

# **SHETLAND: THE LAND, SEA AND HUMAN ENVIRONMENTS**

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I doubt whether anyone has ever questioned that there is a distinctive quality about Shetland; nor that this distinctive quality applies both to the islands and to their inhabitants. There too will be considerable consensus on just what constitutes the distinctive quality, but it will also to some extent be a matter of individual (or subjective) appraisal. The aim of this paper is to show how this distinctive character has appeared to an outsider who has been acquainted with the islands over a period of well over thirty years.

No doubt the Oil Age has brought Shetland within the ken of people in other parts of Britain more than ever before — not least, unfortunately, because of the *Braer* disaster. However, the popular image of the islands has, I fancy, changed little. The old perception of islands which are ‘bare, bleak and windswept, with a summer without night and a winter without light’ can only have been fortified by TV camera catching the great storm waves breaking up the Braer as she lay on the rocks at Garths Ness; and this despite the fact that there was obviously enough light in January for the TV camera to function without difficulty.

None the less one look at the map does emphasise the character of the location of Shetland, the old ‘Ultima Thule’ position. In the rare occasions on the map of Britain when Shetland is not relegated to an inconvenient map inset, it is clear that it is over 100 miles north of the nearest part of the Scottish mainland, or about 200 kilometres in metric distance. It is also over 1,000 kilometres from Brussels in the day when more and more of our lives depend on decisions taken in the E.C. From any normal British, and still more any European, perspective, the location of Shetland is marginal and isolated.

However there are other perspectives. What might be called the conventional view of Shetland is what might be called the landsman’s view. It is otherwise from the maritime perspective, as numerous traders, fishermen and navymen have realised for centuries; and to these may be added the modern oilmen. When it comes to movement by sea, or the exploitation of marine resources, the position of Shetland is essentially nodal (or central) and not marginal.

Another matter which has gained increasing significance in the modern age is simply the limited size of the Shetland community. One of the great dangers in our modern world village is that of the loss of identity, as more and more wants are catered for in the mass; and the politicians based in distant cities, backed by the cost accountants, make decisions that affect even the detail of life for millions of people. One of the great developments of the Oil Age has been the return of confidence in their own future on the part of Shetlanders, and the reassertion of Shetland identity. Perhaps this is in no way

better shown than in the present debate on the returning of local government in Scotland to single-tier all-purpose authorities: surely the manner in which an all-purpose local authority in Shetland has been able to cope with, and turn to account, the pressures and demands of the Oil Age is something of a guiding light or model here. Shetland has become something of a living test case or proof of E. F. Schumacher's principle that 'small is beautiful'.

### **The physical environment**

The characteristics of the physical environment of Shetland are well enough known, and are set out in a number of works, at least in broad outline. However, it is due partly to the remoteness of Shetland that modern work by environmental scientists has been selective and in some ways limited. Ornithologists have been attracted in strength to study the rich bird life, and more recently palaeo-botanists have worked out the vegetation history. However the contribution of geomorphologists has been limited. The Oil Age has of course brought a high intensity of work in petroleum geology under the sea bed for a wide area around Shetland, although much of the detail of the findings is still in confidential files in the offices of the oil companies.

Essentially Shetland consists of an archipelago towards the north-west margin of the European continental shelf, and the continental edge (in Shetland the 'brow of the deep water') lies only about 30 miles (50 km) to the north-west of the islands. In direct distance the islands are as near to western Norway as they are to the mainland ferry terminal of Aberdeen.

Geologically the bedrock of the 'Auld Rock' consists of a mixture of Dalradian and Old Red Sandstone rocks. The former are Precambrian: geologically they are very old, and are comparable in age with much of the Scottish Highlands. It is rocks of this series which underlie most of the islands. They are mainly metamorphic schists, but also include limestone bands in Tingwall and Weisdale, and serpentine outcrops in Fetlar and Unst. The Old Red Sandstone consists of a discontinuous strip in the south-east part of the Mainland between Bressay and Sumburgh, along with a bigger area in the West Mainland and in part of Northmavine. Also on the west side are a variety of igneous intrusions, like the granite of Muckle Roe and Roeness Hill, and the volcanic rocks of Papa Stour and Esha Ness.

Like land areas generally, Shetland has seen various phases of uplift, and also various phases of erosion, although much of the detail of the geological and geomorphological history is still obscure; and there is the essential problem of relating the sequence of events in Shetland to the better known sequence on bigger land masses, like that of Mainland Britain. It is the processes of erosion, acting over many millions of years of geological time on the rock assemblage already outlined, that has produced the present form of the islands. The essential characteristics of the relief of Shetland is that it is

hilly, and it is only in a small area on Roeness Hill that the altitude exceeds 1,000 feet. The general implication is that the main lines of the relief are due to long periods of water erosion, but that much of the surface detail is due to the geologically recent Pleistocene glaciation.

At some stages of the Pleistocene Shetland was under a local ice cap, and there are also some signs that at one stage the much bigger ice sheet from Scandinavia reached across the North Sea and left its mark on the islands. An effect of glaciation has been to roughen part of the land surface, as can be seen, for example, around Mavis Grind; but the ice has also coated a large part of the land surface with a thin deposit of glacial drift. The generally smooth outline of the great part of the Shetland landscape is due partly to this, but also to the large scale post-glacial growth of peat. Also important for an archipelago like Shetland were the complicated changes in sea-level related to the glaciation: these were due to the land being depressed by ice loading, but also to the general fall in world-wide sea-level through part of the earth's water being locked up in the ice sheets. The net effect in Shetland was that the sea rose relative to the land: the Shetland coast is one of submergence, and it lacks the raised beaches characteristic of the Scottish mainland.

The coast of Shetland is in general the most scenic and spectacular part of the landscape of the isles, and owes its forms to this fact of submergence, allied to the effects of powerful wave erosion. Over 120 years ago the pioneer harbour engineer Thomas Stevenson was amazed by the power of storm waves in Shetland to move blocks of rock weighing five to ten tons and more at heights as much as 70 feet above normal sea level (Stevenson 1874: 38-45). Shetland voes are drowned inlets, and submergence has also promoted one of the most prominent landscape characteristics of the isles, the development of the cliff coast, which includes numerous cases of near-vertical cliffs hundreds of feet high, as at Noss and Esha Ness; there is also a series of other features due to wave attack at the margins of the land, including the caves, natural arches, and stacks like the Drongs and the Vee Skerries. It is also characteristic of a submerged coast that where deposition of eroded material has taken place it is in the form of such beach features as the tombolas at St. Ninian's Isle and Fora Ness (Delting), and the bay bars at Spiggie and Tresta in Fetlar, as well as the numerous bay beaches of shingle or sand.

The climate of Shetland reflects both the northern location and the pervading influence of the sea: it is classed as extremely oceanic, and though cool compared to the remainder of Britain, this is really a feature of the warmer half of the year: average winter temperatures are little different from London, and it has been pointed out that because of the great northwards transfer of warmth by the circulation systems of both atmosphere and ocean in winter, the January temperature in the isles is over 20°C. above the average for the latitude. Statistically there is little remarkable about Shetland rainfall figures with a recorded average of 45 in. (or 1140 mm). The isles are well

known for being prone to gales, although popular misconception does tend to exaggerate wind strength and frequency: recorded windspeed has an annual average of 16.9 m.p.h., and in Britain only the Butt of Lewis has average wind strengths on a par with those recorded at the Lerwick Observatory.

The world has never been as conscious and concerned about ecological issues as it now is, and Shetland has its own characteristics here too. Isolation inevitably limited the extent to which the isles were colonised by plants and animals after the retreat of the ice, although of course it has done little to restrict the rich bird life. The land came to be dominated by peat moorland, especially after the climatic deterioration which followed the early Bronze Age. This is essentially because of cool conditions and a water balance which entailed that most organic decay would take place in saturated conditions. The peat cover at one time would have been general: the main exceptions to this are the steepest slopes, along with the best drained areas, such as sandy areas at the coast. Many generations of peat cutting have removed the peat cover from extensive areas, and this has been one of the biggest man-made impacts on the isles.

For long there have been reports of parts of trees being dug up in the peat, and recent work by palaeobotanists has now established that the islands at the post-glacial climatic optimum had a considerable tree cover despite the effects of isolation, and of wind and salt spray.

Naturally a part of the environment that has always been important in Shetland is the sea itself. As well as the effects of waves, tides and strong tidal streams around the islands, the sea also provides a very important part of the resource base. This in the past has included seaweed as a fertiliser and a winter stock feed, but more important are the fish stocks, with herring, haddock, cod and many others having part or the whole of their life cycles in the waters around Shetland. It is hardly necessary now to add the oil and gas under the sea bed in the East Shetland Basin, and also in known locations to the west of the islands.

### **The development of Shetland society in its environmental context**

Shetland has had a long history of human occupation, and for generations the abundance of its Prehistoric remains have been noted. The Ancient Monuments Inventory lists over 600 sites in the isles (R.C.A.H.M.S. 1946); and since these data were collected in the inter-war period, it has become clear that the number of sites is around double this figure, illustrating its attraction over thousands of years for pre-literate peoples, whose life was dominated by the needs of subsistence rather than commerce. In early times part of the attraction of Shetland was that forest was less well established and easier to clear; and in addition the resources of the land could be easily

supplemented from those of the sea. Also movement over longer distances was frequently by sea, and right into modern times goods of any weight or bulk were more easily moved on water: thus in addition to the advantages of its resource base, Shetland was not inaccessible. Early farming too had often an emphasis on livestock rather than cropping, and even at the post-glacial climatic optimum there are likely to have been considerable open areas both on the higher hills and on the more exposed parts of the isles. This would have rendered Shetland preferable for stock farming to lower ground on the Scottish Mainland, which was generally well covered in forest.

Early immigration to Shetland would have been from the south, via Orkney, and must have been aided by the intervisibility of high ground between the archipelagos; and there is sufficient in the archaeological record to show that such contacts were repeated. While such contacts made Shetland to an extent part of considerably bigger cultural provinces, notably at the time of the megalith builders, Shetland also developed its own individuality, as (for example) the heel-shaped tombs show. Shetland is also clearly shown to be part of larger cultural provinces at the times of the Iron Age and the Dark Age Celtic Church.

Among the wide range of prehistoric remains, especially important are the prehistoric houses and the brochs. The known number of early house sites is difficult to parallel anywhere of similar size in Britain. In addition to pointing to the attraction of the wide resource base of Shetland to early man, this is also probably related to the more favourable conditions for grain ripening during the Sub-Boreal phase, and the pollen record shows that wheat was cultivated. Also there was the probable early emergence of the practice of building in stone in islands with relatively few substantial trees at a time when on the Scottish Mainland buildings were mainly of timber.

Brochs are one of the several types of fortifications which were constructed in Western Europe during the unsettled period of the Iron Age, which was characterised by deteriorating climate and considerable migration and warfare. In Shetland, brochs are found all around the islands, and there is also a range of other less prominent Iron Age structures and remains, many of them around the brochs (Fojut 1984: 47-84). These Iron Age complexes probably represent the earliest identifiable pattern of community foci.

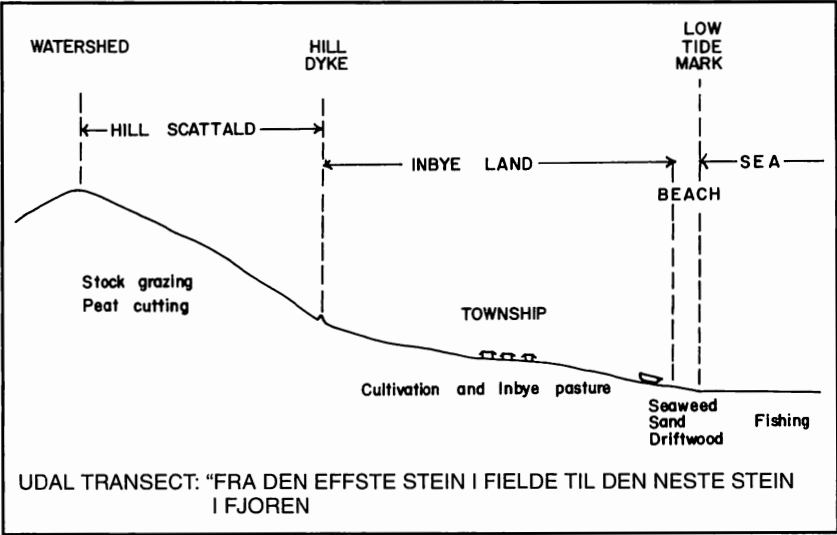
Of course, of basic importance in Shetland history was the Norse settlement, and to this day both the place-name map and the dialect emphasises this. How far the earlier inhabitants were replaced or swamped by this new seaborne invasion from the east is indeed a problem. That there was a considerable Iron Age population can not be doubted, and on the peripheries of Britain cultural elements from the Iron Age frequently survived well into the Dark Age. Modern ideas on social evolution hardly favour the notion of the elimination of the earlier peoples, followed by resettlement on a blank map. It would appear more likely that the culturally and militarily

dominant Norse absorbed the earlier groups, as (for example) the Anglo-Saxons absorbed the Celts in Eastern England.

The traditional life in Shetland has been discussed in very full detail by Prof. A. Fenton in his major modern work on Orkney and Shetland (Fenton 1978). This details the various activities and implements by which the land and resources were effectively utilised to provide for the needs of the people: it covers such matters as techniques of husbandry, types of building, the securing of peat fuel and fishing methods.

One of the most important environmental adjustments which becomes clearer with the adaptation of the Scandinavian odel system to the island situation is the pattern of land holding under Shetland udal law. The principle of holding land 'fra den effste stein i fjelde till den neste i fjoren' (from the highest stone in the hill to the lowest on the beach) in fact incorporates the right to an ensemble of resources which were all needed in a subsistence economy (Fig.1). As well as land for cultivation and grazing, it included provision for peat as the essential fuel; and unlike feudal law, in giving foreshore rights it gave in this environment valuable extra rights which included driftwood, as well as seaweed and sand which could be put on the land; in addition it gave access to the sea for fishing.

In the evolution of settlement, it has also been shown that the scattald is also of basic significance. The word itself is an interesting one, and Brian Smith has shown how its meaning developed over time (Smith, B. 1984: 99-125). It features an essential link between settlement and cultivated land on the one hand, and rights to various other privileges, of which the most important was grazing rights on the hill, on the other hand; and 'scatt' dues



were paid by the older settlements, whereas later settlements were unscattered and were excluded from the privileges. Over the centuries settlement and population expanded by a process of growth at the edges of the already cultivated area by means of new reclamation, or 'outsets'.

In the working of the land, ploughs and delling spades were used through all recorded history. Which was used depended on a combination of circumstances. Ploughs had more scope on bigger holdings and for wealthier people, while delling was used more on smaller holdings, and on small pockets of land. When we come forward to the 18th century, and the 'haaf' fishing and associated population growth, it has long been claimed that the sub-division of holdings resulted in a greater emphasis on delling; and as late as 1883 Tudor records it as the only method in general use (Tudor 1883:149). The traditional main crops were the grain staples of oats and bere, and these were ground in the traditional click-mills, or sometimes by the hand quern. As in most of Northern Europe, the potato was added in the 18th century as a crop well suited to cool and wet conditions. The isles had their own distinctive stock breeds, and cattle, sheep and ponies (or shelties) all had something of a diminutive characteristic.

In Scotland the Improving Movement, which greatly raised productivity in Lowland farming, had a different and lesser impact in the Highlands and Islands. Here the main single change was the stimulation of commercial sheep farming and the creation of sporting estates. In the absence of deer and grouse the latter hardly affected Shetland, and the remoteness of the islands delayed the main impact of the laying down of land to sheep till the second half of the 19th century, after the establishment of regular service transport to the mainland. At the same time, improved varieties of crops and stock, as well as modern methods and implements of husbandry have become parts of Shetland life.

## **Shetland fishing**

While fishing was engaged in as part of the subsistence economy from earliest times, it is clear for many centuries that the main resources used in the islands were those of the land rather than the sea. This was characteristic of Faroe and Iceland too, although agricultural conditions in these islands were still more marginal than in Shetland.

In such island groups it took the rise of commercial fisheries for the sea to be seen as the more important part of the resource base. As so often happens in outlying areas, the main initiative in stimulating this came from the outside, with the German merchants from places like Hamburg and Bremen coming to Shetland and providing the market links from the 15th century (Smith, H. D. 1984: 10). This was to lead to ambitions for Shetland landlords and merchants to replace the outsiders, and from the late 17th century this in turn was to lead to the development of the well known 'haaf'

fishing for cod and ling. It was to be the essential basis of the commercial economy for the best part of two centuries. In these centuries, Shetland became more fishing dependent than any other part of Britain. Production was very much export-oriented to the Mediterranean as well as to nearer parts of Europe, and Shetland in most of the 19th century accounted for over 80% of the British exports of cod and ling.

The 'haaf' was characteristically a fishery which was prosecuted for about two months in the summer in the open sixareens. The bases were mainly outlying points in the islands which gave access to greater areas of sea, and where members of the crews lived in lodges, or bothies. In some cases operation reached forty miles offshore, and one or two trips to the haaf in a week were the norm.

It is trite to say that the organisation of the 'haaf' fishery was enmeshed in controversy. 'The Shetland method' has been much debated: it essentially involved the monopoly position of the lairds (or their agents) in dealing with the fishermen, and participation in fishing for the laird being a condition of tenure of house and land. It took a long historical period before trade acquired the degree of freedom that it now has, and such freedom was long constrained, especially in outlying areas; and Shetland, like other comparable areas with fishing-based economies like Newfoundland and North Norway, was long involved in a truck system, whereby one merchant bought the fish and provided stores and equipment on his own monopoly terms. This is just the situation that in many instances and parts of the world has been, and is, open to abuse. As Dr. Wilfred Grenfell recognised in Labrador, alternative systems are not simple to develop in sparsely scattered populations where the total volume of trade is restricted. The lairds and merchants regularly argued that this type of system was inevitable in the Shetland situation, and it did persist as a dominant system longer in Shetland than anywhere else in Britain: there was a national Truck Commission in 1872 devoted entirely to the Shetland situation — a clear illustration that it had become an anachronism.

It was inevitable that the fishermen should chafe at their bonds of truck, and numbers of them sought opportunities in other activities, although these very generally also involved sea-faring. In the late 18th and much of the 19th centuries, a main alternative opportunity was going as crew members on Scottish boats going to the whaling at Greenland or the Davis Straits.

The great 19th century expansion of maritime trade also gave employment in the merchant marine: and from especially the middle of the century, and continuing to well into the 20th century, Shetlanders here participated in big numbers. Service in the navy, which had generally involved recruitment by the Press Gang, also in time passed to less drastic methods of engaging manpower.

Another new activity in the 19th century was the offshore cod fishery from decked smacks, which developed with the encouragement of government bounties. This was taken up at various places in Britain, but

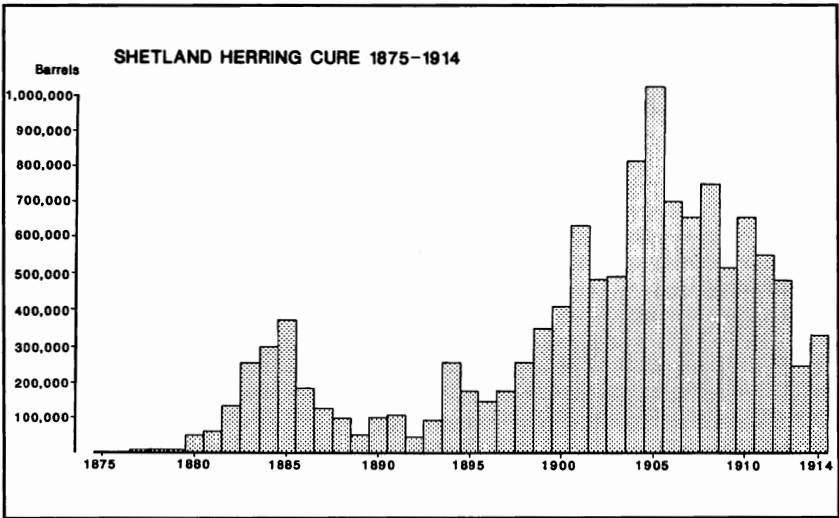


Shetland was one of the main locations, and as well as resulting in the fishing of offshore banks around the islands, this also led to cod fishing at Faroe.

In the new opportunities which appeared in the 19th century there was of course also the herring fishery, although here the path of development in Shetland is anomalous in the Scottish context. In the light of Shetland having been the main base of the Dutch in the centuries when they dominated the North Sea herring fisheries, the isles were remarkably late in attaining their potential when the British herring fishery was the world's leading fishery in the 19th and early 20th centuries. Earlier British attempts to develop this main resource in Shetland waters had essentially tried to copy the proved Dutch method of fishing from decked busses, and curing the catch aboard. By contrast the method that was to give outstanding success in Scotland relied on shore-based curing. This easier expedient proved feasible as the herring were generally caught within 15 miles of the coast; they could be caught at night and cured onshore when the boats returned next morning.

This fishery saw an upsurge on the Scottish coasts from the second decade of the 19th century, and it was also taken up a little later in Shetland; and until the late 1830s it appeared to be on a parallel upward trajectory to that on the Scottish mainland. However it failed badly in a complex situation from 1840. Part of the problem was that the haaf fishery had pride of place in July and August, which was also the main herring season. None the less it did expand, and appeared to promise to give the fishermen a new degree of freedom as on the Scottish mainland, and it also drew in Scottish curers from established centres. It showed a growth phase until severe damage to boats and gear in a big gale in 1840 was followed by the great failure of the major Shetland merchant house of Hay and Ogilvy in 1842. This was the firm that had by far the greatest involvement in the herring fishery, and in addition to its own failure it also brought down the Shetland Bank, in which the firm had a major share, and which had been much involved in financing the fishermen (Coull 1983: 123-140). A background issue was that with the many scattered catching points in Shetland it was more difficult to supervise an adequate quality of cure, and quality gained a higher premium in the second half of the 19th century as the Scottish cure came to dominate the main continental market: and until late in the century that market could be satisfied from centres on the Scottish East Coast.

Thereafter Shetland effort was concentrated in other activities until the end of the 1870s. By this time a bigger Scottish fishery was dominating the main herring markets which were on the continent, and curers and fishermen were looking for new opportunities to extend their operations, especially in the early summer before the Scottish East Coast fishing began in July. This led to a major boom (Fig.2), and within five years Shetland had advanced from being a district of no real significance for the herring fishery to being its leading single district (Coull 1988: 25-38). Although the fishery was dominated by Scottish boats and curers, it stimulated great developments in



the isles, and a fleet of over 400 herring boats was rapidly built up in the 1880s. Balta Sound, as the main centre of the early summer fishing, rose to special prominence, although curing stations were established all around the isles. The fishermen too enjoyed a new degree of freedom, as they could engage to incoming curers rather than their old masters. There was a serious recession in the herring fishery for about eight years from 1885, which did cause great problems in what had rapidly become the dominant economic activity, although with a fresh surge of growth from 1893, the fishery reached a spectacular new peak with well over a thousand boats engaging in the fishery each year, and Lerwick came quickly to the fore as the main landing point. At this point the earlier engagement system of seasonal contracts began to be replaced by the auction system of disposing of the herring, and Lerwick was the only place in Shetland where it proved feasible to establish auctions; and when the more mobile steam drifter rapidly replaced the sailboat after 1900 as the main catching vessel, the size of the Lerwick market and the competition on it by the many buyers concentrated the bulk of landings at the port.

Shetland itself never had more than a few steam drifters, although by installation of motors in their sailboats, Shetland men were able to persist in the herring fishery in the difficult inter-war period. The main fishery outside the herring in the 20th century became the line fishery for haddocks, for the fresh market or for smoking. There had been a major change in the structure of the market for demersal species in Britain: it was now dominated by fresh trawl-caught fish, and trawlers operated on the fishing banks around Shetland, but landed their catches at mainland markets. However during World War II Shetland men started to copy the men on the Moray Firth who

had taken up the ground seine for demersal fish, and in modern times this has become a major fishery, although there has been considerable diversification in more recent times with the adoption of different types of trawl. Shetland too has developed its own fleet of very efficient purse-net boats in the modern pelagic fisheries for herring and mackerel.

## **Outside contacts**

Despite its apparently isolated location, developments in Shetland in all of history have been influenced by repeated external contacts. In many cases insular situations which were relatively stable in the circumstances of earlier economies dominated by subsistence have been put under strain with the growth of the highly specialised modern commercial economy. During the modern age, Shetland, like many peripheral communities, became poorer relative to the main centres of national life, and it has lost people.

The modern period has seen the growth of regular transport services with the mainland, first by sailing packet and then steamer; and since the inter-war period air services have been added. However transport services to small populations on islands can never be as good as those between main population centres, and the commercial economy necessarily involves the carriage of a great assortment of goods in small amounts to the islands. Freight rates have become a permanent modern problem, and it is generally recognised by governments of all parties that acceptable modern living standards can only now be attained with subsidised transport. The modern combination of ro-ro services to the mainland and between the islands, with air services is essential for the islands to participate in modern life.

## **Population**

The modern population trend can be followed through the Census, but any attempt to estimate historical population can only be approximate. To judge by what is known of population trends elsewhere, and by the capacity of local resources to support a population mainly at subsistence level, the estimate of the population at between 10,000 and 12,000 around 1600 is likely to be of the right order of size (Donaldson 1958: 136).

There is also evidence to suggest that there had been significant population growth by the late 18th century with the sub-division of holdings that accompanied the development of the haaf fishing; and this point is specifically made in the Old Statistical Account in the leading haaf parish of Northmavine (O.S.A. XII: 355-356).

During the Industrial Age Shetland has seen a rise and fall of population, followed by a stabilisation that is now seen as a norm for rural areas. Increasing concentration of people and employment in cities inevitably

generated increasing stress in peripheral islands like Shetland, and although the population rose to its 1861 peak, there was an increasing exodus as it was realised that for many opportunities were better on the British mainland and in Commonwealth countries than in the isles. This led to the persistent fall in numbers for a full century from 1861 to 1961, and the isles were left with a shortage of the younger age groups and with a problem of morale. At the same time there has been significant redistribution of population within the isles, as Lerwick has grown and there has been retreat especially from isolated islands and crofts.

It is not always realised that the population tide had actually turned in advance of the Oil Age, thanks to new developments in fishing and knitwear, and to the general improvement in living conditions with improvements in housing and the general extension of basic modern amenities like electricity. The hectic development of oil of course brought numbers of Shetlanders back to employment in their native isles, as well as bringing in many incomers, especially at the construction stage. At the same time the major developments of the Oil Terminal and oil servicing have been achieved with remarkably little disruption to Shetland life.

## Conclusion

The goal in the medium and long term must now of course be to look beyond the Oil Age. There is now a real political challenge to establish a sustainable economy in the wake of the oil; but that will have to be met by a new generation of Shetlanders.

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