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THE AEOLIAN ISLANDS: BIRTH AND DEATH OF A HUMAN LANDSCAPE

With 5 figures and 5 tables

RUSSELL KING and SUSAN YOUNG

Zusammenfassung: Die Äolischen Inseln: Geburt und Tod einer Kulturlandschaft.

Im Hinblick auf geographische Studien können kleine Inseln als Modelle im verkleinerten Maßstab betrachtet werden, bei denen das Zusammenwirken von Mensch und Umwelt beinahe wie in einem Laboratorium analysiert werden kann. In dem Maße wie die Bevölkerung wächst, wird auch die Landschaft umgewandelt und – wenn Auswanderung die Bevölkerung abnehmen läßt – wieder dem Verfall preisgegeben. Dieser Kreislauf wird am Beispiel der Äolischen Inseln beschrieben, einem Archipel von sieben bewohnten, vulkanischen Inseln, die im Norden Siziliens liegen. Die anfangs stetige Bevölkerungszunahme beschleunigte sich im 19. Jahrhundert und erreichte im Jahre 1900 das Maximum von über 20 000 Einwohnern. Seitdem gab es einen drama-

tischen Rückgang; die Zählung im Jahre 1971 ergab 12 230 Einwohner. Das Ziel vieler Auswanderer war Australien. Die Aufeinanderfolge von Ausdehnung und Einschränkung der Landnutzung wird unter besonderer Berücksichtigung von Salina, der zweitgrößten Insel der Gruppe, beschrieben. Lipari, die Hauptinsel, war erfolgreicher in der Erhaltung seiner Bevölkerung, doch auch hier haben einige Siedlungen starke Einbußen erlitten. 1971 trat jedoch eine Wende ein, nach der die Bevölkerung langsam wieder zuzunehmen begann. Der Tourismus und ein Nachlassen der Auswanderung sind die Hauptgründe dafür. Der Fremdenverkehr stellt jedoch ein Paradox dar: Urlauber besuchen die Inseln sowohl ihrer seltsamen vulkanischen Landschaft als der Ruhe und des Friedens wegen; doch allzu energische Förderung des Fremdenverkehrs wird eben diese Anziehungspunkte zerstören.

Small islands form an attractive focus for geographical study. Quite apart from their undoubted fascination and mystique, they act as small scale models where the man-nature interaction can be analysed almost as in a laboratory. In a sense their isolation is absolute; there are no problems of regional definition; they form 'closed' as opposed to 'open' systems. The abundant ecological work on small islands is a recognition of these properties.

Two features, isolation and small size, are basic to insularity. Smallness implies acute spatial constraints on islanders' attempts to increase production in the face of development needs or population pressure (GOUROU 1965). The interaction between a varying population and a fixed land resource produces marked landscape changes. As population increases so the landscape is transformed, often with an intensity unknown on the mainland; as population dwindles so the humanised landscape falls apart. This geographical cycle – the creation and decline of the human landscape – is very characteristic of the Aeolian Islands, a Mediterranean archipelago located north of Sicily.

Isolation, the second characteristic of insularity, means that islands generally suffer from the economic problems of a marginal location. Islands also tend to be cultural backwaters. They often survive as little ethnographic museums, for here traditions survive whereas elsewhere they have been swept away.

The Aeolian Islands

The archipelago takes its name from Aeolus, the legendary god of wind which mythology identifies with these islands (PHILLIPS 1956). There are seven inhabited islands (Table 1) and numerous uninhabited rocky islets. Vulcano, the southernmost island, is 20 km. from Capo Milazzo on the north coast of Sicily (Fig. 1). Administratively the archipelago belongs to the Sicilian province of Messina, but the local municipal organisation is rather strange. Lipari commune includes the main island of Lipari together with five

Table 1: *The Aeolian Islands: Basic Characteristics*

Island	Area (sq.km.)	Population (1971)	Density (per sq.km.)
Lipari	37.3	8568	232.1
Salina	26.4	2193	83.1
Stromboli	12.2	393	32.2
Vulcano	20.9	434	20.8
Panarea	3.4	268	78.8
Filicudi	9.5	245	25.8
Alicudi	5.1	129	25.3
Aeolian Islands	114.8	12230	106.5

Source: Censimento Generale della Popolazione 1971. Rome: ISTAT.

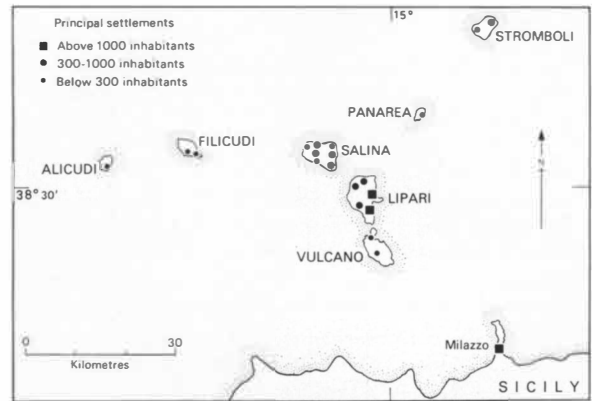


Fig. 1: The Aeolian Islands

other islands (Vulcano, Stromboli, Panarea, Filicudi, Alicudi). Salina, the second largest island, is divided into three separate communes: Santa Marina Salina, Malfa and Leni. This unequal administrative division has implications for the availability of demographic data and other statistics.

Traditionally interest in these islands stemmed from two characteristics: their unique natural landscape, derived from numerous volcanoes, both active and extinct; and their archaeological importance. The entire archipelago is of volcanic origin, although only Stromboli now is still persistently active. Generally the intensity of volcanic activity declines westward within the archipelago (PILCHER 1967). Vulcano, for example, last erupted in 1888, but still emits thick sulphurous gases with fumaroles at and just below sea level. Lipari and Salina have hot springs, Alicudi small effusions of cold gas. The volcanic resource of obsidian and a strategic position on prehistoric trade routes prescribed great importance for these islands in early times. The citadel at Lipari, a vertical accretion of cultures from the Neolithic to the present, is one of the most important archaeological sites in the Mediterranean Sea.

Ecologically the islands present considerable constraints to economic activity. The two principal problems are steep slopes and shortage of water. Rainfall over the archipelago averages 500–600 mm. annually, with annual variations of up to 50% on this amount. The problem of scarce, unreliable rainfall on volcanic tuff and fissured lava with no impervious substrata inevitably produces an acute shortage of agricultural, industrial and domestic water. Summer drought and spasmodic winter precipitation promote gulleying and soil erosion. Drinking water is obtained mostly through rainfall collection from flat house tops and cisterns, and the Monte Sant' Angelo catchment reservoirs on Lipari. Additional supplies, especially necessary during summer, are brought by tanker ships from Sicily.

Birth of a Landscape

Although the Aeolian Islands were important in Neolithic times, threat of volcanic activity – in particular a violent eruption on Lipari in the ninth century B.C. – delayed the Greek colonisation till 580 B.C., two centuries later than on mainland Sicily. Settlement continued throughout Roman and Christian times, but for long centuries during the Byzantine and Arab periods the islands were drastically depopulated. A repopulation took place under the Spaniards in the sixteenth century and thereafter population grew rapidly from 8,000 in 1400 to 12,000 in 1600 and to nearly 17,000 in 1871 (MIKUS 1969a, p.22). The demographic apex was reached in the first decade of the present century when the islands contained just over 20,000 inhabitants (1901 census: 20,455; 1911 census: 20,570).

Isolation (there were no regular maritime connections with Sicily or mainland Italy before the mid-nineteenth century) meant self-sufficiency and so this rapid population growth led to the application of immense quantities of labour in order to wrest the wherewithal to survive from the rocky lava soil. Scrub was cleared and extinct volcanoes terraced to their very summits. Vines were the main crop. Millions of rough-hewn boulders and pieces of lava were thrust into terrace walls by generations of farmers: by their own hands they made the landscape. There was a pattern to this agricultural expansion as farmers moved out from closely settled core areas (on Lipari, for example, Lipari town, Canneto, Quattropiani and Pianoconte) to marginal farming land on higher, steeper slopes. There was also a colonising movement outwards from Lipari to the other islands. By the 1890s cultivation had reached its maximum areal extent. On Salina flights of terraces went continuously from sea-level to 750 m., taming slopes of up to 50°. Fishing became important too, the harvest of the sea supplementing the protein-deficient diet of the land. A uniquely autarchic island economy, culture and landscape was thus built up.

An interesting documentation of the flourishing and expanding oecumene at this time is provided by the detailed cartographic and toponomastic surveys of Archduke Ludwig Salvator of Hapsburg who mapped 650 locality names and recorded another 1900 in his eight-volume text on the islands (SALVATOR 1893-6). He also described the economic situation at the time. Small agricultural processing industries made wine, olive oil, flour and cheese. Artisan trades such as boatbuilding flourished. Pumice-mining developed in the north-east quadrant of Lipari. Sulphur was mined on Vulcano and salt produced from evaporation in pans at the south-east corner of Salina. Commercial shipping services expanded between 1820 and 1880, in particular on Stromboli which had a fleet of 70–80 ships of 100–200 tons trading wine, olive oil, lemons

and fish to various parts of the Mediterranean seaboard.

The Aeolian Dilemma

Such was the picture until the turn of the century, when the situation started to change. One would have thought that improved communications, which developed particularly after Italian Unification in 1861, would, by linking the islands to the outside world and by facilitating exports, have brought benefit to the Aeolian archipelago. But this was not so. The crux of the problem of small island communities is that contact with outside breaks down their equilibrium of self-sufficiency. Agricultural items, produced on the mainland at a larger and more efficient scale than minute Aeolian farms, undersold the laboriously produced local crops. The penetration of cheap manufactured goods destroyed the islands' artisan trades. Emigration too was facilitated as knowledge about opportunities on the mainland and abroad replaced the islanders' formerly restricted space perspective.

There were other reasons too. The replacement of sailing ships by larger steam-powered vessels made trade with the small ill-equipped Aeolian harbours difficult. Export of agricultural produce declined. The phylloxera epidemic destroyed many vineyards in the 1890s. When soil exhaustion and crop failure ensued, due to the over-farming of a delicate ecosystem, marginal land was abandoned by those who turned their attentions elsewhere, chiefly overseas. In Lipari and most other Aeolian islands the population started to fall from 1911 (Table 2). On Salina, more closely linked to the vine trade than the other islands, decline was registered twenty years earlier.

Emigration

Migration has been a continuing phenomenon in the Aeolian Islands. As early as 1763 83 families comprising 400 persons moved from Lipari to colonise Ustica, an isolated volcanic island 60 km. north of Palermo (TRASSELLI 1966, p.20). Overseas migration developed strongly in the late nineteenth century, becoming most intense in the years immediately preceding the First World War. Between 1901 and 1914 over 10,000 persons left the Aeolian Islands, an amount equivalent to half the 1911 census population. Few returned permanently. In the present century population decline has been inexorable: 20,570 in 1911, 17,690 in 1931, 14,782 in 1951 and 12,230 in 1971. Between 1961 and 1971 there was a net outmovement of 2,545, 18.5% of the 1961 population. Only Lipari and Vulcano have not been heavily affected by depopulation: the former because it is the principal island, the administrative centre and the target for some migration from the other

Table 2: Population of the Aeolian Islands 1871–1971

	1871	1911	1931	1951	1961	1971	$\frac{1971}{1911}$ %
Lipari	7671	10400	10245	9393	9172	8568	82.4
Salina	4907	4300	3589	2983	2737	2193	51.0
Vulcano	188	273	368	413	356	434	159.0
Stromboli	1999	2447	1173	659	560	393	16.1
Panarea	397	790	641	359	272	268	33.9
Filicudi	1166	1547	1094	644	447	245	15.8
Aliculi	599	813	580	331	230	129	15.9
Aeolian Islands	16,837	20,570	17,690	14,782	13,774	12,230	59.5

Source: Partly after MIKUS (1969a, p. 25).

islands; the latter because of tourism and because its population is so low anyway.

Before World War One the dominant flow was to the Americas, chiefly to the U.S.A. and Argentina (MORI 1919, pp. 54–55). Since the Second World War roughly half the migrants have gone to Australia, a pattern very different from the rest of Sicily and Southern Italy, most of whose emigrants go to France, Germany and Switzerland¹).

In the overall spatial context of migration, several distinct processes can be identified: migration within individual islands; migration between islands; migration to Sicily and mainland Italy; and emigration abroad. Intra-island migration is limited to Lipari where there has been a movement from interior upland to coastal lowland areas, and especially to the capital, Lipari town, which grew in population from 3731 in 1951 to 3886 in 1971. This migratory movement is paralleled by commuting movements, again only developed in an intra-island sense on Lipari where a 25 km. road network and two buses enable labourers, office workers and school students to travel from northern districts like Pianoconte and Quattropani to Lipari town each day.

Analogous processes exist in inter-island movement. There is both a net permanent migration from the smaller islands to Lipari (in contrast to the nineteenth century outward colonisation of the minor islands by *Liparotti*), and daily commuting movements of students and other types of workers (although each island has a primary school, only Lipari has specialised secondary schools). The post-war development of fast

hydrofoil services has greatly facilitated inter-island movement.

Much of the movement to Sicily and Italy is temporary in nature: students studying at university, fishermen and tourist employees moving away for part of the year. The socio-economic and cultural implications of these temporary movements tend to be far less than for the longer distance, more permanent migrants who leave for a period of several years in the United States or Australia.

Emigration, as is well-known, has a demultiplier effect on the whole economy. Services such as shops, artisan activities, agricultural processing concerns and transport facilities suffer badly through lack of demand²). Denuded of its more progressive members, the society left behind increasingly constitutes an ageing population. Whilst total population drops, that aged over 55 years actually increases.

Emigration does, however, have some positive aspects. If the emigré sells his land prior to departure, it may, if of sufficiently good quality to attract a buyer in a depressed market, lead to enlarged farm size and more efficient farming. More importantly, emigrant remittances and money brought back into the islands by retired emigrants constitute an important source of funds to keep the economy going, even to the extent of financing new tourist accommodation.

Death of a Landscape

Generally, however, the result of this demographic haemorrhage is the gradual necrosis of a formerly

¹) The Australian connection is long-established. During 1900–18 one sixth of Italian settlers in Australia were Aeolian Island sailors and fishermen with a natural bent for the sea and long distance travel (JONES 1964, pp. 256–257). Although this proportion has since fallen to below one tenth, this is still remarkable concentration considering the islands' population constitute only .002% of the Italian total. Recent emigration to Australia shows a greater proportion of factory workers and craftsmen, but the link with fishing remains.

²) Filicudi, whose population declined from 1547 in 1911 to 245 in 1971, provides an example. Early in this century 4,000 hectolitres of wine and 2,000 quintals of olives were produced each year on average; nowadays the totals are 300 hl. and 300 qu. respectively. Cereals were once ground to flour in the island's own mills; today the output goes to Lipari or Milazzo (the nearest Sicilian port) for milling. Fishing and livestock rearing decline more slowly, but their future is anything but assured (CAVALLARO 1967, pp. 1043–1050).

florid and distinct landscape. Year by year, once fastidiously tended terraces disappear under the natural vegetation, evidence of past activity progressively obliterated by the creeping maquis. The once brightly whitewashed rustic farmhouses, so distinctively attractive with their flat roofs, vine-clad loggias and cylindrical columns, fade and crumble into the landscape, locked up for an emigrant return that may never happen. Indicative of depopulation is the falling into disuse of dialect terms for physical features. Many of the place-names mapped and recorded at the end of the last century have now passed out of use (LOSACCO 1973, p.411).

The current pattern of land use can best be appreciated by examining the aerial photographs published and described by MIKUS (1969b)³. Field sizes are small, often in the form of narrow terraces. The cultivated areas, confined to the lower, flatter parts of the islands, consist of discrete districts attached to the main settlements. The present distribution of cultivated land represents a considerable shrinkage compared to the past. On the flatter areas around settlements about a quarter of the land is no longer used, but this proportion increases rapidly with altitude. Bamboo has invaded much Stromboli former farmland. Some upland areas are being reforested, the old cultivation terraces providing planting terraces for the trees. Elsewhere the uncemented walls of abandoned terraces are being destroyed by erosive agents and the roots of plants; they remain only as crumbling monuments to past decades of toil.

Farming in the Aeolian Islands is carried out in the face of various constraints, against which it appears to be inexorably losing out. In the past the combination of rugged topography and steep slopes was overcome by extreme endeavour on the part of generations of farmers who built terraces virtually from sea-level to mountain-top. Although older farmers can remember working the upper terraces fifty years ago, under current economic conditions and with large-scale emigration, only the most accessible land is utilised. Despite the inherent high fertility of the soil in places, agricultural productivity is kept low by the uncertain rainfall which is conserved for drinking water and not generally used for irrigation. Possibilities for mechanisation are limited by steep slopes and small plot sizes, although some farmers have hand-rotovators. Tenure patterns and the inherent conservatism of an ageing farm population are further constraints. Holding sizes are small (mean size less than 2 ha.) and highly fragmented. The largest farms are generally less than 10 ha.; the smallest, common especially on the smaller islands, less than 1/2 ha. Individual plots and terraces are tiny, often measured in square metres.

As a general rule, plot sizes increase with distance from the farmhouse or village. Fruit and vegetable plots lie close to the houses; the larger cereal, vine and caper plots are further away.

Vineyards represent by far the largest cultivated area: 211 ha. according to the 1970 Agricultural Census. The method of viticulture is very distinctive, vines being trained along a horizontally-set bamboo lattice constructed 70 cm. from the ground surface. The vines are grown horizontally in this way to prevent wind damage and increase the strength of the wine. Each family retains its best land for vines. On Salina many vineyards are given over to the commercial production of *malvasia*, a strong, sweet wine for export. Wine production declined from 25,000 hl. in 1950 to 10,000 hl. in 1970; half is from Salina.

According to the 1961 and 1970 Agricultural Censuses owner-occupancy accounts for 60% of farms, but recently there has been an increase in hired labour and sharecropping, provoked partly by the emigration of many landholders. In spite of emigration theoretically freeing some of the land, little amalgamation of holdings takes place. If anything the subdivision of property is getting worse and the landholding situation more confused. The current situation, with emigration producing an intricate mosaic of cultivated and abandoned land, obviously demands some policy of land planning; the problem is the unwillingness of emigrants to release their land because it represents a source of security.

Rural Decline: the Case of Salina

Perhaps the best island in which to study rural decline is Salina, the most important of the group agriculturally. Unlike the other islands which are all lumped together administratively under one commune (Lipari), Salina since 1867 has had three communes (S. Marina, Malfa, Leni); extremely detailed statistical information is therefore available through study of commune census data and some interesting local regional variations in the process of landscape decline can be brought out.

In common with other Aeolian Islands, Salina's settlement pattern (Fig. 2) is a mixture of villages, loose-knit hamlets and scattered dwellings. The three major settlements are the commune headquarters of S. Marina, Malfa and Leni. Smaller villages are the coastal settlements of Rinella and Lingua. Pollara and Valdichiesa are loose-knit hamlets and there are zones of dispersed settlement on the north-east coast at Capo and Gramignazzo.

Starting in the late nineteenth century, a decade or so earlier than on most of the other Aeolian Islands, depopulation has been severe on Salina, provoked not only by improved communications which broke down the autarchic insular economy, but also

³ In this paper the aerial photographs of Filicudi and Stromboli are wrongly labelled: Filicudi should be Stromboli and vice versa (see MIKUS 1969b, pp. 81, 83).

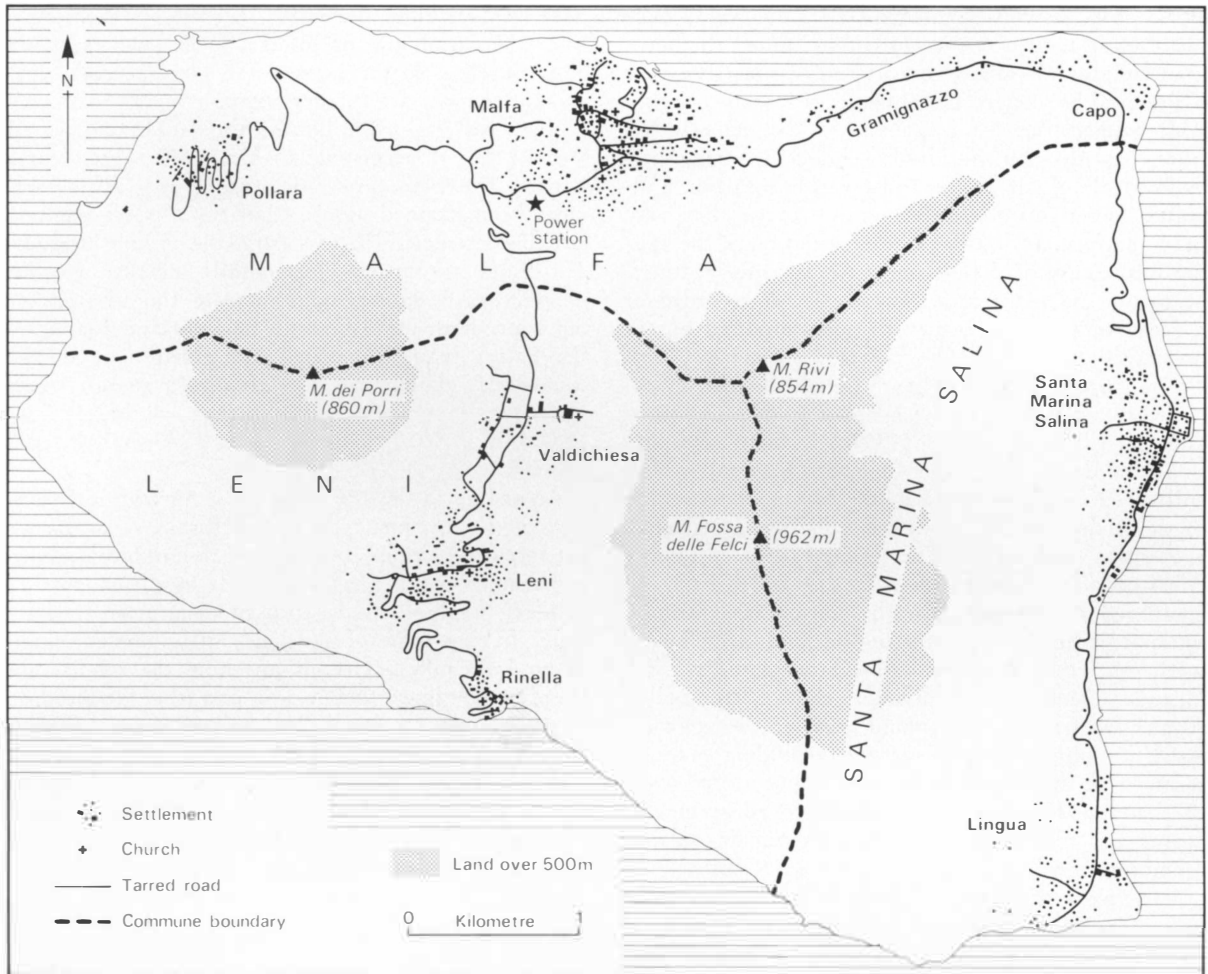


Fig. 2: Salina: the settlement pattern

by saturation of the wine market and the phylloxera epidemic which destroyed most of the vineyards. Between 1891 and 1911 emigration caused the population to fall by 40%. After a break spanning the two world wars, the outflow quickly regained its former strength during the early post-war period and has continued to be considerable ever since.

The census data show interesting regional variations in the pattern of decline within the island (KING 1978, pp.17–19). Depopulation has been most marked along the east coast: the commune of S. Marina (which includes the village of Lingua) lost 54% of its population during 1911–71, whereas Leni (plus Rinella) lost 43% and Malfa (including Pollara) only 35%. Two reasons may explain this differential pattern. Firstly, S. Marina is not just an agricultural settlement, it is a funnel for most of the commercial output of the island. Its trading and processing activities are very dependent upon the prosperity of farming in the rest of the island. As farming declines with the with-

drawal of young labour, working the land becomes increasingly concentrated in the hands of the old who are concerned to produce just for their own needs rather than for export. As marketed output thus decreases more rapidly than total produce with this retreat into self-sufficiency, S. Marina, dependent upon marketing and processing functions, is hit proportionately more severely than the purely agricultural villages of Malfa and Leni. The other reason for the regional discrepancy is that S. Marina is backed by less fertile land than Malfa and Leni, both of which contain broad, fairly level benches as well as sections of the intensively farmed Valdichiesa saddle.

Some of these contrasts are further amplified in Table 3 which records the population totals for the three communes and their various *frazioni* (subdivisions) for the censuses in which such detailed settlement data were published. The general pattern of rapid decline at S. Marina and less rapid popu-

Table 3: *Salina: Population Changes for Various Settlements 1911–1971*

	1911	1931	1936	1951	1961	1971
Leni commune	1261	936	891	779	746	672
Leni	918	599	617	538	496	416
Rinella	174	136	109	124	121	122
Valdichiesa and <i>case sparse</i>	169	201	162	137	129	134
Malfa commune	1449	1362	1304	1187	1072	762
Malfa	1125	1114	1074	724	759	625
Pollara	154	116	111	98	94	54
Capo and <i>case sparse</i>	170	132	119	365	219	83
S. Marina commune	1590	1291	1346	1017	919	759
S. Marina	1113	903	919	630	591	466
Lingua	457	388	427	387	328	293
Salina island	4300	3598	3541	2983	2737	2193

Note: *Case sparse* are scattered dwellings away from the main settlement clusters. It is clear that the definition of *case sparse* varies from census to census (cf. especially Malfa 1936 and 1951).

Source: Censimento Generale della Popolazione 1911, 1931, 1936, 1951, 1961, 1971. Rome: ISTAT.

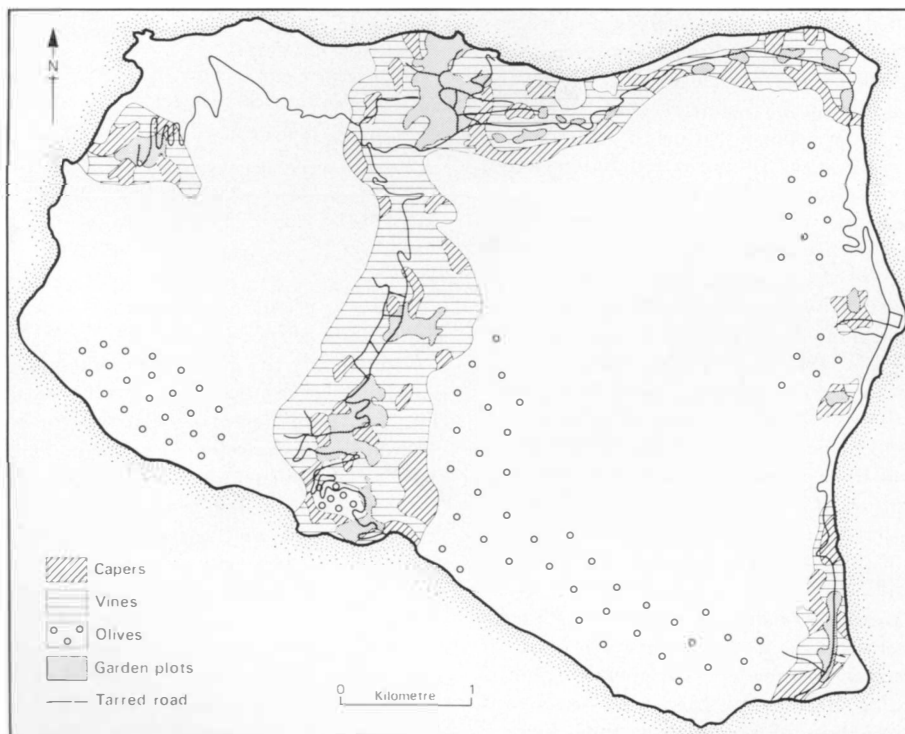


Fig. 3: Salina: the current pattern of land use (after LENTON 1974, p. 70)

lation loss at Malfa and some other areas is fairly clear. Notable too is the stabilisation of the population in the 1930s when emigration was banned.

The flight of population naturally provokes abandonment of dwellings. In 1951 23% of Salina's dwellings were empty according to the Census. By 1961 this had increased to 28% and in 1971 it was

39%. Recent field mapping⁴) corroborated these findings and added further details. Of 1014 dwellings mapped on Salina, 37% were discovered to be va-

⁴) Carried out by students from the Geography Department, University of Leicester.

cant⁵). The degree of abandonment exhibits two patterns. First there is an inter-village contrast (S. Marina 39%, Lingua 33%, Leni and Rinella 28%, Malfa 26%) which closely reflects the different rates of population decline noted earlier. Secondly there is a contrast between the degree of abandonment in nucleated villages (30%) and that in scattered dwellings (50%).

The pattern of economic change on Salina is dominated by the contraction of the agricultural sector. At one time vine cultivation extended to 750 m. The margin of cultivation has since descended to around 350 m. although it is lower – 200 m. – on the east coast where the land is poorer. Nearly all the terraces above 300 m, and in areas lower down which are remote from roads and villages, such as the tracts of land along the south coast east and west of Leni and Rinella, are in abandonment. Only 15% of Salina is now cultivated. The present pattern of cultivated land (Fig. 3) is strongly oriented to the settlements and zones of farms along tarred roads

As Fig. 3 shows, there is some degree of regional specialisation of land use. Vines, olives and capers are the three main crops. Specialised viticulture, occupying 75 ha, 22% of the agricultural and forested area in 1970, is still the backbone of the rural economy, with particular concentration in the central valley. Caper cultivation is more widely scattered. The area of olive culture is difficult to estimate since only small areas of specialised olive groves exist. Most olives are grown semi-wild on the middle slopes in the southern part of the island. Some areas are now virtually inaccessible because of crumbling paths and overgrown vegetation; the trees are also threatened by fire and culled for fuel. With yields reduced, olives no longer offer farmers a reliable source of income. Cereal culture is also declining and is a long way from satisfying local needs. In the early 1960s arable land extended to 70 ha. (SPERANZA 1966, p. 56), but the 1970 Agricultural Census recorded only 17 ha.

Settlement Changes on Lipari

Many of the processes of decline described on Salina operate on other islands of the group. The case of Lipari is, however, somewhat different. Table 2 showed population decline on Lipari to have been much less than on most of the other islands. During 1911–71 Lipari's population decreased by 17.6%, compared to 49.0% for Salina and 83.9% for Stromboli. It is also clear that there are substantial variations within Lipari island itself. The town has in-

Table 4: Lipari: Population Changes in Various Settlements, 1951, 1961, 1971

	1951	1961	1971
Lipari district	4620	4767	4442
Lipari town	3731	3852	3886
Other settlements (S. Nicola, Monte, S. Margherita, Bagnamare, Serra and <i>case sparse</i>)	889	915	556
Canneto district	2731	2406	2123
Canneto village	2203	1814	1906
Other settlements (Lame, Pirrera, Pomiciazzo, Salita M. Pilato, <i>case sparse</i>)	528	592	217
Pianoconte district	874	850	940
Pianoconte village	491	494	580
Other settlements (Cugna, Chiusi, Varesana, <i>case sparse</i>)	383	356	360
Acquacalda district	410	419	393
Acquacalda village	410	419	393
Quattropiani district	758	730	670
Quattropiani village	475	314	384
Other settlements (Chiesa Vecchia, <i>case sparse</i>)	283	416	286
Lipari Island	9393	9172	8568

Source: Censimento Generale della Popolazione, 1951, 1961, 1971. Rome: ISTAT.

creased its population, whereas other parts of the island have witnessed decline. Table 4 gives details.

Geologically the most complex of the islands, Lipari is essentially composed of twelve extinct volcanoes (Fig. 4). The different ages of the volcanics introduce variation into the relief in terms of height, slope and stability of the surface. The areas of younger pumice in the north-east, for example, degrade rapidly into thin friable soils and unstable topography.

Fieldwork analysis and mapping of settlement abandonment shows some distinct patterns⁶). Two concentrations of abandonment exist: below 100 metres (average of 41 abandoned houses per 100 ha.) and above 400 metres (46 per 100 ha.). For the intermediate zone (100–400 m.) the density of abandonment is much lower (22 per 100 ha.). This, it can be suggested, reflects the distribution of the best cultivated land, which on Lipari is found on broad benches at around 200–300 m, especially on the west side of the island, whereas the uplands and the coastal slopes are steeper and more difficult of access.

⁵) The 1971 census enumerated 1001 dwellings. The slight decrease in the proportion of abandoned dwellings is probably linked to a stabilisation of Salina's population since 1971.

⁶) For more details see YOUNG (1974, pp. 166–185). The assistance of students from the Geography Department, University of Durham is acknowledged.

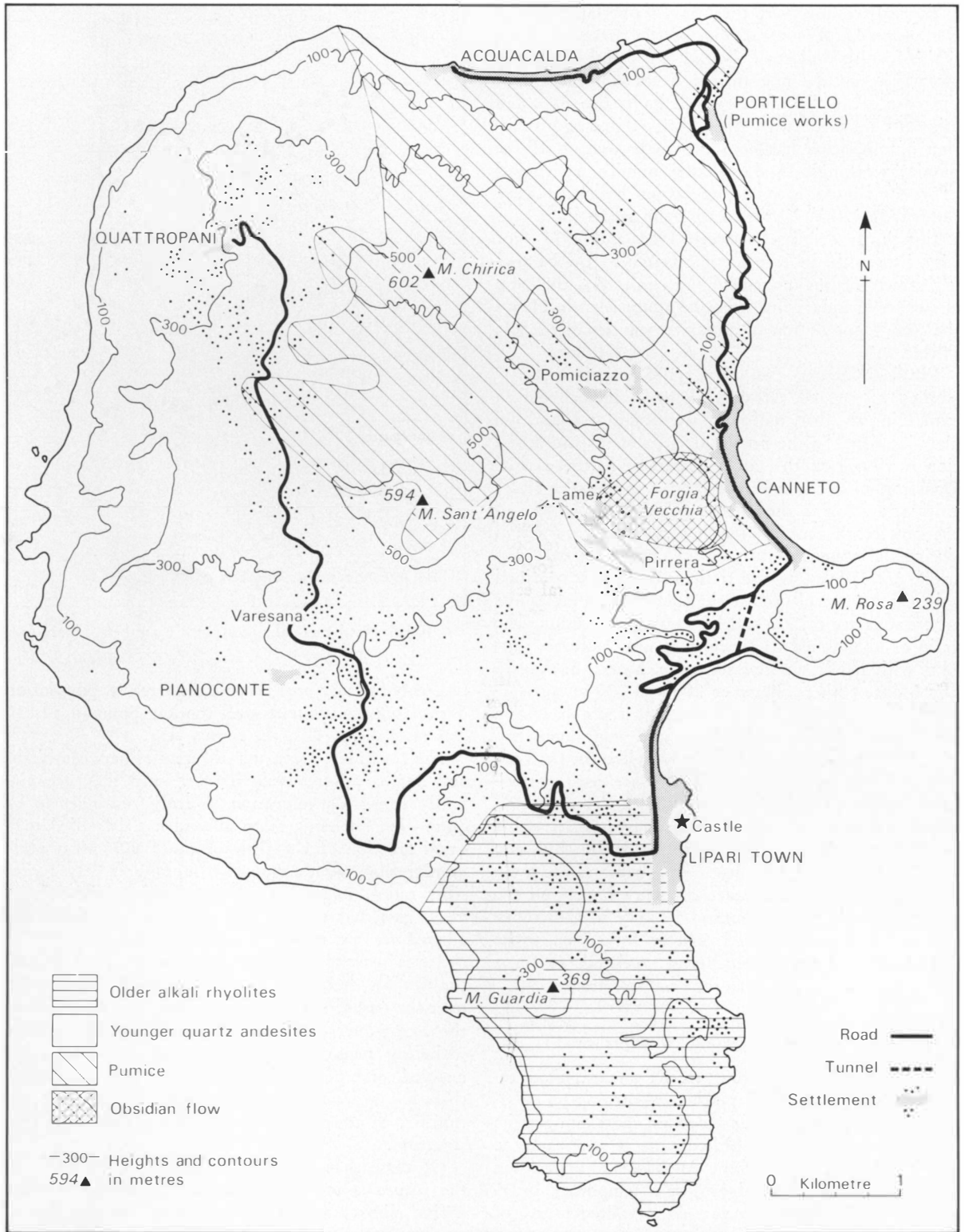


Fig. 4: Lipari: relief, geology and settlement

In reality, however, there is an overlap between the processes of contraction on the marginal land, which furnished most of the late nineteenth and early twentieth century migrants, and the contraction of the core areas themselves which have also exported migrants since the war. An additional factor promoting outmigration has been the mechanisation of the pumice workings. In the smaller pumice settlements of the Canneto area depopulation has been very sudden: in Lame, Pirrera and Pomiciazzo there was a two-thirds decrease between 1951 and 1971. For Lipari town the picture is complicated by the balancing effects of out-movement with in-migration from elsewhere in Lipari and from the minor islands. Hence the urban population of Lipari town remains stable (Table 4).

Physical factors – volcanic relief and the inaccessibility of rugged terrain – play a major role in explaining the distribution of settlement and land use abandonment. In the north, an area of intense desertion is visible on the younger pumice to the east of Quattropani. This marginal land was brought under cultivation during the intense population pressure of the nineteenth century, but has suffered contraction during the present century to the core of Quattropani itself. Active farming and settlement are now confined to areas of viticulture on the sheltered valley floors where soils are thicker and less subject to erosion. The ratio of abandoned to occupied houses increases rapidly with height up the slopes of Monte S. Angelo and Monte Chirica. Between 200 and 300 m, agricultural land is mostly in production; there has been some consolidation of holdings and migrant-owned plots are worked by relatives and neighbours. Between 300 and 400 m, abandoned houses are used temporarily or as store sheds. Above 400 m desertion and delapidation are complete. A similar pattern exists in the far south, a peninsular area of older rhyolites. Fig. 5 shows how proximity to the road and the town enables continued occupancy of many houses on the north-east side of the peninsula. Many of the empty houses are not abandoned, merely locked up to be used by Lipari town residents at weekends or for a few weeks of the year at grape harvest time.

Recent Populations Changes: a Turning-Point

Table 5, compiled from recent anagraphical records, shows that 1971 marked a turning-point. A century of depopulation, decline and emigration began to be reversed. Although it is too early to know whether the current increase in population represents a stable trend or just a temporary interruption of the long-term pattern, certain features of the table deserve comment.

In the 1960s births exceeded deaths by around 100 per year. This natural increase was, however, outweighed by a net migratory loss which was substan-

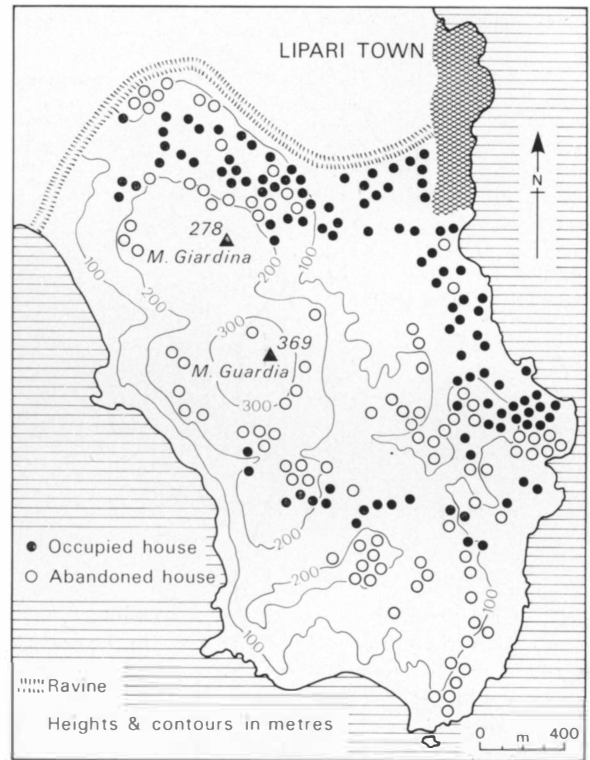


Fig. 5: Settlement abandonment in southern Lipari

tial to both Italy and abroad. As a result, population decline was continuous until the low point of 12,230 was reached in 1971, the census year.

The 1970s have seen the differential between births and deaths progressively narrow until they are virtually equal. Outmigration to Italy continues to be quite high but emigration abroad has dwindled to a small fraction of the flow of the 1960s. Meanwhile immigration, which one may suppose largely represents return migration of the islanders who left in years past, has steadily grown, both from Italy and abroad, so that it now exceeds outmigration.

Three reasons lie behind this change. First, opportunities for emigrants have diminished, particularly over the past five years of recession. At the same time the extension of the Italian state welfare system, including pensions and unemployment benefit, has enabled some potential migrants to stay put. Thirdly, there has been an expansion of non-rural work opportunities, in tourism, public administration and construction.

Of these that which holds out the most hope for the future is tourism. Clear water, unique scenery, a fine climate and peace and quiet are the islands' principal touristic resources. Camp sites, hostels and pensions cater for the humbler, often younger visitor, whilst on Vulcano there are hotels of the *de luxe* category. The main nationalities visiting the islands

Table 5: *Annual Population Trends in the Aeolian Islands, 1964–1976*

	Live births	Deaths	Inmigration from Italy	Abroad	Outmigration to Italy	Abroad	Population at end of year
1964	262	154	272	41	425	308	12939
1965	259	145	235	22	274	250	12786
1966	273	136	248	36	292	219	12696
1967	220	152	224	43	283	150	12588
1968	246	149	227	68	291	307	12382
1969	182	127	275	54	301	116	12248
1970	227	139	187	44	288	44	12235
1971	211	141	210	88	302	71	12230
1972	204	137	243	106	311	33	12298
1973	195	145	193	96	284	51	12302
1974	157	113	175	68	227	36	12325
1975	130	120	230	67	253	35	12344
1976	122	116	231	82	231	28	12404

Source: *Popolazione e Movimento Anagrafico dei Comuni 1964–1977*. Rome: ISTAT.

are French, German and Swiss. Italian visitors come mainly from the north. Tourist numbers do, however, fluctuate widely from one year to the next (PERINI 1970, pp. 420–428).

The development of tourism and residential villa construction has implications for the settlement pattern. Whereas up to 1971 population abandonment was more severe in the *case sparse* or dispersed settlements (cf. MIKUS 1969a, pp. 29–30), the taking over of abandoned houses by outsiders and the building of new villa settlements (noticeable especially on Vulcano) gives a boost to this category of settlement which will no doubt be reflected in the 1981 census. Already half the dwellings on Stromboli are foreign-owned. A new cycle of landscape transformation, most advanced on Vulcano and the hinterland of Lipari town, is about to start, geared to leisure, the industry of the future.

Prospects for the Future

The future of the Aeolian Islands hinges on a paradox: declining population leads to deterioration of services; but until these services are improved economic development is unlikely. Tourism, which represents perhaps the only economic salvation possible, is heavily conditional upon the more widespread provision of basic services such as piped water, more efficient sewer drains and better quality hotels.

Tourism brings two principal benefits. First is the obvious one of increased incomes and employment for local people. Secondly the spin-off of improved services for visitors, especially roads and inter-island boat links, benefits the local population too. Many of the islands, however, still lack adequate port facilities; passengers must be off-loaded from the ferry ships on to small rowing boats to be taken ashore –

a dangerous procedure in rough weather⁷). Proper quays and jetties, improved water supplies and modern hotels would all be useful investments for the islands' economy, but any large-scale invasion of tourists would undoubtedly spoil the special character of these quiet islands.

In other economic sectors – agriculture, fishing and industry – development potential is limited. Industrial development is virtually impossible beyond the working of a few volcanic mineral resources. Fishing has been boosted recently by the institution of an 80 member co-operative based on Lipari port. Agriculture remains the most important economic sector, employing 45% of the working population in 1971, in spite of the fact that half the farmland has been deserted during the last fifty years. Some co-operative reclamation of abandoned land may be possible, but the islanders have a strong owner-farmer tradition which mitigates against collective effort.

It is difficult to foresee the future of this enchanting, if primitive, group of islands. Like many small islands, they have suffered the fate of the twin processes of modernisation and peripheralisation. Two alternative paths seem open. One involves the participation of the islands in Italian development indirectly, by exporting labour to the mainland and by channelling funds back by means of migrant remittances. The archipelago has been following this path for the past century. Economically there is no reason why workers should not have to move to new or better sources of income, but socially the hardship of split families may be great. The other alternative

⁷) For a detailed account of the effects of winds on maritime communication see CICALA'S (1961) paper on Stromboli. Improved harbour facilities would also of course benefit the fishing industry.

is to develop the local economy by selling the islands' tourist resources. Agriculture, fishing, even handicraft trades, could well develop in tow. The danger is that if this second path to the future is pursued too actively, the very special qualities of the Aeolian environment, both physical and human, would be adversely affected.

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STRUKTURWANDLUNGEN AFGHANISCHER MITTELPUNKTSIEDLUNGEN UNTER DEM EINFLUSS AUSLÄNDISCHER INFRASTRUKTURPROJEKTE

Mit 5 Abbildungen, z. T. als Beilagen V, VI, VII, 2 Tabellen

DIETRICH WIEBE

Summary: Structural changes of Afghan central place settlements under the influence of foreign infrastructural projects.

This paper investigates the effects of the American Helmand Project on the trade structure in the town of Lashkargah and the significance of the integrated German development project for trade in the towns of Gardez und Khost in the Paktia Province. These are examined in the context of problems of urban development in Afghanistan. The change in the structure of trade takes place in three phases:

In the initial phase traditional and new structures face each other; the traditional ones are suppressed. In a second phase there is stagnation, which is characterised on the one hand by saturation of the market together with an unwillingness and inability for innovation, and on the other hand by a rise in speculative activities, like the tidal increase in the construction of dwellings and business premises, which leaves behind many half-finished ruins. This is followed by a *regression phase* during which the most active sections of the population leave for Kabul, the capital of the country, for Iran or the Arabian Gulf States, in order to put their acquired skills to good use. The consumer goods which had

entered the country as an accompanying feature of the projects, remain in the market; the new production lines become reduced to only a few firms, but remain insignificant for the pattern of trade as a whole. It remains to be seen whether a renewed promotion of the projects cannot produce another "take-off" phase, which will result in turn in effective long-term phases.

Über die Wandlungen der Gewerbestruktur im städtischen Raum aufgrund ausländischer Infrastrukturmaßnahmen in Entwicklungsländern gibt es relativ wenige geographische Arbeiten. Vielmehr werden überwiegend die komplexen Phänomene des sozio-kulturellen und sozioökonomischen Wandels behandelt. In den kulturgeographischen Untersuchungen über den islamischen Orient gibt es meist nur vereinzelte, fast immer auf den ländlichen Raum bezogene Analysen dieser Art.

Durch eine Bewertung der Entwicklungswirksamkeit infrastruktureller Projekte ist es möglich, Erkennt-