amongst the boys. That was the inheritance laws ... [and] consequently all the fields are very small. So you couldn't have ten acres of glass just like that, not unless you bought next door, and that takes a lot of years. But Jersey just did it. In Holland [likewise] they simply just built glass – straight in with modern techniques. So everybody was developing modern techniques, so where was our advantage? We were losing it! We still had early sunshine but if you have early sunshine in an old glasshouse, [that was actually] less early sunshine! .... So things become a little bit more difficult.

This was exacerbated by changes that were taking place in the UK

> Other people were coming in early... When it was found that light was important, you found a lot of people from the Blackpool area and Yorkshire area, they just migrated down to the South, and [now] the Sussex area down there on the coast, is full of glass. New glass, modern glass. When it was generally known that the more light you had the earlier you could grow your tomatoes, the South of England just mushroomed with glass houses – huge areas, from West Sussex right the way down to Southampton.

Between 1979 and 1982 there occurred a traumatic collapse of parts of the industry. Everywhere in this period are references to the catastrophic contraction and special pleadings for support given the importance of the

industry to the local economy: e.g. a letter from President of the States of Guernsey JAC de Garis to the Bailiff on the 7th September 1981, refers to a meeting with the Home Office the previous August which successfully sought a price support scheme for tomatoes. The causes of the problems are seen to be rising costs, low returns, recession and "unfair competition from subsidised imports into the UK of horticultural produce form Holland and elsewhere". Likewise the States Committee for Horticulture (SCH) report 'Aid for Horticulture' (30th July 1981) states that the "competition is neither equitable nor fair". The subsidy for the Dutch tomato takes the form of "a special low tariff for natural gas supplied to horticulture" which results in energy costs which are only 50% those of Guernsey growers - an effective subsidy of £10,000 per acre. Given these special conditions the report demanded a price support scheme for tomatoes.

In fact price support was forthcoming and continued into the mid 1980s (see Table 2).[24] In 1983 £600,000 was allocated for the tomato price short fall support scheme. By 1986 this fund had fallen to £200,000. In other areas support took less direct forms so that the flower sector received £300,000 in the same year for export development. By 1983 the acreage of non-edible flowers exceeded that devoted to tomatoes, the latter having fallen from 567 acres in 1979 to 240 acres in 1983.

Despite this hemorrhaging, spokesmen for the industry were slow to concede defeat or acknowledge the profound structural transformation of the economy which was taking place. In a speech in July 1982 the president of the Horticultural Committee defended the island's growers against any charges of laziness, short-sightedness or inefficiency, pointing the great modernising strides of the past decade over which time investment had increased along with yields. Furthermore he warned against any talk that the horticultural industry was finished, arguing that there were no alternatives. The off-shore finance industry though welcome could only be seen as an 'additional bonus'. Light industrial developments such as Tektronix Limited which employed 600 people were he argued permanently vulnerable to relocation. He concluded "We are very vulnerable [and] horticulture figures very large in our island's future".

In organising its complex system of distribution the Board was slow to recognise the transformation of UK food retailing which gathered pace

[24] The scheme came into operation in July 1980 (Billet d'Etat No. XI). It provided for a cash payment per tray sold by GTMB during the months of March April May and June. The payment varied with the price realised for tomatoes by GTMB. If the price was low then payments up to 10% of the break even price were paid. In March 1982 a full payment of 86p per tray was paid following 67p in April. There was a limit to the overall cost of the scheme such that in the same year there were no funds remaining to make payments in May and June.

during the 1980s.[25] The Board always consciously eschewed supplying the supermarkets directly, sensing that the wholesale market clearing mechanism was likely to secure the best prices for the growers.

> GTMB follows this system because it believes that the market system is the only practical way in the UK of determining price. If large quantities of Guernsey's best tomatoes were sold direct to pre-packers or supermarkets then the price on the market would be based on the produce left to go through the market. In the end the direct buyer would feel he was entitled to a special (lower) price than that being realised on the market [26]

Likewise

> The marketing strategy of the GTMB always has been and still is strongly oriented to sales through the wholesale market but a substantial proportion is distributed via the super-market sector of the trade.

Until well into the 1980s the policy of the Board was to try and limit direct sales to 20% and for even these to physically go through the market, organised by the local panelist who would deal with receipts and paper work. The only indication that the GTMB was beginning to appreciate the need for better chain management in the more competitive situation of the 1980s was its recognition of the need for a tighter grading system to match that of the Dutch auctions. It also became aware of the need for better labeling specifying individual growers and store-packers allowing for some degree of 'traceability'. However this latter injunction cut across the underlying structural premise of the Board. Its existence was based upon a view that the product of growers should be aggregated within specified grades and sold as from a single source with growers remunerated according to the weight of fruit supplied and the average price returned across all of the various regional UK markets. Issues of quality only impinged on individual growers in so far as the inspection system was rigorous in determining rejections and more generally in the periodic 'quality campaigns' initiated by the Board in conjunction with the State Committee on

[25] See for instance, Sparks 1986 The Changing Structure of Distribution in Retail Companies: An Example from the Grocery Trade. *Transactions of the Institute of British Geographers.* New Series 11, pp. 147-54; and Davies, Gilligan and Sutton 1986. The development of own label product strategies in grocery and DIY retailing in the United Kingdom. *International Journal of Retailing* 1 pp 6-19.

[26] Tomato Working Party, *Minutes* Dec 1980 (States of Guernsey, Island Archives Service).

Horticulture (e.g. successive 'treat me nice' and 'treat me gently' campaigns aimed at pickers). However the increasing power of the supermarkets and the capacity of other producers to operate well within this new system intensified the pressure on Guernsey.

There were also pressures for change within the island. The large firms saw the potential for them to diversify and operate as seed and flower producers in the changed market conditions. The large firms represented a clear shift away from the family based concern that had been the bed-rock of the CTMB. Family labour was replaced by large numbers of waged labourers, many of them migrants. Moffat notes that:

> A grower with many acres, found it difficult getting employees, so they started importing people from Portugal - you had to train them - so the people from Portugal would come and they are not allowed to live here for more than nine months in a year..... they were imported for the period of the time they were working in the glass house, went back after nine months and then reapplied to come back the following year

The large firms increasingly saw their interests to be opposed to the small growers and the GTMB. They were also aware of the capital assets of the Board and the value of their share should they be made liquid. Over several years they argued and pressured for it to be wound up and in September 1986 they were successful. A proposal for the winding up of the GTMB was accepted and in its place was a new "producer co-operative" which would allow the members to:

> use the company to undertake packing and shipping services and to undertake the marketing of all types of produce but the grower would be free to use either of these sections of the service without having to use the other, if he so wishes.

The GBMB was wound up in the November. In the following year, the Horticultural Committee was to note that:

> "It is clear that Guernsey men and women are taking up more lucrative opportunities outside horticulture and that Guernsey now appears to be heading in the same direction as Jersey where there are virtually no Jersey persons other than owners employed in horticulture or agriculture and there is a permanent Portuguese and Irish population of several thousand".

Deputy J.E. Langlois, of the States Island Development Committee and one-time President of the States Committee for Horticulture, noted that

> "I don't think that it is a misstatement to say that without imported seasonal labour large areas of the horticultural industry will struggle to survive"

Ten years later tomato production had virtually ended. Certainly when we visited in 1999, production of the "Guernsey round" had ceased and the island had become a net importer of tomatoes.

These changes were experienced my many people as morally and socially absurd. One man, speaking for many talked with us about visiting Marks and Spencer's food store and finding tomatoes "imported for the UK". His wife found cream from the same source. They met with the manager:

> I said " We produce tomatoes, and you import them from the UK. They are not as the fresh as the local ones, and this lady was saying about the cream. We've got a dairy up the road" - he said "That is the policy of the company, there is nothing we can do about - that's the policy" So they were importing cream and tomatoes, when down the road you could get fresh ones that were picked today and the cream that was produced locally! But that was the policy.

Our conversations with the people we met there lasted many hours and ranged from the practical to the philosophic. In our meetings with Mr Moffat we reminded him that in his early life he was a great believer in the power of science to change things for the good. It seems that he had experienced something akin to an Oppenheimer moment. He had changed his mind and he had regrets:

> I regret - when I came over here - these people who have grown tomatoes all their lives, they were in their fifties and sixties, their keen observation, it was absolutely fantastic. There was one grower in particular - the leading grower in Guernsey ... there were always competitions for tomatoes, and he would win year after year, after year. Earliness, or standard of the crop, or the quality of the tomatoes - it was all sorts of competitions. He would win them. He was a fantastic chap and he was on our committee.
>
> I remember once he said "I would like you to come out and see my crop" - I said okay when shall I come. I said, I can be there tomorrow at 10.30 - this was the first time I'd ever been to him, and I hadn't been here very long - and I drew my car onto his vinery and this women came to me and said "are you Mr ...." I said, yes. She said "Mr ... isn't ready for you yet". I looked at my watch and it was only 10.15 - so I sat in my car, and at 10.30 he came and said "I'd like you to look at my crop" – and his vin-

> ery ... the paths had gravel on them! And they were all raked. It was absolutely superb! ... We went in the first glass house, and we walked through, chatting about tomatoes all the way through [to] the second glass house. [The growers had individual glass houses rather than one big block]... When we got to about the fifth glass house, he stopped - "this is the plant I want you to see". He didn't want me to see his *crop*! It was *this plant* that he was concerned with. "Why is that plant doing such and such" ... and we had a long, half an hour discussion about one plant ... There were many growers like that. That's all gone. Science just wiped them out ... To convince those people to go scientific? You haven't a snowball's chance in hell. They went out of business obviously! But that degree of observation, which took him years to develop ... not only him, but others as well ... [It] has all gone.

He thought that the changes had been sad, and not necessarily beneficial to people on the island. But, he concluded, "the science didn't look at that side!"

This is a paper in historical sociology. It relates to the past but to the very recent past. Many of the people involved are still alive and we have talked with them about the changes they have experienced. In their view they have witnessed a social transformation as a way of life "disappeared" before their eyes. In the view of a local planning officer Guernsey, in the space of a generation, altered from an integrated, traditional society to a part of Europe that was most like the US. He cited the highest divorce rates in the UK, the sale of fast cars, and the dominance of money as supporting evidence.

So how can we interpret these changes and how do they reflect upon the ways in which contemporary capitalist societies operate? Initially it is tempting to see the decline of the Guernsey tomato industry as a further demonstration of the speed of change in regional economies that has taken place with the onset of "globalisation". In this same period, regions dependent upon coal, steel, lumber and many other basic products founded that their established industries were unable to deal with increasing competitive pressures. The ending of trade barriers and the strong development of international markets opened these places to much harsher economic conditions. Across the coalfields of Europe and the USA, people talk in ways familiar to the old Guernsey growers. In considering situations such as these Raymond Williams[27] wrote of a "structure of feeling" as a

[27] Raymond WILLIAMS, *The Long Revolution*, Harmondsworth, 1965; Raymond Williams, *The Country and the City*London, 1973.

way of expressing the link between the social structure and the daily "ordinary" experience of hurt and pain.

However Guernsey was different from the coalfields. As a small island economy with a degree of political autonomy from the mainland UK state, Guernsey was able to adjust to the freeing of the trade in money. It became an "off-shore" island and a major site of banking, finance and property development. While the coalfields became economic backwaters the island that was once red with tomatoes shifted into the casino economy. GDP increased alongside social disintegration. The account suggests parallels with Polanyi's in *The Great Transformation.*[28] Tomato production for fifty years was embedded in the social structure of Guernsey society. Here production and marketing of tomatoes were established as 'instituted economic processes'. As a consequence, the removal of the bricolage of rules that regulated the economy had a major social impact. The new economic processes were instituted in quite different ways, using very different technologies and forms of labour. At an important moment, the economy was dis-embedded in ways that resembled change in the nineteenth century.

However there is a further complication. In most accounts of globalisation[29] the pressure on regional economies in the North has come from cheap labour in the South. In Guernsey's case however the threat came not from the fields on the Canary Island and mainland Spain, but from the greenhouse technologies developed in Holland and by Dutch émigrés in the South of England. The reaction of these Northern growers reveals the possibility of a response to competition from lower wage and more favourably located suppliers, based upon technological and organisational innovation.[30] Guernsey's demise resulted from its slow adoption of the new technologies and from its *Southerly* location. Oddly the characteristics that give it an advantage in the fifties and sixties were those that impeded it in the seventies and eighties.

More specifically the decline of the Guernsey tomato economy can be related to a general trend within food production in the UK – a trend which may be repeated across Europe. At its peak the tomato monopoly in

[28] Karl POLANYI, *The Great Transformation...*, *Op. cit.*

[29] Peter DICKEN, *Global Shift. Reshaping the Global Economic Map in the 21st Century*, London, 2003. See also Huw BEYNON, Ray HUDSON , David SADLER, *Tale of Two Industries: Contraction of Coal and Steel in the North East of England*, Milton Keynes, 1991.

[30] This Schumpeterian process is analysed at length in Mark HARVEY, Stephen QUILLEY, and Huw BEYNON, *Exploring the Tomato...*, *op. cit.* (Chapters 4-6).

Guernsey controlled prices in the UK market though a sophisticated system of telephone contacts and coordinated sea and rail transportation. This chain from producer to customer was dominated by the GTMB. Gradually, and then with increasing pace, the power of the UK supermarkets dramatically altered this situation, shifting power 'downstream' toward the retailer. As such much of food production in the UK can now be understood as involving "retail driven commodity chains."[31] While the chain allows for the emergence of some monopoly power amongst some producers, the dominant actor in the chain is the supermarket. Their oligopoly controls access to over 80% of grocery purchases in the UK. They decide how fruit is to be packed and how it will be presented on their shelves. Quality is regulated along the chain by the supermarket and its buyers. Through the use of the bar code produce is monitored from the greenhouse to the check-out desk. Generally in the trade, this complex set of electronic communication is referred to as "the system".

All this, of course, has had deep effects upon the people involved in the production of food. The place of labour within the new system has changed dramatically. In the greenhouse production processes much of the work that was done by hands is now done by machines. Labour has shifted along to commodity chain to the large RDCs (regional distribution centres) linked on a just in time system to the thousands of supermarkets that cluster on the outskirts of towns and urban settlements. Here Taylorist stems of organisation coordinate the "pickers" as they load and unload the large cargo handling wagons that operate along the chain linking producer to consumer. It is a very different world from the vineries of the Guernsey island and the landing jetty at St Peter Port.

The explanation of Guernsey's demise therefore has to be a multi-causal one. We have identified important contributory features of Guernsey economy and society, but a great deal of the explanation must relate to factors outside the island. Certainly the establishment of a national market for foodstuffs in the UK at a very early date and the weakening of locally based producers, is a marked contrast to the situation in France. The rise of the EU affected Guernsey's trading position with the UK and opened up the possibility of competition from open-field growers in the South. The UK's economy at the time

[31] See Gary GEREFFI, "Global Commodity chains: New forms of coordination and control among nations and firms in international industries" *Competition and Change*, 4: 427–439, 1996; and Gary GEREFFI, Miguel KORZENIEWICZ, *Commodity Chains and Global Capitalism*, Westport, 1994.

was very state/producer driven. The intervention of the IMF in 1976 and the election of Mrs Thatcher in 1979 foretold of major change in the conditions of economic life in Britain. The weakening of the state and the new political emphasis on the market were conditions that favoured the rise of innovation at a time when computer based information technology was in its infancy. Markets flourished and supplying an increasingly multi-ethnic population of the UK, stimulated differentiation across a wide range of food products. Dietary sophistication and the elaboration of "taste" became everything. By the end of the nineteen nineties British supermarkets were routinely stocking between fifteen and twenty fresh tomato lines, and catered for an apparently insatiable demand on the part of consumers for traceability and detailed product information – a very far cry from the 'one size fits all' Guernsey standard round (see Tables 6 & 7). Unable and perhaps unwilling to respond to 'consumer power' as organised by the multiple retailers, the vineries in Guernsey closed.

Table 6: Fresh Tomato Product Lines at Handforth Dene Tesco, June 1999.

Product Line	Country of Origin
classic finest	Belgium
vine ripened	Netherlands
cherry vine ripened	*England*
three colour midi plum pack	Netherlands
red midi plum pack	Netherlands
baby plums	Spain
flavour top round	*Britain*
Tom and Jerry	*Britain*
loose cherries	*Britain*
cherries pack	Spain
round family pack	*Britain*
loose round	*Britain*
large slicing pack	Netherlands
super sweet plum	*Britain*
organic round (Soil Assoc. standard)	Netherlands
organic cherry pack	Mexico

Table 7: Technical Information on the Tomato Provided in Sainsbury's 'Product Manual' 1999

Tomato	Kg	KCal	Protein (g)	CHO (g) sugars	of which	Fat (g)	of which saturates (g)	Fibre (g)	Sodium (g)	Additional Information
=85g	74	18	0.7	3.0	3.0	0.3	0.1	1.0	<0.1	Vit C 10mg/ 100g 17%RDA