Transactions

of the

Dumfriesshire and Galloway Natural History

and

Antiquarian Society

LXI 1986

Transactions

of the

Dumfriesshire and Galloway Natural History

and

Antiquarian Society

FOUNDED 20th NOVEMBER, 1862

THIRD SERIES, VOLUME LXI

Editors:

JAMES WILLIAMS, F.S.A.Scot.,
W. F. CORMACK, M.A., LL.B., F.S.A.Scot.

ISSN 0141-1292

1986

DUMFRIES

Published by the Council of the Society

OFFICE BEARERS 1985-86
and
FELLOWS OF THE SOCIETY

President
Mr D. Adamson

Vice-Presidents
Mr W. I. McJannet, Mr D. W. Ogilvie, Mrs M. Gemie and Miss B. Gerdes

Fellows of the Society
Dr. J. Harper, M.B.E.; Mr D. Cunningham, M.A.; Maj. Gen. J. Scott-Elliot, C.B., C.B.E., J.P., D.S.O.; Mr J. D. S. Martin, B.Sc.; Mr J. Robertson, O.B.E., B.Sc., J.P., F.I.C.E.; Mr J. Banks, B.Sc.; Mr A. E. Truckell, M.B.E., M.A., F.M.A.; Mr Alex Robertson, M.A.; Mr Alex Anderson, B.Sc. — as Past Presidents; Prof. Anne S. Robertson, D.Litt., F.R.S.E., F.M.A.; Prof. Eric Birley, M.B.E., F.B.A.; Mr W. F. Cormack, M.A., LL.B., W.S.; Mr J. G. Scott, M.A., F.M.A.; Mr J. Williams; and Mr L. J. Masters, M.A. — appointed under rule 10.

Hon. Secretary
Mr R. H. McEwen, Seaforth, 13 Douglas Terrace, Lockerbie. Tel. Lockerbie (05762) 2101

Hon. Minute Secretary
Mr A. Anderson

Hon. Treasurer
Mr K. H. Dobie, 2 Corbelly Hill, Dumfries

Hon. Librarian
Mr J. Williams, 43 New Abbey Road, Dumfries. Tel. Dumfries (0387) 64516

Joint Hon. Editors
Mr W. F. Cormack, 16 Dryfe Road, Lockerbie and Mr J. Williams

Hon. Curator
Mr D. Lockwood, Dumfries Museum

Ordinary Members
Mrs E. Adamson, Mrs J. Muir, Mrs M. Wise, Mr J. Gair, Miss Bell, Mr R. Coleman, Mr M. Meldrum, Mrs W. Williams, Mr R. Clarke, Mrs M. Martin, Mr M. Maclure and Mr J. Chinnock.

CONTENTS

EDITORIAL

Contributions are invited on the Natural History, Geology, Antiquities and Archaeology including Industrial Archaeology, of South West Scotland or the Solway Basin, and preference is always given to original work on local subjects. Intending contributors should, in the first instance, apply to the Editors for instructions, giving the nature and approximate size of their paper. Each contributor has seen a proof of his paper and neither the Editors nor the Society hold themselves responsible for the accuracy of information in it.

The formation of the Whithorn Trust in 1986 and the rapid recommencement of excavations at Whithorn have rendered it undesirable to publish the monograph on the 1984 work there as mentioned in last year's editorial. However the Council has agreed to reprint in conjunction with the Trust the important article "The Early Crosses of Galloway" by W. G. Collingwood, which appeared in Volume 10 of the 3rd Series of these *Transactions*. Copies will be available to members at a small charge.

This volume contains a copy of the latest Rules i.e. those passed on 10th October, 1986. A list of members appeared in volume 60.

Exchanges should be sent to the Hon. Assistant Librarian, Mr R. Coleman, 4 Lovers Walk, Dumfries, to whom enquiries should be made regarding back numbers of these *Transactions* — see rear cover. As many of the back numbers are out of stock, members can greatly assist the finances of the Society by arranging for any volumes which are not required, whether of their own or those of deceased members, to be handed in. It follows that volumes marked as out of print may nevertheless be available from time to time.

Payment of subscriptions should be made to the Hon. Treasurer, Mr K. H. Dobie, 2 Corbelly Hill, Dumfries, who will be pleased to arrange Bonds of Covenant, which can materially increase the income of the Society without, generally, any additional cost to the member. The attention of members and friends is drawn to the important Inheritance Tax and Capital Gains Tax concessions which are conferred on individuals by the Finance Acts, inasmuch as bequests or transfers of shares or cash to the Society are exempt from these taxes.

Limited grants may be available for excavations or other research. Applications should be made prior to 28th February in each year to the Hon. Secretary. Researchers are also reminded of the Mouswald Trust founded by our late President Dr R. C. Reid, which provides grants for work on the Early Iron Age, Roman, Romano-British and early Christian periods. Applications for grants should be made to Primrose and Gordon, Solicitors, Irish Street, Dumfries.

The Council is indebted to the Scottish Development Department (Historic Buildings and Monuments) for a grant towards Dr. Lane's article on Candyburn and to the Hill Research Fund for a grant covering D. Adamson's article on Kirkpatrick Fleming Poorhouse.

The illustration on the front cover is of the Wamphray "grave slab" from the article "The Early Church in Dumfriesshire" by W. G. Collingwood, in volume 12 (1926) of these *Transactions*.

ANN HILL

An appreciation

Annie Isabella Hill was born in Edinburgh in 1902 and died in Ayr in November 1984. Outwardly she seemed to live an uneventful life which was spent largely in the service of the other members of her family; her father, her mother and her two sisters. She was the last of the family to die, and in her will the residue, after various bequests, was left to this Society, for the purpose of studying the history and archaeology of Kirkpatrick Fleming parish. This residue amounted to a substantial sum.

The family moved to Springkell soon after she was born, when her father, John Ramsay Hill, became clerk of works to the Johnson-Fergusons. There Ann (as she liked to be known) was brought up, with her older and younger sisters, Bessie and Nathalie. Their house at Burnfoot of Springkell still stands, close to Pincod United Free Church, of which Mr Hill was a keen member. Ann and her sisters attended, and Ann won a first class certificate in an examination for Bible knowledge. About the same time she won a prize for three years' perfect attendance at Eaglesfield school. For their secondary education the girls travelled by train to Lockerbie.

Jabez Johnson-Ferguson had bought the estate in the 1890s from the Heron-Maxwells, who in turn had lived there for some 200 years. No doubt Ann met many people who remembered the Maxwells, and heard many stories about them. In later life she collected material about the family which might well have formed the basis of a history had it not been lost when she died.

In 1919 Mr Hill became clerk of works to the Education Committee, so the family left Springkell. After short spells in Floshend, Gretna and Glencaple they settled in Maxwelltown, in Portland Cottage, in Glasgow Road. The house has since been demolished. In 1929 he became clerk of works to the County Council, and later was given the title of 'County Architect'. He was responsible, among other buildings, for the 'new' Dumfries Academy (1938) and the new Police Headquarters in Dumfries. He retired in 1944, and died in Ayr in 1947.

During these years Ann devoted a good deal of her time to looking after her mother, who did not have good health — Mrs Hill (born Isabella Bairnsfather Simpson) came from Edrom in Berwickshire, the daughter of a hedger. She is remembered as a very quiet lady who loved to read — both qualities much associated with Ann. Mrs Hill died in 1937. Ann's working life was spent entirely in her father's offices in the County Buildings, where she acted as a book-keeper and typist. When her father retired he, Ann and Nathalie all moved to join the eldest sister, Bessie, in Ayr. Ann never was employed again. Instead she continued to keep the books and to act as housekeeper to her sisters. Nathalie died in 1963, Bessie in 1969. Ann then lived alone until she too died.

An exceptionally shy person, Ann found it difficult to mix and preferred to read and study. That she retained a life long interest in finance is indicated by her regular reading the *Financial Times*. She was also interested in flowers, especially roses, and in birds (her Christmas cards, for example, always depicted birds), but history and archaeology took precedence over her other interests. Had she been able to drive she would no doubt have visited more archaeological sites. As it was she depended on her sisters for transport, but she did visit at least one of the Society's digs in the

1960s. She also purchased our *Transactions*, although there is no record of her ever joining the Society. She also made regular visits to the Carnegie Library where she collected information on the Heron-Maxwells and other topics — usually aspects of Dumfriesshire or Galloway history.

Her older sister, Bessie, was a complete contrast to Ann. She was the sort of person who is described as being 'involved in everything'. As a teenager she produced a children's operetta at Kirtle — 'Bo-Peep'. Later she became Domestic Science Supervisor for Ayrshire, and also School Meals Organiser, President of the Toastmistresses' Club and a leading local Liberal. Nathalie shared Ann's quiet temperament but was not unwilling to be a public figure. Indeed she was the star of 'Pirates of Penzance', put on by Dumfries Academy at the Lyceum in 1924. As the youngest daughter Nathalie had transferred from Lockerbie Academy to Dumfries. She eventually became a music teacher, with spells at Annan, Dumfries High School and elsewhere before becoming head of department at Carrick Academy.

None of the sisters married, so with the death of Ann the family line died out. The family grave is in Troqueer Churchyard.

In appearance Ann was tall, very dark with a sallow complexion so that she had something of a gypsy look. She was good looking, and neat in her habits so that she kept her appearance till the end.

Such were some of the formative influences and family background of this lady, quiet and unassuming in her life, but who, by entrusting to the Society the means whereby the history and archaeology of the parish of her childhood might be widely known, has indirectly created a lasting memorial to her family and her herself.

D.A.

THE ANN HILL RESEARCH COMMITTEE

When the substantial amount of the residue, almost £100,000, became known, the Council of the Society formed a Committee to formulate recommendations for carrying out of the terms of the bequest. The Committee consisted of the writer of this note as Chairman with the President and Secretary of the Society as members *ex officio* and Mr W. F. Cormack, Mr K. Dobie, Mr A. McCracken (to 1987), Mr J. Williams and (from 1987) Miss M. Stewart.

The Committee's recommendations to the Council were approved and the Committee authorised to proceed, reporting to the Council from time to time. These recommendations were that the funds should be invested on the assumption that some two thirds might be expended on research and publication by the mid 1990s, but that the remainder should be earmarked for excavation or further research and publication beyond that period. The funds were to be entrusted for safe custody to a firm of solicitors.

The research was to consist of a detailed archaeological survey of the Parish to be carried out by a professional archaeologist with experience in this work. The survey would consist of a detailed ground and air survey, with possible palaeo-environmental work. This survey was to be carried out parallel to and in conjunction with historical research carried out by a suitably qualified person. These lines have been initiated.

The Committee were also anxious that work should commence immediately on preservation of information which might be transient and accordingly steps were put in hand to record field names, grave stone inscriptions and reminiscences of the older residents, and to ascertain what records or photographs survived in private hands and copy these where necessary. This required co-operation of the local community and from the outset the Committee has kept them advised of what is planned. The local response has been generous and enthusiastic. Furthermore, at the suggestion of the proprietor of Springkell Estate, notice boards and stiles have been provided to improve public access to Kirkconnell Churchyard.

It is envisaged that publication take place at various levels. Research of general interest on particular subjects may appear as articles in our *Transactions* e.g. the paper on Notwen House in this volume. Other papers will appear as Monographs, the first being a fuller Memorial on Miss Hill and her family by Mr D. Adamson. Much of the archaeological survey may appear in this manner. Some publication may consist of printing of Old Parish Registers, Census Returns and other records of great value to those concerned with family research and this also is being put in hand. Some research will be published at a popular level to form perhaps in time a readable history of the Parish. An article in this category has already appeared in the *Annandale Observer* and it is hoped that others will follow.

A list, regularly updated, of the research work being carried out is maintained by the Secretary, Mr R. H. McEwen, Seaforth, Douglas Terrace, Lockerbie.

John Gair, Chairman,
Ann Hill Research Committee

THE ECOLOGY OF SCAR GROUNDS IN THE SOLWAY FIRTH

by

E. J. Perkins

Solway Marine Investigations, Grove Cottage, Birkby, Maryport, Cumbria CA15 0RG

Introduction

Substrata intermediate between those of a rocky or sedimentary character occur throughout the world and may consist of boulders, boulder clay remnants, cobbles, gravels or mixtures with varying amounts of each. They may comprise large areas essentially disassociated from either of the two major categories generally recognised, viz., rocky and sedimentary substrata, or they may be more or less closely associated with them. Thus, substantial areas of the margins of the west coast sea lochs of Scotland or large areas of the eastern shore of Vancouver Island, B.C. fall into the former category, though the substrata become increasingly fine below the extreme low water mark, grading into muds in the deeper water. In the more open waters of the North and Irish Seas and the English Channel, for example, large areas of the sea bed may be composed primarily of gravels. These gravels may be exploited commercially for the purposes of construction, as they are off the coasts of Essex, Suffolk, Norfolk and to the west of the Isle of Wight for example (Mr R. R. N. Gillespie, *pers. comm.*): similarly, there is an area of some 24 mi^2, lying about 20 statute miles west of Haverigg Point, Cumbria licensed for this purpose. As a measure of the scale of these operations, Johnston (1976) quoted a table by A. A. Archer in which the U.K. extracted 13.5 x 10^6 t in 1971, whilst in 1968 the U.S. extracted 35.0 x 10^6 t from these grounds. In coastal plain estuaries, these coarser substrata generally occur as patches, albeit some of them of a large size as for example the gravel grounds of The Stone in the River Blackwater, Essex or much of the sublittoral bed of Allonby Bay in the Solway Firth, but taking the estuary as a whole they are not the dominant type of substratum evident.

At first sight, these substrata, particularly in the intertidal zone, offer a hostile environment to presumptive colonists, but this superficial view is belied by the fact that they may make a significant contribution to fisheries either directly or as a source of food to animals of interest to fishermen. Thus, the substantial fishery for the edible periwinkle, *Littorina littorea*, on the west coast of Scotland and the slight, but growing one on the coast of Cumbria is based on winkles inhabiting these coarse substrata. While on the western coasts of Scotland and North America, for example, the popular and valuable venerid clams are taken on these grounds. On the Cumbrian coast, lobsters, *Homarus vulgaris*, and crabs, *Cancer pagurus*, are taken both by pot and, at the time of spring tides, by individuals on foot. Plaice, *Pleuronectes platessa*, sole, *Solea solea*, and lemon sole, *Microstomus kitt*, have been taken in the Solway Firth with the polychaete worm, *Sabellaria alveolata*, in their guts (Williams, Perkins and Hinde, 1965), indicating that they use these grounds for feeding: a result consistent with the capture of plaice, sole, and cod, *Gadus morhua*, by means of net and night line here. Sea anglers also make widespread use of these areas. Further, as I shall show, many species move onto them in the warmer months. Below the low water mark, too, these coarse grounds may support important

fisheries, thus according to Mr R. R. N. Gillespie, Sea Fishery Officer, Cumbria Sea Fishery District the queen scallop or queenie, *Chalmys (Aequipecten) opercularis*, was fished, on such grounds, at the mouth of the Salcombe Estuary, Devon in the early 1970s: in the northern Irish Sea, a big fishery for queenies on gravelly, stony ground extending up the east side of the Isle of Man northwards to the Burrow Head, Wigtownshire has been worked since 1970.

There are, therefore, good reasons for believing that the coarser substrata are an important part of the marine environment and just as worthy a topic of study in their own right as are the more "favoured" rocky and sedimentary substrata. It is true that some studies of individual species inhabiting these grounds, i.e., autecology, have been made [e.g. *Sabellaria alveolata* by Gruet (1972a); *Littorina* spp. by Smith and Newell (1955), Berry (1961), Gendron (1977) and Petraitis (1982); *Protothaca staminea* by Paul and Feder (1973); *Venerupis pullastris* by Quayle (1943) and Rasmussen (1958)], and that they get a passing mention in others (e.g., Moyse and Nelson-Smith, 1963; Perkins, 1985). The long term studies of Gruet (1969-70, 1972a,b, 1973 and 1977) and Wilson (1971, 1974 and 1976) on *Sabellaria alveolata* are not primarily concerned with either coarse substrata or the organisms associated with *Sabellaria*, though the work of both authors relates to the community associating with *Sabellaria* colonises whatever substratum they may be based upon. George and Warwick (1985) noted that quantitative sampling of the rock floor of the Bristol Channel was impossible and used the extensive reefs of *Sabellaria spinulosa* to estimate the production of these areas whose inhabitants have some features in common with the Solway Firth.

On the whole, however, there are relatively few studies which refer to the holocoen of these coarse substrata and the relationship which they have with rocky and boulder strewn shores. Still less do they consider the relationship with sedimentary shores: thus, it is generally understood that the sedentary polychaete worm *Lanice conchilega*, or sand mason worm, is a typical inhabitant of sandy shores (e.g., Yonge, 1965; Barrett and Yonge, 1958; Campbell, 1976, 1982; Newell, 1979) and yet in the Solway Firth this species may be just as abundant on gravel as sand and even of common occurrence on stony/cobble dominated shores: given the right circumstances, it may live in rock crevices, as on the Carrick shore opposite Ardwall Island for example. These observations in the Solway Firth are consistent with the observation by Hiscock (1985) of *Lanice* living in the finer substrata between cobbles and pebbles in the sublittoral, i.e., below the low water mark. Curiously, Stephenson and Stephenson (1971), while including coral reefs in their important work on rocky shores, do not mention the coarse substrata, except in two, brief, specialised instances, viz., one referring to shingle tongues in mangrove park and the second, in an indirect reference, which may be inferred from the accompanying photograph on p327. Similarly, Lewis (1964) makes only brief references to small shingle and gravel shores. Jones (1950), in a review of marine bottom communities, did define a *Modiolus modiolus* community associated with very coarse sand, gravel stones and shell at moderate depth; Glemarec (1973) in a review of the benthic communities of the European North Atlantic Continental Shelf does include some types of gravel, but made no clear reference to the substrata which are the subject of this paper. Such a paucity of information regarding these interesting habitats is surprising when it is considered that the richness of their biota was appreciated some 75 years ago. Thus,

Graham Kerr (1912) gave a paper in the *Glasgow Naturalist* on his experiences in taking students to Loch Sween, Argyll from 1904 onwards: in it he stated that "The richest bottom-fauna is, however, to be found not on the mud but on those parts of the bottom where there is a considerable rush of the tide, so that the bottom is rock or gravel," and "The richest ground in the loch, however, is in the narrow channel of Kyle Scotnish. The bottom here is for the most part gravel. . . ." He noted, too, that *Chalmys opercularis* and *Lima hians* were particularly abundant on these grounds and that the Lumpsucker, *Cyclopterus lumpus*, used them as spawning sites.

A study of the interesting Eddystone shell gravel was made by Smith (1932) and references to other coarse substrata in the Plymouth area are made in the Plymouth Marine Fauna (1957). Davis (1963), in a summary of work being performed on the River Blackwater Estuary, noted that clean shell, sand, and gravel supported the richest faunas with *Abra alba, Nucula nucleus* and *Ophiura texturata* on the finer material, giving way to *Ostrea edulis, Crepidula fornicata, Asterias rubens* and *Crossaster papposus* on the coarser bottoms. Shelton and Rolfe (1972) studied the fauna of grounds being worked for sand and gravel off the Sussex coast: they recorded up to 40 species of which, to anticipate, many are common to the scars in the Solway Firth. Perkins (1974) noted that the littoral bound shingles are inhabited by populations essentially similar to rocky shores and included the algae, *Pelvetia canaliculata, Fucus spiralis, F. vesiculosus, Ascophyllum nodosum, Gigartina stellata, Ulva lactuca, Enteromorpha* spp., *Cladophora* spp., sponges, *Halichondria panicea*, barnacles, *Chthamalus stellatus, Balanus balanoides, Elminius modestus*: the gastropod molluscs, *Acmaea tessulata, A. virginea, Littorina saxatilis, L. littorea, L. littoralis, Nucella lapillus*: lamellibranch molluscs, *Mytilus edulis*: starfish, *Asterias rubens, Henricia sanguinolenta*. Perkins also noted that, unlike rocky shores, the bound shingles of both fiordic and coastal plain estuaries are inhabited by an infauna characterised by the lamellibranch molluscs, *Modiolus modiolus*, the horse mussel, *Venerupis pullastra*, pullet shell, *Mya arenaria* and *M. truncata*, the soft shelled clams and *Hiatella arctica*. Clokie and Norton (1974) studied the grazing of the pebble-dwelling algae *Cruoria pellita* and six species of *Lithophyllum, Lithothamnion* and *Phymatolithon* by *Acmaea virginea, Echinus esculentus*, and *Psammechinus miliaris*. The community also included *Acmaea tessulata*, and species of *Gibbula, Natica, Trivia* and a variety of dorid nudibranch molluscs which did not feed upon these algae.

In a study on the west cost of Whidbey Island, Puget Sound, Webber (1979) found that while the intertidal gravels were inhabited by some 50 species of flora and fauna, the biota of the cobble ground was much richer, viz., some 200 species; similarly, in the sublittoral some 200 species were associated with a sand site, whereas some 300-350 species lived at the gravel and cobble sites. In a study of the dumping ground off the mouth of the River Humber estuary, Murray *et al* (1980) noted the difficulty of sampling the hard substratum, which from inspection of their plates has strong similarities with some substrata in the Solway. Perkins (1981), working on the substrata of Maryport Roads and Allonby Bay, showed that some 250 macrobenthic species were associated with bound shingle and cobble substrata; whereas, in contrast, only some 50 species have been recorded from the mobile sandy substrata (see, for example, Perkins and Reid, 1979). Perkins (1981b) also showed that while biomass on the coarse substrata may be very variable, a maximum of 782 g

dry wt m^2 was found in Allonby Bay, the maxima for the sandy substrata was less than 1/100th of this: such a comparison may be invidious to some degree, because the coarse substrata are difficult to sample accurately, but this comparison does give context to the contribution which Allonby Bay and the scar grounds generally make to organic production in the Solway Firth as a whole. Hiscock (1985) lists some 100 species inhabiting cobbles and pebbles in the sublittoral: this is somewhat less than is found on the shore and in the immediate sublittoral of the Solway. Holme and Wilson (1985) investigated the faunas associated with longitudinal furrows and sand ribbons at a depth of 50-55m off the Dorset coast: here, the bottom consisted of a stable pavement of pebbles and cobbles, set in a matrix of sand and gravel, subject either to scour from granules and small pebbles or periodic submergence by sand. These conditions have some resemblance to those in the Solway and, moreover, to anticipate again, the faunas inhabiting each of the situations above are similar to each other, though there may be some marked differences in species diversity.

In the work of the Solway Firth survey, now in its twenty-seventh year, early emphasis was placed on the ecology of the sedimentary substrata for reasons which were dictated first by a need to understand the movement and accumulation of radioactive material (see for example, Perkins and Williams, 1965) and then an intrinsically similar study of materials of industrial origin, such as pulp mill, general chemical and steel works effluents. Fisheries have been an important consideration throughout and, here too, the sedimentary substrata has had a dominating influence through its abundant inhabitant, the brown shrimp, *Crangon crangon*. This animal is important to the ecology of the Solway Firth both as a source of food for fish of commercial importance and as a fishery in its own right (Williams, Perkins and Hinde, 1965). Through much of the period to about 1974, attempts were made to use the sedimentary infauna to define the limits of the impact which an effluent was having in its receiving waters and while this work was successful to a limited degree, it was always overshadowed by the influence of the inherently mobile sediments of the Firth: this work was finally abandoned in 1984 (Perkins, 1984a) and remains to be written up essentially as a study of sediment mobility upon its inhabitants.

Although conscious throughout of the amount of scar ground in the Solway Firth and the evident abundance of its biota, in at least some cases, it became necessary to consider hard grounds more seriously from 1970 onwards when required to discriminate between the impacts of mining waste dumped by the National Coal Board and effluent from the adjacent Marchon outfall at Barrowmouth, near Whitehaven (Perkins, 1981a). This situation was further promoted by the development of a substantial shingle bank about the Thames Board outfall at Siddick, Workington; this bank presented the opportunity to consider the impact of the effluent in conditions more stable than the sand flat offered from 1971 onwards. Clearly, one cannot use such proximate situations without reference to control sites distant to the effluent source/s and a system of such sites has been developed on the coasts of Cumbria and Kirkcudbrightshire. The following paper is an introductory account of this work which, given its duration and the amount of data involved, will be published in series of papers subsequently.

Environmental Conditions

The Solway Firth is essentially a vertically homogeneous estuary characterised by a tidal range of ca 8.5m at spring tides. The duration of the ebb and flood are

unequal, being 8 and 4h respectively at Powfoot. Fast currents are associated with these tides (up to 6kt on spring tides at Powfoot are given on Admiralty Chart 1346) and bores develop in the Firth and its tributary estuaries. The sea bed is composed predominantly of fine and very fine sand, of variable depth, upon a firmer substratum of either rock or boulder clay. Of the last two, the boulder clay is apparently predominant and is normally seen as a bed of cobbles and pebbles embedded in a matrix of finer sediments which are usually washed off the superficial layer leaving a coarse substratum which G. E. Newell, working at Whitstable, Kent, termed *bound shingle*: a term which will be used below for all situations having this type of substratum. Depending upon situation, large boulders may be deposited upon or embedded in the bound shingle.

Fine and very fine sand are the grades most readily moved by a current (Inman, 1949) and this combined with a lack of the binding silt/clay fractions in Solway Firth sediments is responsible for the marked mobility of these sediments. Fishermen report that these movements are such that a bed of bound shingle may be rapidly exposed anywhere in the Firth, whatever the depth. An example of such a change was noted at Powfoot, where from 1961 to 1971 marked accretion was observed; by the beginning of 1972, however, this trend was sharply reversed so that, by 14th March, the sand flat ended abruptly in an erosion edge. This erosion edge fell vertically for ca 2m to a series of sand megaripples which descended to the channel bed of bound shingle, the whole having a height of some 5m above the bound shingle bed. As erosion proceeded the bound shingle was covered by sand once more. During 1986, Mr D. Muir, a member of the Cumbria Sea Fisheries Committee, presented me with a slab of boulder clay trawled at a depth of ca 15m off Workington and which seems to have been exposed in a similar manner. Such exposures, of varying duration, are seen on the shores of the Solway, where in common with rock and gravel they are referred to as scars. Thus, *scar* is a term used to describe a hard substratum, emergent from the widespread areas of mobile sand and liable to periodic inundation by the sand. While some may be composed predominantly of one type of hard substratum, others may be a mixture of two or more: thus the flood channel barblet bed at Brighouse Bay is bound shingle, but the more elevated ground nearby, which may at times be contiguous with the barblet bed, consists of rock outcrop, broken rock and shale as well as bound shingle. Powfoot Scar is primarily bound shingle as is Dubmill Scar, but the latter has a scattering of massive boulders. Risehow Scar is primarily a large low-lying rock outcrop with contiguous areas of bound shingle; on part of the scar the rock is covered by a substantial area of cobbles and pebbles.

Methods

While appreciating that infauna can inhabit scars, it was considered, at the outset, that the essentially destructive nature of sampling in depth might in itself become an undesirable, and perhaps unquantifiable, factor in the grounds studied. To minimise such disturbance, the surface dwelling species present, their abundance, reproductive activity (copulation, spawning, settlement and subsequent growth), and general condition are recorded on each visit. When an organism either cannot be identified in the field, or confirmation is required, then small samples are returned to the laboratory for identification. On each visit, only a limited number of stones are turned over to determine those animals sheltering beneath.

On small patches of scar a near complete list of the inhabitants will be obtained in a short time, 0.5h say, but for larger areas and whole shores where comparison is more difficult and the number of species found is time dependant then a limit must be set on the duration of ecological reconnaissance undertaken, this is usually 3h. This period is consistent with opportunities offered by the tidal emersion and the concentrated attention span possible in what are often adverse conditions. Relative abundance is ascribed to a set of indices: thus present 1, present-common 2, common 3, common-abundant 4, abundant 5 and very abundant 6. There are no set limits for these groups which are ascribed according to species and opportunity offered for colonisation and, though a loose arrangement, this does work in practice. The analysis of diversity is treated more rigorously, the number of species being recorded on each visit being ascribed to a Diversity Index: thus 0-5 species is allocated to Diversity Index 1, 6-10 to 2, 11-20 to 3, 21-40 to 4, 41-80 to 5, 80-160 to 6 and >160 to 7. This is a true diversity index, in contrast to the information theory diversity index so widely used with reference to sediment infauna, for example; it is also a geometric progression, a condition necessary to allow for the variations in observation which arise particularly when large numbers of organisms are present. In practice, it seems to give consistent results for any one shore and is responsive to favourable or adverse changes in environmental conditions. It should be noted that organisms which one would expect to find in the small samples taken for identification, viz., nematodes, ostracods and harpacticoid copepods, for example, are included in the list, even though they could not have been seen in the field, and unless clear distinction can be made each are treated as one species. Similarly, where any genus may contain one or more species, but cannot be distinguished with certainty (with or without identification to specific name) they are treated as one species, as were *Enteromorpha* spp. in earlier parts of the study. Again in those cases where the distinction between *Gigartina stellata* and *Chondrus crispus* was difficult or "blurred" in the field, they too were treated as one species.

One further difficulty arises in making abundance assessments of the vagile species for they are capable of moving either within the shore or to and from the sublittoral in response to changing environmental conditions. Thus, the edible periwinkle, *Littorina littorea*, is normally found in greatest abundance on the surface of rock, boulder or bound shingle on warm, humid or wet days under an overcast sky: in contrast, few may be in evidence on hot or cold clear days when the humidity is usually low and the evaporation rate high. Then, they seek as much shelter as may be obtained beneath cobbles and boulders or deep in rock crevices. The dog whelk, *Nucella lapillus*, evinces similar behaviour and both species occupy a higher shore level in the summer than they do in winter, though both live on the shore throughout the year. Other species only live on the shore for part of the year, thus adults of the shore crab, *Carcinus maenas*, are found on the shore during the warmer months, but move offshore during the winter (Edwards, 1958; Penfound, 1973); in contrast, I found, over many years, that *Carcinus* juveniles were present on the shore at Garelochhead throughout the year. In the Solway Firth, it would appear, too, that the hermit crab, *Pagurus bernhardus*, shows a marked migration onto the lower shore during the warmer months (Perkins, 1984b). Finally, even at times when one would expect to find vagile species on the shore, it is the experience of many who collect regularly that stormy conditions are followed by a period when such animals are scarce, although Edwards (1958) only offered equivocal evidence in this respect.

The role of wind in influencing the quality of the vagile benthos living on the shore requires clarification as the following examples will show. Thus, the Force 9 gale from the north-west and west on 13/14 January 1984 did considerable damage on the Cumbrian coast of the Solway and left many dead and dying plants and animals in the strandline, these included: *Haliclona* sp., *Halichondria panicea*, sponges misc., *Abietinaria abietina*, *Hydrallmania falcata*, *Nemertesia* sp., hydroids misc., *Urticina felina*, *Carcinus maenas*, spider crabs, *Modiolus modiolus*, *Crossaster papposus* (ca 30 m^{-2}), *Asterias rubens*, *Flustra foliacea*, *Raia clavata* egg cases, *Laminaria saccharina*, *Laminaria* sp., *Ascophyllum nodosum*, *Fucus serratus*, *F. spiralis*, *F. vesiculosus*, *Halidrys siliquosa*, *Gracilaria verrucosa*, *Chondrus crispus*, *Corallina officinalis*, *Dilsea carnosa*, *Cryptopleura ramosa*, *Delesseria sanguinea* and *Odonthalia dentata*. The biota stranded was primarily of the sessile and sedentary habit, relatively few vagile species being recorded; the sunstar, *Crossaster pappossus*, was by far the most abundant of the vagile species, but there were no hermit crabs, *Pagurus bernhardus*, present. Indeed, in the attempted sampling of *Pagurus* on 24.1.84, relatively few were found on the sands at low water mark and none on any of the scar ground examined. In contrast, the Force 8 winds from the west south-west which blew over the night 4/5 October 1983 left large amounts of algal litter in the strandline, but few animals; an attempt to sample *Pagurus* yielded only 3 in the normal search pattern over the sand flat at L.W.M., but enormous numbers were stranded among the mussel hummocks on the main scar, presumably having been rolled there by the longshore current induced by the wind. It therefore seems likely that wind direction, as well as force, has an important influence in determining whether vagile animals leave the shore or are stranded there during strong winds. Whatever may be the ultimate truth in this respect, clearly the influence of this factor cannot be ignored.

Results and Discussion

The biota inhabiting the scar grounds of the Solway Firth comprises a large number of species drawn from many phyla. Many of these species apparently occur at low abundance, although in view of the general sampling difficulty and degree of shelter which may be offered to the more retiring, conclusions in this respect must be treated with caution. Nevertheless, there are a number of organisms, both plant and animal, which are normally found on these grounds in some abundance. The occurrence of such species is compared with other areas, both littoral and sublittoral, in Tables 1 and 2, from which it will be seen that despite geographical and depth differences there are strong similarities between them; such similarities are also evident with the biota associated with the *Sabellaria* reefs described by Gruet (1969-70, 1972, 1977) and George and Warwick (1985), but these studies, being concerned with only a part of the biota of these hard grounds, are not included in the tables. It should also be noted that these tables being concerned with similarities are necessarily marked by some omissions; thus, *Sabellaria spinulosa* is found on a number of grounds other than the Solway Firth, but despite repeated checks of identification I have not found this species, though in such a large area it may well be present; the shrimp *Eualus pusiolus* was reported from these grounds off the Humber by Murray *et al* (1980) and in the Bristol Channel by George and Warwick (1985), but it has so far only been recorded in small numbers from Risehow Scar in the Solway; *Porcellana platycheles* is much more abundant in the Solway Firth than *P. longicornis*, but only the latter has been reported from other areas, so that it alone is included in Table 1.

TABLE 1

Some fauna of bound shingle and gravel substrata in the Solway Firth and its occurrence on similar substrata in other areas

	Gare-loch	Loch Long	Loch Fyne	Port-kil	Luce Bay	Sus-sex 1972	Hum-ber 1980	Dor-set 1985	His-cock 1985
Halichondria panicea	+	+	+	+					+
Tubularia spp.								+	+
Abietinaria abietina						+		+	
Dynamena pumila			+	+					
Alcyonium digitatum						+			+
Actinia equina	+	+	+	+					
Urticina felina			+					+	+
Metridium senile	+	+							
Sagartia spp.		+	+					+	+
Phyllodoce sp.	+e			+e		+			
Arenicola marina			+	+					
Sabellaria alveolata									+
Lanice conchilega			+	+	+		+		+
Pomatoceros triqueter	+	+	+	+		+			+
Balanus crenatus	+		+		+	+		+	+
B. balanoides	+	+	+	+	+	+			
Balanus spp.				+			+		
Elminius modestus		+			+				
Homarus vulgaris									+
Porcellana longicornis						+	+		
Pagurus bernhardus	+	+	+	+		+			
Pagurus spp.							+	+	+
Carcinus maenas	+	+	+	+	+				
Cancer pagurus	+		+	+					+
Hyas araneus	+			+					
Lepidochitona cinerea	+		+				+		
chiton, misc.,	+	+	+	+		+			
Acmaea virginea	+				+		+		
A. tessulata	+	+	+	+	+	+			
Patella vulgata	+	+	+	+	+				
Gibbula cineraria			+				+		+
Gibbula sp.		+	+	+	+				
Calliostoma zizyphinum						+	+		+
Calliostoma sp.								+	
Littorina littoralis	+	+	+	+	+				
L. saxatilis	+	+	+	+	+				
L. littorea	+	+	+	+	+				
Nucella lapillus	+	+	+	+	+				+
Buccinum undatum	+	+	+	+		+	+		+
Onchidoris bilmellata	+			+					
Aeolidia papillosa	+	+	+	+					
Mytilus edulis	+	+	+	+	+				
Modiolus modiolus	+	+	+	+			+		
Chlamys opercularis			+			+			
Cerastoderma edule		+	+	+					
Cerastoderma sp.	+	+	+		+				
Mya truncata	+	+	+	+					
M. arenaria	+	+	+	+			+		
Hiatella arctica		+	+	+	+	+	+		

	Gare-loch	Loch Long	Loch Fyne	Port-kil	Luce Bay	Sus-sex 1972	Hum-ber 1980	Dor-set 1985	His-cock 1985
Electra pilosa				+					+
Alcyonidium diaphanum				+					+
Flustra foliacea								+	+
Flustra sp.							+		
Crossaster papposus						+		+	+
Henricia sanguinolenta			+				+	+	+
Henricia sp.									+
Asterias rubens	+	+	+	+		+	+		+
Ophiothrix fragilis			+			+	+		
Psammechinus miliaris	+	+	+	+		+	+		
Echinus esculentus		+	+				+		+
Dendrodoa grossularia		+	+					+	+
Dendrodoa sp.							+		
gobies, inc. *P. minutus*	+	+		+	+				
Pholis gunnellus	+	+	+	+			+		
Myxocephalus scorpius	+		+	+					

Observations on the Gareloch, Loch Long, Loch Fyne, Portkil (Firth of Clyde) and Luce Bay by the author at varying times between 1965 and 1982; Sussex 1972- sea bed off Hastings by Shelton and Rolfe (1972); Humber 1980- sea bed off the mouth of the Humber Estuary by Murray *et al* (1980); Dorset 1985- sea bed 20mi south of Anvil Head on the Dorset coast by Holme and Wilson (1985) and in shallow waters, i.e., 18m off the Scilly Isles, Bardsey Island and the Somerset coast of the Bristol Channel by Hiscock (1985).

In an 'ideal' situation where the whole shore would have a bound shingle substratum, then the type of zonation to be expected of a rocky substratum would be evident, as indeed may be seen in the Scottish west coast sea lochs. Here the usual progression from green to brown to red algae, with a concurrent increase in the diversity and abundance of animals, as one proceeds from extreme high water mark to extreme low water is apparent. In the Solway Firth, however, the whole system is moderated by the shifting sand overlying the bound shingle. This may take effect in two principal ways, thus the sand may be persistent at the low water mark, removing the possibility that the rich and varied biota seen elsewhere can develop; the differences noted between the hard substrata colonisations at Southerness and Dubmill Point are a good example of this, since they occupy comparable positions on opposite sides of the Firth; the Diversity Index at the former is 4 whereas at the latter it is 6. The continued presence of sand at lower shore levels has the same effect at Ravenshall Point, south of Gatehouse of Fleet.

At mid and upper shore levels, there may be persistent exposures of scar ground as at Ravenshall Point, Southerness and Allonby, for example, but even here the biota living at the margins are subject to periodic inundations of sand and variable small amounts may be scattered across the scar, each having an effect upon the Diversity Index. It is, however, the bound shingle exposures associated with the flood channel barblet systems (see Perkins, 1977) which experience the most dramatic changes. Here there are long term progressions of exposure and inundation of the bound shingle, the duration of which may be measured in months or years. While the succession noted is somewhat dependent upon the time of year at which

the exposure takes place the early colonists usually consist of *Balanus balanoides*, *Elminius modestus*, *Ulothrix* sp., *Enteromorpha linza*, *E. intestinalis*, *Ulva lactuca*, *Porphyra* sp. and filamentous diatoms, usually *Navicula grevilleana* and *N. ramosissima*. These early colonists may become very abundant, but if the exposure of bound shingle persists they are joined by *Lepidochitona cinerea*, *Littorina littorea*, *Cladophora sericea*, *Fucus ceranoides*, *F. spiralis*, *F. vesiculosus*, *Dumontia contorta*, *Polysiphonia nigrescens* and *Verrucaria mucosa*. *Arenicola marina* is found intermittently and gobies, *Pomatoschistus microps* and *P. minutus* may be present throughout the warmer months from May onwards. Ultimately, the sand inundates the bound shingle once more.

On those scars which are generally free of periodic inundation by sand, the principal non-vagile inhabitants persist, apparently with little change, for long periods, although annual variations in abundance do occur. Nevertheless, changes in species composition may take place suddenly and with considerable consequences for associated biota both vagile and non-vagile. The sand mason worm, *Lanice conchilega*, was very abundant in gravel in the upshore part of the shingle bank about the Thames pipeline at Siddick from 1974 until the early months of 1987 when it abruptly disappeared. This disappearance was not evident elsewhere in the Solway and seems to be related in some way to the exceptional settlement of *Mytilus edulis* which occurred throughout the area in the later months of 1986. With reference to this site, Perkins (1979) noted a succession which progressed from *Halichondria panicea* (1970/71) to *Balanus crenatus* (1973) to *Halichondria*/*Sabellaria alveolata* (1975 onwards) when *Halichondria* and *Sabellaria* colonised approximately equally but in different areas. Since 1975 *Halichondria* has declined, but *Sabellaria* has received further recruitment some of it large and one, very large settlement occurred in 1986. As a result there has been a progressive colonisation of the Siddick shore by *Sabellaria*. Its effect has been first to reduce very markedly the amount of shelter available to vagile species either visiting the shore or wishing to lay their eggs there and secondly to reduce the surface area available for colonisation by the red algae *Ceramium rubrum* and *Polysiphonia nigrescens* for example. A similar intense colonisation by *Sabellaria* having the same consequences has affected Risehow Scar also.

Where surfaces have become unavailable for colonisation by algae such as *Chondrus crispus*, *Ceramium rubrun* and *Polysiphonia nigrescens*, then other species are affected in a "knock-on" effect, for many other organisms use them for shelter or attachment. *Chondrus crispus* often carries an abundant growth of the hydroid *Dynamena pumila* and the bryzoans *Electra pilosa* and *Flustrellidra hispida*. *Ceramium rubrum* supports the crustaceans *Idotea granulosa*, *Caprella linearis*, the prosobranch mollusc *Rissoa parva*, mytilid plantigrades and *Electra pilosa*. *Polysiphonia nigrescens* supports *Idotea granulosa*, *Caprella linearis*, mytilid plantigrades *Electra pilosa*, *Alcyonidium hirsutum*, *Bowerbankia gracilis* and *B. pustulosa*. All three species carry large numbers of protozoans, nematodes, ostracods and harpacticoid copepods and in May and June garfish, *Belone belone* deposit their eggs upon them.

The impact of the exceptional 1986 settlement of mussels, *Mytilus edulis* in the Solway has yet to be realised. The tiny mussels thickly coated every available surface including cobbles, pebbles, gravel, effluent pipes, *Sabellaria* reefs and algae,

particularly *Chondrus crispus*, *Palmaria palmata*, *Ceramium rubrum* and *Polysiphonia nigrescens* to the extent that the substratum colonised became unrecognisable. As 1987 has progressed the cover on the algae has declined, particularly in the case of *Palmaria palmata* where growth and presumably mucilaginous exudates rendered their surface less suitable for attachment by the mussels. Those inhabiting the *Sabellaria* have decreased slightly in abundance, but large numbers are still present around the tube openings at many places including Siddick. If the *Sabellaria* is unable to rid itself of the mussels, then a big change in the shore populations may be expected, for the mussels could kill the worms directly either by competition for food or 'strangulation' by overgrowth. If there is no direct mortality of *Sabellaria* then a large growth of mussels on the Ross reefs could prevent settlement by *Sabellaria* larvae during 1987 and successive years, and this as Wilson (1971, 1974 and 1976) has shown is likely to be fatal to the polychaete in the longer term. Certainly, something like this seems to have occurred at Dubmill Point where between 1980 and 1985, a large area of *Sabellaria* had died and the hummocks of the reef were colonised by an abundant and persistent growth of mussels; here, however, the area so affected was small compared with an estimated area of 240 ha colonised by *Sabellaria*. Whatever the outcome at Siddick, and elsewhere, the next few years should provide an interesting and instructive insight into competition between these two species.

Although the long term changes in the abundance and distribution of the sessile and sedentary species may be very striking, they may, in turn, result from fluctuations in numbers of vagile species. Thus, the nudibranch molluscs *Archidoris pseudoargus* and *Onchidoris bilamellata* periodically undergo marked increases in abundance; the former feeds primarily on bread crumb sponge, *Halichondria panicea*, and the latter on a variety of acorn barnacles, e.g. *Balanus* spp. The fluctuations in abundance are such that *Archidoris* was probably responsible for the decline of *Halichondria* noted at Siddick from 1971 to 1973, and *Onchidoris* was certainly involved in the change from *Balanus crenatus* to *Halichondria*/*Sabellaria alveolata* noted from 1973 to 1975. While the consequences of the intermittent marked increase in abundance of *Archidoris* and *Onchidoris* are evident at Siddick, other species undergo similar increases with no obvious effects, which are probably a failure of perception rather than real. Thus, the nudibranch molluscs *Facelina auriculata* and *Goniodoris nodosa* are generally seen only in small numbers on scar grounds. According to Thompson and Brown (1976) the former feeds on the hydroids *Tubularia*, *Clava* and a wide variety of calyptoblasts, though they do note that the flesh of mussels and periwinkles may be taken in the laboratory. Young of the latter species feed upon encrusting bryozoans such as *Alcyonidium*, but the adults consume ascidians, particularly *Botryllus scholsseri*, *Dendrodoa grossularia* and *Diplosoma*. In 1975, *Facelina* became so abundant at Kilcreggan that it could be used in toxicity studies, but from 1976 onwards only small numbers were seen. *Goniodoris* became very abundant at Risehow Scar in 1984, it was found to be abundant in 1985, but since then it has been found only in small numbers: the ascidian *Dendrodoa grossularia* remained very abundant while the numbers of *Goniodoris* were high, but it has since declined apparently under pressure from an incursion of sediment and the very big settlement of *Sabellaria*. Similarly, the tortoiseshell limpet, *Acmaea tessulata*, was abundant on the shores of the Gareloch

about 1968, but it declined markedly and few were seen in the 1970s; in the Solway Firth, it was of common occurrence about 1970, but was then generally of low abundance until 1985 and is now abundant at Siddick, for example.

TABLE 2

Some flora of bound shingle and gravel substrata in the Solway Firth and its occurrence on similar substrata in other areas

	Gare-loch	Loch Long	Loch Fyne	Port-kil	Luce Bay	Hiscock 1985	
Enteromorpha spp.	+	+			+		
Ulva lactuca	+	+		+	+		
Ulva sp.						+	
Cladophora rupestris	+	+	+	+	+		
C. sericea					+		
Ectocarpus sp.					+		
Laminaria digitata				+			
L. saccharina		+	+	+	+	+	
Laminaria spp.	+	+	+	+	+		
Ascophyllum nodosum	+	+	+	+	+		
Fucus ceranoides					+		
F. serratus		+	+	+	+		
F. spiralis	+	+	+	+	+		
F. vesiculosus	+	+	+	+	+		
Pelvetia canaliculata		+	+	+	+		
Chondrus crispus				+			
Gigartina stellata	+	+	+	+	+		
Lithophyllum incrustans	+	+	+	+	+		
Dilsea carnosa				+			
Dumontia contorta				+	+		
Hildebrandia rubra				+	+		
Palmaria palmata				+			
Ceramium rubrum				+	+	+	
Polysiphonia elongata						+	
P. nigrescens				+	+		
P. urceolata						+	
Polysiphonia spp.		+		+			
Porphyra spp.		+	+	+	+		
diatoms, misc.							+
Verrucaria mucosa				+	+		

N.B. *Laminaria hyperborea, Corallina officinalis* and *Delesseria sanguinea* may occur abundantly on these grounds in the Solway Firth, but similar information is not available for other areas.

Observations on the Gareloch, Loch Long, Loch Fyne, Portkil (Firth of Clyde) and Luce Bay by the author at varying times between 1965 and 1982; Hiscock (1985) recorded the algae present at Smith Sound, Isles of Scilly and Pen Cristin, Bardsey Island.

These changes are of such duration that they can be recorded, others, though ephemeral, have a lasting effect, but may escape observation. A category into which the following could have fallen had not chance played its part. Thus, the effect of a brief visit by oyster catchers, *Haematopus ostralegus*, upon mussels at Silloth was noted by Perkins (1974). The marked increases in abundance of *Onchidoris*

bilamellata which have been noted in the Solway and the Gareloch may also come into this category. In 1980, this nudibranch was very abundant in the Solway and at Harrington in August having consumed all the barnacles available, had released its hold on the substratum to be rolled along by the incoming tide presumably in search of bound shingle still carrying live barnacles. On the 11th June 1987, large individuals of the starfish *Asterias rubens* were present in enormous numbers on the lower reefs at Southerness, where the acorn barnacles were evidently being consumed in large numbers, leaving only bases and empty shells; in contrast, at Dubmill Point, on the opposite shore, this species was only common on the 15th June. Similarly, at Siddick on 13th June small starfish were very abundant in an area of some 30m radius about the Thames outfall, but few were present elsewhere. Characteristically, such large numbers may be present on a shore, or part of it, for a few tides only and may be rarely seen for the rest of the year.

Still other changes may arise from small beginnings. Wilson (1971, 1974 and 1976) observed the *Sabellaria alveolata* colonisation at Duckpool, North Cornwall from 1961. In these papers he included a study of the group of Three Small Colonies until it finally disappeared beneath sand in October 1975. He concluded this study by saying "In retrospect this remarkable colony owed its existence to the presence years ago, before 1962, of three little groups of tiny tubes belonging to worms killed in youth, they themselves having doubtless settled on traces of former colonies preserved in rock crevices. From such insignificant beginnings can large complex colonies grow".

There is, in a sense, nothing new in the relationships noted above for Guiler (1959) visited four Tasmanian shores regularly over a period of eleven years. He noted how disappearance of the mussel *Mytilus planulatus* led to the loss of many associated species and concluded this short, but important paper "One important fact which has emerged from this long term project is that a collecting list made on one occasion may differ very greatly in its details from that made subsequently." This is a principal conclusion of the present paper and these results have significant implications in a world which is increasingly concerned that the environment should be managed properly. It is clearly useless to state that because changes have occurred, they must necessarily be adverse and related to one or other of mankind's activities, unless, that is, one can define with precision the mechanism of the change and that requires painstaking work over many years. Presently, one can begin to glimpse dimly some of the possible mechanisms though there is still a very long way to go. As a corollary, one must question seriously the value of papers which examine the results of one or more short term, i.e., 1 or 2 years, studies made decades apart. All that one can say, with certainty, is that the two are different, no more!

The second principal conclusion is that these hard grounds may have a productivity disproportionate to their size. This essential was grasped by Graham Kerr in 1912 and is evident in the results of Perkins (1981b) for Maryport Roads and Allonby Bay. This broadly triangular area comprises ca 2% of the area of the Solway Firth, but as noted in the introduction the biomass of its inhabitants is some 10 to 100 times that of comparable areas of the sandy substrata. Both themes will be developed in subsequent papers.

References

Barrett, J. H. and Yonge, C. M. (1958). *Collins Pocket Guide to the Sea Shore.* 272pp. Collins, London.

Berry, A. J. (1961). Some factors affecting the distribution of *Littorina saxatilis* (Olivi). *Journal of Animal Ecology*, 30, 27-45.

Campbell, A. C. (1976). *The Hamlyn Guide to the Seashore and Shallow Seas of Britain and Europe.* 320pp. Hamlyn, London, New York, Sydney, Toronto.

Campbell, A. C. (1982). *The Hamlyn Guide to the Flora and Fauna of the Mediterranean Sea.* 320pp. Hamlyn, London, New York, Sydney, Toronto.

Clokie, J. J. P. and Norton, T. (1974). The effects of grazing on the algal vegetation of pebbles from the Firth of Clyde. *British Phycological Journal*, 9, 26.

Davis, D. (1963). The bottom fauna of the Blackwater Estuary. *Annual Report of the Challenger Society*, 3, no. XV, 33.

Edwards, R. L. (1958). Movements of individual members in a population of the shore crab, *Carcinus maenas* (L.), in the littoral zone. *Journal of Animal Ecology*, 27, 37-45.

Gendron, R. P. (1977). Habitat selection and migratory behaviour of the intertidal gastropod *Littorina littorea* (L.). *Journal of Animal Ecology*, 46, 79-92.

George C. L. and Warwick, R. M. (1985). Annual macrofauna production in a hard-bottom reef community. *Journal of the Marine Biological Association of the United Kingdom*, 65, 713-735.

Glenmarec, M. (1973). The benthic communities of the European North Atlantic Continental Shelf. *Oceanography and Marine Biology, Annual Revues*, 11, 263-269.

Graham Kerr, J. (1912). Loch Sween. *The Glasgow Naturalist*, 4(2), 33-48.

Gruet, Y. (1969-70). Faune associee des "recifs" edifies par l'annelide *Sabellaria alveolata* (Linne) en baie du Mont Saint-Michel: banc des Hermelles. Memoires de la Societe Scientifiques de Cherbourg, 54, (1969-70).

Guert, Y. (1972a). Aspects morphologiques et dynamiques de constructions de l'annelide polychete *Sabellaria alveolata* (Linne). *Rev. Trav. Inst. Peches marit.*, 36(2), 131-161.

Gruet, Y. (1972b). Faune associee de "recifs" d'Hermelles Polychete Sabellariide: *Sabellaria alveolata* (Linne): cas de recifs morts a Creve-Coeur (La Bernerie, Loire-Atlantique). *Bulletin de la Societe Scientifiques de Bretagne*, 47, 69-80.

Gruet Y. (1977). Peuplements de la cote rocheuse de Sion-sur-L'Ocean (Vendee) et faune associee aux "recifs" d'Hermelles [*Sabellaria alveolata* (Linne), Annelide Polychetel. *Bull. Ecol.*, 8, 37-55.]

Guiler, E. R. (1959). Long term changes in intertidal zonation in Tasmania with special reference to the Mollusca. *Journal of the Malacological Society of Australia*, 3, 59-67.

Hiscock, K. (1985). Aspects of the ecology of rocky sublittoral areas. In *The Ecology of Rocky Coasts: essays presented to J. R. Lewis.* Ch. XXI, 290-328. Edited by P. G. Moore and R. Seed. Hodder and Stoughton, London, Sydney, Auckland, Toronto. I.S.B.N. 0 340 37011 4.

Holme, N. A. and Wilson, J. B. (1985). Faunas associated with longitudinal furrows and sand ribbons in a tide-swept area in the English Channel. *Journal of the Marine Biological Asociation of the United Kingdom*, 65, 1051-1072.

Inman, D. L. (1949). Sorting of sediments in the light of fluid mechanics. *Journal of Sedimentary Petrology*, 19, 51-70.

Johnston, R. (1976). Mechanisms and problems of marine pollution in relation to commercial fisheries. In *Marine Pollution* (R. Johnston, editor), 3-156. Academic Press, London, New York and San Francisco.

Jones, N. S. (1950). Marine bottom communities. *Biological Reviews and Biological Proceedings of the Cambridge Philosophical Society*, 25, 283-313.

Kitching, J. A., McLeod, A., Muntz, L., Norton, T., Ebling, F. J., Gamble, J., Hiscock, K. and Hoare, R. (1974). Special Lecture: Work in progress at Lough Ine. *Proceedings of the Challenger Society for 1973*, 4(5), 223.

Lewis, J. R. (1964). *The Ecology of Rocky Shores.* 323pp. English Universities Press, London.

Marine Biological Association (1957). Plymouth Marine Fauna. 3rd Edition, 457pp. Marine Biological Association of the United Kingdom, Plymouth.

Moyse, J. and Nelson-Smith, A. (1963). Zonation of animals and plants on rocky shores around Dale, Pembrokeshire. *Field Studies*, 1(5), 1-31.

Murray, L. A. M., Norton, M. G., Nunny, R. S. and Rolfe, M. S. (1980). The field assessment of effects of dumping waste off the River Humber. *Fisheries Research Technical Report, M.A.F.F. Directorate of Fisheries, Lowestoft,* (55), 35pp. I.S.B.N. 0308 - 5589.

Newell, R. C. (1979). *Biology of Intertidal Animals.* 781pp. Marine Ecological Surveys Ltd., Faversham, Kent.

Paul, A. J. and Feder, H. M. (1973). Growth, recruitment, and distribution of the littleneck clam, *Prothaca staminea,* in Galena Bay, Prince William Sound, Alaska. *Fishery Bulletin,* 71(3), 665-677.

Penfound, J. M. (1973). *The trophic ecology of Carcinus maenas (L.), the shore crab.* Ph.D. Thesis, University of Strathclyde.

Petraitis, P. S. (1982). Occurrence of random and directional movements in the periwinkle, *Littorina littorea* (l.). *Journal of Experimental Marine Biology and Ecology,* 59, 207-217.

Perkins, E. J. (1974). *The Biology of Estuaries and Coastal Waters.* 678pp. Academic Press, London and New York.

Perkins, E. J. (1977). Influence of sedimentary morphology. In: *Problems of Small Estuary.* Proceedings of the Symposium on the Burry Inlet (South Wales) held at the University College of Swansea, 13th-15th September, 1976. (A. Nelson-Smith and E. M. Bridges, editors), 7:1-19. Published by Institute of Marine Studies, University College of Swansea, Singleton Park, Swansea.

Perkins, E. J. (1979). The need for sublethal studies. *Philosophical Transactions of the Royal Society, London,* B. 286, 425-442.

Perkins, E. J. (1981a). Studies in the distribution and biological impact of the effluent released by Albright and Wilson, Marchon Division, Whitehaven, Cumbria. 2. Water quality and shoreline biota, 1970-1977. *Cumbria Sea Fisheries Committee, Scientific Report* (78/1).

Perkins, E. J. (1981b). Studies in the distribution and biological impact of the effluent released by Thames Board Mills Ltd, Siddick. 5. The bottom fauna of Maryport Roads and Allonby Bay, 1962-1978. *Cumbria Sea Fisheries Committee, Scientific Report* (81/3).

Perkins, E. J. (1984a). *Tenth Annual Report to the Cumbria Sea Fisheries Committee. Solway Firth Survey — 1st April 1983 to 31st March 1984.* Cumbria Sea Fisheries Committee, The Courts, Carlisle.

Perkins, E. J. (1984b). Some aspects of the biology of *Pagurus bernhardus* (L.). *Transactions and Journal of the Proceedings of the Dumfriesshire and Galloway Natural History and Antiquarian Society,* 3rd Series, 59, 21-26.

Perkins, E. J. (1985). The ecology of the algae in the Solway Firth. 1. The Urr Estuary. *Transactions and Journal of the Proceedings of the Dumfriesshire and Galloway Natural History Society,* 3rd Series, 60, 1-20.

Perkins, E. J. and Reid, D. M. (1979). Studies in the distribution and biological impact of the effluent released by Thames Board Mills Ltd, Siddick. 2. The fauna inhabiting the Sand Flat, 1967-1978. *Cumbria Sea Fisheries Committee, Scientific Report* (78/11).

Perkins, E. J. and Williams, B. R. H. (1979). Some results of an investigation of the biology of the Solway Firth in relation to radioactivity. *Transactions and Journal of the Proceedings of the Dumfriesshire and Galloway Natural History and Antiquarian Society,* 3rd Series, 42, 1-5.

Quayle, D. B. (1952). The rate of growth of *Venerupis pullastra* (Montagu) at Millport, Scotland. *Proceedings of the Royal Society of Edinburgh,* (B), 64, 384-406.

Rasmussen, E. (1958). Past and present distribution of *Tapes (Venerupis) pullastra* (Montagu) in Danish waters. *Oikos,* 9, 77-93.

Shelton, R. G. J. and Rolfe, M. S. (1972). The biological implications of aggregate extraction; recent studies in the English Channel. *International Council for the Exploration of the Sea. Fisheries Improvement Committee,* C.M. 1972/E:26.

Smith, J. E. (1932). The shell gravel deposits and the infauna of the Eddystone Grounds. *Journal of the Marine Biological Association of the United Kingdom,* 18, 243-278.

Smith, J. E. and Newell, G. E. (1955). The dynamics of the zonation of the common periwinkle (*Littorina littorea* (L.)) on a stony beach. *Journal of Animal Ecology,* 24, 35-56.

Stephenson, T. A. and Stephenson, Anne (1972). *Life between Tidemarks on Rocky Shores*. 425pp. Freeman, San Francisco.

Thomson, T. E. and Brown, G. H. (1976). *British Opisthobranch Molluscs*. 203pp. The Linnean Society of London.

Webber, H. H. (1979). The intertidal and shallow subtidal benthos of the west coast of Whidbey Island spring 1977 to winter 1978. *U.S. Environmental Research Laboratories, Boulder Co., Marine Ecosystems Analysis Program*. Publ. by: noaa/erl/mesa: Boulder Co. (U.S.A.) Jan. 1979. 118pp. NOA-TM-ERL-MESA-37 NOAA *Tech Memo*.

Williams, B. R. H., Perkins, E. J. and Hinde, A. (1965). The biology of the Solway Firth in relation to the movement and accumulation of radioactive materials. 3. Fisheries and food chains. *H.M.S.O., United Kingdom Atomic Energy Authority, Production Group*, P.G. Report 611 (CC).

Wilson, D. P. (1971). *Sabellaria* colonies at Duckpool, North Cornwall, 1961-70. *Journal of the Marine Biological Association of the United Kingdom*, 51, 509-580.

Wilson, D. P. (1974). *Sabellaria* colonies at Duckpool, North Cornwall, 1971-1972, with a note for May 1973. *Journal of the Marine Biological Association of the United Kingdom*, 54, 393-436.

Wilson, D. P. (1976). *Sabellaria alveolata* (L.) at Duckpool, North Cornwall, 1975. *Journal of the Marine Biological Association of the United Kingdom*, 56, 305-310.

Yonge, C. M. (1965). *The Sea Shore*. 350pp. The Fontana Library, Collins, London and Glasgow.

THE PREHISTORIC ROCK ART OF GALLOWAY

A report of some new finds in the Whithorn peninsula and a review of the rock art at High Banks, Kirkcudbright

by

Maarten A. M. van Hoek

Hoogstraat 60, 5061 EX Oisterwijk, Holland

I. NEW FINDS IN THE WHITHORN PENINSULA

Introduction

The quiet and rolling landscape of the coastal area of Galloway is often larded with numerous outcrop ridges. These ridges provide convenient quarries for both prehistoric and modern man. Many of these outcrops however bear the enigmatic inscriptions of prehistoric man as well. The Rock Art of this area dates back to the Late Neolithic and Early Bronze Age and usually falls into two categories: Cup-and-Ring-Art and Passage-Grave-Art. Galloway now represents a striking mixture of both art-forms as will be explained in this paper.

New finds

Of course it is quite normal to find new examples of Rock Art in an area with such a heavy concentration of inscribed rocks as in Galloway. Here as elsewhere carved rocks usually appear in groups and additional carvings and sites are reported each year.

Visiting the Rock Art sites of Galloway again in July 1986, my wife and I indeed found more examples, but limited time at some sites and the discoveries of more engravings made it necessary to return. This we did in October, favoured by a very fine autumn.

Among the new finds are several new carved outcrops at Culdoach (NX 708 525) and at nearby High Banks (NX 709 489) the latter of which are dealt with in the second part of this paper, which also contains a description of the lost site at Torrs 3a, which was relocated. The Whithorn peninsula however produced far more interesting finds. At Blairbuy 2 (NX 373 412) additional figures were noted and at Gallows Outon a new carved outcrop was discovered (NX 450 419).

We regret that we could not inspect the fenced-in sites at Balcraig 1 and 2 as they had previously been intentionally covered with earth and turf for protection. We noticed however a group of inscriptions on the E. side of a low outcrop ridge. We named the site Balcraig 3 (NX 376 443). Some 200m NW. is a cupmarked outcrop (NX 375 444). At Claunch we found a cup-and-ring slab (NX 427 485) and more additional cup-and-rings carved on an outcrop ridge (NX 428 481). All these new finds have been reported in *Discovery and Excavation in Scotland* and more details will be given there.

So far these new finds are, though interesting, not very spectacular, but we chanced to discover other engravings that are so important and exceptional in British and Irish Rock Art that they need a full description. Moreover, when in Whithorn again in October, we learned that a very fine spiral-site had just been discovered by Mrs Wendy Ronan of Garlieston. This new site will be described here as well.

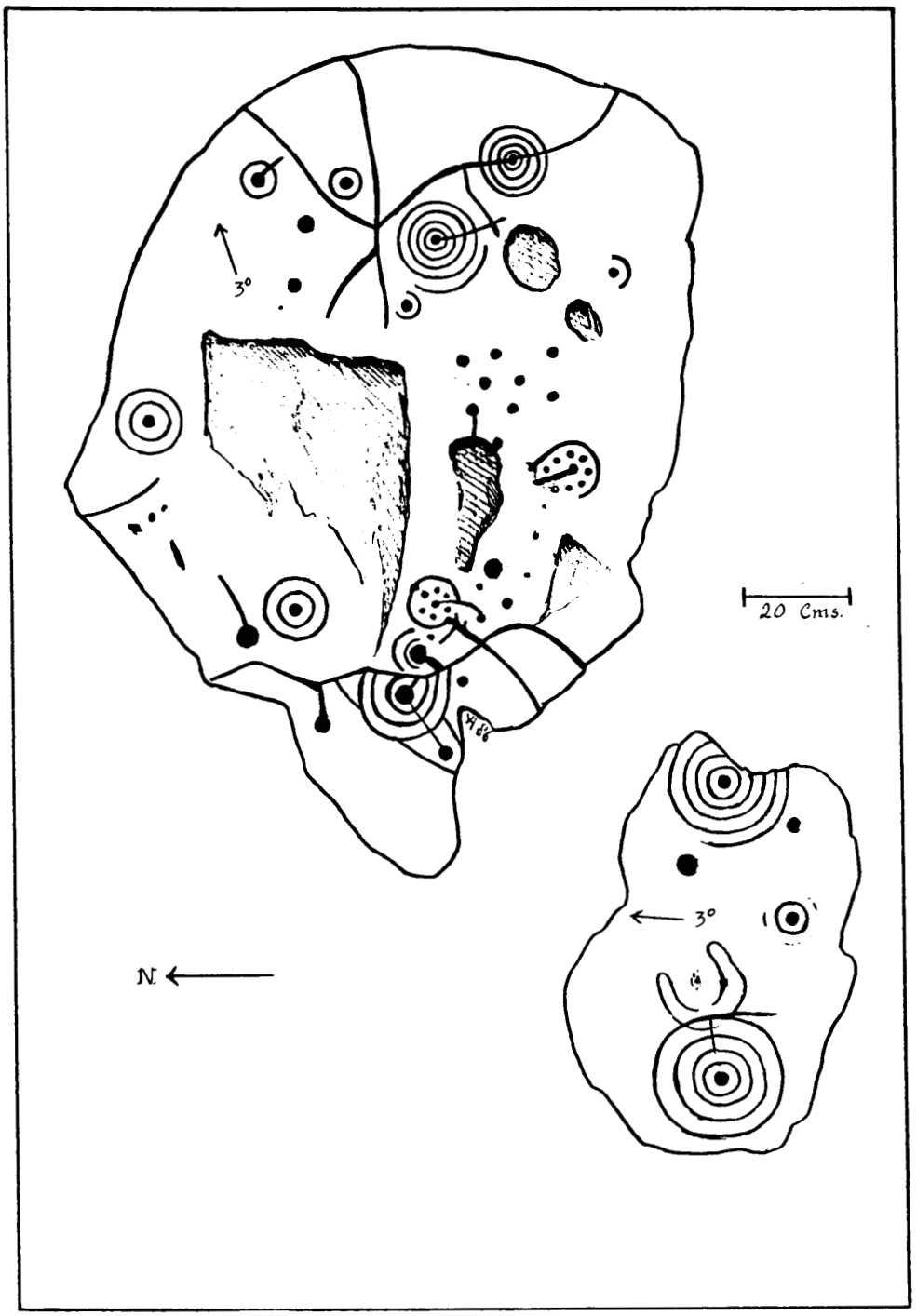


Fig. 1 Broughton Mains 2B. Note — Scale line on this and other illustrations is 20cms. and north point shows magnetic north (1986).

Broughton Mains 2B (NX 450 453).

Two very fine engraved outcrop sheets were found by the farmer when ploughing the field and they were noted by I. F. Macleod in 1974 (Morris, 1979, p. 70). The smaller SW. sheet (hereafter called rock 2B) proved to be partially covered by turf and dirt. The cleaning of the rocks revealed inscriptions (Fig. 1) not previously noted. On the now isolated S. part of rock 2B is an additional cup-and-ring figure and a faint horse-shoe shaped double ring with an almost invisible central cup. To its W. it is overlapped by the cup with four complete rings.

On the N. part of rock 2B the V-shaped grooves near its E. end proved to enclose a cup-and-one-ring and there are a few more grooves and possible rings. The most interesting devices occur on the SW. part of this sheet. In his diagram R. W. B. Morris shows an empty part ring, open to the S. Close inspection however revealed a slightly off-centre cup of very small dimensions, surrounded by a rosette of six equally small midget-cups. From the central cup there is a groove running S. through the gap. Some 35cm to the SE. is a similar device which consists of a horse-shoe ring, open to the NW. From the central cup, which again is very small, a short straight groove runs to the NW. This groove and its central cup are encircled by a rosette of seven, perhaps eight, distinctly carved midget cups. Both devices are rather small, only 10cm in diameter. (In each diagram the scale indicated measures 20cm.)

There are only a few parallels in British Cup-and-Ring-Art of this pattern, which, after perfect examples in Argyll, is often called the Ormaig pattern. Rosettes of cups however do occur in Galloway as well. Several incomplete examples occur at High Banks and another one, partially flaked off, occurs on a slab found near High Auchenlarie.

The closest parallels occur in Co. Louth, Ireland. On the Carrickrobin Stone, originally found just W. of Dundalk, is a similar device consisting of two gapped rings enclosing a rosette of seven midget cups and a central cup with a faint tail (Shee and O'Kelly, 971, Plate 2; Tempest, 1931). Another such tailed device was once found at Ballinloughan 4 in Co. Louth. Unfortunately this site was destroyed in 1984, but this carving could be saved, though slightly damaged (Van Hoek 1, giving a full list of ringed rosettes of cups). At nearby Drumirril E4 another example occurs.

Knock 3C and D (NX 366 406)

In the field immediately S. of the A747 two carved outcrop sheets were reported by Mr C. Jackson in 1978. These have been numbered Knock 3A and B (Morris, 1979, p. 129). Another carved rock was pointed out to us by Miss Edna Durrell of Isle of Whithorn in July 1978. We could relocate this stone (Knock 3C) and also found a fourth outcrop with most interesting designs (Knock 3D) in July 1986.

Knock 3C (Fig. 2) is a rock-face sloping 50° to the NE, its S. part being obscured by a large field-clearance stone. The engravings are much weathered and hard to photograph. From S. to N. there are: one cup-and-three-complete rings with a partial fourth ring, hard to inspect because of the overlying stone; below this is a cup-and-one-complete ring; one cup-and-three-complete-rings; another cup-and-three-complete-rings with traces of a fourth ring; and two cups having one gapped ring. Miss Durrell also showed us some more faint engravings on the upper part of this outcrop in 1978, but they were completely overgrown and could not be inspected on this occasion.

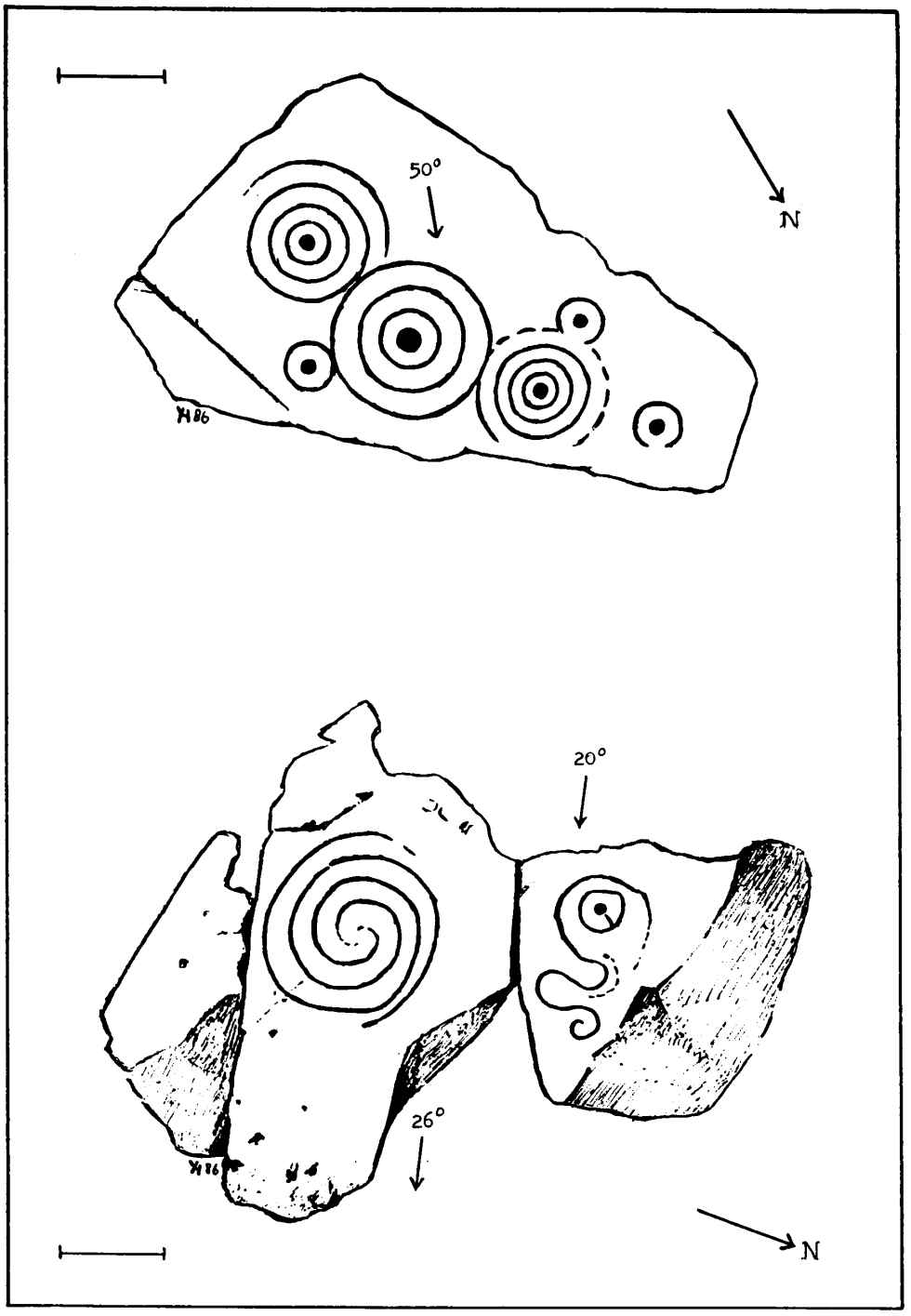


Fig. 2 (upper). Knock 3C, and Fig. 3 (lower) Knock 3D.

Looking for these overgrown carvings however we found Knock 3D (Fig. 3), which is only 2m N. of Knock 3C and just 1m E. of Knock 3A. The carved surfaces slope from 20° to 26° to the E. There are only two figures, separated by a fissure. The S. figure is rather worn and at first sight looked like a cup with three rings. Favourable light on the wetted stone however showed a double-spiral of 30cm in diameter. Its centre is much worn and therefore it could not be established whether the spirals connect. Each spiral is right-handed (clock-wise) and consists of two convolutions. Pock-marks are still visible in places.

The N. figure is special too. A small cupmark is surrounded by an irregular ring, 8 cm in diameter. From the central cup there is a short groove to connect with the ring. This cup-and-ring is surrounded by another irregular groove that extends to the E. down the slope as a wavy groove which ends in a one convolution left-handed (anti-clockwise) spiral. One of the loops of the wavy groove is encircled by a very faintly pocked groove. Also in the rest of the figure pock-marks are visible.

Exactly 1 km to the NE. is the group of Blairbuy 1, 2 and 7 where a spectacular new site was discovered on this occasion.

Blairbuy 7B (NX 371 414).

Looking for the faint engravings described as Blairbuy 7 (Morris, 1979, p. 66) we noticed a much weathered groove on a small outcropping part of the ridge. Rolling back the turf however we revealed more carvings that, after cleaning and wetting included a group of exciting figures, some of which clearly proved to be spirals. Afterwards we could relocate the "old" Blairbuy 7 site, found by R. W. B. Morris in 1977. It proved to be only 150 cm S. of the new sheet, which we named Blairbuy 7B. The old site, 7A, showed an additional cupmark.

The new site features (Fig. 4): one clearly pocked cup-and-one-complete ring, 10 cm in diameter, and another fainter one of 12 cm. Only 50 cm to the NW. is an extremely faint set of at least five concentric rings, perfectly circular but with a hardly discernable central cup. It might even never have been there. The diameter of the outer ring is 23 cm. Almost touching this outer ring is a wavy groove, quite similar to the one at Knock 3D described above. This groove however ends in a distinct three-convolution left-handed spiral. Just S. of this set is an area showing some very indistinct grooves, almost weathered off completely. Further N. however is an interesting S-shaped spiral, far better preserved. There is a central cupmark with one complete ring. From this ring starts a clearly pocked three-convolution right-handed spiral which then winds into a fainter two-convolution spiral, also right-handed. SE. of this is a small left-handed spiral of 1½ convolution. It is much worn. Nearby are two small single cupmarks. W. of the S-shaped spiral is another small spiral, right-handed this time, next to a small arc, possibly a complete single ring once, and a strange pear-shaped device with a possible cup on its pointed end and a short straight tail at the opposite end.

The rock-surface is much fractured although these cracks have been omitted in Fig. 4 when they run through the inscriptions. The smooth surface is nearly horizontal as it slopes about 3° to the SE. The site, which is at an altitude of 65 m OD, offers wide sea-views which include the distant Scare Rocks in Luce Bay. Remarkable is that the two other spiral sites, Knock 3D and Knock 1, are visible from Blairbuy 7 and that they all are on an almost straight line, more or less aligned

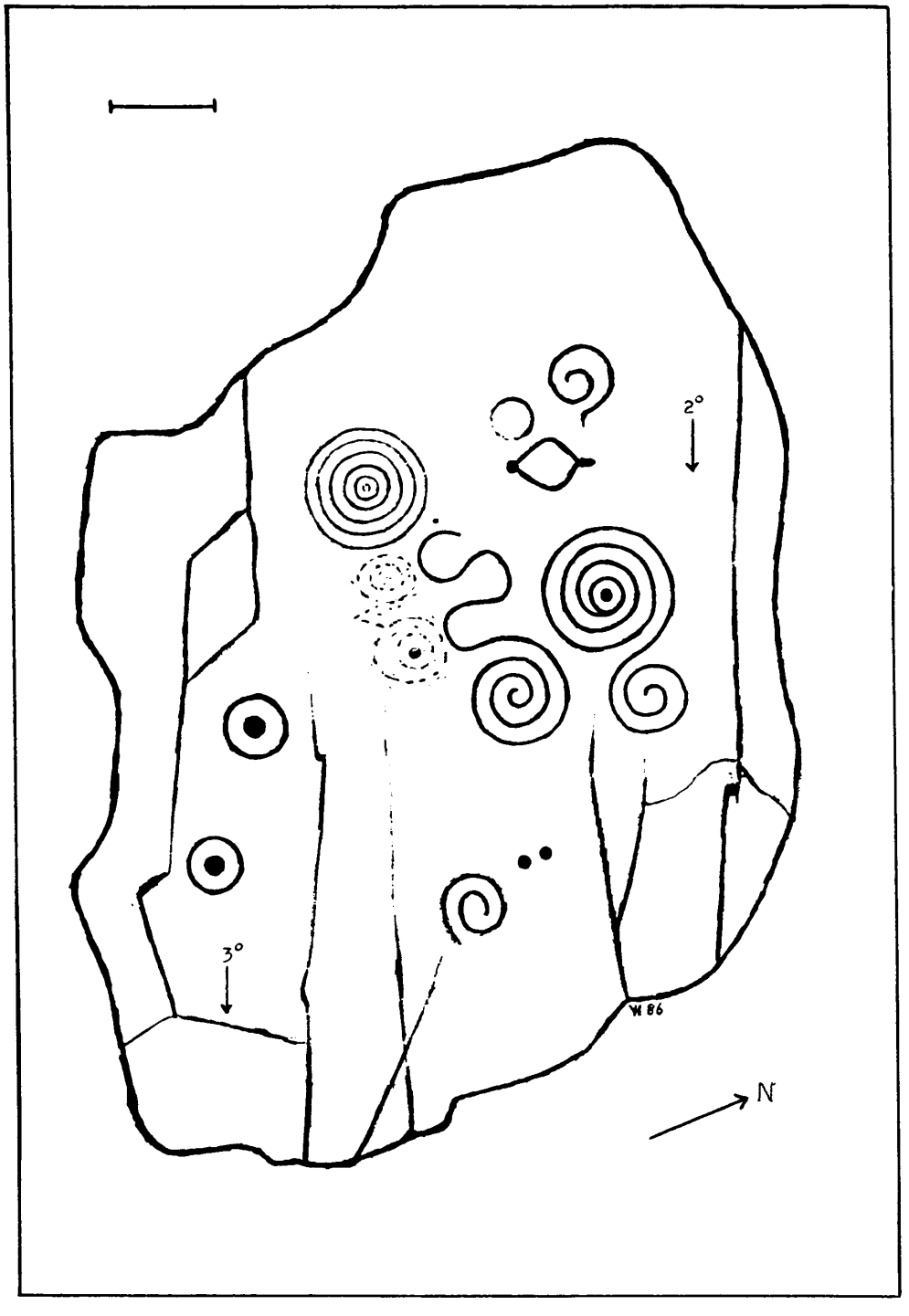


Fig. 4 Blairbuy 7B.

onto the summit of prominent Fell of Barhullion (136 m). Perhaps the sandy beach of Monreith Bay once provided a suitable landing place from where inland migration took place.

All engravings are pocked out rather superficially but still must have been exposed for a long time in earlier days as certain parts are almost invisible at the moment. Therefore, after inspection, the sheet has been re-covered, but cattle, often gathering on eminences like this one, might again remove the thin layer of turf. It therefore is to be hoped that adequate measurements will be taken, preferably by the Scottish Development Department, to protect this unique site.

Eggerness 1 and 2 (NX 487 472).

Even more spectacular are the decorated outcrop sheets on top of a low hill some 800 m SW. of Eggerness Farm. At an altitude of about 47 m is an area of rough ground where three carved rocks had been discovered in October 1986. One sheet, discovered by Mrs W. Ronan, has three animal carvings possibly with Pictish affinities. The two other sheets bear spirals. Eggerness 1, discovered by her as well, is most interesting as it shows, amongst a number of other symbols, at least 12 spirals and a few uncertain ones. Fig. 5 shows what is available on the rock when deturfed and inspected by Ronald Morris and the author. There may be more carvings still covered as parts of the rock are overgrown with bushes. Two types of spirals occur on this rock: single left-handed spirals (only two examples) and single right-handed ones (seven certain examples and two or three doubtful ones); and S-shaped spirals (two certain examples and one incomplete one). The two certain S-shaped spirals are left-handed and the larger one is right-handed. What is unusual is that all the S-shaped spirals here have equally sized parts, unlike the one at Blairbuy 7B. There are also six examples of single arcs and three double ones. Some of these may have formed the beginning of a spiral-carving or represent failures. The largest spiral is rather boldly pocked out in contrast to most of the others that are superficially engraved, some distinctly, others very roughly. There are two possible cupmarks, one cup-and-one-ring and one possible ring-only. Pock-marks seem to occur scattered all over the rock but also many small natural holes occur on this much fractured sheet. It slopes from 12° NNW. to 34° WNW. and from the site one has excellent views all around.

Eggerness 2 is a small outcrop sheet just N. of a wall some 140 m NNE. of Eggerness 1. It was pointed out to us by Mrs Ronan and proved to have one clear left-handed spiral of two convolutions. On the same sheet is an area with small pock-marks forming no clear pattern. It possibly might have been the beginning of an animal carving like the ones further SW. Fig. 6 gives an impression of the carvings.

More carved outcrops have been reported in this area since October 1986 and it is hoped that the results will eventually be published in these *Transactions*. One of the new finds depicts zoomorphic engravings as well.

Discussion

The discovery of the spirals at Knock 3D, Blairbuy 7B and Eggerness 1 and 2 brings the total of Galloway spirals to at least 28. Fig. 9 shows their distribution: right-handed spirals are shown as crosses, left-handed ones as circles. Included are hybrid forms such as Barholm 1 (Morris, 1979, p. 56) and worn-off examples like

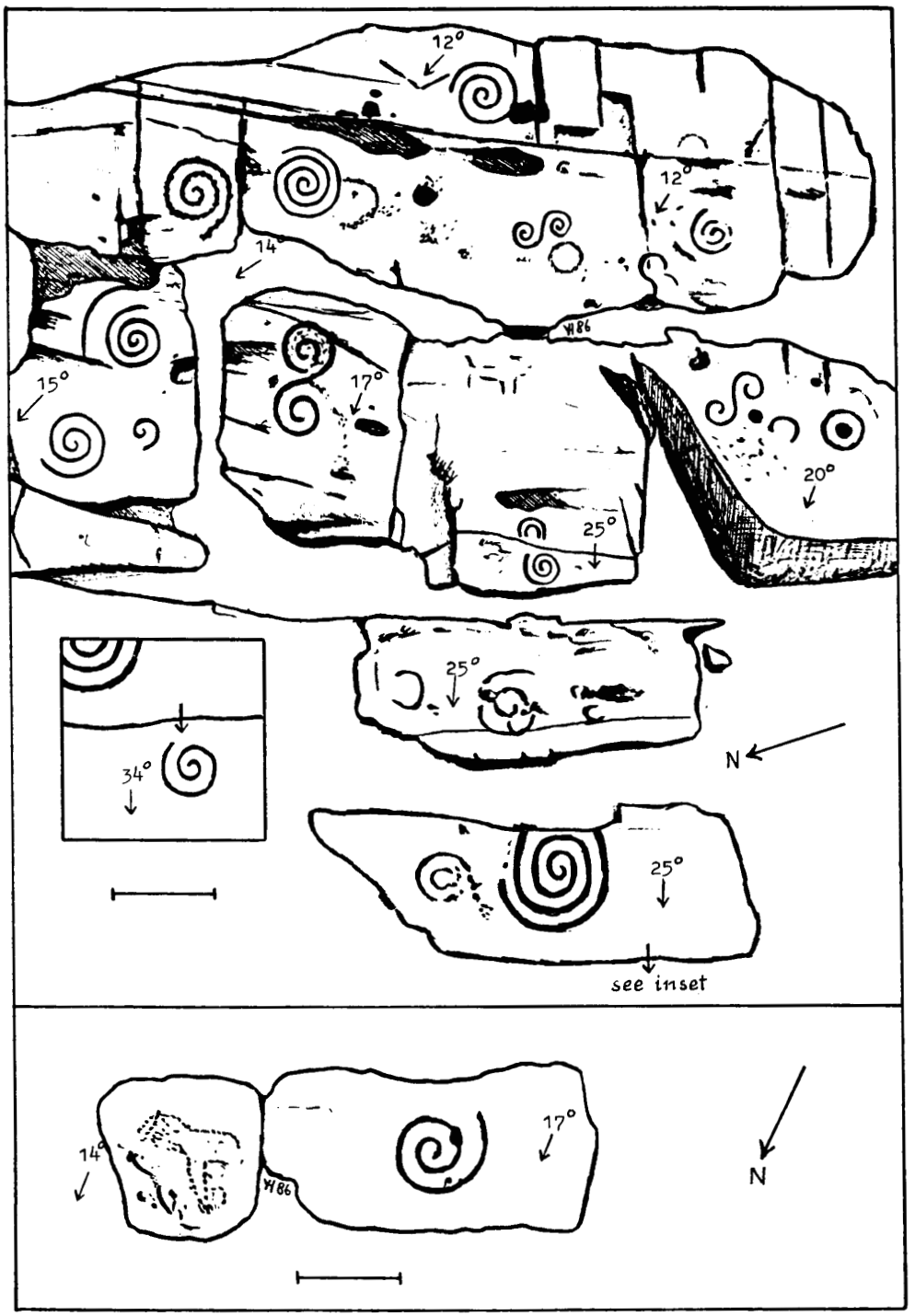


Fig. 5 (upper) Eggerness 1 and inset. Fig. 6 (lower) Eggerness 2.

Balcraig 1 (Morris, 1979, p. 46). Also included is the slab, now at the Whithorn Priory Museum (one of the best site museums in Scotland), which is said to bear four concentric rings (Morris, 1979, p. 179). Close inspection however showed a 3½ convolution left-handed spiral (Fig. 7). This stone most probably has been detached from outcrop rock nearby as the under-side showed no sign of weathering whatsoever. With this new addition the Whithorn peninsula now has eight spiral-sites on outcrop rock with a total number of 23 spirals.

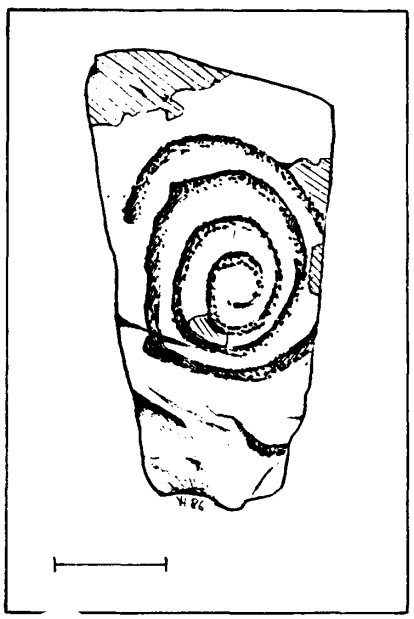


Fig. 7 Spiral in Whithorn Museum.

Spirals are quite common in British and Irish Rock Art but this is mainly due to the wealth of spirals found in the Irish Passage Grave Art and the rather frequent occurrence in the Single Grave Art of Southern Scotland and Northern England. The main distribution of these sites is shown with small dots on Fig. 8.

Its appearance on outcrop rock however is very rare (shown by solid dots on Fig. 8). The whole of the British Isles has only 21 sites where spirals are carved on outcrop rock or large boulders in combination with cup-and-rings. Six more sites have spirals not in combination with cup-and-ring symbols. Disregarding the site with the highest concentration of spirals, Morwick in Northumberland (with at least twenty spirals carved on a vertical cliff above the river Coquet), Eggerness 1 now is the rock bearing the highest number of spirals having at least twelve examples. This site is followed by Blairbuy 7B with four spirals and Mevagh, Co. Donegal, where four spirals have also been recorded (Van Hoek 3). The well-known site at Achnabreck 1 is reputed to have two sets of spirals, one inverted S-shaped one and the only triple one on outcrop rock. Where a cluster of spirals is found on one rock there usually is a variety of types.

The newly found engravings at Knock 3D, Blairbuy 7B and Eggerness 1 and 2 together comprise a large variety of spirals as well. Yet almost every type has its parallel either in the direct vicinity or quite some distance away from Galloway.

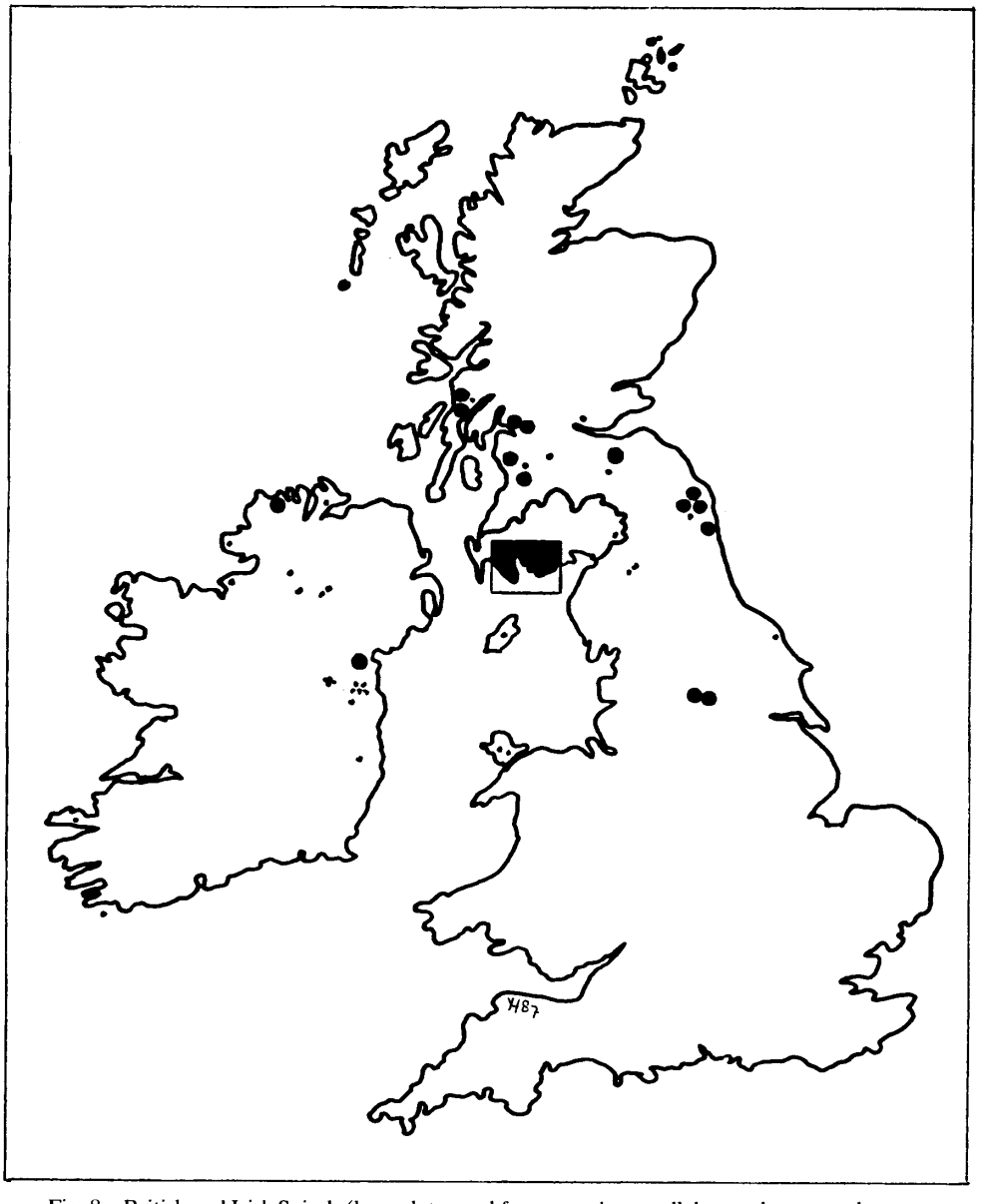


Fig. 8 British and Irish Spirals (large dots - rockfast examples; small dots - other examples, see Discussion). Galloway inset, see Fig. 9.

The double spiral at Knock 3D for instance can easily be compared with an almost similar but left-handed double spiral which we observed at Hawthornden near Edinburgh (Childe and Taylor, 1938). It is moreover of exactly the same dimension, notably 30 cm in diameter. Other double spirals only seem to occur on a few of the grave-stones of the Irish Passage Graves, like the famous entrance stone, K1, at Newgrange. Members of the Whithorn Trust excavation team informed us of the possible existence of a double spiral at Eggerness 1 but this could not be traced on this occasion.

The spiral with serpentine groove at Knock 3D also has clear parallels in the Irish Passage Graves. There, the wavy groove is one of the most common features, although rarely occurring with spirals indeed attached to them. However, kerbstone SE6 at Knowth is a good example (Brennan, 1983, p. 172). Kerbstone SW23 at Knowth shows a wavy groove (without a spiral) next to a large and complex double-spiral (Brennan, 1983, p. 145). Similar serpentine grooves leading from large spirals occur on a rock from Monte de Eiro in Portugal (Anati, 1968, p. 105). So Knock 3D proves to have quite far-off "relatives" and it therefore is the more surprising to find an almost identical design on the Blairbuy 7B sheet where the spiral and the wavy groove form a perfectly balanced figure. A more irregular and less similar engraving had once been reported on the now missing cist cover of Coilsfield (note the name) near Ayr (Morris, 1981, p. 28).

The small single spirals at Blairbuy 7B and Eggerness are repeated quite often, for instance at Blairbuie, Argyll, (Morris 1977, p. 61) and again in Ireland at many passage grave stones like Stone L5, Cairn T at Loughcrew.

The S-shaped spiral at Blairbuy 7B is interesting in many respects. It is striking that only 8 km due E. is an almost similar example at Gallows Outon (Morris, 1979, p. 100). It is slightly smaller and is left-handed. It is located at about the same height and on a ridge stretching in the same direction. It is now turf-covered on purpose for protection. The main difference however is that the Blairbuy spiral starts from a cup-and-one-ring. This feature is paralleled at far away Stone 1 of Cairn H at Loughcrew in Ireland, but possibly also at nearby Knock 1. This latter engraving is much weathered and one needs the best light conditions for inspection. A rubbing made by E. Hadingham however clearly shows a central cup-and-one-ring from

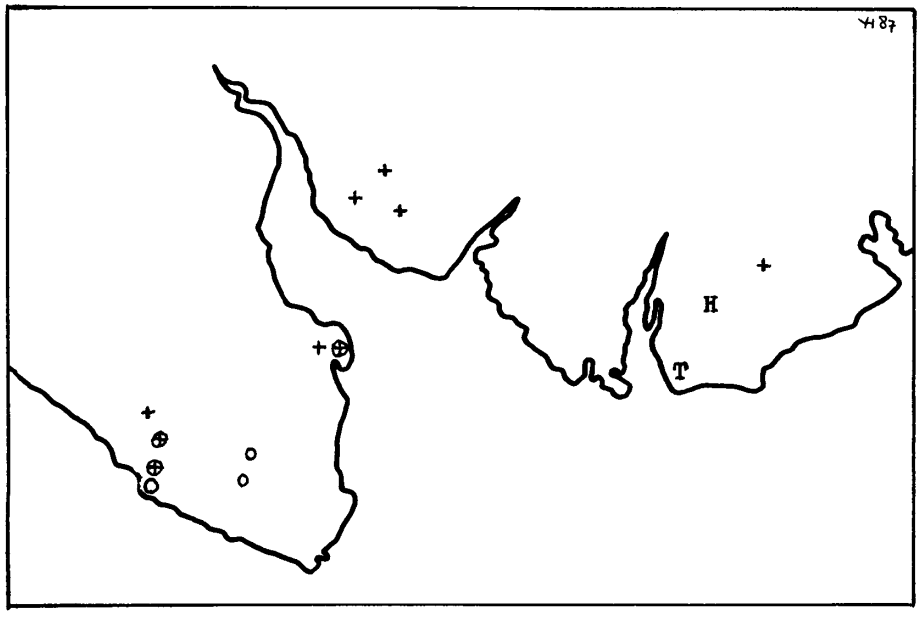


Fig. 9 The distribution of spirals in Galloway (crosses - right-handed spirals; circles - left-handed spirals) — also shown is location of High Banks (H) and Torrs (T).

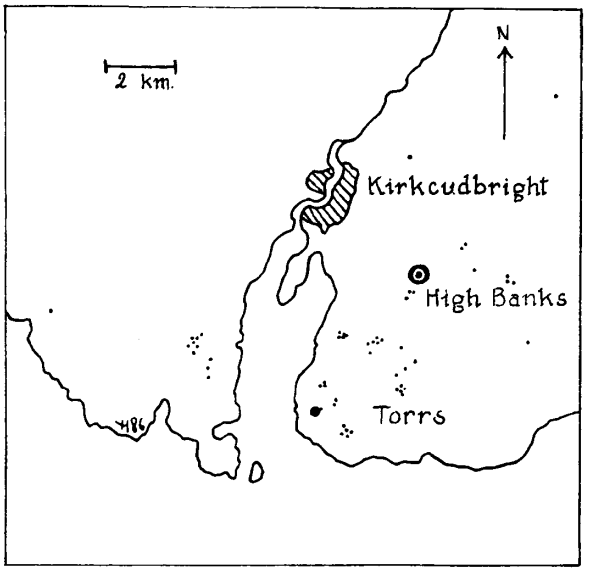
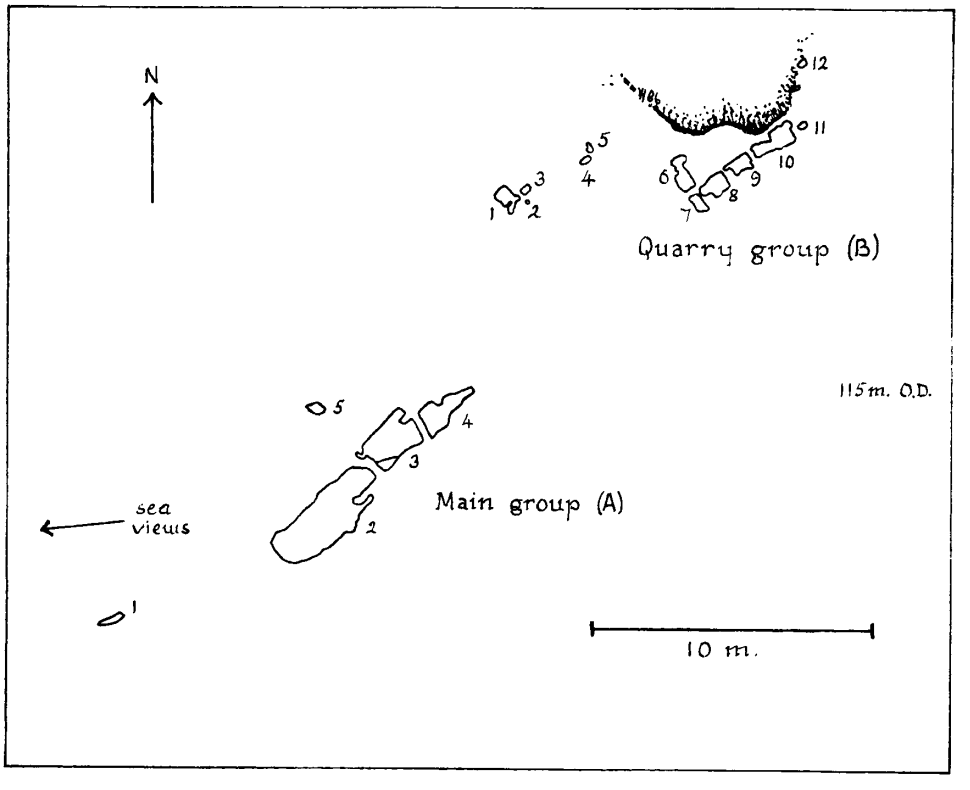


Fig. 10 (right) Location of Rock Art near Kirkcudbright.
Fig. 11 (below) The inscribed rock outcrops at High Banks (NX 709489).



where the spiral starts (Hadingham, 1974, p. 49). But both Cairn H and Knock 1 bear the normal single spiral-type only. Yet another parallel was discovered by the author in 1984. At Horton Farm 7A, Northumberland, there is an S-shaped spiral which starts from a ring-mark with no central cup (Van Hoek 4).

Another property of many S-shaped spirals is that one part shows more convolutions, its coils often being tighter than the smaller part. Only at Morwick, Northumberland, and at Newgrange (Kerbstone K67) equally sized S-shaped spirals have been reported. Also reported, but never found again was a set of carvings including an equally sized S-shaped spiral somewhere near North Balfern Farm (Morris, 1979, p. 157). It was therefore the more surprising to find two, perhaps three, of such spirals carved on the outcrop rock at Eggerness 1. As if to confirm the already established link Hawthornden also features a more simple S-shaped spiral of the Blairbuy-type.

The designs described in this part of the article seem well to establish a key position for Galloway in prehistoric times. We have demonstrated that several spiral-types can be paralleled in Rock Art of the Irish Passage Graves, in the Cup-and-Ring-Art of Argyll, Northumberland and Southern Scotland, and, which is quite surprising, in the Rock Art of such isolated and exceptional sites as Hawthornden and Morwick. The Ormaig pattern, found at Broughton Mains 2B, connects the Whithorn peninsula with roughly the same areas, thus possibly indicating a SW-NE flow of traditions and ideas.

The interesting mixture of the two traditions of Rock Art on the engraved rocks of Galloway, so much evident at Blairbuy 7B and Eggerness, pleads for both Rock Art styles being at least roughly contemporary. The further study of the inscribed rocks of Galloway, and especially the Whithorn peninsula, may shed more light on the still intriguing enigma of British and Irish Rock Art.

II. A REVIEW OF THE ROCK ART AT HIGH BANKS AND TORRS, KIRKCUDBRIGHT

The main purpose of this part of the paper is to give a general review of the Rock Art at High Banks which is one of the best known sites in Galloway. It is located some 400m E. of High Banks Farm and the Figs. 9, 10 and 11 give further information about the location of the carved rocks. In earlier literature there was some confusion about the positions of the rocks and therefore a survey was carried out in October 1986 in order to establish what is visible at the moment. A very fine autumn day provided perfect sunlight for recording and photography on which the plans below are based.

As in part I the scale line on each plan represents 20 cms; the north is always the magnetic north (1986) and the slope-angles, measured with a clinometer may have a possible error of +/- 1°. The carved rocks have been grouped in two clusters: A) the Main Group, and B) the Quarry Group, and each individual rock then has been assigned a number (Fig. 11). There follows a brief inventory of the inscribed rocks.

Rock A1, Fig. 12: One cup with two rings broken at the rock's edge.

Rock A2, Fig. 14: The first part of the main carved ridge of which only the carved part is shown. It has 182 cupmarks of which the majority is closely massed around two cup-and-two-rings, the larger one having a big space between the rings and the central cup. Further S. is a group of six cup-and-rings, with up to four rings, all being very much weathered. Near this group is one clear groove and two very doubtful ones.

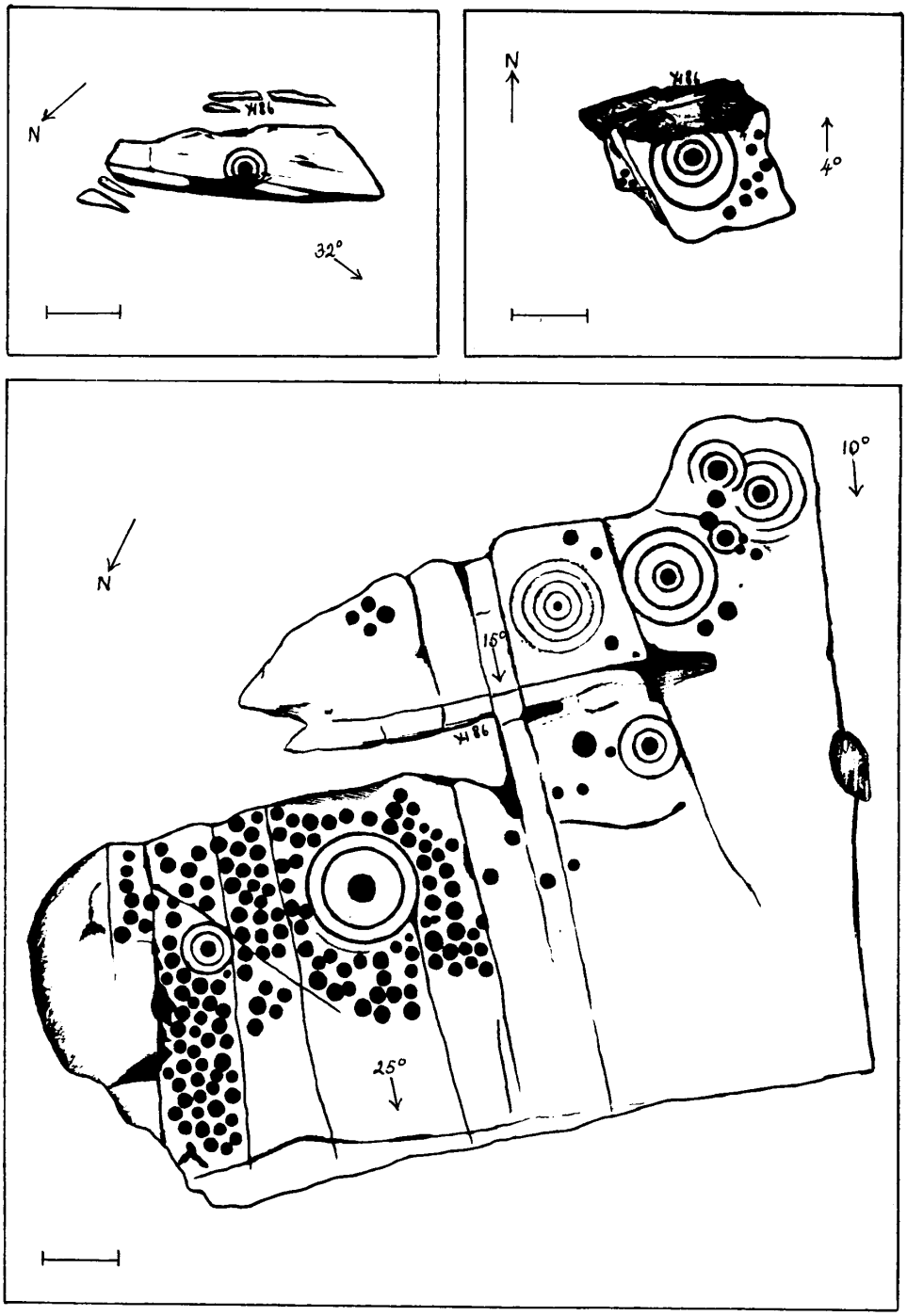


Fig. 12 (top left) High Banks A1. Fig. 13 (top right) High Banks A5. Fig. 14 (lower) High Banks A2.

Rock A3, Fig. 15: A continuation of A2 but on a lower level and having more differently sloping surfaces. It also has the largest variety of designs, some of which are unique in Rock Art. Here as well is a wealth of cup-marks, mostly very well defined and again closely packed. Altogether there are some 283 certain cups and about 12 doubtful or superficial ones. The main group encloses a cup with four rings with a rather big space between the second and third ring which proves to have been very lightly pocked and thus slightly deepened.

E. of a very clear, tailed, cup-and-four-rings is a rather roughly pocked funnel-shaped depression with central cup, the whole enclosed by a ring. N. of this, across a crack, is another interesting group: a very small disc cup next to a slightly larger one having small central cup; a small single ring-mark; and a large, slightly ovaloid cup-and-two-rings with a small central cup and a lightly pocked area between the first and second ring. A similar figure occurs further E. but seems to be unfinished.

Near the NE. end is a cup-and-three-rings, again with the space between the outer and second ring being pocked and slightly deepened. Its inner ring is relatively small. Nearby is a clear cup-and-one-ring with three adjoining cups and possible traces of a single oval ring-mark. E. of this group, across a big gap, is a long groove following the edge of the rock and perhaps ending in an attempt to carve a cup-and-ring-device.

Rock A4, Fig. 16: On this further continuation of the main ridge are some 41 cupmarks, some in rows and rosettes; there are also some quite distinct grooves, some of which may have been intended as a cup-and-ring.

Rock A5, Fig. 13: To the NW. of the main ridge is an isolated outcrop with a faint cup-and-three-rings, the outer ring being more ovaloid. There are also some eleven cupmarks. All carvings are much weathered.

Rock B1, Fig. 17: Dominating this small group of outcrops is a cup-and-five-rings, surrounded by an imperfect circle of 17 cups. On another part of this rock are two cups, one possibly ringed.

Rock B2, Fig. 17: One cupmark on this small isolated bit of outcrop rock.

Rock B3, Fig. 17: On a nearby outcrop are some fourteen cupmarks.

Rock B4, Fig. 18: One cup-and-one-ring, incomplete, surrounded by two grooves that may represent an attempt to carve a second ring.

Rock B5, Fig. 18: Almost touching B4 is an outcrop with a cup with very faint traces of perhaps three rings, and a possible single cup.

Rock B6, Fig. 20: The quarry itself is encircled by many, much fractured outcrops. On a SW. part are at least eight large cupmarks and one cup-and-two-rings, the outer one broken off and more distinctly engraved than the inner one.

Rock B7, Fig. 20: Two possible cupmarks on a continuation of rock B6.

Rock B8, Fig. 21: On this rock sheet are three groups of cups with a total of 16, one group forming an incomplete rosette. There may also be one man-made groove. A fourth group of four cups has been reported by F. R. Coles but could not be traced (see Fig. 21).

Rock B9, Fig. 21: Almost touching B8 is a sheet with: three faint single cups; two cups with faint traces of one ring, one with a possible tail; a cup with two very faint rings, also with a possible tail; and a cup with five much weathered rings with a possibly man-made groove from the outer ring running NW. to the edge of the rock.

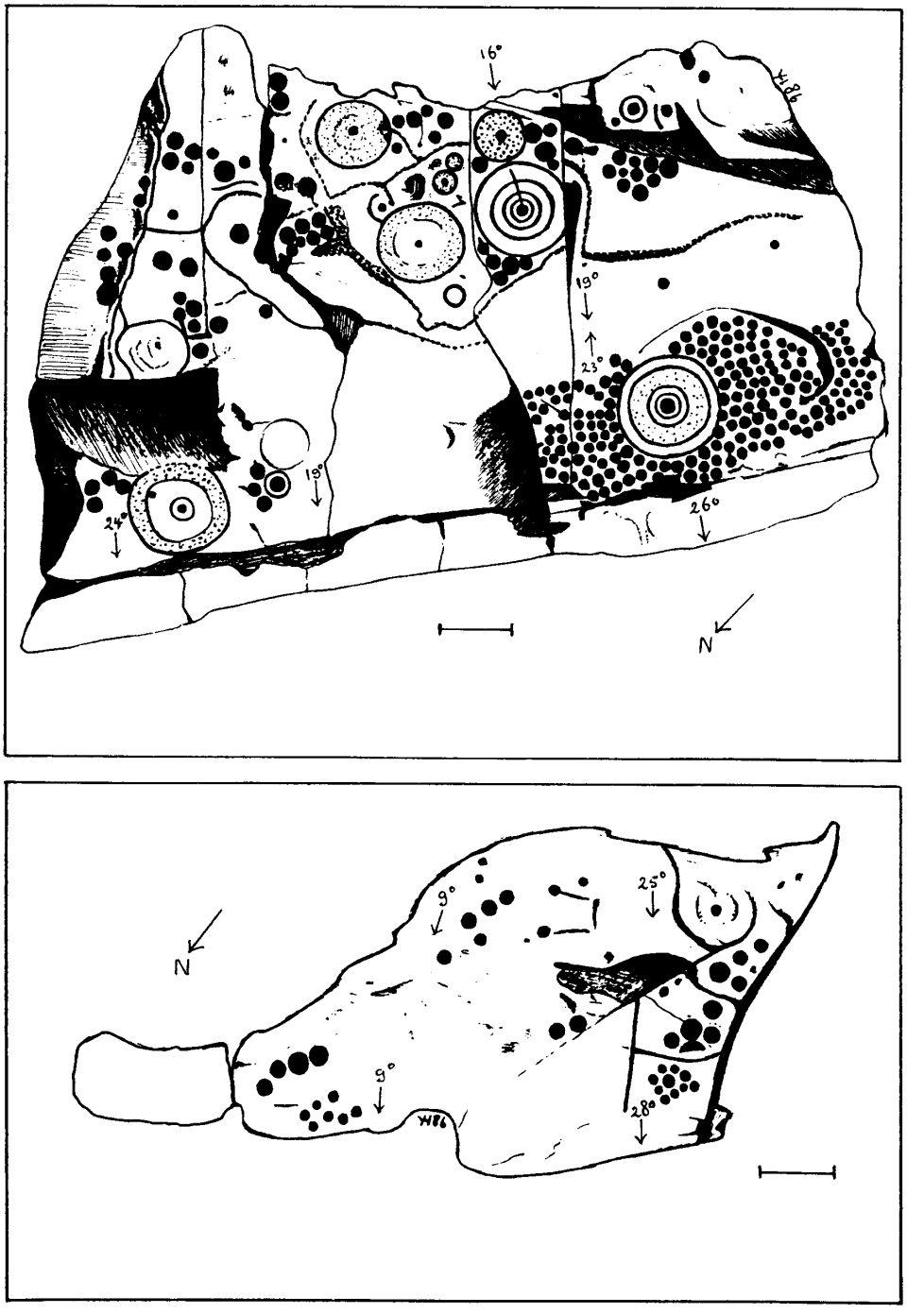
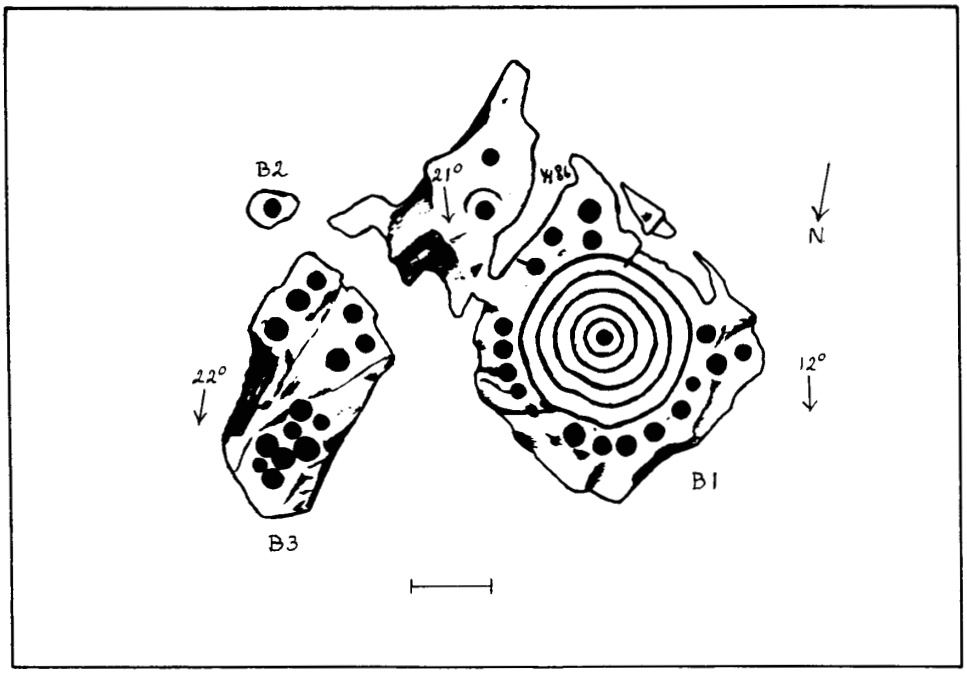
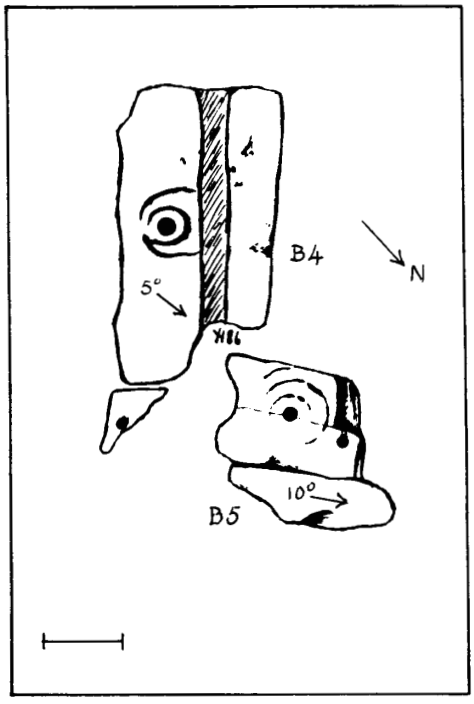


Fig. 15 (upper) High Banks A3. Fig. 16 (lower) High Banks A4.





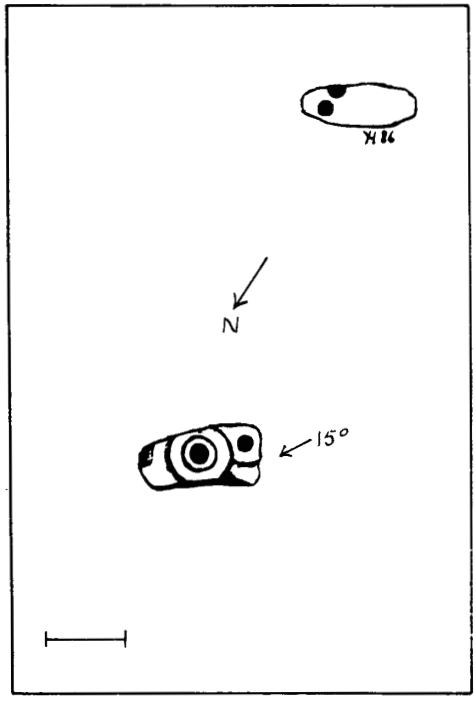


Fig. 17 (upper) High Banks B1, 2, 3. Fig. 18 (lower left) High Banks B4, 5.
Fig. 19 (lower right) High Banks B12.

Rock B10, Fig. 22: A long outcrop with at least 13 cups. Four cups have one ring and there is one cup with two partially weathered rings. There may be two man-made grooves running from two of the cup-and-rings.

Rock B11, Fig. 22: On this small outcrop is a cup with three somewhat irregular rings, the outer some distance from the inner ones.

Rock B12, Fig. 19: On a lower level at the quarry's edge are two carved areas, individually drawn in Fig. 19. On a small ledge are two single cups and further down is a small stack with one single cup and a cup with two rings, the outer one some distance from the inner and broken at the rock's edge.

Further carved rocks have already been reported including one with three cup-and-rings near the quarry(?), noticed by Coles (his carvings A, B and C). In his diagram of High Banks R. W. B. Morris shows two more rocks, one with ten single cups (A) and another with 26 cups, some grooves and a ring-only (B). All these carvings most probably are completely turfed over at the moment. The carving marked "L" by Coles and said to be some 1 mile NE. of the site in my opinion is the cup-and-ring described at rock B6.

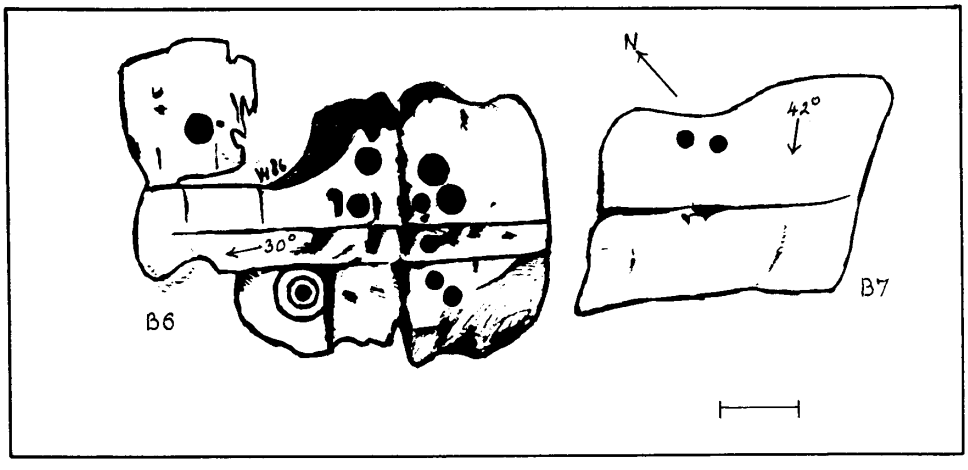
High Banks proves to be special for having about eleven cup-and-rings which have their rings irregularly spaced as if some have been omitted on purpose. In five cases these figures moreover show areas slightly deepened by pocking. But what immediately strikes the eye at the main group is the close massing of cupmarks, a feature, to my knowledge, never repeated anywhere else at such a scale.

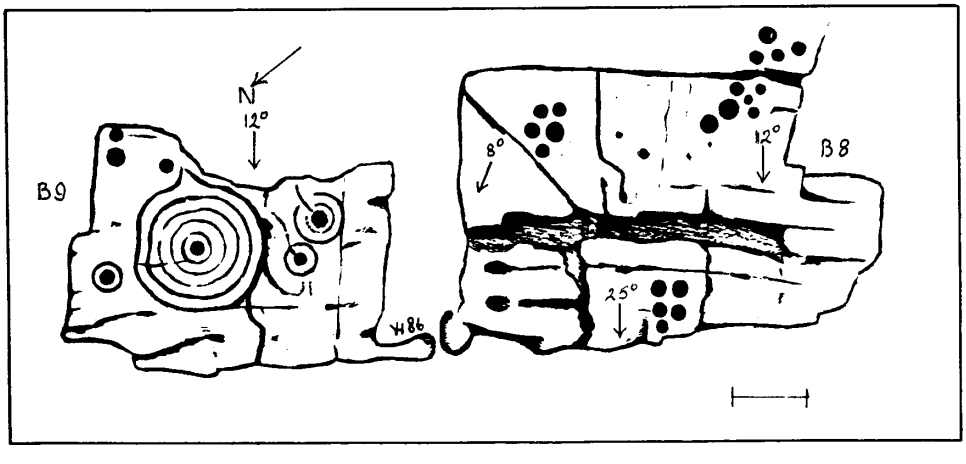
A parallel however, though far less impressive, was rediscovered by the author in October 1986. It is at Torrs 3a, some 2.5 km SW. of High Banks (shown by the large solid dot on Fig. 10). This site probably was reported first by Coles in 1894, but has been untraceable since.

The site at Torrs 3a is about 15 m SW. of Torrs 3b and some 10 m E. of the track to the coast. It is on the same outcrop ridge as 3b which stretches in a NE.-SW. direction. On its highest part, largely turf and gorse covered are some 65 cupmarks, four groups similarly arranged as at High Banks. There also are three cup-and-one-rings, all possibly tailed, and a cup with traces of two rings and a tail. There are many cracks and one possibly man-made groove, partially encircling an isolated cupmark. An oval shaped cup, possibly natural, seems to have a rectangular groove around it, using natural cracks in the rock. Further NE. is an isolated cup, some 2 m from the main group,Fig. 23, not showing the latter cupmark.

Acknowledgements

We are indebted to all landowners and tenants who gave us permission to enter their lands and to examine the Rock Art sites. Often they themselves showed us to the sites. We were also much helped by Mrs W. Ronan, who was so kind as to show us the site at Eggerness 2. Acknowledgement must also most gratefully be made for the kind permission of the excavation team of the Whithorn Trust to include a description of Eggerness 1 in this article, in particular to Peter Hill and Andy Barlow who informed us of the existence of that newly discovered site. I would also like to thank W. F. Cormack for his assistance in consolidating into one article what had been prepared as two separate papers, and to J. G. Scott for proof reading.





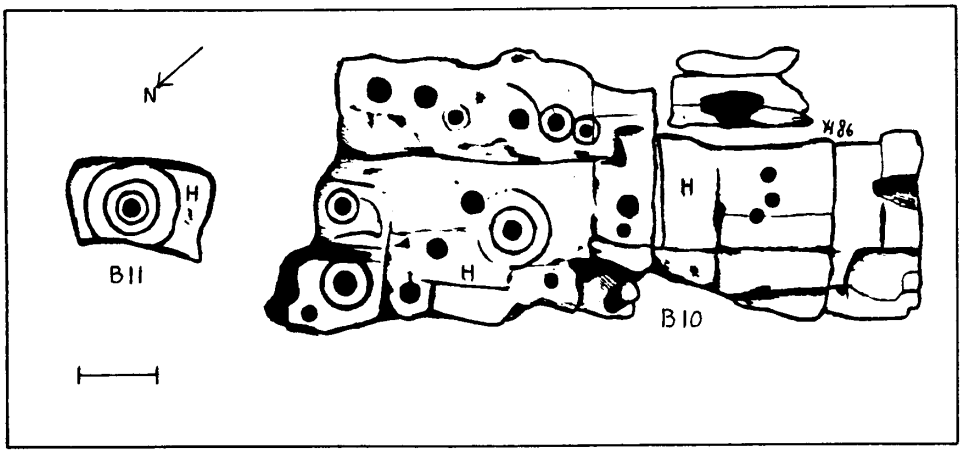


Fig. 20 (top) High Banks B6, 7. Fig. 21 (middle) High Banks B10, 11.
Fig. 22 (lowest) High Banks B10, 11.

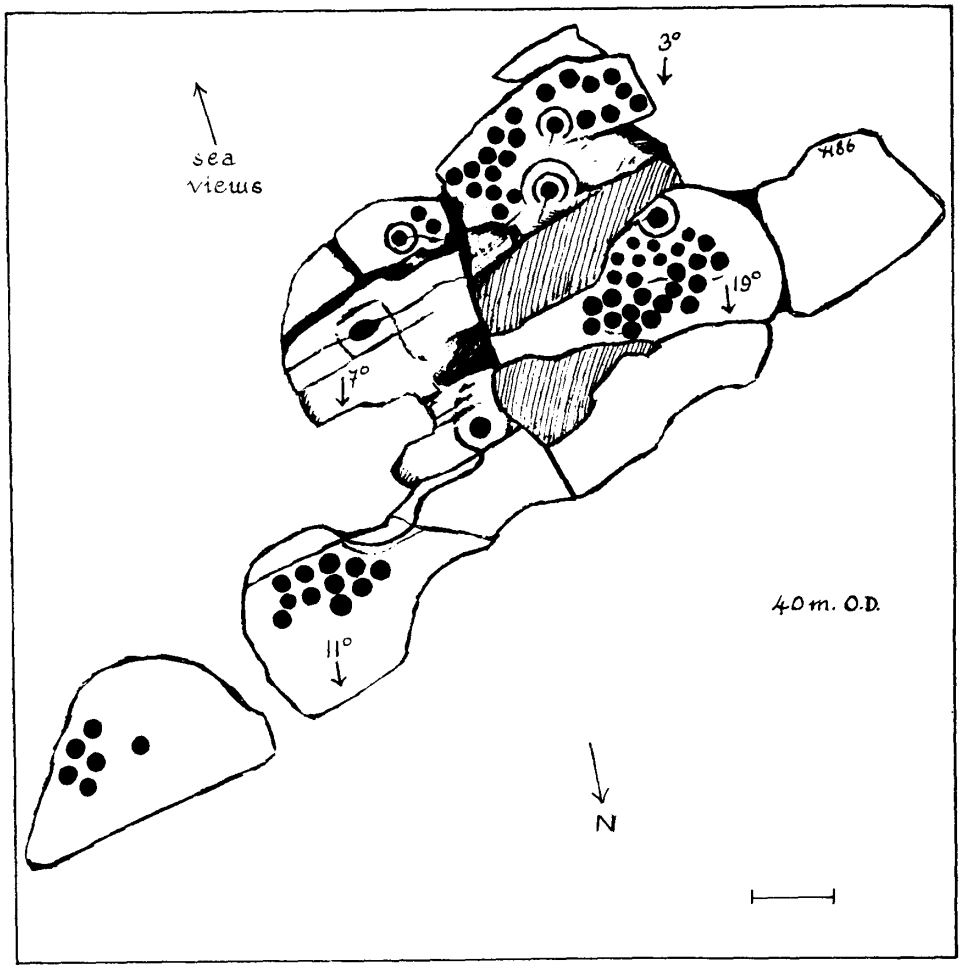


Fig. 23 Torrs 3a (NX 679 452).

References

Anati, 1968. E. Anati, Arte Rupestre nelle Regioni Occidentali della Penisola Iberica. *Archivi di Arte Preistorica* n. s. Edizione del Centro, Italy.

Brennan, 1983. M. Brennan, The Stars and Stones, *Ancient Art and Astronomy in Ireland.* Thames and Hudson, London.

Childe and Taylor, 1938. V. G. Childe and J. Taylor, Rock Scribings at Hawthornden; in *PSAS* LXXIII (1938-39) p 316-18.

Hadingham, 1974. E. Hadingham, *Ancient Carvings in Britain: A Mystery.* Garnstone Press, London.

Morris, 1977. R. W. B. Morris, *The Prehistoric Rock Art of Argyll.* Dolphin Press, Poole, Dorset.

Morris, 1979. R. W. B. Morris, *The Prehistoric Rock Art of Galloway and the Isle of Man.* Blandford Press, Poole, Dorset.

Morris, 1981. R. W. B. Morris, *The Prehistoric Rock Art of Southern Scotland.* B.A.R., British Series 86, Oxford.

Shee and O'Kelly, 1972. E. A. Shee and M. J. O'Kelly, The Derrynablaha "Shield" again; in *JCHAS* LXXVI, p 72-6.

Tempest, 1931. H. G. Tempest, Bronze Age Carved Stone, Carrickrobin Townland: in *CLAJ* VII, p 387-9.

Van Hoek 1, 1985. M. A. M. van Hoek. The Destroyed Rock Art Site at Ballinloughan, Co. Louth: in *CLAJ* XXI, no. 1, p 72-7.

Van Hoek 2, 1986. M. A. M. van Hoek; in *Discovery and Excavation in Scotland*, 1986, p 6-8.

Van Hoek 3, 1987-1988. M. A. M. van Hoek, The Prehistoric Rock Art of Co. Donegal Part I (Vol. 50) and Part II (Vol. 51); in *Ulster Journal of Archaeology*.

Van Hoek 4. M. A. M. van Hoek, The Carved Rocks near Wooler, 2nd Ed., forthcoming.

AN IRON AGE ENCLOSURE AT CANDYBURN, TWEEDDALE

Report of Excavations 1979

by

Alan Lane

University College, Cardiff

Summary

A rescue excavation was undertaken on the small enclosure at Candyburn in 1979. No structures could be shown to be contemporary with the enclosure, and the single convincing house on the site, a ring-groove round house, predated it. No dateable finds were recorded, but two radiocarbon determinations support the suggestion that pre-enclosure activity dated to the Iron Age.

Introduction

The small enclosure at Candyburn, Tweeddale, in Borders Region (NT 071411) was listed in the RCAHMS volume for Peeblesshire in their category of miscellaneous earthworks and enclosures, site number 423 (1967, 182-3). In 1979 outline planning permission was given to a local quarry company to remove the entire gravel terrace on which the site stood. The Scottish Development Department (Ancient Monuments) was notified that permission had been granted to begin quarry operations in October 1979, giving the statutory notice of destruction of a scheduled ancient monument.

The writer undertook excavations on the site on behalf of SDD with the aim of establishing the nature and date of the site prior to its destruction. A short trial season in April 1979, was followed by a longer, larger-scale excavation in June/July 1979, involving in all some six weeks excavation work. The site was then backfilled to allow the local farmer to continue to use the area for grazing until it was quarried away in 1982-83.

The Site

The enclosure at Candyburn is sited near the edge of a gravel ridge of fluvioglacial origin which is oriented north-south. To the west the ground drops steeply to the Candy Burn, with one small intermediate terrace. To the east the ground shelves gently into the valley hillslope. The Candy Burn feeds into the Biggar Water and east into the River Tweed, although immediately to the south lies the Biggar Gap — the watershed between Clyde and Tweed drainage systems. The valley, through which the Candy Burn runs, lies on the major south-west/north-east route followed by the modern Abington to Edinburgh road (A702) and on the line of the major Roman arterial road from Annandale which strikes out north-east from Biggar towards Inveresk. To the north-west the land opens out into the lowland plain, while to the east and south the land rises into fairly rough uplands (fig. 1). Although situated at around 800 feet O.D., the immediate vicinity of the site is quite rich farmland used for both arable and pasture.

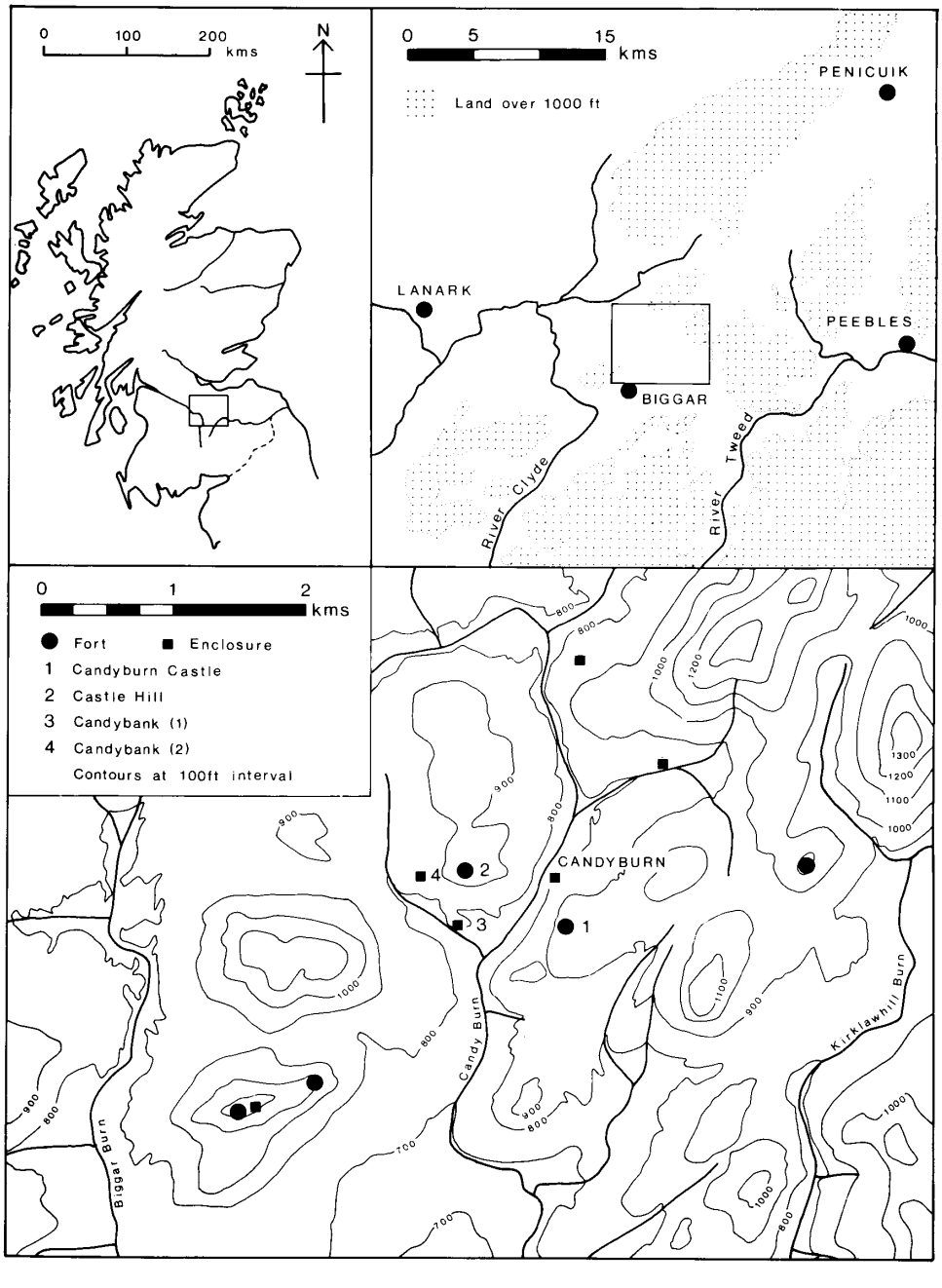


Fig. 1 Location maps.

Archaeologically the site lies in an area of fairly dense site distributions, defined by the work of the RCAHMS in the adjacent counties of Peeblesshire (1967) and Lanarkshire (1978) — Candyburn lying on the western edge of Peeblesshire. Hillforts and small enclosures are frequent and one possibly significant group lies in a one kilometre radius of the site (fig. 1). On the hill behind the site (to the south-east) is the ploughed-out hillfort of Candyburn Castle (RCAHMS Peeblesshire, 106). Due west across the valley is a bivallate fort Castle Hill (RCAHMS Lanarkshire, 97); while on the gravel terraces to the west/south-west are two enclosure sites, Candybank 1 and 2 (ibid., 147). Candybank 1, a small circular enclosure which survived as an earthwork on only one unploughed half, was destroyed by gravel extraction in 1979-80. Candybank 2, a sub-rectangular cropmark site lies just beyond or on the edge of the same quarry operation.

Before excavation the enclosure at Candyburn consisted of an oval area c. 42m x 30m bounded by a low grassed bank with occasional visible boulders. These boulders were interpreted by the RCAHMS as facing stones of a wall, but no convincing revetment was visible (1967, 182). No trace of the bank could be found on most of the west side on the steep edge of the ridge except in the south-west corner. A large gap on the south was interpreted as an original entrance widened by cultivation and on the north-east side the bank remains again became very slight (fig. 2; cf. RCAHMS 1967, fig. 190).

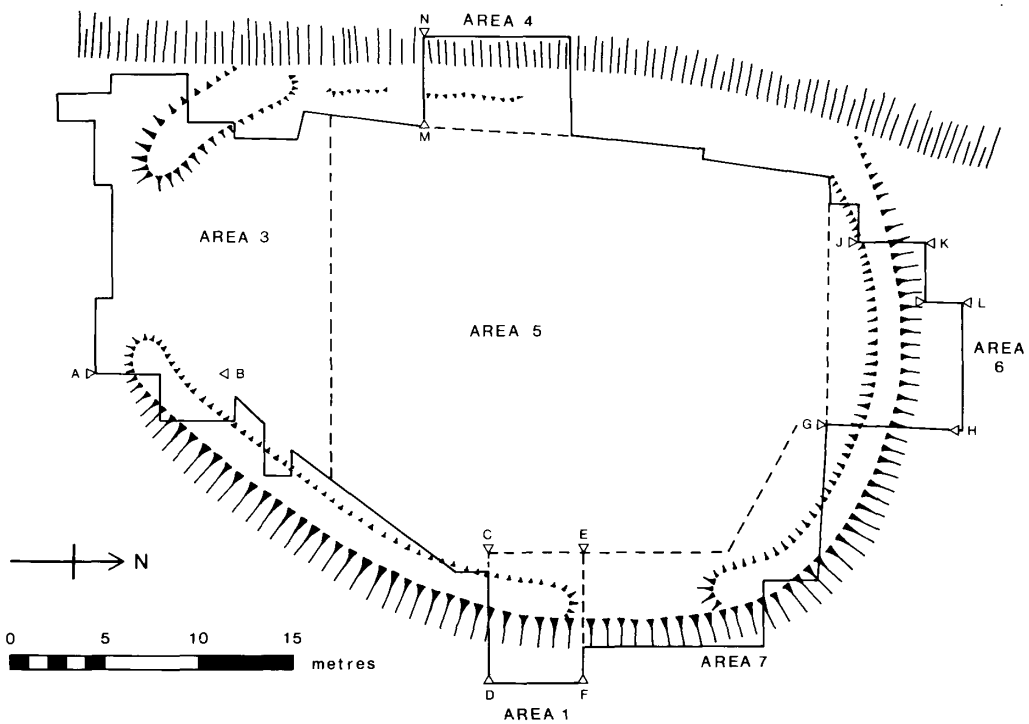


Fig. 2 General plan of site.

Ploughing of the interior may have reduced the bank from the inside, and a clear plough-cut edge was visible both inside and outside the enclosure. On the outside to the east and north-east ploughing may have increased the superficial appearance of the bank, in effect creating a negative lynchet. This repeated ploughing of the site had removed any possible surface traces of structures other than the enclosing bank, and as the site was under pasture at the time of archaeological investigation no cropmark indications were available as a guide to possible internal structures.

The Excavation

The excavation of the site was undertaken by a small team of 10 to 18 people over six weeks. A two-week trial excavation was carried out in April 1979 to establish the nature and condition of the site. This examined one length of bank (area 1), a small area of interior (area 2) and located a possible house structure near the entrance (area 3). These results seemed sufficiently encouraging to justify further work and four weeks were allowed to examine the site more extensively (fig. 2 shows location of excavation areas).

As this initial investigation had confirmed the depth of plough damage it was decided to strip the plough soil from most of the interior by machine, using a wheeled front-loader. An area of c. 480 square metres incorporating the entrance and an extension of area 3 was stripped by hand, as were three further lengths of bank (areas 4, 6 and 7). In all some 750 square metres of interior were examined and c. 34 metres of bank. Ploughing had removed any original stratigraphy in the interior, thus destroying most stratigraphic relationships between interior features and the enclosure bank. For this reason the excavation of the enclosure bank and of the interior features will be described separately and all stratigraphic relationships between the two will be noted in the feature descriptions.

The enclosure bank and entrance (fig. 2 & 3). The enclosure bank was investigated in six places: in areas 1 and 7 on the north-east side; area 6 on the north side; area 4 in the centre of the west side; and two stretches of bank on either side of the entrance gap in area 3.

In areas 1, 3, 6 and 7 the bank appeared as a pack of rubble of varied density, c. 2m to 3m wide, and c. 0.20 to 0.50m high. Stones which could be interpreted as revetment were rare and for the most of its length the bank was only one or two layers of stone high. In the southern part of area 1 and north part of area 7 a centrally placed line of large boulders was the most solid part of the structure (e.g. Fig. 3, CD) but in the intervening gap the only possible traces of a bank were intermittent concentrations of small stone (fig. 3, EF). In area 6 the bank had a solid core 2m wide and 0.25m high extending 4.40m across the trench but this too petered out leaving only small scattered stones by the west section. A rear edge to the packed stone was discernible in this area but the front merely faded out on the slope with no indication of revetment (fig. 3, GH).

On the western side of the 'entrance' gap in area 3 a short stretch of a more substantial bank stood c. 0.80m high. No coherent facing was recognised, but ploughing or vehicular access appeared to have truncated the eastern edge, and both southern and western edges were fairly irregular. The bank on the east side of area 3 was only examined in a short stretch of c. 2m. This had a reasonably defined boulder

frontage (fig. 3, AB) and terminated in an arc of large stones. Though hardly more than a single stone deep this did appear to form a possible original bank terminal as the gravel to the west was an undisturbed natural deposit immediately below plough-soil.

No gate structure was recognised in the 8-metre gap between the western and eastern terminations of the bank. A few postholes and other features were noted but these were thought to relate to the stone-filled hollow which was found just to the north (cf. figs. 2 and 4).

Area 4 was located on the edge of the steep drop of the terrace to the burn where no convincing bank could be seen, although vestigial traces of a sinuous ridge were visible on the surface. On excavation this proved to be a discontinuous pile of small stones and rubble at maximum 0.20m deep, in which no coherent structure could be recognised (fig. 3, MN). A central line of larger stones on the south side of the cutting was examined closely with the idea that it might be a palisade slot, but the stonework was too loose and intermittent to give any positive support to this idea.

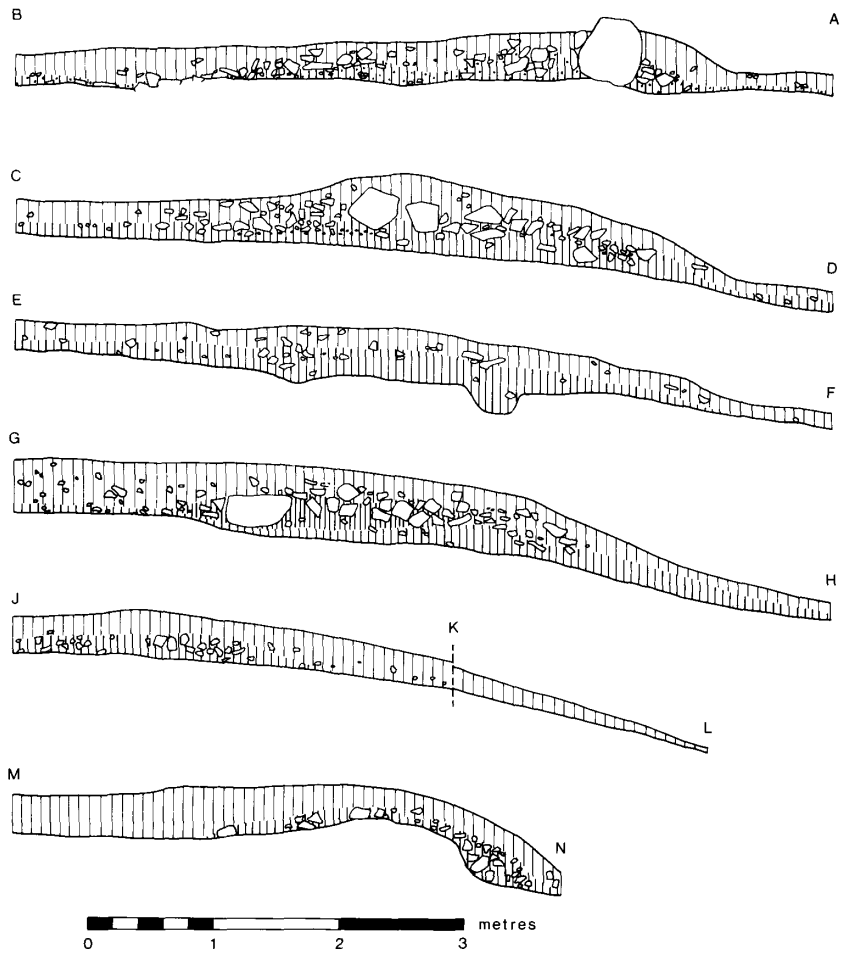


Fig. 3 Sections through enclosure bank.

Interior and sub-bank features (fig. 4). Most of the interior had little evidence of structural features. Ploughing had removed any ancient soil development and natural sand and gravel deposits were revealed under ploughsoil over most of the site. In the north-east of the site a silty deposit was encountered on top of the gravel, but sectioning of this suggested that it was also of natural origin. Ancient soil deposits survived under the bank in areas 1 and 6 — both producing some charcoal and some other slight evidence of human activity.

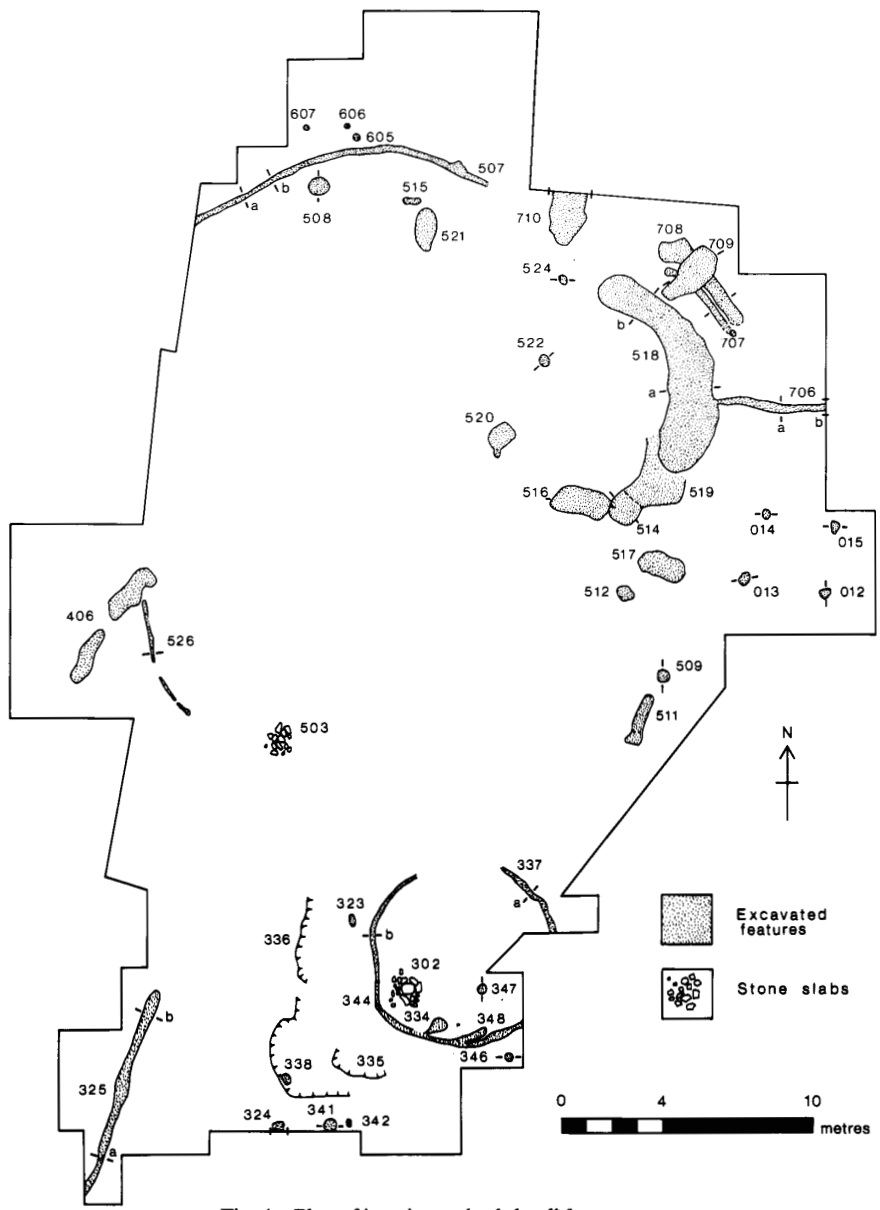


Fig. 4 Plan of interior and sub-bank features.

A number of stone or silt concentrations were investigated, but they may have been natural features, or tree- or bush-holes (e.g. fig. 4, nos. 521, 520, 515). A few postholes were found but no certain structural groupings. Four small postholes (fig. 4, nos. 012, 013, 014, 015) found cutting through the black soil under the bank in area 1 could be interpreted as two pairs of posts or a four-post structure c. 2.50m x 3.0m, but neither hypothesis can be proved. No continuation of this grouping was found to the north in the adjacent area 7.

In the north-east corner of the site a crescentic hollow (518) of irregular width and depth was located. This lay in a semicircular arc with hollows 516, 514, and 519, which together give a full length of c. 15 metres. The fill of these features was a fine silt deposit with occasional charcoal fragments, but the larger feature 518 had more charcoal and a dense rubble concentration in its central section (figs. 4 and 5). From this deep central section a narrow gully (706), 0.35m wide by 0.40m deep, ran east out of the excavation area. No packing stones were found and its function is unknown.

This crescentic group of hollows has been compared to the below-ground aspect of 'ring-ditch' houses such as have been recently reported at Broxmouth and other sites in southern Scotland (e.g. Hill 1982, 12-21). Although the comparison is superficially quite close the rubble fill of the deepest feature 518 (fig. 5, no. 518a) did not seem comparable to other occurrences of this house style and no other structural features of a house were found.

To the north-east of 518 were several irregular gullies and hollows with similar silt and charcoal fills — 709 cuts the two parallel gullies 707 and 708.

Several of these hollows 707, 708, 709, 710 clearly lay under and pre-date the enclosure bank, but the crescentic feature 518 lay beside the area where the bank virtually disappears — small scatters of stone being the only possible remains. The rubble fill of 518 could represent the destruction of the bank but no stratigraphic relationship could be established.

Two discontinuous lengths of 'palisade' slot were located. One (507), which was traced for c. 12.5m, lay inside the bank conforming approximately to the northern edge of the site. Nowhere was it more than 0.24m deep and 0.22m wide and only tenuous traces of stone packing could be recognised. To the east this gully petered out but it ran under the rear of the bank on the north-west side of the site, suggesting that it predated the bank, although it was not excavated in that area. If this had originally held a fence or palisade it must either have required very slight foundations or have suffered severe attenuation subsequently. It did not appear in bank cutting 4. Another slot (325), 8.5m long, ran straight under the bank on the west side of cutting 3. This was 0.30m deep and 0.25m wide, and in one short stretch had packing stones suggesting a timber of 10 cm to 15 cm thickness. 325 disappeared in the interior just inside the line of the bank, and could be traced to an erosion scar on the edge of the ridge. Its depth and the presence of packing stones does suggest a fence or palisade, but its length and direction do not suggest any obvious function.

On the west of the site near cutting 5 a discontinuous arc of a very shallow gully (536) was traceable for c. 4.5m. This was only recognisable as a stain in the gravel and had no packing or other structural associations. To the south-east lay a small paved setting of flat slabs c. 1.40m by 0.90m, set in a slight hollow (503) (cf. 302).

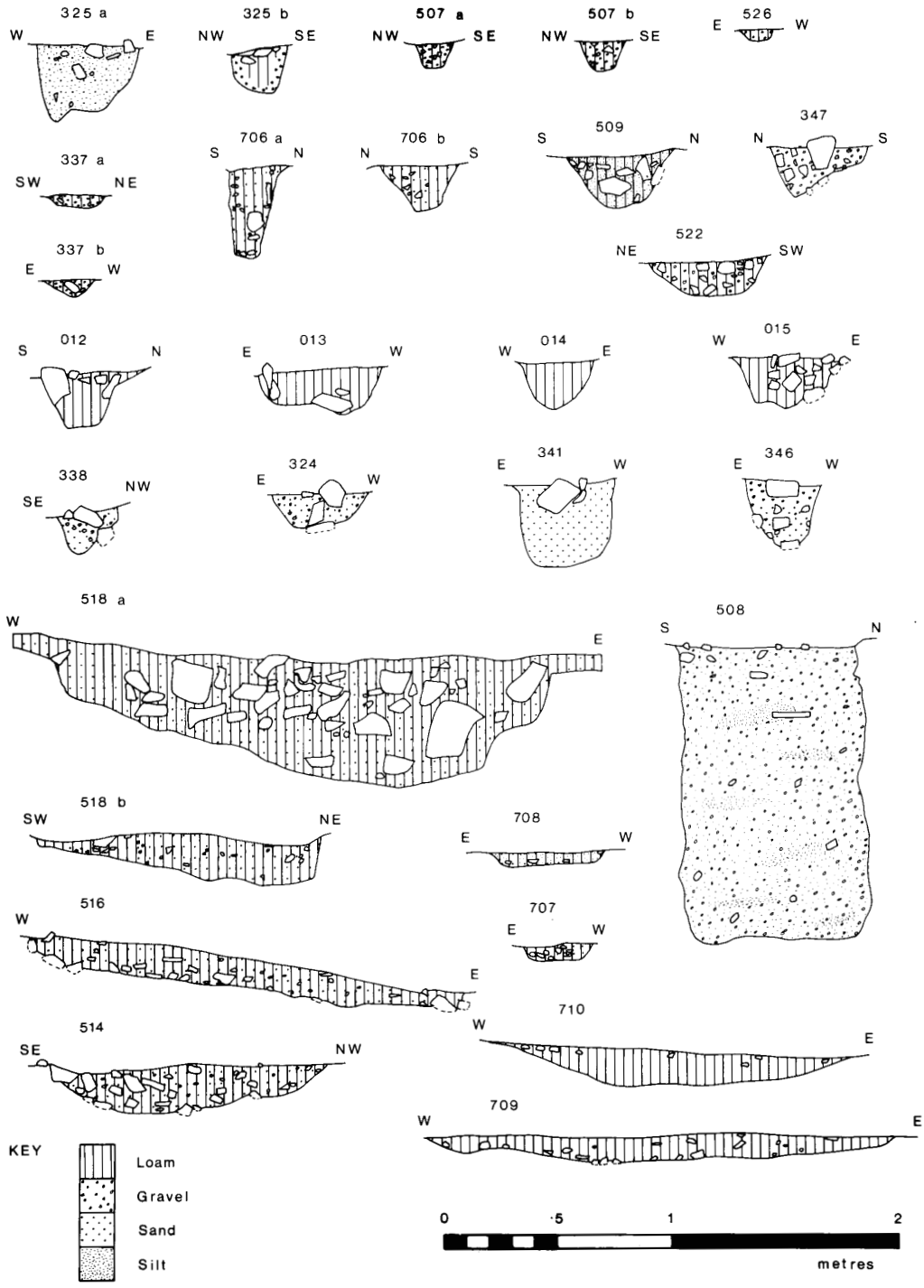


Fig. 5 Sections through postholes and other hollows.

The main concentration of structural remains was located at the south end of the site in area 3, just north of the entrance gap (figs. 4 and 6). These remains included stone and subsoil features, but as elsewhere on the site the shallowness of stratigraphy prevented recognition of any certainly associated structural groups. Immediately west of the end of the bank a stone-filled hollow (336) 8m by 3m was encountered (fig. 6). This had been dug into the slope of the hill and so was deepest on the west, becoming shallower to the north and east, till it disappeared. It had apparently been dug into the natural gravel as no sealed ground surface was encountered. The lowest fill of this hollow consisted of a small area of close-set slabs and blocks (308), c. 2.60m by 1.40m, set in a slightly deeper hollow. This was backed to west and south by more angular blocks. Over this was a layer of more irregular rubble apparently continuous to the east with rubble lying behind the enclosure bank — while to the west several thin layers of smaller stone were encountered.

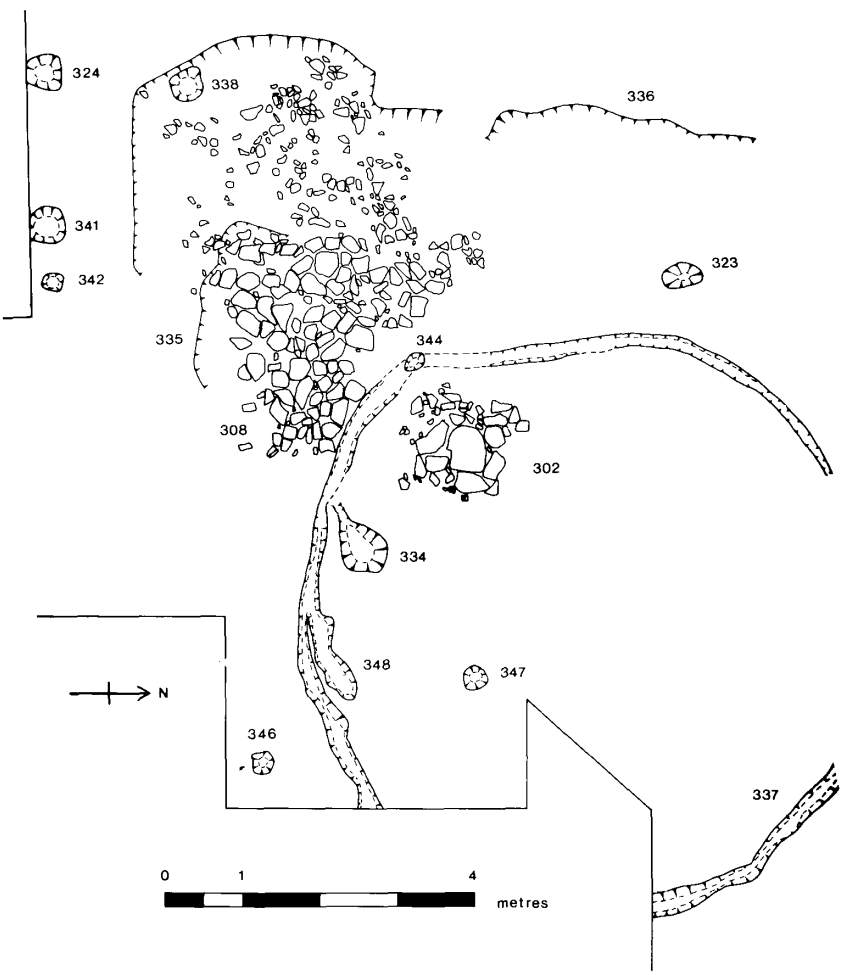


Fig. 6 Detail plan of features at south end of excavated area.

Several subsoil features were recognised on the edge of, or beyond, the hollow to the south. 324, 338 and 341 had evidence of stone packing and can reasonably be interpreted as small postholes (figs. 5 and 6). 342 has no such packing and is not readily interpretable.

To the east of the stone-filled hollow a ring gully (337) was traced for some two-thirds of its circumference — part underlay an unexcavated area of bank and some 4m could not be traced in excavation (fig. 6). The gully was slight throughout its circumference, though it was only recognised once the area had been cleaned down to the natural gravel. It varied from a maximum of 0.25m wide and 0.10m deep to a mere 0.10m x 0.05m. No evidence of packing was recognised at this level, but some traces of edge-set stones noted at a higher level on the south side may imply such a structural element. In two places on the south side it adjoined or ran very close to a short gully (348) and a possible but uncertain posthole 334. 334, which appeared to cut the gully, was a small indeterminate hollow with a silt and stone fill. The other adjacent features consisted of one convincing posthole with *in situ* packing (346) and two indeterminate hollows 323 and 347.

A setting of slabs (302) 1m x 1.20m, in the south-west corner of the circle demarcated by the gully, had the appearance of a hearth but no carbonized remains or evidence of burning were identified. It too was apparently dug into natural as the slabs had been carefully bedded in hollows in the gravel with no evidence of an intervening ground surface.

No positive stratigraphic relationship could be established between 308 and 302 though they were similarly laid on the subsoil. The ring groove ran through the space between them, just missing the edge of 308. All three features (302, 308 and 337) may be contemporary and related parts of one structural activity, but this could not be proved stratigraphically on excavation.

The ring groove 337 clearly ran under the bank on the eastern side — this was confirmed by two extended cuts on the edge of the original area opened. The upper rubble fill of the hollow may be related to the stone spread noted to the rear of the bank but no positive relationship was recognised. Consequently any sequence of activity in this area must be regarded as conjectural.

The Finds

Finds were few (see Appendix 1). A little charcoal and burnt bone, one hammerstone, a piece of struck chert, and two drilled stones do not help suggest the function, date, or cultural associations of the site. Two small pieces of iron slag from under the bank in area 6 do at least imply an Iron Age, or later, date for the enclosure. A number of iron fragments were recovered from the ploughsoil but these are likely to be as modern as the nineteenth-century pottery also recovered. One ancient potsherd was found on top of the bank in area 1. This is not particularly diagnostic but could be a fragment which has flaked off a thick walled vessel such as has been reported from Broxmouth (Cool 1982, 93-5). In the absence of anything diagnostic, the Candyburn finds cannot be readily fitted into Cool's three-phase scheme for the Iron Age in south-east Scotland (ibid.)

The Radiocarbon Dates

Two samples of wood charcoal were submitted to Glasgow University Radiocarbon Laboratory for C14 determinations. These were samples of small wood charcoal fragments of various species. GU-1600 from context 603 gave a date of 2305±65bp. GU-1601 from context 518 gave a date of 2060±90bp. (see Appendix 2).

Interpretation

None of the structural remains in the interior can be shown to be related to the construction and use of the enclosure bank. Some activity clearly pre-dates it since various features lie partly or wholly beneath the bank. Only one feature is readily interpreted as part of a house structure. This is the ring groove at the south-east end of the site. In spite of its slight nature it may indicate the wall of a ring groove house, c. 7m in diameter, such as is known at Hartburn (Jobey 1973) or Belling Law (Jobey 1977) in Northumberland and other sites in south-east Scotland (e.g. Watkins 1982, fig. 4). No porch or roof supports were found but the door may have been in the unexcavated south-east quadrant if Musson's figures for roundhouse door orientations can be applied in Scotland (Musson 1970, 271). If the groove is assumed to be merely the bottom of an originally more substantial gully the interpretation of it as a house would seem even more likely. The stone slab setting could be a hearth or some other kind of working area but no burning or associated artefact debris was found. The function of the stone-filled hollow, or perhaps more particularly the lowest carefully laid slabs, and its relationship to the ring gully is unclear. None of the postholes fall in obviously structural alignments.

The association of the stone slab setting (302) and the ring gully may support the more tentative association of slab setting (503) and the very faint 'vestigial' gully (526) (fig. 4). This may also be identified as a possible house site but one more severely damaged by ploughing, due to its position higher up the slope.

If the one, or less certainly two, ring gullies are correctly interpreted as house structures the site in one phase might be seen as a small unenclosed settlement of probably Iron Age date. In the absence of Roman artefacts, rare though these are even on Romano-British sites in Northumberland, a pre-Roman date could be suggested. The general absence of artefactual or midden debris may be variously explained as due to soil conditions, the use of now perished organic materials, cleanliness by the occupants, a specialised function for the site, or, perhaps, least likely, cultural impoverishment.

The two radiocarbon dates (see Appendix 2) confirm an Iron Age date for pre-enclosure activity. GU 1600, from context 603, gives a date of 355±65bc for pre-bank activity in area 6. The soil layer appeared to overlie the curving gully 507. GU 1601, from context 518, gives a date of 110±90bc for the crescentic hollow in the north-east corner of the site. The interpretation of this feature is uncertain but it might be noted that this date is rather later than those advanced by Hill for ring-ditch houses (Hill 1982, 12-21). Although neither date can be related to the house structure at the south end of the site they do indicate Iron Age activity of a period appropriate for such houses.

The full extent of this suggested settlement is unknown since some features clearly continued beyond the excavation area or were set on the very edge of that area. The area opened was dictated by the line of the enclosure bank and though

investigation of further areas outside the bank would have been desirable. speculative stripping of external areas was not possible in the limited time available for excavation.

If all the internal features are interpreted as earlier than the enclosure (they need not be) the date and function of the enclosure remains open to question. As an oval enclosure without interior structures it might be interpreted as a stock enclosure related to settlement elsewhere. The bank is fairly slight and in its present condition is scarcely defensive or even much of a hindrance to sheep or cattle. If it has been robbed or had once supported a superstructure of turf it would clearly provide more of an obstacle to movement.

No evidence emerged to suggest the length of time which elapsed between digging of the ring gully (337) and building of the enclosure. The enclosure could consequently date to any period between the 'Iron Age' settlement and the cessation of construction of such stone embanked sites. If the one ancient potsherd is regarded as diagnostic an Iron Age date may be tentatively proposed for the enclosure itself.

Conclusion

The excavation of the enclosure at Candyburn has provided vestigial evidence of an Iron Age settlement but little to indicate the economy or material culture of the people who inhabited it. The enclosure itself remains undated. Excavation and survey of other sites in the vicinity might however lead to recognition of the general settlement context in which Candyburn should be viewed.

N.B. More detailed feature descriptions, original drawings and photographs have been deposited with the National Monuments Record in Edinburgh.

Acknowledgements

My thanks are due to many people who helped with the excavation and post-excavation work: to the staff of SDD (AM) for help in organising the excavation and post-excavation work; to the staff and diggers who carried out the work; to Jane Page for her work on the drawings and excavation archive; to Carole Keepax and Ewan Campbell for help with specialist reports; to Mr M. Mackenzie of Tinto Sand and Gravel Ltd. and Mr Noble of Candyburn Farm for their assistance during the excavation and to Sabina Thompson and Viola Diaz for preparing the final text for publication.

The Society is indebted to the Scottish Development Department (Historic Buildings & Monuments) for a grant towards the publication of this report.

BIBLIOGRAPHY

COOL, H. E. M. 1982 'The artefact record: some possibilities' in Harding, D. W. (ed.), 92-100.

HARDING, D. W. (ed.) 1982 *Later Prehistoric Settlement in South-East Scotland.* University of Edinburgh, Department of Archaeology, Occasional Paper no. 8.

HILL, Peter H. 1982 'Settlement and chronology', in Harding, D. W. (ed.), 4-43.

HOPE-TAYLOR, Brian 1977 *Yeavering. An Anglo-British Centre of early Northumbria.* HMSO.

JOBEY, G. 1973 'A native settlement at Hartburn and the Devil's Causeway, Northumberland (1971) *Archaeol. Aeliana*, 1, 11-53.

JOBEY, G. 1977 'Iron Age and later farmsteads on Belling Law, Northumberland. *Archaeol. Aeliana*, 5, 1-38.

MUSSON, C. 1970 'House-plans and Pre-history'. *Current Archaeology* 21, 267-75.

RCAHMS 1967 Royal Commission on the Ancient and Historical Monuments of Scotland. *Peeblesshire. An Inventory of the Ancient Monuments* (2 vols.). Aberdeen.

RCAHMS 1978 Royal Commission on the Ancient and Historical Monuments of Scotland. *Lanarkshire. An Inventory of the Prehistoric and Roman Monuments*. (Edinburgh).

WATKINS, Trevor 1982 'Saint Germains enclosure, East Lothian', in Harding, D. W. (ed.), 106-16.

APPENDIX 1

Geological descriptions have been supplied by Mr Ewan Campbell.

Small Finds

1. A small reddish-brown fragment of *fired clay* with small quartz inclusions and burnt out organic inclusions. (Surface area 3cm by 2.5cm and 6mm thick).

This appears to have flaked from a fairly thick pottery vessel at a construction join of a slab-built vessel.

An early Iron Age date may be suggested for such thick-walled pottery (cf. Cool 1982), but the presence of not dissimilar coarse wares at the post—Roman site of Yeavering should be noted (Hope-Taylor 1977, 170-77).

Context: Area 1 — topsoil on top of bank.

2. Two small pieces of *Iron slag*.

Context: Area 6 — ground surface (604) beneath bank.

3. Smooth elongated *pebble* (c. 8.5 x 7.5 x 3.5cm), with spalling on one end which suggests this may have been used as a "pounder".

This is a well-rounded pebble of quartzite with red haematite staining. Pebbles such as these, originally derived from the Metamorphic rocks in the Highlands, are common in the conglomerates of Lower Old Red Sandstone Age which are found in the immediate vicinity of the site. The red staining, surface grooves and polished surface are natural and characteristic of these pebbles. The spalling at one end is indicative of human use. Quartzite is extremely tough and is often used as a hammerstone.

Context: Area 3 — topsoil find on edge of bank in south-west quadrant.

4. Thin perforated piece of *siltstone*, roughly trapezoidal in shape with slightly smoothed edges (fig. 7, no. 2). Central perforation drilled through from both sides, giving slight "hourglass" shape. Circular striations occur around the perforation. One side has another small hollow close to the edge of the object which may be part of an unfinished or broken perforation.

This is a small piece of laminated, olive green micaceous, fine-grained siltstone. Siltstones very similar to this are found in the Upper Silurian rocks of the Pentland Hills, but it is not possible to say with certainty that this is the source of the sample.

Context: Area 3 — under rubble of bank on south-west quadrant.

5. Roughly square fragment of *shale* (fig. 7, no. 1) — one side flat and the other cut more irregularly. It has a tapering central drilled hole with circular striations penetrating for c. 6mm into its thickness on one face. This may be an "hourglass" perforation in process of manufacture.

This is a fissile black bituminous shale. It is probably of Lower Carboniferous Age and derived from the Oil Shales of West Lothian, though other sources are possible.

Context: Area 5 — from the fill of gully 507.

6. Small piece of *worked chert* with flakes removed over the whole of one face. It is probably an irregular core though the flakes detached would have been very small. At either end there is slight bifacial retouch which may indicate working edges: but this is doubtful.

Date uncertain.

This is a banded blue-grey and brown chert, probably from the lavas of Lower Old Red Sandstone Age which occur in the immediate vicinity of the site.

Context: Area 6 — ground surface (604) beneath bank.

7. Tiny quantities of *burnt bone* were recovered from features 707, 708, 710 and 507.

8. 17mm diameter *metal disk*, c. 1mm thick, with a broken loop at the back for attachment. This appears to be a button of nineteenth- or early twentieth-century date.

Context: Area 7 — topsoil find on inside edge of bank rubble.

9. Various *iron fragments* and four *sherds* of nineteenth-century pottery were recovered from plough-soil. None of the iron fragments need be other than modern.

10. Identifiable *charcoal* was recovered from contexts 011, 325, 329, 406, 507, 508, 517, 518, 523, 603, 706, 707, and 710. Wood identifications of Hazel, Alder, Birch, Hawthorn, Oak and Blackthorn were made by Carole Keepax. A fuller report on the charcoal is available in archive.

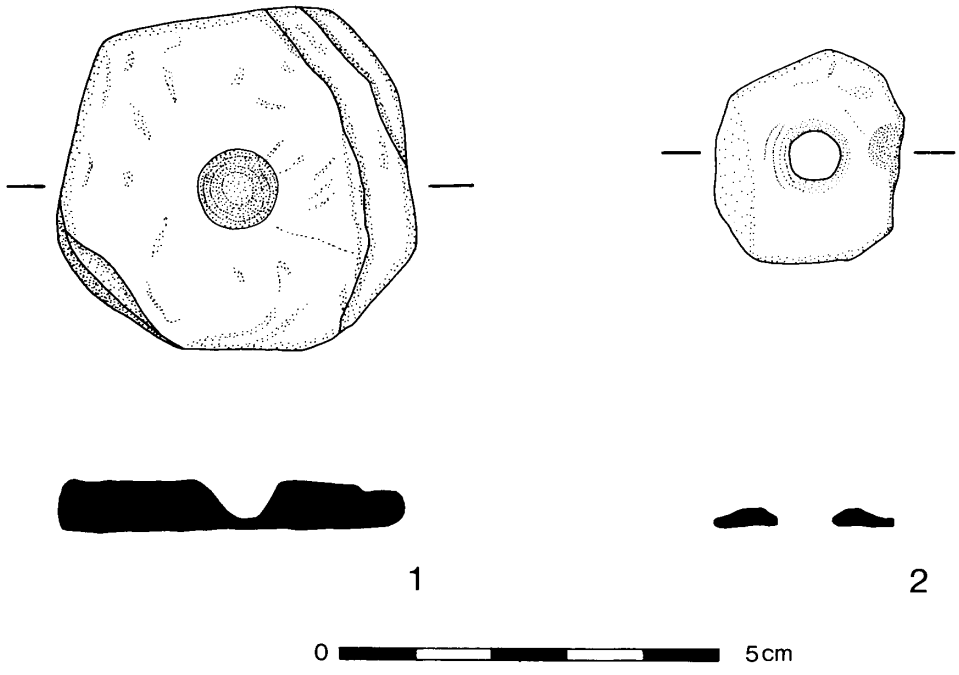


Fig 7. 1 - Partially perforated fragment of shale: 2 - Perforated piece of siltstone.

APPENDIX 2

Radiocarbon Dates

GU 1600	Hazel/Alder/Oak/Birch/Hawthorn
Context 603	2305 ±65
	(δ^{13}C: —25%)
GU 1601	Birch/Oak/Hazel/Alder/Hawthorn
Context 518	2060 ±90
	(δ^{13}C: —25%)

Glasgow University Radiocarbon Laboratory.

Dates quoted in conventional years b.p. and uncalibrated.

AN EXCAVATION AT KIRKMIRRAN, DALBEATTIE, 1985

by
Chris Crowe

General

In July and August 1985, an excavation was completed at Kirkmirran, near Dalbeattie, Dumfries and Galloway, (NX 800550). The site first attracted the author's notice because of its dedication, the Kirk of St. Mirran. Mirran or Mirren was Irish and nothing is known about either origin or career. The dedication is, of course, that of Paisley Abbey, itself on an earlier church site. Irish names proliferate in the region connected with early chapel or church sites — Brydekirk (Annan),[1] Kirkbean, Kirk Kindar (New Abbey), Kirkconnell (New Abbey) and the supposition has been that they represent dark-age cells of the Irish mission of St. Columba and the seventh and eighth century Irish church. There is little evidence to support this supposition, but the author believes it may well be correct in relation to Brydekirk[2] and now reinforced by this excavation in relation to Kirkmirran.

Documentary Evidence

There is no documentary evidence for the site or its choice of dedication.

The Site

The remains of the chapel are just visible above ground on the slight sloping terrace about 40 feet above O.D., on the west side of the Doach Burn. The terrace is composed of gravel and shale with a rich topsoil of sandy loam. This represents an ancient beach level, a feature found along the side of this valley and running down to Auchencairn. The site is well favoured, being sheltered by Bengairn and Potterland Hill with access to the marshes around the burn for game, good arable land and hillside grazing areas. There is access to the sea within a mile and a good natural harbour at Palnackie.

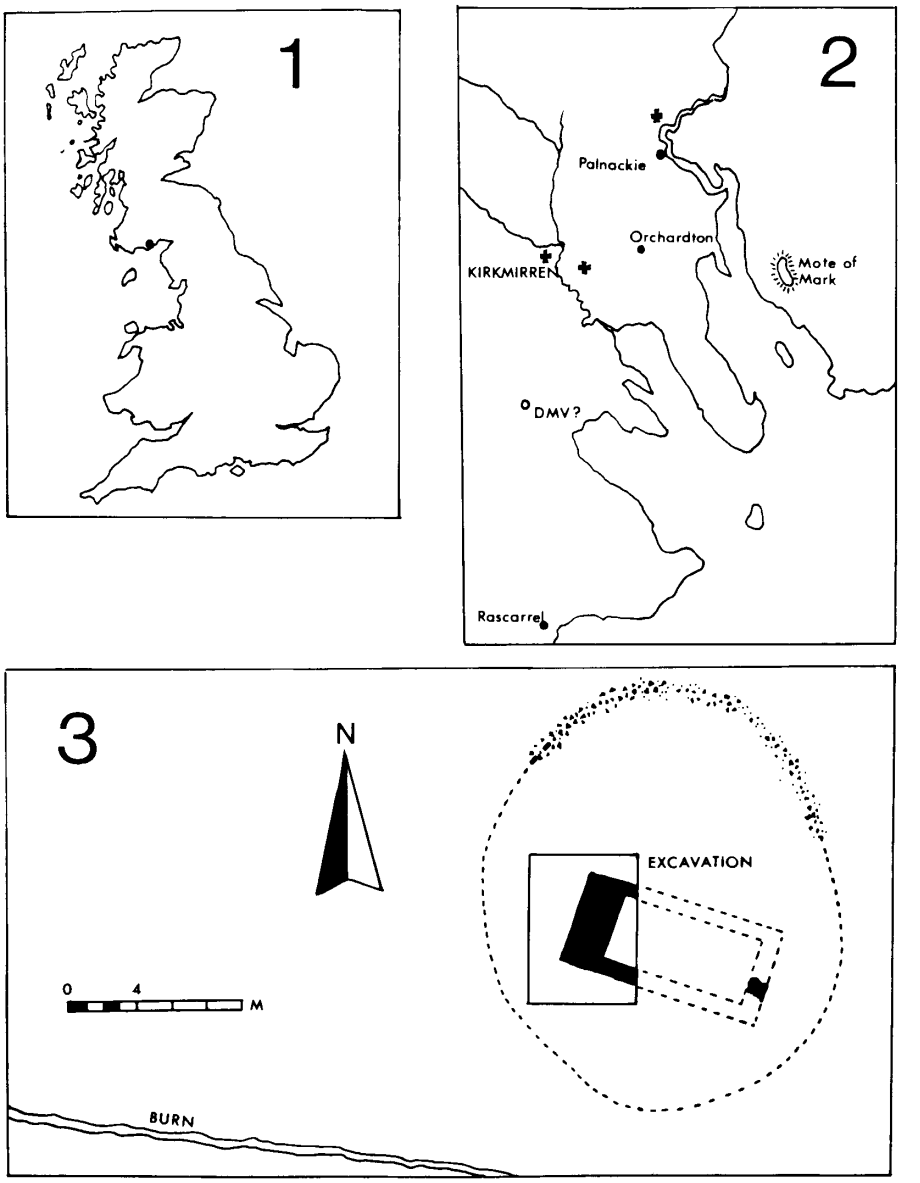
Early Christian remains in the area include sculpture from Kirkcudbright, Rascarrel[3] and Mote of Mark. There seems to have been a holy well 80m west of the site just below the farm known as Kirkmirran.

The Excavation

An area 10 x 5 metres exposed the west end of a long rectangular building. The excavation revealed features inside and outside the walls to a depth of approximately 1m.20 at which the natural subsoil occurred. In some areas undisturbed natural subsoil occurred at only 50 cms. below ground level.

The west wall was exposed and found to be 2m. thick with the adjoining north and south walls being only 95 cms. thick. There seemed no evidence of reinforcement

1. Crowe, C. J. "An Excavation at Brydekirk, Annan 1982-84". *T.D.G.NHAS* 3rd Series LIX (1984) 33ff.
2. Ibid. The Irish influence is best traced through Moore, D. (ed) *The Irish Sea Province in Archaeology and History* (1970) 13-28.
3. *Discovery and Excavation in Scotland* 1970 p.29. Although reported as mediaeval the Rascarrel fragment, which is now in Dumfries Museum, appears to be Anglian.



Figs. 1 to 3 Kirkmirran (or Kirkmirren) — Location maps.

of the west wall, so we can only deduce that it was built to support a great weight — possibly a bell tower over the gable. The foundation of the wall was bedded in yellow clay, possibly from only 100 metres away in the valley floor. (See Feature A.)

Features

Feature A

A trench filling of clay with some charcoal surrounded the base of the west wall. This was first encountered at a depth of 30 cms. on the north side and immediately below the loose building stone which represented the collapse of the west wall. This

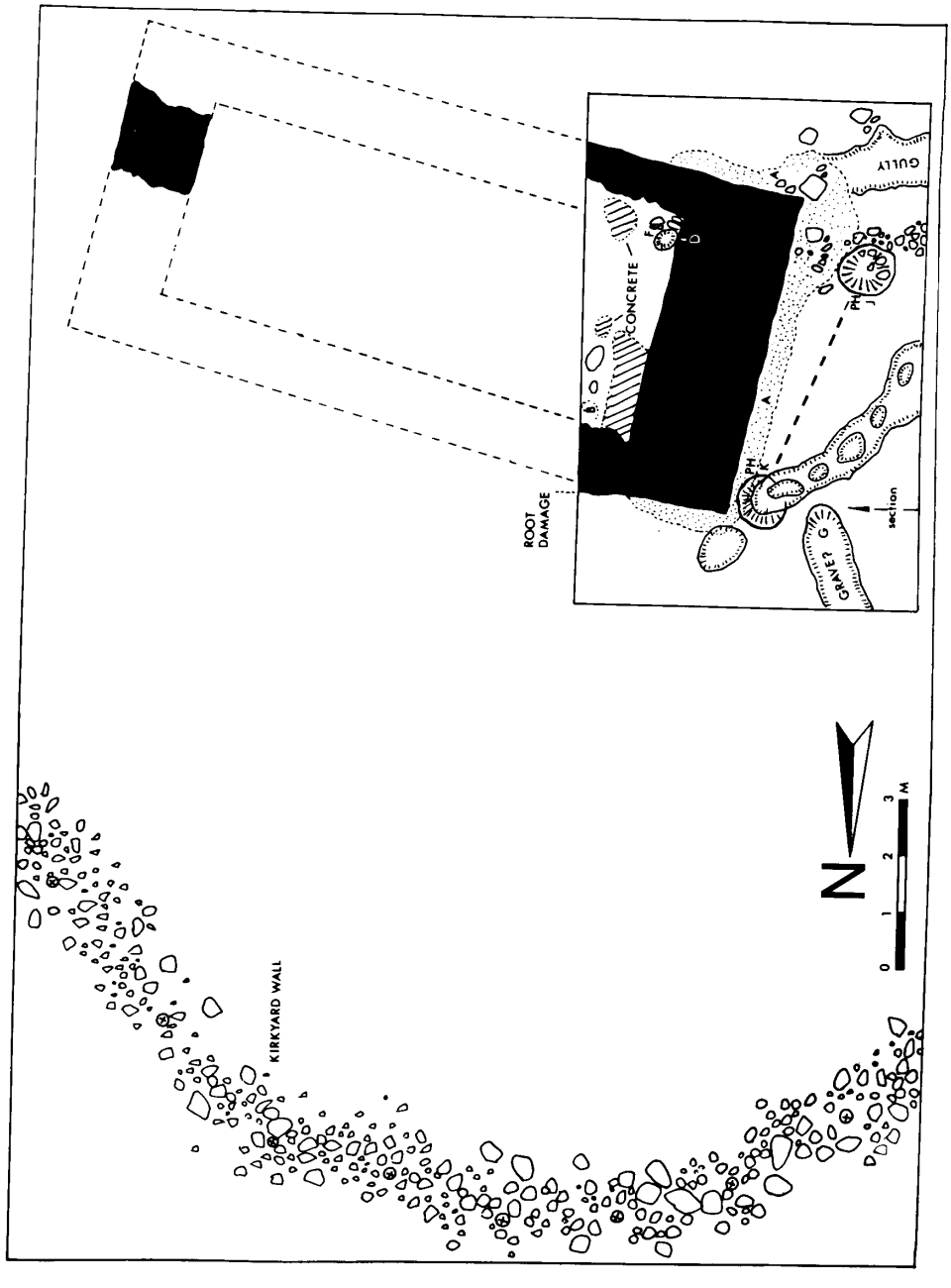


Fig. 4 Plan of excavation.

trench was at least 60 cms. deep and reached down to the foundation layer of large stones. Some pottery was found in the clay, particularly concentrated in the S.W. corner of the trench. This was of the 13th and 14th centuries and represented the remains of some eight vessels. There was no trace of the clay bedding inside the wall, nor did it extend to the north and south walls. This lends substance to the idea that the west wall was constructed to take more weight than usual. Also in the clay, but close to the original ground level was a coin, a plack of James IV (1488-1513) which was in such poor condition it disintegrated before it could be preserved.

Figure B

A depression, 50 cms. across and 30 cms. deep in the natural subsoil beneath the concrete floor of the interior at 80 cms. below ground level, was surrounded by burned soil. The filling was burned soil, charcoal and some traces of decomposed copper. No slags were found. The meaning of this feature is not clear.

Feature C

Extensive remains of a concrete floor were found inside the building. The floor appeared at 76 cms. below ground level and was between four and fifteen cms. deep. The substance of the concrete had disintegrated leaving deposits of lime, gravel, sand and seashell fragments. Some seashells, mussel and limpet in particular were complete. This concrete compares with the original cement rendering of the interior of the tower at Orchardton, some two miles to the north east. It is possibly from the same period of building. In places the floor had been entirely erased by the action of tree roots.

We conclude that the lime for this construction came from burned seashells.

Feature D

A break in the continuity of the masonry inside the S.W. corner of the building seems to mark the inside edge of the collapsed south wall which was otherwise missing, either through removal of the stone or poor excavation technique.

Feature E

A depression beside the exterior of the west wall, 2m.50 from the S.W corner of the building had been cut into the clay trench filling. This was filled with charcoal, 20 cms. across and only four cms. deep. Taken with Feature B this might indicate a small furnace working in clay or metal. No traces of such activity could be demonstrated.

Feature F

A depression in the S.W. interior corner of the building, cut through the concrete floor was shallow (about 16 cms. deep) and resembled a soakaway drain. The pit was full of fragments of pottery of the 15th century, some quite large (100 square cms.). (See below, Pottery K85L 11F.)

There were no traces of a lining or indication of its purpose.

Feature G

Directly under the topsoil and extending for 66 cms. from the edge of our cutting on the north west corner was a ditch like feature. It was 80 cms. deep with parallel sides. We could not find out how far it extended northwards. It resembled a grave, but produced no finds at all.

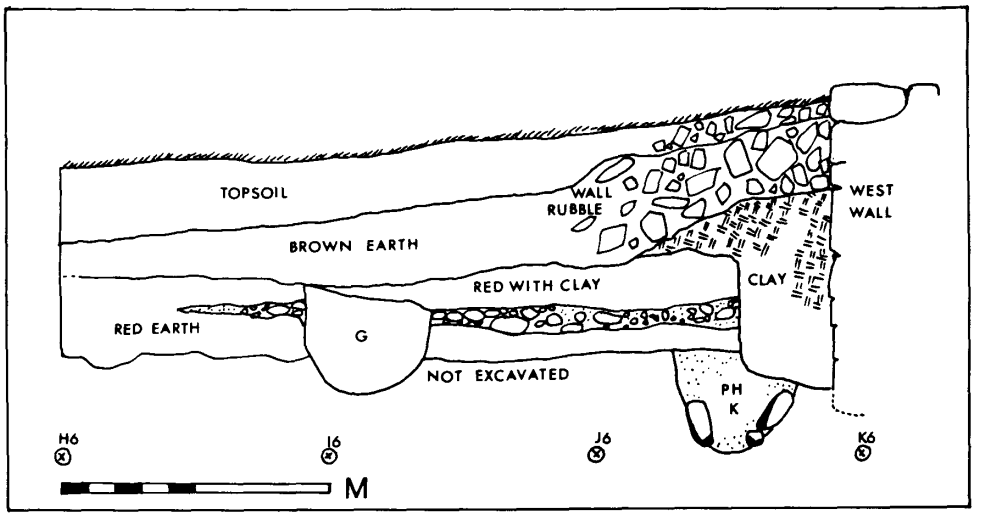


Fig. 5 Section running W. from N.W. corner of building (see Fig. 4).

Feature H (see Fig. 5)

In the section H6-K6 a thin layer of stone and lime mortar at 40 cms. below ground level had been cut by feature G. This layer, eight cms. thick, seems to represent the remains of an earlier plastered stone building, or the fragments left behind by the builders of an earlier building on the same line as the present one. The foundation trench for the west wall also cuts this feature.

Feature J

A large post hole, 90 cms. across and 125 cms. deep was excavated in the S.W. corner of the trench. (See Fig. 4.) The packing stones were still *in situ* and would indicate timber of 50-60 cms. width.

Feature K

A large post hole, 49 cms. from the N.W. exterior of the building was excavated. It was 55 cms. across and 115 cms. at its deepest, below ground level. Some packing stones were in the side of the hole. The post hole was beneath the clay foundation packing and therefore predates the present building. There were no finds in the filling of either features J or K.

The Finds

Objects of Stone.

1. Small flake of flint with brown cortex. (K85J980). Unworked.
2. Half a flint nodule 32mm long with thick cream cortex. Unworked (K85K960).
3. Bladelet of reddish flint 33mm long. Cortex along one face. (K85 Stray Find).

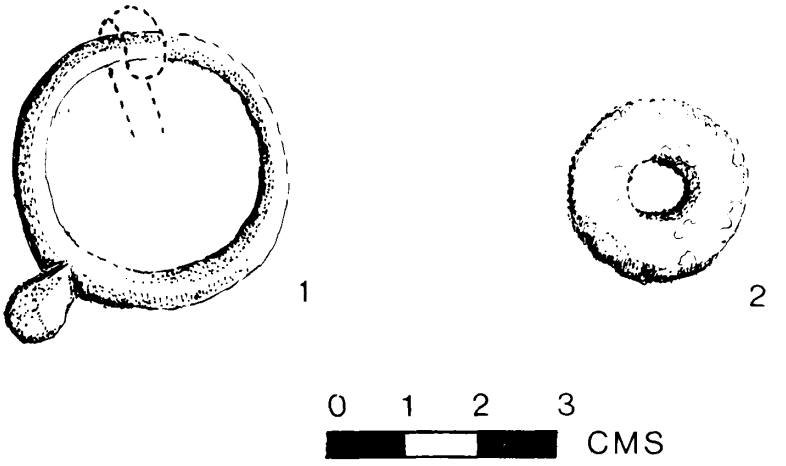


Fig. 6 Small finds. 1 - Bronze or base silver ring pin. 2 - Loom weight or spindle whorl.

Objects of Metal.

1. Lead spinning whorl. (Fig. 6-2.) This is exactly paralleled by an example from Dumfries in the Museum. (K85K4 45).
2. Bronze ring pin head. Irish 9th or 10th century.[4]. This is an exotic type with the protrusion possibly a debased animal head.[5] (Fig. 6-1) (K85 L980). This was found in the sealed layer below the concrete floor of the building.

Pottery (Fig. 7).

(This is not a complete inventory, but a record of the most significant type sherds)

K85L7.105	Light orange, thin, hard body with dark brown burnish. ? Roman.
K8518.30	Pink/orange fabric, well grogged and hard. Splashes of green glaze C14th - C15th.
K8518.40	Orange/yellow fabric, gritty surface and no glaze. C15th.
K85J11.40	Jug rim. Orange/yellow fabric, gritty surface, no glaze (as above). C15th.
K85J6.40	Sherd. Orange fabric grey on inside. Glaze has decayed leaving chalky orange surface outside. C14th.
K85K11.48	Sherd. Orange/yellow fabric, grogged and poorly fired. Traces of dirty green glaze on outside. C13th - C14th.
K85K11.56	Bowl base sherd. Fine yellow/grey fabric, traces of sandy green glaze.
K85L11.	Rim sherd. Orange fabric. Treacly orange/yellow glaze. C13th.
K85K12.	Rim sherd. Pink/grey gritty fabric. Traces of decayed green glaze. C13th-C14th.
K85L9.40	Sherd. Yellow/grey fabric, slight splashes of clear yellow glaze on exterior. C14th.

4. This example compares with one in the British Museum: No. 36. Ballymena, N. Ireland 96-6-18-13.
5. Armstrong, E. C. R. "Irish Bronze Pins of the Christian Period". *Arch* LXXII (1921-2) 71-86.

K85K9.60 Rim sherd. Orange/grey fabric bowl with splashed light green and orange/pink glaze. C14th - C15th.

K85L11.57 Rim sherd. Rilled bowl fragment, yellow ochreous body, grogged, unglazed. C13th.

K85J8.30 Handle fragment of large orange/yellow bodied pitcher. Light green glaze. C14th.

K85L F9 Sherd. Grey hard gritty fabric of large pitcher. Dark green glaze, slightly iridescent. C15th.

K85K4.40 Base fragment. Poorly fired orange/grey fabric. Cooking pot. C15th.

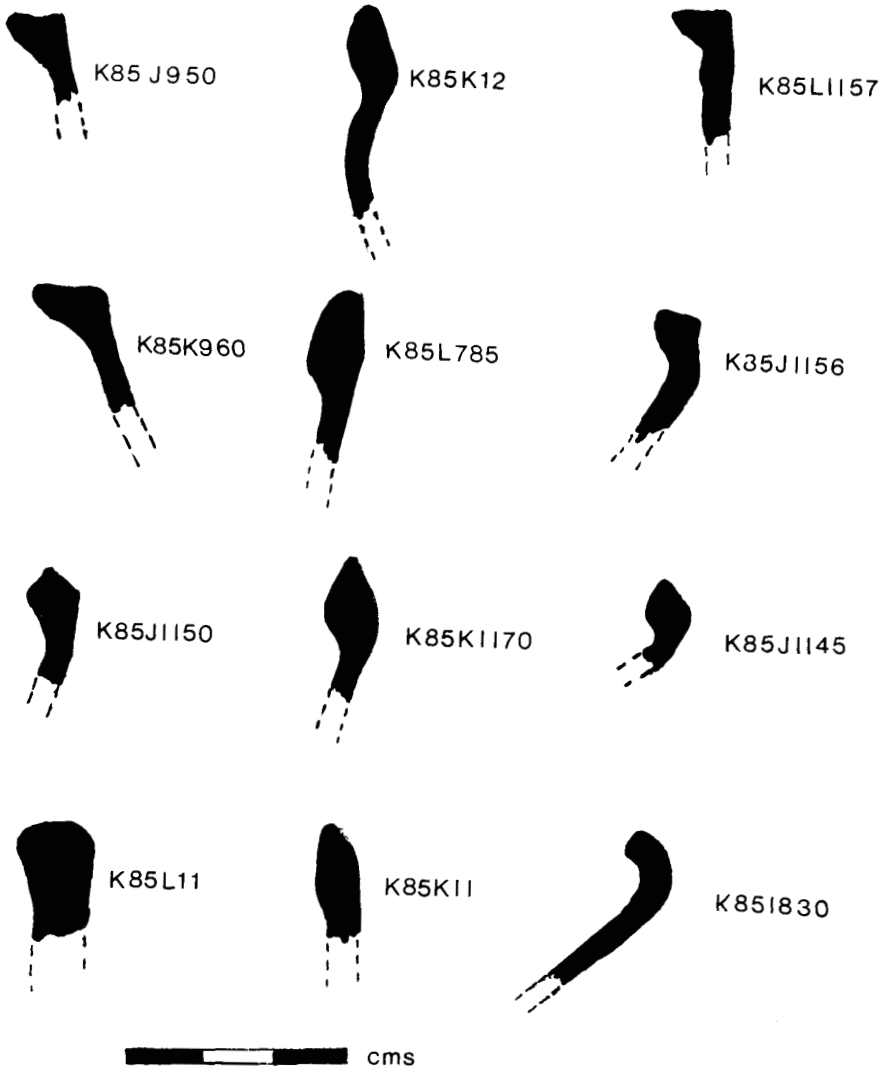


Fig. 7 Pottery.

K85J11.57 Sherd. Yellow/pinkish fabric. Light green glaze outside. Grey wash inside. C15th.

K85K4.30 Base fragment yellow body rilled and blackened by fire. Dirty green glaze inside. C14th. cf examples from Caerlaverock.
A similar jug from Penicuik was dated by a coin hoard to 1320.[6] K8518.40 is similar.

Finds are presently deposited with the Museum in Dumfries.

Conclusions

The building was probably a chapel or kirk. We have no reason to doubt the place name. It was occupied from the 13th-16th centuries. The pottery shows that it was built in its present form late in the 13th century. There was an earlier stone building. Large post holes also indicate a building which was earlier still, although no dateable evidence can be attached to it. This was of timber. Its alignment could not be established because of tree root and plough damage.

There is clear evidence of Irish metalwork of the 9th or 10th centuries. It would be convenient to connect the early timber building phase with such a monastic settlement, but the evidence is not firm. If we assume a working life of 200 years for each building phase, however, we are drawn back to the 9th century.

The building was abandoned at the Reformation, according to the evidence. There were no fragments of clay pipe on the site, and no pottery later than the 16th century from sealed layers.

Field walking over the field in which the chapel is situated, after ploughing, yielded good scatter of green-glazed pottery sherds; this coupled with the nearby availability of carse clay, and the farm name Potterland indicate a possible mediaeval kiln site which merits further investigation, but is outside the scope of this report.

Acknowledgements

We would like to thank the Gelston Estates for their helpfulness in permitting the excavation, and the tenant farmer, Mr James Baird, for his invaluable help, both in practical matters and in encouragement. Also thanks to David Lockwood of the Museum in Dumfries for advice about the coin and metalwork. W. F. Cormack visited the site and illuminated the discussion of the site in relation to its prehistoric setting. Dr. Lloyd R. Laing of the University of Liverpool provided invaluable advice on both metalwork and pottery. Deborah Porter, from the University of Kansas, advised on metalwork in the British Museum. Max Turton, Michael Killian and John Robinson, together with all the adult students of the 1985 season deserve praise for their care and attention during extremely difficult weather.

6. Thompson, J. D. A. *British Coin Hoards* (1956) Plate IV.

FARMERS IN DUMFRIES FROM 1600 TO 1665

As seen through the Register of Testaments and Grants of Confirmation

by

Winifred Coutts, M.Litt.

6 Heriot Row, Edinburgh

This paper and the following one are sequels to talks given in Dumfries during the Octocentenary celebrations in 1986. Eds.

After the Reformation in 1560, the Privy Council resolved that commissaries should be appointed to exercise consistorial jurisdiction, that is, to deal with matters relating to family law. Dumfries became one of 23 local commissary courts. The boundaries of its jurisdiction were based on the subdivisions of the old diocese and it comprised 56 parishes.

Executry was one of the principal fields in which the new court operated. A testament at that time was a writing or decree in which an executor was appointed to administer the moveable (not the heritable) estate after the decease of a man or woman. The testament had to be confirmed by the Commissary and, in the vernacular, details were entered in a Register. Moveable estates worth between £10 and £50 were entered in the local Register whereas those worth more than £50 were entered in a Register in Edinburgh. In fact this rule was not adhered to. In addition to giving the executor a formal legal title to ingather the estate of the deceased, Confirmation conferred on him limited liability in that he was responsible for the deceased's debts only to the extent of the latter's estate, in contrast to an "intromitter" who became personally liable for the deceased's full debts.

When a will existed, its contents were quoted in full, but whether or not there was a will, a complete inventory of the goods and gear belonging to the deceased person was made and each item was given its current market value. Also, each debt to and by the deceased was recorded in detail and the name and occupation of each person who acted as executor, intromitter, overseer, tutor or cautioner was always stated.

The Registers are an invaluable source of information for a study of the social and economic life of farmers from 1600 to 1665 but the picture is incomplete. There are many years for which there are no Registers; the quality of the entries varies (because details were more meticulously recorded in the early period); inventories deal with moveable not heritable property so the pattern of wealth which emerges is inaccurate in so far as it takes no account of land; and there is a substratum of which only a glimpse is caught. These were the people with whom a cow or a sheep was grazed in return, presumably, for milk or wool, since no money was owed to them.[1] Below them were those who owned almost nothing. They did not merit entries in the Registers but the many bequests to the poor testify to their existence.[2]

Several social groups pursued farming activities — titled members of the nobility;[3] lairds owning several lands — men like Charles Murray of Cockpule[4] and Archibald Maxwell of Cowhill[5] or others like William Maxwell of Kirkhous,[6] Roger McKnaught of Kilquhadie[7] and Homer Maxwell of Speddoches[8] who were owed dues by tenants; portioners[9] (proprietors of small feus) and farmers with sub-tenants of their own — men like Robert Rerik[10] who was owed ferme but owed teinds and

ferme himself and James McKnaught[11] who was owed duty for a croft by a weaver but owed maill himself. There were also wadsetters, tacksmen and 'kindly tenants'. A wadsetter was a creditor of the landowner who enjoyed use and free tenure of land as long as the debt remained unpaid. For example, William Crocket[12] was owed by Edward Maxwell '300 merks laid in wadset by me of certain lands of his of Terraughtie'. Tacksmen leased land from the landowners for rent. Tacks could be left by legacy, as when Cuthbert Carsane left 'my tack of my mill and mill-lands to my wife and to my son Giordie'.[13] Some tacks, if not all, were registered and they were of limited and specified duration. While noblemen and lairds were hereditary landowners, and wadsetters and tacksmen enjoyed the full use of land as virtual owners, 'kindly tenants' were peasants with unwritten hereditary ownership. William Johnston left his eldest son 'his kindly teinds, title and right of his whole possessions after the death of Robert Johnston, his father'.[14] Others primarily pursued other activities. Thus we find a wright,[15] a smith,[16] a surgeon,[17] a tailor,[18] a clerk,[19] a cordiner,[20] a miller,[21] the sheriff clerk in Dumfries[22] and a workman in the town[23] all with farming interests. Most striking, however, is the farming pursued by merchants. Many farmed within the boundaries of the town. One entry specifies 'with himself in this town, three ky with followers and a nag'.[24] A burgess had 'standing shorn upon the defunct's part of land of Baxter's Close, 30 thraves of oats, estimated to one boll oats'.[25] Most farmed on a greater scale outside the town, pasturing animals with different farmers or renting land for growing oats and beir.

The majority of farmers, however, were tenants who paid dues in the form of fermes, feu duties, rents (this term first appearing in 1656[26]) and, most commonly, maills. At the beginning of the period these were generally paid in kind — in meal,[27] in oats,[28] in beir,[29] in grain and straw,[30] in animals,[31] in fowls,[32] in fish,[33] and uniquely, as 'a swine'.[34] By 1625 it was more usual to pay in money. There were also teinds to be paid to the minister in meal or money and multures to the miller for the grinding of grain, sometimes as lambs[35] but mainly in meal and later in money. Periodic taxations had to be met[36] and many paid herezelds — the best animal belonging to the tenant, which the landlord could claim on the tenant's death. These were usually horses.[37] On entry to land, sasine had to be paid. Thus one tenant owed 'part of a sasine cow'.[38]

Most farmers pursued mixed farming. Nearly everyone kept at least one cow for milk, butter and cheese. Oats was the food crop, beir the drink crop. The growing of oats was more prevalent than the growing of beir but many bought their grain — most debts were for beir, but there were many for oats or corn, and several for meal. Specialisation in arable was less common than specialisation in pastoral. This was dictated by the nature of the land so that there was concentration on sheep by farmers in the Sanquhar area.[39] A few kept goats.[40] Many kept at least one horse and although oxen were used throughout the period with one farmer owning a team of eight[41] and others hiring out a single ox,[42] they figure less frequently in the later years, suggesting that horses were increasingly used as draught animals. Not many farmers owned a bull.

There was little enterprise in the growing of crops. Generally speaking only a landowner or a relatively wealthy farmer could afford to risk capital in growing pease,[43] rye[44] or wheat.[45] Nevertheless it was possible for a peasant to get 'working capital' from his landlord. There were several examples of steelbow goods. The

landlord provided the tenant with stock under contract that the equivalent should be returned to him at the end of the lease. The contract could involve cattle[46] or sheep[47] or horses[48] but steelbow oats[49] or steelbow beir[50] were more common than steelbow animals. The system enabled a tenant without initial capital to farm.

Some creatures never appear in inventories. Dogs are never mentioned although some are almost certain to have been used in the rounding-up of large flocks of sheep. Perhaps a dog's value was negligible once its master had died. Other creatures appear only in rents or in debts. For example, a 'swine' was paid as the half duty of a mill[51] and a farmer owed 40s for another,[52] but these were the only references to pigs. Similarly, although poultry must have been kept, they appear only as dues being owed, either as 'fowls'[53] or as 'kane fowls' — elsewhere more specifically as capons[54] or poultry fowls[55] or hens.[56]

There were two varieties of oats — great corn and small corn — and there was one reference to 'black corn'.[57] The usual return expected for oats was three to one, for beir four to one, for pease, rye and wheat four to one, but this could alter. Particularly good crops occasionally occurred as in the four to one yield for oats in 1657.[58]

Although grain was usually measured or estimated in terms of bolls, firlots and pecks, several actual measures were used. Measures were not the same throughout the Commissariot since it was important to state which was used. One was never expressed in terms of another but relative prices indicate that Annandale measure and Eskdale measure were smaller than the almost universally used measure of Nith. When the grain lay gathered on the fields it was estimated in numbers of stooks, thraves or rooks. Grain was stored in barns, either by burying it,[59] presumably to protect it from vermin, or by storing it in a sack.[60] The fact that some was specifically noted as 'unburied' suggests that burial of grain may have been common practice. Some beir was 'blown' which may mean 'dried'.

Although there is no evidence of the systematic planting of grass there were stooks of hay and haystacks on some of the bigger farms and smaller amounts like 1½ bolls on the smaller farms. There was no evidence of farmers buying lime, but there was interest in manuring techniques. John Shortrig left his crop to his relatives 'providing the whole fodder of the crop . . . remain on the ground to manure the land with and the legators to get but the corns':[62] another farmer wanted a horse kept 'for manuring of the ground'[63] and 'certain fulze and elding about the house'[64] (dung and fuel) was valued at 20 merks (13s 4d each).

Kale was either bought or grown. One farmer left his wife 'the best of the knots (garden) for the setting of kale'.[65] Honey appears in debts to farmers and bee skips are found in inventories. A skip was worth £4.[66] One farmer owned five skips with honey, wax and bees, each worth £10.[67] Some were kept in Morringtoun, others in Speddoches. One farmer had fowling nets.[68] He may have caught wild birds for food or perhaps for feathers.

The need to conserve woods was appreciated. Robert Maxwell desired his friends 'to be careful for my wood and timber both cutted and uncutted that it be not wasted nor destroyed until my son come to perfect age and that none be neither gifted nor destroyed more nor serves the present necessity'.[69]

Very occasionally one glimpses the method of cultivation in the countryside, though infield and outfield are never mentioned. William Greirson left his son '5

bolls of corn and 5 acres of land to sow it on in the ten-shilling land, his part on the ley (the land left untilled and allowed to remain under grass) another part on the avald (lying in the second year without being ploughed) and part in the third furrow, another on the crofts pro rato'.[70]

Cattle and sheep were often looked after by farmers who were not their owners. This may have been because the herd or flock was too numerous for the land to support. It may have been an established way of defeating the diminishing returns of increasing numbers of animals grazing a fixed quantity of land. It was common in the early years of the century when a farmer like John Corsane owned more than 86 cattle looked after by others in this way.[71] Many debts were owed specifically for 'the wintering of cattle'[72] or of an ox.[73] Since it was difficult to keep animals alive over the winter, many were slaughtered about Martinmas. These were sold at the 'Lardenare Mart'[74] and their carcases were salted. Salt could be bought from merchants in Dumfries[75] or from other farmers.[76]

Farmers, however, dealt more commonly in the produce of their holdings, buying and selling among themselves seed oats, seed beir, oats, beir, wheat, meal, malt, hay, lint, bark for tanning, cows, oxen, sheep, goats, horses, hides, sheep skins and wool.

Sheep were marked 'with the owner's mark'[77] perhaps with tar which could be bought from a merchant burgess in Dumfries[78] but there was much buying and selling of it among themselves.

Several farmers owned a plough and plough irons worth between £6[79] and £3[80] but there were no examples of buying them. On the other hand there were numerous examples of the buying of iron from each other, one specifically for 'iron to be plough irons',[81] or from merchants in Dumfries.[82] Some farmers owned millstones,[83] a grape,[84] a harrow,[85] a spade,[86] a wimble,[87] an axe,[88] a saw,[89] a barrow,[90] a barrel[91] or a ladder.[92] Others bought a scythe from a Dumfries merchant or millstones[94] from a fellow farmer, at £13 6s 8d for two.[95]

Farmers bought herring[96] and cheese[97] and butter[98] when they did not make it themselves. Beir was made into ale in the farms. Malt is found in inventories and there are countless examples of it being bought and sold. Inventories include brewing equipment[99] and a farmer owned a kiln with beir in it.[100]

Many farmers kept cloth but it is not always clear if this was a stock for selling or if it was kept for making into clothes. Thomas Mackie's blue web of 7 ells and linen web of 12 ells[101] could have kept for either purpose; Adam Turner was clearly selling his 46 ells of 'catter' cloth and linen cloth worth £40 to John McKie, chapman[102] and though there were no examples of selling cloth to a Dumfries merchant, farmers bought and sold cloth among themselves.[103] The possession of wool, yarn or lint (or a combination of these) together with woven cloth suggests the domestic manufacture of cloth, particularly when the owner also had a supply of £12 'ready money'.[104] Convincing too, is the purchase of supplies of lint[105] or of wool[106] or of the bequeathing of wool to a woman[107] or the possession of 'unwalked and unshaped cloth.'[108] Lint, yarn or wool in inventories could have been destined for a merchant's stock but small amounts are more likely to have been for home consumption. Debts to a woman for cloth litting[109] or for bleaching[110] are further evidence of rural manufacture of cloth.

Spinning wheels are never mentioned but looms are found in farmers' hands,[111] but there is always the possibility that they belonged to undesignated weavers who farmed. Certainly, as the many debts to weavers testify, not all cloth was woven in the home. Some farmers like James Turner had 'in the hands of John Gréir, weaver, 15 ells linen.[112] Similarly, as the debts to tailors testify,[113] clothes were not all sewn on the farm.

Women were entitled to bequeath clothes without their husband's consent. Relatively few did, so the clothes mentioned must have been typical of the better clothes owned by a few — a red wylie coat,[114] plaids,[115] a black-grey cloak.[116] Men too, left clothes — a grey coat and doublet with grey breeches,[117] a stand of grey clothes.[118] Some owned riding gear — a saddle and bridle;[119] some bequeathed it. Others owned weapons. One sold a gun to the laird for 10 merks;[120] another owned a sword and pistol;[121] another 'an Eskdale sword of arm' worth £4.[122]

One learns nothing about houses but many must have been thatched. Certainly 'reed land' was valuable at £10 the acre.[123] Generally the furnishings were assessed together in one sum. 'Insichts' of great landowners could be worth 1,000 merks;[124] a farmer's could be worth £20[125] or 20 merks[126] but most were estimated at 10 merks or 5 merks. Cooking utensils were not usually worth assessing separately though iron pots often appear in inventories as do a pot and a pan,[127] or a cauldron.[128] Legacies were made of an iron pot;[129] a kettle cauldron;[130] a girdle.[131] Anything of iron was of value. Innumerable kists are alluded to in inventories — 'band' kists of various values or ones entirely of wood.[133] They too, were left in legacies — a black oak kist,[134] even a coffer.[135] Baskets[136] were mentioned too.

Almries[137] were listed in inventories or left in legacies. A crook and a pair of tongs were found in possessions[138] but none were bequeathed. A bed,[139] bedclothes,[140] a chair,[141] a stool,[142] pewter plates and trenchers,[143] pewter vessels,[144] flagons[145] and brewing vessels were important enough to be recorded, as was 'timber work and iron work about the house'.[147] Feather beds[148] in particular, were valuable and blankets and bolsters,[149] household linen and crockery[150] were all assessed.

Although most farmers and their wives left such legacies in kind, several also left money. This happened when there were children of a previous marriage.[151] Sometimes executors were expressly ordained to 'sell the goods and gear and put the same in prices thereof in honest men's hands for the well, utility and profit of my child'[152] or 400 merks were to be 'set in a responsible man's hand' and his wife was to have the annual rent.[153] As the century progressed legacies of money became more common but never as usual as leaving goods, animals in particular.

Financial transactions between farmers occurred frequently, many debts clearly stating 'lent money' or 'borrowed money'. Bonds, obligations, the existence of cautioners or penalties could refer to debts or to unspecified wadsets or to lending and borrowing activities, but when the sums involved are 'round', usually in hundreds, one suspects the latter. Homer Maxwell of Speddoches dealt in huge sums. He was owed three separate sums of 1,000 merks by a merchant. 500 merks by a saddler in Dumfries, 200 merks by a burgess there. Debts to him totalled £7,505 6s 8d.[154] William Maxwell of Kirkhous was owed vast sums by the nobility, 9,000 merks and 4,725 merks, lesser sums by the provost of Dumfries and by a Dumfries

merchant, and 1,000 merks by Edinburgh merchants. Debts to him amounted to £22,964 10s.[155] These were great landowners who were doubtless associated with the trade in skins and hides which were the basis of the international network of trade which stretched from Dumfries to Edinburgh and thence to the Low Countries and to France.

Ordinary peasant farmers, however, owed small amounts like 20 merks[156] 'borrowed money'. Few had surplus ready money — £60,[157] £36,[158] £10,[159] though nobles like Sir James Johnston had £5,000 in 'ready gold and silver',[160] the Commisary of Dumfries had 1,220 merks,[161] and wealthy landowners like Robert Maxwell of Dynwodie had 3,500 merks.[162] Otherwise only a farmer like Mathew Little who was trading nolt in England in 1661 could amass £96 'of small gold and £1,600 of gold lying beside the defunct'.[163] On the other hand John Burgess who formed a partnership to trade beasts in the south of England had none.[164]

Lairds employed macers to collect debts owed to them. William Maxwell of Killilung owed John McKnox,[165] macer, 'for poinding of Gribtoun and charging the people of Keir parish, £10' and the Laird of Orchardtoun owed him '£6 for service done'. When debts were paid and the pursuer could risk having to pay the costs of an unsuccessful action, recourse was made to the law or to arbitration. It was only worth bringing a case against a man of some substance so most of the references to legal actions involve lairds or wealthier peasant farmers. Adam Johnston, tutor of Elsieshields, owed a merchant 1,000 merks 'conform to a decree';[166] Robert Maxwell of Dynwodie was owed by Robert Scott '£80 conform to his bond and horning assed thereupon';[167] a flesher had to pay a farmer '£18 conform to a decree'.[168] some disputes involved as much as 2,000 merks — Robert McBrair successfully obtained decree against the heirs of Homer Maxwell of Speddoches for this sum and 'the decree arbitral was registered in the Books of Council and Session'.[169] Most, if small, were brought in the inferior courts. A farmer was awarded £5 by decree obtained in the barony court of Closeburn[170] and John Beattie was sued 'in my lord's court' for 8 pecks of meal received by his wife. He had to pay £10 13s 4d with 20s for expenses of plea.[171] Most actions, however, were brought in the Commissary Court of Dumfries. John Dickson was sued for and had to pay maill and duty, being 3 bolls of meal or £16 'conform to a decree obtained before the Commissary of Dumfries and his deputes, 10 November, 1629'.[172]

Not all actions involved unpaid rents or debts. Ninian Halliday had to pay his son in law £376 'conform to a decree obtained before the Lords of Session'.[173] This may have been an unpaid tocher. Helen Thomson unsuccessfully pursued for the slaughter of her husband[174] and as he lay dying Thomas Bell ordered his executors 'to pursue for the sum of 400 merks, which sum I allege was taken out of my kist by John Beattie in Dunfedling, forth of my own house which sum I declare upon my oath and constraint was taken from me and I suspect none but the said John Beattie as for any trial in prosecution thereof'.[175] One farmer left to his executors an action over a brown horse worth £50 'spoilzied by Archibald Maxwell of Cowhill, William Maxwell of Cowhill his son in law and their servants at their command, reset, assistance and ratihabition';[176] another left 'an action' of violence obtained by me' for the violent possession of lands.

Many farmers had servants, some as many as 15,[178] but more usually one or two. A ploughman was owed 2 bolls oats for his 'hind boll',[178] another was owed 40s; another was employed throughout the year and was owed £20 for his year's fee.[181] Harvest shearers could earn £6 each[192] and Bessie Jollie was owed £3 'for harvest work'.[183] A herd boy was paid 5 merks and bounty and clothes whereas a manservant got 10 merks — both presumably for a year's service.[184] One landowner owed £50 in fees and bounties to servants 'such as barnmen, byremen, hiremen, hirewomen, day's herds and others'.[185] General men servants were given their food and paid sums like 40s together with 2 ells of gray, shanks and two pairs of shoes[186] presumably for a year and women servants could get 5 merks with 2 ells of gray and 3 ells of harden[187] but payment varied and could be in the form of money and grain — £5 with a peck of beir and a peck of corn.[188]

Funerals involved a coffin, a shroud, a feast and very occasionally, a grave stone. John Kerr, peasant farmer, owed William Fraser 'for the dinner to the company that conveyed the corpse of his wife to burial, £3 6s;[189] another ordained that £30 should be spent on his barcall (probably a support for his coffin) and 10 merks on his sheet and kist[190] and a farming indweller in Annan owed a burgess in that town 'for dead kist, for candle and drink at the lykewake, £5' and a different burgess 44s 'for 4 ells of linen to be a winding sheet'.[191] One farmer owed a mason £4 for a throch stone[192] (a flat gravestone lying on 4 pedestals). Some funeral feasts were held in the local inn with the innkeeper's wife doing the catering. Jean (sic) Greirson, 'ostler' was owed £7 for a funeral.[193] The funeral of a great landowner like Robert Maxwell of Dynwodie cost 1,000 merks;[194] that of Homer Maxwell of Speddoches, £200;[195] that of a wealthy farmer, £100[196] but those of peasant farmers cost £10,[197] 10 merks,[198] £6[199] or 4 merks.[200]

It was the peasant farmer, however, who left money to the poor, often to the poor of a specific parish. For example, one, out of free gear of £62 9s 4d, left 40s to the poor of Closeburn.[201]

There is little clear evidence of literacy among farmers, though some entries state 'subscribed with my hand'.[202] Most say 'subscribed with my hand at the pen led by the notar'. Robert Kyle was probably literate since the entry states; 'because the said Robert was not able to subscribe himself for infirmity of sickness he has caused the said Richard Brown, minister at Kirkconnel to subscribe this his latter will and testament'.[203] Thomas Brown's keeping of account books[204] implies ability to read if not also to write. Testaments occasionally show concern over the education of children. A landowner appointed a tutor 'to have the care and education' of his son;[205] a farmer's nephew was 'to have the care of the education and upbringing of the said Janet his daughter'[206] (though this need not mean teaching her to read and write); a farmer owed a schoolmaster fees and 'quarterlodges',[207] presumably for his son. It is likely, however that most peasant farmers were illiterate.

The testaments show how the peasant farmer was tied to the traditional methods of farming by lack of capital, by the system of rig farming and by having to contribute animals to a communal plough. Only the wealthy landlord or merchant could afford to experiment in the growing of pease, wheat and rye, though that wealth derived from the farming of cattle and sheep. Testaments also give specific information about prices.

TABLE 1

	Cow	Ox	Sheep	Horse	Oats per boll	Beir per boll
1600	£8	£10	£1⅓	£20	£6	£10
1609	£10	20m	£2	20m	£10 - £6	£12 - £10
1624	£15 - £8	20m	£2 - £1⅓	20m - 10m	£6 - 10m	£13 - £10
1630	£12 - £8	20m	£2 - £1⅔	20m - 10m	£5	£13 - £10
1638	25m - 20m	16 - 10m	£2	£30 - 20m	20m - £10	£16 - 20m
1643	£12	£16 - 20m	£2 - £1⅔	£40 - £20	£16 - 12m	20m
1656	£13⅓ - £8	£10	£3⅓ - £1½	£30 - 20m	20m - £7	£16 - £12
1659	£12 - £10	£18 - £10	2m	40m - 20m	£12 - £8	£10 - £8
1662	£16 - £12	£14	£2 - £1½	£40 - £20	£10 - £8	£20 - £10

These prices show the variations found within a year and fluctuations doubtless reflect the quality of the harvest. They indicate a slight upwards creep in the price of cattle but they do not show inflation. It is difficult to find goods for which quantity and price are both given but linen cost 13s 4d in 1601,[208] 1607[209] and 1658;[210] Blue bonnets cost 13s 4d in 1605[211] and 16s in 1657;[212] a scythe cost 28s in 1626,[213] 1630,[214] 1638[215] and 1640;[216] iron cost 30s a stone in 1607[217] and 36s in 1627,[218] the price variation perhaps reflecting quality.

Inventories of Dumfries booths and debts owed show that the merchants provided for rural needs, stocking reaping hooks at 5s each;[219] tar at 16s the pint;[220] soap at £3 4s a stone for cleaning the 'laid wool (the sheep's wool which had been smeared with tar and butter as a winter protection);[221] stirrup irons at 5s the pair, stirrup leathers at 8s 8d the pair; bridles at 6s; bridle bits at 2s 6d and girthing straps at 6s 8d the ell, and twine at 10s the ounce. Files cost 3s 4d each and nails, 12s for a hundred[222] and a knife could cost 20s.[223] Scythes cost 28s each[224] and reaping hooks, 5s.[225] Chapmen travelled from farm to farm selling linen cloth, belts, girths, saddles, buckles, thread and thimbles.[226] Such chapmen may not have been able to afford the entry fee to become members of the merchant guild in Dumfries. They owned the goods they were selling and thus were not employed by the merchants.

The average free gear belonging to peasant farmers was calculated for selected years. The date of death not of confirmation was used and the following results were obtained.

TABLE 2

Year of death	Average free gear of peasant farmers
1623	£290 1s 2d
1624	£275 9s 6d
1628	£353 1s 5d
1638	£288 0s 5d
1642	£373 1s 6d
1656	£214 0s 9d
1658	£211 0s 5d
1661	£300 15s 2d

These figures show a rise in average free gear to 1628 and a fall in 1638. The highest point was reached at the beginning of the civil war in 1642. Prosperity was at its lowest when Cromwell died in 1658 but was rising again in 1661 — but it must be recalled that the entries were inaccurate after 1642 so the statistics could be misleading.

Apart from these fluctuations, there was little evidence of the effect of political events on farmers' lives. Robert Maitland was owed £48 by Andrew Stewart, Commissary to Lieutenant Home's Regiment 'now lying at Dumfries';[227] one inventory mentioned 'a grey nag which has been at the army this twelve month, worth £40[228] and John Herries owed his Master 'duty, stents and taxation for soldiers conform to the rate of barony, £24'.[279] The Cromwellian occupation was reflected in the debt to John Burgess by Lieutenant Crichton for £25.[230]

Religious events impinge but faintly. Though there was an increasing tendency to use the services of a notary for the writing of a will as the century progressed, many farmers insisted on the inclusion of a confession of faith, whether the will was written by a minister or by a notary.

The Registers of Testaments thus do much to illuminate a study of the life of farmers at the time but the people themselves become most real to us when we hear their dying words echoing across the centuries. Illiteracy meant that notaries recorded the exact words spoken. Thus Thomas Mclellan died protesting, 'I depone upon my conscience that William Johnston in Hesilbrae is justly addebted to me the foresaid 100 merks and that I am nowise bound or obliged to him either for myself nor surety nor caution for no other whatsoever he alleged in the contrary';[231] Nicol Johnston, sick, struggled with his memory, being owed '40 or 50 merks, I am not certain which of them'.[232]

REFERENCES

Testaments in Edinburgh Registers are referred to by date of confirmation; those in Dumfries Registers are given by volume number followed by page.

Registers of Testaments consulted were:
Scottish Record Office cc 8 / 8 volumes 34-45, 52
cc 5 / 6 volumes 1-4.

1. E(26.11.1600)
2. D2/5v
3. E(1.6.1605)
4. E(29.11.1605)
5. E(24.7.1607)
6. E(1.7.1643)
7. D2/89v
8. D1/219v
9. D3/768
10. D3/768
11. D1/210r
12. D1/230v
13. D1/113v
14. D1/123v
15. D2/124r
16. D1/112v
17. D3/579
18. E(31.1.1607)
19. D3/301
20. D1/169v
21. D1/128r
22. D1/161r
23. D1/52r
24. D1/223r
25. E(30.1.1604)
26. D3/20
27. E(5.12.1600)
28. E(12.3.1604)
29. E(11.12.1600)
30. D1/142v
31. E(30.6.1608)
32. D1/1v
33. D3/491
34. E(29.11.1605)
35. D3/561
36. D2/37r
37. E(30.6.1608)
38. D1/225r
39. E (26.2.1605)
40. D1/23v
41. E(7.7.1603)
42. D1/141r
43. E(17.11.1608 + 20.2.1609)
44. D2/12r
45. D1/11r
46. E(1.8.1607)
47. E(7.9.1603)
48. E(24.4.1605)
49. D1/15r
50. D2/40v
51. E(29.11.1605)
52. D1/27v
53. D1/168r
54. E(29.11.1605)

55. D1/25v
56. D3/696
57. D3/627
58. D3/330
59. D1/82v
60. D1/89v
61. D2/74(a)r
62. E(29.1.1600)
63. D3/561
64. E(25.10.1606)
65. D3/644
66. D1/256r
67. D2/107v
68. D3/177
69. D1/210r
70. D1/178v
71. D1/4v
72. D1/181r
73. D3/554
74. D2/67v
75. E(26.7.1603)
76. D1/83r
77. D2/58v
78. D1/238v
79. D3/244
80. D3/246
81. D1/21v
82. D1/209r
83. D1/256r
84. D2/81r
85. E(28.3.1644)
86. D3/632
87. E(26.10.1606)
88. D3/632
89. D1/57v
90. E(28.3.1644)
91. E(25.10.1606)
92. D3/632
93. D1/105v
94. D1/25v
95. E(17.3.1609)
96. E(24.7.1607)
97. D1/241r
98. D3/704
99. D3/632
100. D1/216r
101. E(15.7.1607)
102. E(20.7.1601)
103. D1/109r
104. D3/244
105. D2/102v
106. D1/105v
107. D2/42v
108. D3/632
109. D2/110v
110. D3/37
111. D3/445
112. E(25.10.1606)
113. D2/85v
114. D3/8v
115. D3/439
116. D1/73v
117. D1/30v
118. D2/17v
119. D3/53
120. E(6.7.1608)
121. D2/112r
122. D3/7
123. D3/288
124. E(29.11.1605)
125. D1/67v
126. E(4.2.1609)
127. D3/184
128. D3/610
129. E(11.2.1607)
130. D1/187v
131. D1/101v
132. D3/475
133. D2/50r
134. D1/206r
135. D2/102v
136. D1/23v
137. D2/21r
138. D2/52v
139. D3/478
140. D3/34
141. D3/478
142. D3/632
143. D3/161
144. D4/16v
145. D3/161
146. D3/632
147. E(10.3.1601)
148. E(18.6.1602)
149. D1/101v
150. D3/511
151. D1/31r
152. D3/20
153. D3/410
154. D1/219v
155. E(1.7.1643)
156. D1/247v
157. D2/63r
158. D3/728
159. D3/450
160. E(20.2.1609)
161. D1/39v
162. D2/58v
163. D4/16v
164. D3/561
165. D3/616
166. D2/3v
167. D2/58v
168. D2/110v
169. D2/100v
170. D2/62r
171. D2/63r
172. D1/213v
173. D2/67v
174. D2/63r
175. D3/20
176. D1/109r
177. E(24.7.1607)
178. E(12.3.1604)
179. E(14.7.1609)
180. D1/80v
181. D1/234v
182. D3/220
183. D2/116v
184. D1/119v
185. D1/33r
186. D1/2v
187. D1/176r
188. D2/50v
189. D1/86r
190. E(19.6.1607)
191. D2/52v
192. D1/190r
193. D2/92v
194. D2/58v
195. D1/219v
196. D1/133v
197. D2/85v
198. D2/84r
199. D2 (back of vol.) (7.5.1662)
200. D1/251v
201. D3/439
202. D3/86
203. E(1.5.1601)
204. D1/83r
205. D4/5r
206. D3/402
207. D4/5v
208. E(14.5.1603)
209. E(9.11.1608)
210. D3/462
211. E(1.8.1605)
212. D3/314
213. D1/143r
214. D1/229v
215. D2/46v
216. D2/73v
217. E(22.7.1607)
218. D1/122v
219. D1/229v
220. D2/46v
221. D2/5v
222. E(21.4.1609)
223. D1/252v
224. D1/229v
225. D2/73v
226. D2/16v
227. D2/68v
228. D2/81v
229. D2/90r
230. D3/561
231. D1/180v
232. D1/128r

WOMEN, CHILDREN AND DOMESTIC SERVANTS IN DUMFRIES IN THE 17th CENTURY

Their Economic Status as seen through the Registers of Testaments and Grants of Confirmation from 1600 to 1665

by Winifred Coutts, M.Litt.
6 Heriot Row, Edinburgh

When a woman married all her moveable property including the rents of her heritable property, the produce of annuities and interest on money loaned on personal bond passed, with the exception of her paraphernalia (personal belongings), to her husband. All her actings in regard to her separate estate required his consent; she was unable to contract personal obligations and she acted as his agent when she bought furnishings for the household. Her husband became her curator.[1]

At first sight the entries suggest otherwise. A single or married man's entry reads: 'pertaining to him', a widow's: 'pertaining to her as her own proper goods' and a married woman's: 'the defunct and her said spouse had, pertaining to them, time of her decease . . .'. This is not, however, evidence of a community of goods in marriage. It appears to have been simply the style used for assessing quot, which was paid on the death of either partner.

The married woman of the seventeenth century, as she is discerned from legal textbooks, was to twentieth century eyes, downtrodden. Nevertheless the evidence of the entries suggests that her actual position was in many cases stronger than her legal position suggests.

About one third of the testaments testamentar or wills in the period were written by women. Although it required a husband's consent, it was clearly accepted practice and not narrated in the document. A woman was allowed to leave her clothes and jewellery (except heirlooms) so the many examples are not significant — though useful for knowing what they wore. Legally, a woman could not dispose of furniture or linen but there are many examples of having done so;[2] nor was she entitled to leave money but there are many instances of such legacies.[3] Thus a farmer's wife left 100 merks to her brother and another 100 to her sister;[4] a merchant's wife left 2,400 merks to be divided among her three daughters.[5] Each testament in which a wife left a legacy in money implies a husband's prior consent. There were several possible reasons for giving consent. Many legacies were to children by an earlier marriage.[6] Children were entitled to one third of their father's estate and this may not have been paid. There could have been more oblique motives. The childless wife of a merchant of Dumfries left £1,190 to relatives out of a moveable estate of £4,352.[7] She did so 'in contentation of all . . . portion natural which they can seek ask or crave of the said Hugh Costeine (her husband) . . . through my decease'. This could be due to her having brought substantial sums of money to the marriage. Again, when the wife of the servitor to Robert Maxwell left £1,000 to a son she may have been trying to obtain payment of a debt of 2,000 merks owed to them by a relative of her husband since she willed that her husband 'make the same forthcoming to him'. They only had debts owed to them of £2,500 and an 'insicht' worth £100.[8] The most cogent reason for a husband giving his consent lay in a marriage contract specifying this freedom. Thus the wife of a farmer stated: 'I leave, assign, dispone and ordain to be given (by her husband) and distributed the sum of 600 merks money of this realm to be disposed as follows pertaining to me and for my use to be left to whom I please by virtue of the

contract matrimonial between the said Charles and me conform to the clause of the provision therein for the which the said Charles my husband is obliged as the said contract, the date (blank) at length bears'.[9]

Many relatively small legacies of animals were made to mothers or other relatives. They are evidence of both husband and wife feeling responsibility for and sympathy towards members of both the nuclear and extended family. There are examples of a wife giving her goods and gear to her mother 'to use at her pleasure',[10] of leaving a ewe and a lamb to an aunt[11] or a quoy to each sister.[12] Frequently wives left animals to grandchildren[13] or money to the poor of their parish.[14]

There are numerous examples of a husband administering his wife's estate so when a daughter inherited moveables her husband acted on her behalf.[15] Single women — widows and spinsters — on the other hand were much freer in a legal sense.

When a woman married the use of her land passed to her husband so that one finds a farmer leaving his wife '300 merks for his title and entres of her annual £60 which he is infeft in'.[16] No examples occur of a wife leaving land but a widow could leave 'her possession of the ground of the Laught to her sister's oy'[17] or a spinster could leave 'the title, kindness and right of the half-merk-land called Princeswod and half-merk-land called Puirchylds within the lands of Gribtoun to her mother during her lifetime'.[18]

The status of wives, widows and spinsters was equal in one sense however. They only appear twice as cautioners [19] and never as witnesses and in this they were in law held in lower esteem than male servants who frequently witnessed a will.[20]

A wife could not contract a personal obligation although a widow could lend money[21] as could a spinster.[22] A wife could buy household goods because she was understood to be pledging her husband's credit. The account lists of merchants were full of such entries referring to debts by . . ., spouse of . . . (husband's name). Debts by . . . (a woman's name) must mainly refer to those incurred by single women. When a man married he even took on the ante-nuptial debt of 14 merks which his wife owed.[23] Although wives could not sue in their own name, single women could. There are several examples of widows having recourse to law. A dying man ordained his wife to pursue for his bonds 'before whatever judge competent to transact and argue for the same' and obtain decrees in her own name 'as I might have done the same myself in all points'.[24] The Countess of Glencairn, a widow, intended action 'against the persons debitors afterspecified before the Lords of Session'[25] and Helen Thomson lost £40 in an unsuccessful action 'in the pursuit of John Batie of Boytache for the slaughter of her husband'.[26] If single women could sue, they could also be sued. Barbara Gordon, widow, had to pay 'conform to a decree obtained at the instance of the said James Russell (a merchant), before the Comissary of Dumfries, plaining two several sums, the sum of £9 as for the price of plaids; more, the sum of 32s. for a pound of sugar with 26. 8d expenses of plea'.[27]

Thus single women had a legal independence which their married sisters lacked. In the absence of specific reservations written into a marriage contract, a married woman was entirely dependent, in all her legal dealings, on the consent of her husband. However obtained, a striking number of married women did act with legal freedom in fact.

If marriage for a woman meant that there disabilities and restrictions upon her person and upon her rights and powers with reference to her property, the corollary was that she was usually provided for by her parents and then by her husband.

When a woman married, her relations contributed to the husband a fund called the tocher. There are over sixty references to tochers but it is not clear if such a contribution was an essential or simply a usual feature since one woman declared that: 'For the love and respect I have to my husband Thomas Kirkpatrick who received no patrimony with me, I appoint him to be my executor and universal legator unto the whole goods and gear pertaining to me secluding all others nearest of kin whatsoever'.[28] They were normally paid by the father to the son in law[29] but there are examples where it was paid by a brother;[30] shared between a father and brother,[31] shared between brothers,[32] by a mother with a cautioner,[33] by a grandfather[34] or by the Master of a servant girl who was either taking his responsibilities seriously or was marrying off a discarded mistress or an illegitimate daughter.[35] Although the tocher for a daughter was nearly always clearly assigned to a son in law, one example states: 'my daughter's tocher which I have paid to her and her husband';[36] in another there is a debt 'to James Kirkpatrick and Marion Brown his spouse resting of their tocher good'.[37]

There is less evidence of a contribution made by the husband's family. A farmer owed his son 'resting of his 'tocher'* £20 and three bolls small oats which is referred to the contract of marriage whether it ought to be debt or not and if it be not insert in the contract no allowance thereof to Robert my son'[38] and another owed his son '200 merks conform to a contract of marriage'.[39]

The amounts paid varied. One brother left his sister 'as much of his geir as a brother should to her to help her in marriage'[40] and he judiciously left the amount up to his wife who was to pay the same. In one a tocher of 900 merks was offered out of an estate of £105 13s 4d.;[41] in another two were paid — one for 1,000 merks and another for 6,000 merks — out of an estate of £1,964 15s 8d.;[42] in another 500 merks, when the estate was in debt to the sum of £1,513 10s.[143] The sums offered must have depended on many factors, the most important of which was land which was not counted in the valuations of moveable estates given above. The 500 merks tocher offered out of the moveable estate so heavily in debt formed part of a marriage contract on behalf of a daughter of the 'heir apparent of Haleathis'.

Inability to afford the amounts so optimistically inserted in the marriage contracts and the lack of liquidity so apparent throughout the economy meant that most of the entries refer to parts of tochers still owed.[44] Clearly they were often paid in instalments. One marriage contract states that of a total tocher of £120, £40 had to be paid by each Martinmas over a period of three years, with a penalty of ten merks for each failure and annual rent to be paid on any principal which remained unpaid.[45] Unpaid tochers doubtless proved to be fertile seeds of grievance in a marriage. One entry refers to a debt by a farmer to his son in law for £376 'conform to a decree obtained before the Lords of Session';[46] this debt may represent an unpaid tocher.

*probably an improper use of the term.

Although tochers were usually contributed in the form of money this was not invariable. It could comprise money and grain,[47] money and a pot and pan[48] or animals.[49] Land could be given as a tocher though this seems to have happened as a means of keeping land in the family. Thus in a marriage contract a farmer left his land on an interim basis to his brother's son 'to be married on Jean Murray daughter to the defunct when they shall come to perfect age'. The brother was to use the land 'as he thinks expedient' during the farmer's heir's minority and 'when he comes to perfect age the same to return back to him and his heirs to be gotten betwixt him and his future spouse'.[50] It was much more usual for land to be used as a source of revenue for tochers. Thus a farmer left three and a half acres of land to be held 'free blench' to his eldest son 'to give out of it to Katharine, Janet and Isobel Raining, my daughters, their tochers'.[51] Land could also be given as a source of revenue for maintaining a family and this was written into the marriage contract. A notary public of Dumfries ordained his spouse 'conform to our contract of marriage and her infeftment granted thereupon to uplift and make use of the whole maills and duties of the tenements, lands or heritages which belong to me either by my father or my goodsir (father in law) Thomas Welshe for maintaining of her and her children during her lifetime and thereafter to succeed and appertain to my nearest heirs whatsoever'[52] and a wife sent in a supplication to the Commissary of Dumfries to the effect that her dead husband owed her 'time of his decease £100 yearly during all the days of her lifetime and that as the true worth and rent of the sixteen shilling — merkland of Scaddergill by their contract of marriage at Barnhill, 9 November 1658, and was obliged to infeft and give sasine to the said Sarah Johnston then his promised spouse'.[53]

If a husband died after a year and a day or after the birth of a living child, the wife obtained the provisions in the marriage contract and the division of the moveable estate as in three if there was a child, in two if there was no child and the tocher was not restored to her; if the wife died after a year and a day or after the birth of a living child the husband obtained the tocher or the provisions made in his favour in the marriage contract and the disponees or next-of-kin were entitled to a third or a half of the husband's moveable estate, depending on whether there were or were not children of the marriage. If, however, a spouse died before a year and a day or the birth of a living child the survivor or his or her representatives were reinstated in their patrimonial rights and neither could claim their legal provisions. The husband had to account for the tocher so far as unconsumed, less her debts and funeral expenses; the wife received back the tocher; the provisions of the marriage contract were without effect. There are several examples of tochers being returned to the wife. Those which appear in actual testaments[54] imply provisions made in a marriage contract rather than the law at work and cannot be used as evidence of death within a year of marriage. More convincing are the examples which are shown as debts.[55]

On marriage the financial responsibility for a woman shifted from the father, brother or widowed mother to the husband, the tocher being their last contribution even if its actual payment extended over several years of the marriage. This does not however imply that the energy of a wife was expended solely on running a household and child-rearing. Clearly much depended on the financial if not the social standing of the husband. The wife of a relatively wealthy farmer, minister or merchant could employ a servant. The supply of labour was abundant and cheap. There is evidence, mainly in the debts owed to merchants, that such women brewed ale for their

families.[56] Owning at least one servant freed a wife from household duties so that she could help in her husband's work. This is implied when a burgess delegated his wife to give up the inventory of his malt-selling business because 'she knows the same as well as I do'.[57] Further circumstantial evidence of this is in the evident literacy of two merchants' wives. One had to sign her testament at the pen led by the notary 'because she could not write in respect of her great agony and sickness';[58] another because she could not write 'in respect of my "imbecillitie" and weakness'.[59] If the wife of a minister helped her husband in his parochial duties there is no evidence to prove it. Certainly none left a bequest to the poor.

Among the less well off there is some evidence of cottage industries, only the scale of operation indicating when the purpose was commercial rather than domestic. Thus the farmer who left 'the lint and yarn about the house to his spouse except it be her will to give some to my sister'[60] and the many debts for wool, lint or flax owed to merchants[61] suggest spinning or weaving for the family; debts by farmers to women for linen cloth[62] and a legacy of a stone of wool suggest commercial activity[63] as does the nolt driver's wife in Sanquhar paying a merchant for wool in instalments.[64]

In town a wife could supplement the family income by brewing; thus a flesher burgess owed John Rule's wife 'for draff and ale, 18s'.[65] A merchant's wife made food which her husband sold,[66] and a shoemaker's wife was owed 'for bounty of prentice fee with James Cowtart, £3 10s, more 12,'[67] The wife of the tailor burgess appears to have run an inn[68] since she was owed for ale and meat and drink while she and her husband owed the remains of the price of a hogshead of herring, debts for malt, beef and mutton, for flour and for the baking of bread. A farmer owed debts 'to the hostler's wife £5'.[69]

Single women, that is widows and spinsters, had to support themselves. There is no evidence of when a girl was deemed old enough to be a servant but it is likely that she could start at a very early age. Doubtless she started by supplementing the family income and then moved on to be self-supporting. There is abundant evidence about servants in the entries since debts to them could be inserted in a testament dative.[70]

Servants were paid fees and given bounty, which meant their keep, and usually their clothes. The fee varied but it was normally less than that offered to men, though some examples of equality of pay are found.[71] Men would have merited more money by virtue of the harder work they did. (Farm labourers such as 'barnmen, byremen, byrewomen, hiremen, hirewomen, day-herds and others'[72] were all called servants.) Their higher wages are not likely to have reflected the idea that they generally had wives and children to support and thus merited more. Indeed there are a few examples where women were paid higher wages than men.[73] A typical woman servant was paid 5 merks and given 2 ells of grey and 3 ells of harden[74] or £4, 3 pairs of shoes and 4 merks for linen and harden.[75] She was clearly expected to make her own clothes. The only way of acquiring ready made clothes was through a bequest. There are countless examples such as the servant getting her mistresses' red wylie coat[76] or a gown.[77] Clothes are never given a value since they appear as lists given as legacies in wills so their cost is unknown. Fabrics are priced in merchants' inventories and assuming that garments cost far more, most new clothes would have been well out of the reach of a serving woman's yearly wage. Servants were left money too — 5 merks[77], 16 merks,[78] £5[89] or even £16 between two women servants[80] either as a

reward for service to an old retainer or out of sympathy for their lot. Not all women servants were poor, however. A merchant owed one £40 together with her fee of 76s 8d[81] and a farmer owed one '£15 borrowed money with annual rent'.[82] The 'servitrix' to a merchant was able to make a will. Her moveable estate amounted to £126 6s 8d. She left the debts of £184 13s 4d owed to her by different people to the merchant's children.[83]

Interestingly, there are many examples of servants — mainly women — having the same surname as the master or mistress. This suggests that some may have been needy relatives as was certainly the case where a nephew and niece were to join a merchant's household and serve the wife 'as becomes servants';[84] where a wife ordained her husband to pay a sister £20 'for the fee and service done by her to them'[85] and a stepdaughter was owed £20 and given a quoy 'for her service'.[86] Some may have been illegitimate daughters.

Though service was the most likely employment for a single woman — and one cannot always tell how many were widows with children or how many were unmarried — other possibilities existed. There are frequent references to nurses — either to nurses in the modern sense such as the debt 'to Janet Keltoun, night steward, of borrowed money spent about the house in time of my weakness and sickness, 100 merks'[87] or to nurses in the sense of someone looking after a child as is implied when a year's fee is owed.[88] These fees were high, being £20 or £30.[89] There is no evidence that these were wet nurses.

Women could be bleachers. Since a farmer owed £53 6s 8d to Janet White, bleacher, she must have been working on a full time basis [90] as must Helen Collin, bleacher, who had 625 ells of round linen in her possession when she died.[91]

Some, with initial capital, were enterprising. Those with brewing equipment could work on a commercial scale. Thus a widow in Annan owed a farmer for 8 bolls of malt.[92] One with money could lend it out for interest. Thus, after Mr Adam Kae's death, his widow followed the example set by her late husband and lent money to David Kelly. We read that: 'The said David Kelly, by his other bond and obligation subscribed with his hand of the date the eighth day of June, 1643 years, granted him to have borrowed, received from Marion Richardson, relict of umwhile Mr Adam Kae, minister at Holywood, all and whole the sum of two hundred merks Scots money'. The transaction specified a date for repayment, a charge for liquidate expenses if not repaid, an annual-rent to be charged by way of interest, and it was apparently registered in the 'Court Books' of the Sheriffdom of Dumfries.[93] If she had land she could live off the maills and rents[94] or she could rent out a tenement and yard[95] or houses[96] or a booth;[97] or she could run her husband's merchant business as Effie Russell must have done when she was left 'the laich booth during her lifetime'.[98] If she were a farmer's widow with servants she could continue to run the farm[99] although there are many examples of widows apparently without help, looking after farms with a few animals such as 2 cows and 11 sheep.[100]

Many widows looked after animals earning 20s for the wintering of a cow[101] or looking after a cow[102] or a sheep [103] for a longer period. A widow could weave lint left in a legacy to her[104] or she could sell off her dead husband's clothes.[105] Very poor ones who were perhaps old could sell the wool to a farmer off her sheep in return for 30s or another sheep[106] (for which the market price was 40s); she could sell cheese she had made for 2 merks 2 groats[107] or she could rent out an acre of land for 12 pecks of beir.[108]

Parents and husbands anticipated the difficulties which widows and their children had to face. If, as has been seen, parents tried to provide for the future in a marriage contract, husbands tried to protect their wives and children through their wills. Time and time again overseers were appointed 'to see that none do wrong to my wife and bairns'.[109] A farmer usually appointed the master of the ground,[110] presumably so that his wife would not be evicted, but the overseer could be a male relative like a brother.[111] Many who would afford to do so reinforced the passing on of responsibility with a gift — especially if the overseer was not a kinsman. Thus £10 was left to the Laird of Cowhill 'desiring him for God's cause to be good to my wife and bairns'[112] and a farmer left the Laird of Lag 'protector, maintainer and defender of my wife and bairns and to suffer no man to do them wrong, £40 or one of my horse, whichever he please best'.[113]

Other bequests were made in which the intent was clearly to provide help for the wife and children. A farmer left a man and his wife £40 'to maintain my spouse during her days as they will answer to God';[114] another left a manservant 'a cow called Sylvia, quoy, a quoy coddoch and 3 sheep and a lamb to his daughter he being obedient to my wife only';[115] a cordiner left his servitor £10 'to serve one year to my wife'.[116] Servants, however, could be troublesome. One was left 8 merks, together with the sheep leather in the lime vat with his best shoes and aluming vat, provided 'he remove himself from his house immediately'.[117]

Most bequests, however, provided the wife or children with something specific beyond their legal rights. Fathers provided houses and land for daughters. One left his daughter, Margaret Kelloch, 'having consent of his son, the little house at the east end of his barn with the piece of his yard from the hayberry bush to the said little house — back with the rood of land . . . all the days of her lifetime ordaining his said son to pay all the public cesses thereof for her during his lifetime'.[118] Husbands provided houses and land for wives. One gave her a house and a yard and a peat house to be a barn and their son was ordained to furnish the house and to labour and manure the land'.[119] Mothers, too, could be left houses.[120] Many of these legacies were made because a husband knew that there might be friction between his wife and son and daughter-in-law. There are many examples of a husband anticipating such tension. A spouse was to be given £40 yearly 'if she cannot agree in family with her son';[121] another specified that 'if my wife and her foresaid son cannot agree in house together then she to have Chiptrie Know to be used by her and that he shall labour it to her profit.'[122]

Legacies were usually of money. The Commissary of Dumfries left his wife '1,220 merks in the coffer' though his heritage passed to his brother[123] and a minister left his mother '100 merks yearly out of the 1,000 merks in my uncle's hands'.[124] Most legacies to female relatives were in money. An aunt was given 420;[125] sisters, 5 merks each;[126] a brother's three daughters £6 14s each.[127] Animals were given less often. An aunt was given a ewe and a lamb;[128] each of three sisters was given a cow and a calf.[129]

If the above legacies to wives and daughters were provided beyond their legal rights, some were instead of what they were entitled to. Thus a daughter was given 300 merks but she was 'to give over all entres or portion that she may attain by decease of her mother or myself'.[130] A wife, instead of her part of moveable estate,

was given £100 together with her whole clothes, a web of blue and her linen work, two pairs of worsteds, two coverings and his own kist, 'she taking this for a full payment and satisfaction for her part of the whole goods and gear that may befall her by of me her husband.[131] A further example shows a legacy which was made to regulate claims on land. A farmer said his son must give his wife '100 merks yearly together with the house, yards and croft with two days work in the cornland . . . in full contention of all terce and conjunct fee she can claim'.[132]

Remarriage was exceedingly common. There were sound economic reasons for remarriage, particularly if a widow had children and she was marrying a widower with children. She gained the security of a man's being once again financially responsible for her and her children though she lost her freedom to act in her own affairs. He gained her property, unless there was a clause in the marriage contract which restricted his power, and he acquired a surrogate mother for his children. Remarriage was mutually advantageous. If, however, a woman was ill provided for by her husband, remarriage was an economic necessity, particularly if she had children, and a poor widower with children, for his part, had to have someone to look after them so that he could farm or pursue his craft. The evidence of hasty remarriage suggests this economic interdependence. In two examples where a widow was left with a moveable estate in which the debts exceeded the goods in value, she was married to the cautioner by the time of confirmation within a year of her husband's death.[133] There are examples of cautioners being 'now her spouse',[134] of testaments of different wives of one husband within two years[135] and of a new husband acting on behalf of a widow for his interest.[136]

In a testament a man often names his wife tutrix to his minor children. A farmer left his wife 'tutrix testamentar to his son during her non-marriage or honest widowhood and in case it shall please God my wife take a husband or otherwise . . . I ordain the persons abovewritten to take my heir and the rest of my bairns to their government beseeching them as honourable and worthy friends to have special respect for the keeping of my word'.[137] The substitute tutors could be a minister,[138] a bailie[139] or more usually a brother and brother-in-law[140] or a father-in-law[141] or the nearest agnate if no one had been appointed. Since not being a tutrix meant losing custody of the child after its seventh birthday it must have acted as a deterrent against remarriage if it was enforced.

Children were entitled to one third of their dead father's estate but there are examples of the mother being allowed to use the annual rent of minor children's portion for their upkeep.[142] It was a desire to protect the interests of the child which prompted the appointment of a wife as tutrix. A husband wanted to prevent his wife from squandering his child's portion in a second marriage. In fact many women left legacies to the children of a prior marriage either as a genuine gift or because they had been too young to receive their portion when their father died.[143] The present husband either consented because the contract of marriage stipulated the right of the wife to do this or because a child of a prior marriage could claim his right by law or because the husband was fair-minded. There was, however, potential trouble when a father died leaving a second wife with two families who were entitled to a third of the moveable state divided among them all because a wife might be tempted to look after the interests of her own children as opposed to those of her late husband.

One indication of the economic importance of marriage lies in the fact that there are only fifteen probable examples of spinsters. One had nothing apart from 300 merks in ready money, 'she having no house but only the house with her mother and never married'[144] as her brother remarked. One lived off the income of a bond for 500 merks.[145] Another may have remained unmarried because she was looking after a simpleton sister. In her will she asked her sister and her husband 'to entertain my sister Elspeth Slimman who is weak in knowledge'[146] though this may simply mean that the girl was very young. Those who farmed had help from 'the man that dwells with myself' to whom she left her goods[147] or from a bastard son.[148] The poorest who had a moveable estate of £24 13s 4d left 20s 'to the kirkwork' and asked a minister to write her testament.[149]

Bastards had no legal rights save that a bastard child had rights in his mother's estate. John Crerie, son natural, was appointed executor dative to his dead mother and inherited, as his legal right, £66 8s 6d of her estate of £132 19.[150] On the other hand, only a legal provision could protect the illegitimate child of a man. Legacies were made by fathers to forty-nine bastard children and by six grandfathers to the bastard children of sons.[151] Fathers felt equal responsibility for a son or a daughter since twenty-four examples were sons[152] and twenty-five were daughters.[153] This lack of discrimination between the sexes was also seen in the instructions left about legitimate children. The normal pattern was that the children's third was to be equally divided among them regardless of sex.[154] It was exceptional when a miller's daughter got 100 merks 'by and attour her portion because she is to bring up and weakest'.[155]

Legacies to bastard children were often in the form of money — £20 to a boy,[156] £20 to a girl[157] — but a boy could also be given an apprenticeship fee to put him to a trade[158] or a girl could be given 20 merks and the annual rent of this was to be given to her by her father's legitimate son in the form of 3 ells of plaiding and a pair of shoes.[159] The concern was for the child rather than the mother. Thus a farmer left his bastard daughter Sarah Maxwell 500 merks and the annual rent of it 'to Agnes Johnston her mother . . . to entertain her for so long as she keeps herself unmarried and undefiled' but he also left her £40 for William Kirkpatrick 'to pay his apprenticeship fee in putting him to a trade.[160] She may have been a widow with a son, who lived with him as a mistress. Another pregnant mistress was to be paid £20 'within fourteen days after the delivery of her child and if the bairn lives half a year another £20'.[161] There were only two genuine legacies to a mistress. £20 was given between two bastard daughters and 40s to Meg Haining[162] who was presumably their mother and £10 out of a moveable estate of £654 15s 8d 'to Janet Wilson that had the bairn to me'.[163] Bastard children of wealthy landlords fared best of all provided the father accepted the responsibility for them. If William Maxwell of Kirkhous left 2,500 merks to his bastard son, James Maxwell of Springkell treated his bastard daughter almost as if she were legitimate. He left her 2,500 merks and her mother 500 merks provided his daughter, Jean Maxwell, 'do not join in marriage with any person or persons without the advice and consent of Robert, Earl of Nithsdale'.[164] This was to be in full satisfaction of all that her mother or she could claim by virtue of his decease.

Thus in the seventeenth century, 'widows, pupils and other poor and miserable persons[165] needed protection. They were vulnerable without a man. A widow had

'15 thraves of oats in a stook violently detained from her by Thomas Dunlop together with the habiliment of her body and bedclothes which she estimated to be worth £10'[166] and another's house was 'spulzied and reft by diverse persons'.[167] They found it difficult to pursue debts. Two brothers who had not received their legacies of 1,000 merks and 500 merks appeared before the Commissary of Dumfries because the sums of money owed to them had not been recovered by the widow.[168] There must have been many poor widows and children. Nevertheless the evidence of the testaments shows how men accepted the responsibility for women and children, striving to use what capital they possessed to the best advantage of their dependants. If man protected and supported his wife and children in life, he tried to use his testament to protect and support them after his death. It was exceptional to find evidence of anxiety that a man would not face up to his responsibilities as happened when the dying wife of a merchant committed her minor son 'to the only tuition and education of the said Thomas his father desiring him for God's cause to have a care of him as a loving father specially because if it please God to call me by decease at this time he must be both father and mother to him and the bairn both pupil and minor can do nothing for himself'.[169] Widows, for their part, used what capital they had to its best advantage, working commercially or simply providing it for a new household through remarriage. Best protected of all were wives. Though security meant loss of legal independence in theory the testaments show just how much legal freedom they had in practice, whether it derived from the conditions written into a marriage contract by a concerned and far-sighted father or from the consent of a fair-minded and understanding husband.

REFERENCES

Testaments in Edinburgh Registers are referred to by date of confirmation; those in Dumfries Registers are given by volume number followed by page.

1. Paton, G. C. 'Husband and Wife — Property Rights and Relationships', *Introd. to Scottish Legal History*. Stair Soc. Vol. 20, 99-155.
2. D2/106r.
3. E (22.7.1607); D1/21r; D1/175r.
4. D2/22r.
5. D1/201v.
6. D2/48r; D2/131v; D4/14r.
7. D1/192r.
8. D1/7r.
9. D2/131v.
10. D1/199v.
11. D2/79v.
12. D1/76r.
13. D2/13r.
14. D3/439.
15. D1/137v; D3/53.
16. E (25.7.1603).
17. E (11.2.1607).
18. E (7.7.1603).
19. E (5.4.1606); E (22.7.1607).
20. e.g. 18 above.
21. D2/65r.
22. D2/47v.
23. D3/704.
24. E (1.3.1653).
25. E (29.7.1644).
26. D2/63r.
27. E (8.5.1656).
28. D3/439.
29. E (28.1.1601); E (31.7.1607).
30. D1/123v; D2/5v.
31. D3/170.
32. D3/110.
33. E (7.8.1602).
34. D2/76r.
35. D3/667.
36. D1/107v.
37. D1/119v.
38. D1/190r.
39. D1/32v.
40. D1/123v.
41. D1/12v.
42. D2/58v.
43. D1/153r.
44. E (31.7.1607); E (4.2.1609); D1/21r.
45. D3/756.
46. D2/67v.
47. D1/149v.
48. D2/53v.
49. D1/23v.
50. D1/23v.
51. E (28.1.1601).
52. D3/110.
53. Dr/4r.
54. E (22.6.1608); D2/72r; D3/511.
55. D2/97v; D3/744.
56. D1/157r; D1/244r.
57. E (2.4.1601).
58. D1/36v.
59. D2/9v.
60. E (25.10.1606).
61. D2/46v; E (17.3.1606).
62. E (21.7.1608).
63. D2/31v.
64. E (17.3.1606).
65. D3/763.
66. D1/106v.
67. D4/1v.
68. E (5.4.1606).
69. D2/81r.
70. E (17.3.1609); D1/154r.
71. D1/168r; D1/176r.
72. D1/33r.
73. E (12.3.1604); E (17.3.1609); D1/119v; D2/21r; D2/30r.
74. D1/176r.
75. D2/28r.
76. D2 (back of Vol.) (30.7.1662).
77. E (27.11.1602).
78. E (25.7.1603).
79. D2 (back of Vol.) (30.7.1662).
80. D1/150r.
81. E (21.4.1609).
82. D2/124r.
83. D2/115v.
84. D/1154r.
85. D1/221r.
86. E (21.7.1608).

87. D1/46r.
88. D1/234v.
89. D2/105v.
90. D3/37.
91. E (7.8.1602).
92. D1/150r.
93. D3/268.
94. E (6.11.1601); D3/16; D3/20; D3/647.
95. D1/213r.
96. E (10.2.1655).
97. D2/73v.
98. D1/81r.
99. D2/21r.
100. D3/374.
101. D2/35v.
102. D1/197v; D1/219v.
103. D1/244r.
104. D3/244.
105. D3/82.
106. D1/96v.
107. D3/288.
108. D1/75r.
109. E (28.5.1606).
110. E (23.7.1603); D1/119v.
111. D1/81r.
112. E (5.12.1600).
113. E (5.2.1610).
114. E (10.6.1607).
115. D1/184r.
116. D1/169v.
117. E (7.8.1602).
118. D3/691.
119. E (4.2.1609).
120. D1/39v.
121. D4/1r.
122. E (31.7.1607).
123. D1/39v.
124. D1/50v.
125. E (25.11.1602).
126. E (29.6.1604).
127. E (21.7.1608).
128. D2/79v.
129. D3/511.
130. E (25.7.1603).
131. E (15.7.1607).
132. D1/208r.
133. D2/42v; D1/70v.
134. D2/93v; D2/5v.
135. D1/119v.
136. D1/121v.
137. D1/181r.
138. D1/152r.
139. D1/223r.
140. D2/74r.
141. E (1.3.1653).
142. D1/206r.
143. D1/175r; D4/14r.
144. D3/233.
145. D4/7r.
146. D2 (back of Vol.) (7.4.1662).
147. D1/173v.
148. D3/517.
149. D1/185r.
150. D3/517.
151. D1/178v.
152. e.g. E (26.7.1603).
153. e.g. E (14.5.1604).
154. e.g. E (5.2.1610); D1/107v.
155. D2/66r.
156. E (26.7.1603).
157. E (14.5.1604).
158. E (27.9.1602).
159. D1/97v.
160. D2/58v.
161. E (25.11.1602).
162. E (7.7.1603).
163. E (27.9.1602).
164. D3/53.
165. *Stair Soc.*, Vol. 22, 658.
166. E (22.11.1661).
167. D1/191v.
168. D2 (back of Vol.) (-.3.1662).
169. D1/143r.

WILLIAM PATERSON OF SKIPMYRE

by

J. W. Evans

Lecturer in Banking and Finance,
University of Wales Institute of Science and Technology,
Cardiff.

History has done William Paterson a disservice. References to his life and achievements in both general texts and indeed more specialised volumes tend to be either ill-informed or non-existent. Yet his role as a projector and writer is worthy of more detailed consideration, for he was a man of considerable talents and influence.

There is very limited material available regarding the early life of William Paterson, and what material there is would appear to be both sketchy and contradictory. As late as 1853, Hill-Burton[1] stated that there was no evidence of his being a Scot (Pagan).[2] He was, in fact, born at Skipmyre in Tinwald (formerly known as Trailflatt) in 1658. Errors have also been made regarding his date of birth. *The Banker*, in April 1979, gave his date of birth as 1655. The correct date may be ascertained from his will, recorded in McDowall's *History of Dumfries*[3]

"this first day of July 1718, in the sixtieth year and third month of my age".

Relatively little is known of his early life. It has been suggested that he attended Glasgow University, though there is no record of his having graduated. However, at the age of seventeen he quit Scotland for Bristol, where he stayed at the home of a widowed relative. The reasons for his leaving home are unclear, but there is more than a suspicion that it was to avoid religious persecution, as he was "suspected of intercommuning with certain Covenanters".[4] Legend has it that he was left a sum of money by this relative, and that he used it to travel to the West Indies, via Amsterdam. According to Herries[5] he went as a missionary and became a buccaneer. However, this is a vitriolic account, and is unlikely to be of much substance, though it is true that he came from a religious background and there is also evidence that he knew a number of buccaneers such as William Dampier and Lionel Wafer. Also, according to Bourne[6], he is "said to have been a partner in Sir William Phipp's exploit for recovering the Spanish treasure lost off Bahamas".

Paterson has often been discounted as a "pedlar turned merchant", but later evidence shows that he was well known and respected in America, and his travels obviously influenced his thinking, both on the Darien scheme and the Bank of England, which was modelled on the central bank at Amsterdam. He returned from his travels married to a widow by the name of Bridge, who had formerly been married to a Boston minister, and became a member of Merchant Taylors in 1681.

1. Hill-Burton *The History of Scotland from 1689 to 1748*, Vol. 1, London, 1853, p.284.
2. William Pagan *The Birthplace and Parentage of William Paterson*, 1865, p.6.
3. William McDowall *History of the Burgh of Dumfries*, Thomas Hunter and Co., Dumfries, 1906, p.496.
4. James Samuel Barbour *A History of William Paterson and the Darien Company*, William Blackwood and Sons, Edinburgh and London, 1907, p.2.
5. Walter Herries *A Defence of the Scots Abdicating Darien: Including an Answer to the Defence of the Scots Settlement There*, 1700. Quoted in: John Galt *Biographical Sketch of William Paterson — The Projector of the Darien Colony, the Banks of England and of Scotland and other Public Undertakings*, (Museum Pamphlet) c.1700.
6. H. R.Fox Bourne *English Merchants*, Vol. 1, 1866, Chapter XV, p.365.

Although Paterson is probably best known for the Bank of England, it was the Darien project which was his lifetime ambition, and according to his own account, he first thought of the idea in 1684. In comparison, he first proposed the Bank of England in July 1691 when he gave evidence before a House of Commons Committee. It met with much opposition, and Paterson recognised that it had been adopted "as a lame expedient for £1,200,000".[7] Later writers have tended to minimise his role, portraying him simply as a "man of ideas". For example, Acres[8] stated that "he was no more than the originator of a scheme which, but for Montagu's advocacy in the House of Commons, and the influence of Michael Godfrey with the City Merchants, would never have been put into practice."

Upon its establishment, Paterson's time as a director of the Bank was certainly short-lived, for which a number of reasons have been suggested. It has been suggested that one reason was a lack of popularity with his fellow-directors, which was accentuated following the death of his friend and supporter Godfrey at Namur.[9]

Pagan[10] states, referring to Dr. Robert Chamberlain's Biographical Dictionary:

> "his richer associates no sooner became fully possessed of his ideas, than they found out pretexts for quarrelling with him, and finally expelled him from all share in conducting that business of which he had been the author".

In fact Godfrey did not die until after Paterson had resigned as a director, and so we have to look elsewhere for reasons. It is likely that the other directors objected to Paterson's involvement with the Orphan Bank, a scheme which was patronised by a number of people who had opposed the setting up of the Bank of England.

Paterson has, on occasion, been linked with the Bank of Scotland. Indeed, Harper's Magazine[11] (May 1884) referred to him as:

> "This man William Paterson, who also founded the Bank of Scotland".

In fact, nothing could be further from the truth, rather than encouraging the development, Paterson was hostile to the Bank, fearing that it might attract funds which would otherwise be invested in the Darien Project.[12] In a letter to Lord Provost Chiesly, dated London, 15th August 1695, he says,

> "I desire a copy of the Bank Act so surreptitiously gained. It may be a great prejudice (to our Company) but is never likely to be any matter of good to us, nor to those who have it."

It should also be noted that in the early stages of development the Darien Company itself had experimented unsuccessfully with note issuing. As has already been mentioned, the idea behind the Darien Project had long been fermenting in Paterson's mind. He had, indeed, in 1686, offered his "Scheme of Foreign Trade" to Brandenburg, Emden and Bremen, but had not received a favourable response.

7. Saxe Bannister (ed.) *The Writings of William Paterson*, Vol. 2, Judd and Glass, London, 1859, pp.63-66.
8. W. Marston Acres *The Bank of England from Within 1694-1900*, Vol. 1, Oxford University Press, 1931, p.16.
9. Saxe Bannister *William Paterson, the Merchant Statesman, and the Founder of the Bank of England: His Life and Trials*, William P. Nimmo, Edinburgh, 1858, p.94.
10. William Pagan, *op. cit.*, Appendix A, p.104.
11. *Harper's Magazine*, May 1884, Vol. LXVIII, no. CCCCVIII "The Bank of England", p.886.
12. Andrew William Kerr *History of Banking in Scotland*, A. and C. Black Ltd., 3rd edition, 1918, pp.22-23.

The scheme itself was simple, and, in theory, brilliant. It was to establish a colony at Darien, on the Isthmus of Panama. This could then act as a trading centre between east and west, and remove the necessity of merchant ships sailing around either of the Capes:

"The time and expense of navigation to China, Japan, the Spice Islands, and the far greatest part of the East Indies will be lessened more than half, and the consumption of European commodities and manufactories will soon be more than doubled. Trade will increase trade, and money will beget money, and the trading world shall need no more to want work for their hands, but will rather want hands for their work. Thus, this door to the seas, and the key to the universe, with anything of a sort of reasonable management, will of course enable its proprietors to give laws to both oceans, and to become arbitrators to the commercial world, without being liable to the fatigues, expenses, and dangers, or contracting the guilt and blood of Alexander and Caesar."[13]

On 26th June 1695, the Scottish Parliament passed an Act founding "The Company of Scotland trading to Africa and the Indies". Capital was to be subscribed in both Scotland and England. However, all was not well. The Act had been passed without the King's royal assent, and his reaction was to oppose the Company, stating that he had been "ill-served in Scotland". As a result, Paterson and some of his colleagues were threatened with impeachment on the grounds that they were trying to raise money in England "under colour of a Scottish Act of Parliament". As a result of this opposition, it was decided that the project would rely on Scottish support, the English opposition having ensured that alternative sources were now blocked off. It was therefore proposed to raise £400,000 from Scotland. Such a sum represented a high proportion of the capital available in the country but the scheme, and in particular English opposition, had fired national pride. Ballads written at this time reflected the nationalistic attitude, and in particular were fulsome in their praise of Paterson:

"Admire the steady soul of Paterson;
It is no common genius can persuade
A nation bred in War, to think of Trade."[14]

On reflection, it has been stated that to carry out such a scheme without English support was madness, but, as Bourne[15] has pointed out:

"But Paterson, full of joy at the realisation of his lifelong hopes, was naturally disposed to be somewhat imprudent."

The scheme was doomed to fail, and for Paterson it was a personal disaster. To begin with, he lost his position of trust and authority within the company. This occurred when some money entrusted to Paterson for the purchase of provisions was misappropriated by a friend and colleague of his named James Smyth. Altogether, a sum of £8,284-18s-4d was unaccounted for. A committee of inquiry was set up, which found that Paterson was blameless. However, despite this report, Paterson did not regain his former position of importance, and when the mission finally sailed, he

13. Barbour, *op. cit.*, p.40.
14. Barbour, *op. cit.*, p.133 — "A Poem upon the Undertaking of the Royal Company of Scotland Trading to Africa and the Indies" — Sold by James Wardlow at his shop in the Parliament Close, Edinburgh.
15. Bourne, *op. cit.*, p.383.

went only as a volunteer rather than as one of its leaders. Paterson's account of the journey, coupled with other documents, suggest that this was a sad error, and that he was a wise man surrounded by fools. The sea captains took command, and there are numerous examples of his sound advice on topics such as provisions and the presidency going unheeded. This obviously still rankled, and in a letter to the Rev. Alexander Shields he stated:

> "Our tarpaulin councillors' raw heads and undigested thoughts ruined us before. The difficulties I had met with in Scotland were turned into brow-beatings in Caledonia."

If this was not enough, Paterson also suffered great personal misfortune, losing his wife, and according to some accounts, a child.[16] This is recorded in a rather unpleasant manner by Herries, who refers to his second wife as:

> "a red-faced coffee woman, a widow of Birchin Lane, whom he afterwards carried to the Isthmus of Darien: and at her first landing, thrust her about seven feet under ground to make the possession, de facto, of New Caledonia more authentic."

He himself was stricken with illness, and had to be carried to the boat when Darien was finally abandoned.[17]

Why did the project fail? Certainly there had been opposition from Spain, and a proclamation from William forbidding English traders from doing business with them was given great publicity, but it would appear more likely to attribute the failure to bad planning and a lack of money.

Evidence of this is that although the project had failed miserably, Paterson still believed it was viable, and presented a revised plan to William — "A Memorial Addressed to William the Third on Darien and the Rise and Decline of Commerce". William was well disposed to the plan, which included a reference to the possible construction of a canal, but admits "it would not be so easy".[18] In addition, it suggested that compensation might be paid to those who had invested in the original project, and that it would prove a means of uniting the people of Scotland and England:

> "since the experience gained, and discoveries made, in the late expeditions and attempt of the Scot, may doubtless be of great advantage and use to any future attempt of this nature, it is therefore proposed that their loss thereby may be refunded out of the success of the design, the which will not be only an act of justice, but of the greatest prudence, and capable of giving entire satisfaction, and effectually to gain the hearts of that people in this juncture."[19]

Paterson now realised that a greater sum of capital was required, and proposed that £2 million would be sufficient. Despite his opposition to the Scots colony, William had not opposed the idea (it had been suggested that he was afraid of angering the Spaniards). Indeed, there is a suggestion that Captain Long had been

16. Bourne, *op. cit.*, p.387.
17. John Prebble *The Darien Disaster*, Penguin, 1970, p.218.
18. William Paterson *A Memorial Addressed to King William the Third on Darien, and the Rise and Decline of Commerce*, Edited by S. Bannister, Letts and Son and Steer, 1852, p.42.
19. Bannister, *op. cit.*, p.51.

sent to pre-empt the Scots' attempt at colonisation,[20] but had arrived too late:

"This work seems to require all possible despatch, lest the Scotch Company be there before us."

Any hopes Paterson had of his scheme being resurrected died suddenly with King William in 1702.

Paterson now actively promoted the Act of Union, publishing a number of pamphlets on the subject. He desired "a future friendship as may be capable of regaining in the next age what has been lost by the misunderstandings of this". He was particularly involved in the calculation of the Equivalent to be repaid in compensation to investors in the Darien project. The last act of the Scots Parliament was to unanimously recommend Paterson to the Queen. However, when it came to payment of the Equivalent, Paterson was not a shareholder, and there was a great deal of delay (mainly because of his opponents in the House of Lords) before he was finally compensated. Some sources imply that he was never repaid,[21] but this is untrue. However, he did have to petition for what was his due on a number of occasions and was obviously very poor for some time. Legend has it that he gave lessons in Mathematics and navigation in an attempt to earn money.

Despite great opposition to the Act of Union in parts of Scotland, Paterson retained his popularity. In Dumfries, for example, the Articles of Union were openly burned on the Square, yet Paterson achieved a most creditable result when he stood for the first United Parliament in 1708:

"he was elected against one of the most powerful families in the country — the Johnstones. It was, indeed, a double return; and he (Paterson) failed to keep his seat".[22]

Paterson, the "man of ideas" had been involved in other projects. In 1691, he had been involved in a project "to bring water to London from the Hampstead and Highgate hills", and one of his great ambitions was to establish a Library of Commerce. Perhaps it is as a writer that Paterson has been most greatly underrated, one reason being that his writings were, for the most part, anonymous. He was a copious writer, and in Volume 3 of Paterson's works, the editor, Saxe Bannister, puts his works under six headings:

1. Finance, with the coinage, banks, public accounts, and the national debt.
2. The legislative Union, not only of England and Scotland, but also of all parts of the British Empire.
3. Colonial Enterprise.
4. Trade.
5. Administration.
6. Social improvement — criminal and commercial law.

Paterson was certainly no mean political economist. Amongst other things he advocated free trade, proposed a sinking fund for the national debt, and opposed the

20. *The Edinburgh Review*, January 1862, no. CCXXXIII, p.11.
21. McDowall, *op. cit.*, p.496.
22. Bannister *Paterson's Life and Trials*, (1858), pp.24-25.

potentially disastrous ideas of John Law.[23] Bannister[24] has written that:

> "the Scottish Parliament rejected Law's scheme of an inconvertible paper currency, entirely upon his sounder principles".

It was only after Paterson's death that Law's views gained ascendancy in Scotland (and still more disastrously in France with the Mississippi project and note issue of the Bank of France), and that he was given the freedom of Edinburgh.

In his other writings, Paterson criticised the abuses of monopoly power, specifically referring to the fisheries, and supported Locke (with whom he was in contact) regarding the debasement of the currency. It would, however, be wrong to assume that he was only interested in economic issues, as he displayed a concern with both legal and social reform, and argued in favour of religious tolerance, a principle upon which Darien was to have been founded. Amongst the reforms he demanded were the abolition of the death penalty as a punishment for theft, and the abolition of imprisonment as a penalty for bankrupts who made a genuine attempt to repay their debts. On the other hand, he advocated forced labour for what he termed "beggars and idle persons" (preferable to imprisonment, which was Saltoun's idea), and wrote of the need for "universal education for Scotland". He envisaged what Bannister termed "an enlightened plan of Scottish improvement".

William Paterson died in 1719, and was buried at Sweetheart Abbey.[25] There had been some dispute as to his burial place, which is partly explained by Acres:[26]

> "His tombstone was standing in 1887; vide M. J. B. Baddeley, Scotland (Part 3); but when the Church was enlarged, some years ago, the stone was broken up and used by the masons for paving."

Paterson was not totally neglected by history; apart from Bannister, writers such as Daniel Defoe and Sir Walter Scott recognised his true worth, whilst Eliot Warburton[27] based a novel on his life. It would seem unfortunate, therefore, that in the twentieth century, writers such as Clapham[28] can still dismiss him as a "pedlar turned merchant".

I would therefore conclude by endorsing the final paragraph of J. S. Barbour's *A History of William Paterson and the Darien Company*[29]:

> "In the light of this record of the life-work of a Scotsman who flourished two centuries ago, is it too much to express the hope that Paterson's memory will be kept fresh and green 'as long as rivers run, and gold is found in Darien'?"

This paper originally appeared in The Scottish Bankers' Magazine and the author and this Society are grateful for permission to reprint it here, to enable it to reach an additional section of the public.

23. J. K. Galbraith *Money, Whence it Came, and Where it Went*, Penguin, 1976, pp.31-37.
24. Bannister, *Paterson's Works Vol. 1*, 1859, Biographical Introduction, p.CVIII.
25. *Dumfries and Galloway Standard and Advertiser*, April 13th, 1974.
26. Acres, *op. cit.*, p.17 footnote.
27. Eliot Warburton *Darien, or the Merchant Prince*.
28. Sir John Clapham *The Bank of England: A History*, Vol. 1, Cambridge University Press, (1970), p.14.
29. Barbour, *op. cit.*, p.200.

GARROCH WATERPOWER SCHEME
PART III. THE KILNS

by
Richard J. Clarke

Ashwood, Closeburn, Dumfriesshire

Kilns at the Centre of a System

The two preceding issues of *Transactions* have carried papers on the subject of the water-powered industrial system at Park Village, Closeburn, Thornhill, operating through the 1800s. The system was primarily to provide power for the haulage of limestone out of the quarries up to the kilns. This paper deals with the kilns, which are the heart of the project.

Lime was an important product in the 18th Century, when land was being improved by all the progressive landlords. Often tenants were obliged, as part of their lease, to spread lime, generally provided by the landlord. This was the case at Closeburn. Contemporary writings indicate vast improvements in the output from the soil, in some cases by a factor of ten. Closeburn was one of the few sites in the district at which limestone was available near the surface, and from the mid-1700s it was worked. The limeworking was greatly expanded after the Stuart Menteaths bought the estate in 1783, and around 1790-1810 they built the system which carried water about 10 km, to drive the 9 metre diameter water wheel and several other plants.

The prime function of the wheel was to haul trucks of limestone up the 20 degree ramp from the underground quarries. At the top of the ramp the trucks were moved on the level to the kilns. The stone was mixed with coal, which had been brought by horse-and-cart up a more gentle slope — which might be called the Coal Road.

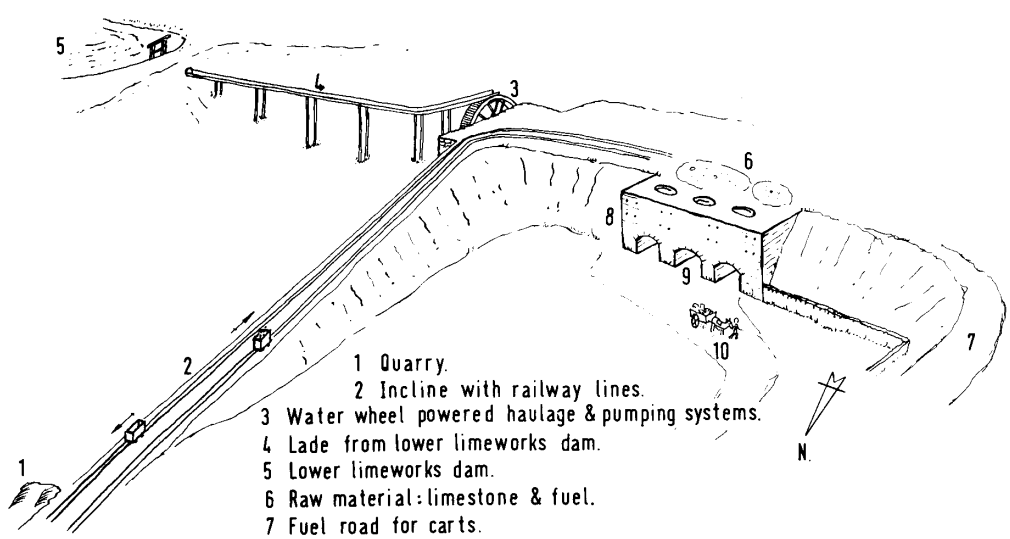


Fig. 1 Reconstruction Sketch of Lime Works.

The limestone-coal mixture was fed into the pots of the three kilns, which were continuously fired, often for weeks at a time. The coal burned, the limestone was modified and dropped steadily down the kiln, taking several days in its travel. At the bottom the lime was raked out through the 'eye' of the kiln and loaded into horse-carts. Hence it was led away to the farms. Fig. 1 is a reconstruction sketch of the limeworks when in use.

The kilns have stood up well over the 100 years since they went out of use, and most of the stone and brickwork is in place. The Manpower Services Commission have dug out a lot of debris and the kilns can be seen nearly as they were when in use. This is probably one of the best-preserved kiln banks in the region.

Fig. 2 Site in 1986, from N.W.

The Kiln Structure

The kiln we see today, shown in Figure 2, was working up to about 1895. There is no clear evidence as to when it was built and it might be assumed that this was the only kiln there had been at Park, implying a building date of around 1800. However, there are publications, quoted in a later chapter, which indicate the kilns in their present form were built after 1830.

The block has lost some of its stonework at the top, but its former appearance can be visualised. It is 18.5 metres long, 7.8 metres deep where the depth is measurable, and 8.1 metres high when in use. The three arches to give access to the draw eyes are 2.8 metres wide by 2.1 metres high and 3.2 metres deep, beautifully constructed. Figure 3 gives a dimensioned view of the outside of the kiln.

The three pots, each circular in plan, are about 2.6 metres diameter and in elevation are shaped something like a tulip. Figure 4 gives the dimensions of the pots.

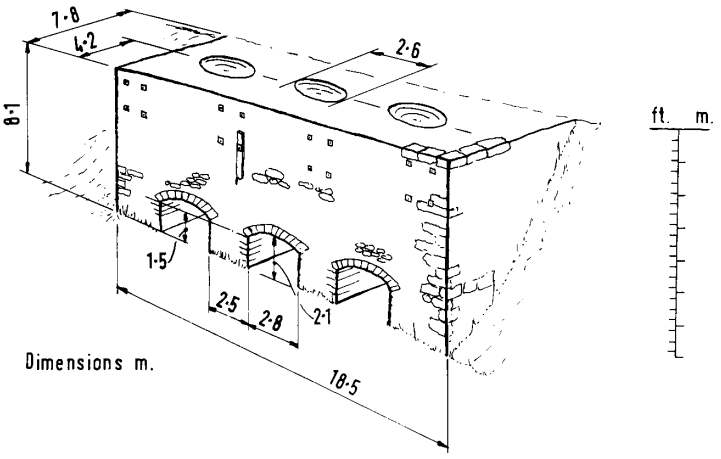


Fig. 3 Dimensions of Kiln (masonry complete).

At the bottom of the pots there is a structure of heavy bars, each pivoted at one end. These are set to form a grate and thus support the material in the kiln, while letting small pieces of lime and ash fall through. Below this is a second grate, of about 3.5 cm spacing. The lime drops onto this, to be raked off, while the ash falls through to ground level. These grates are shown in Figure 5.

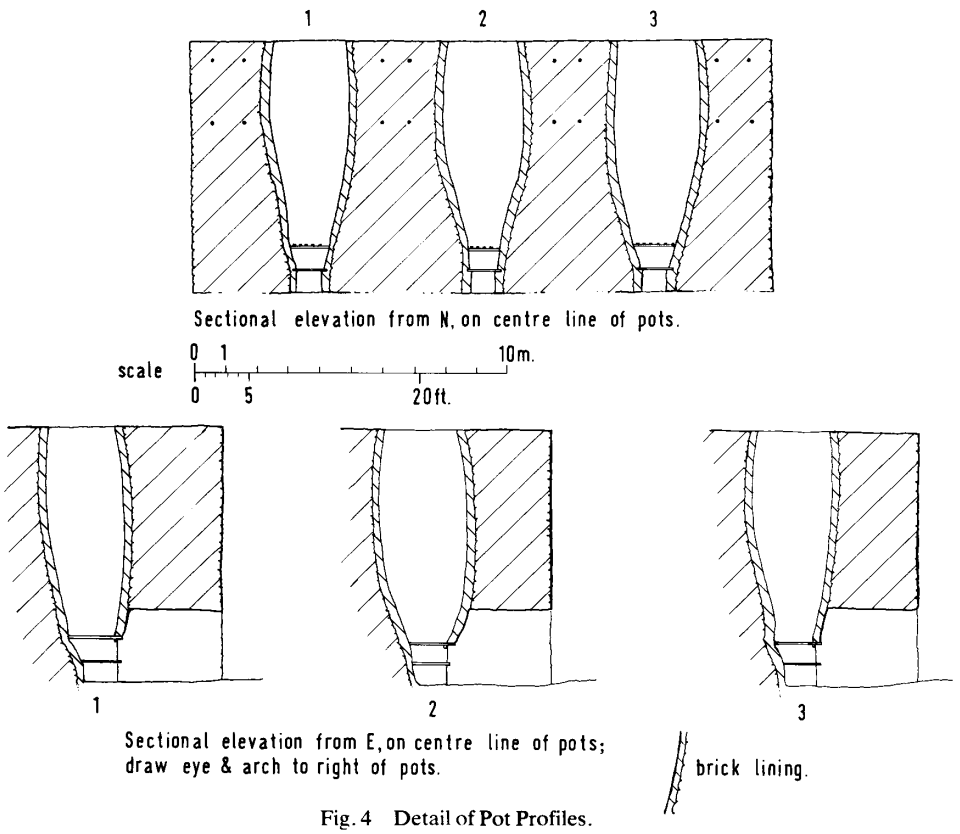


Fig. 4 Detail of Pot Profiles.

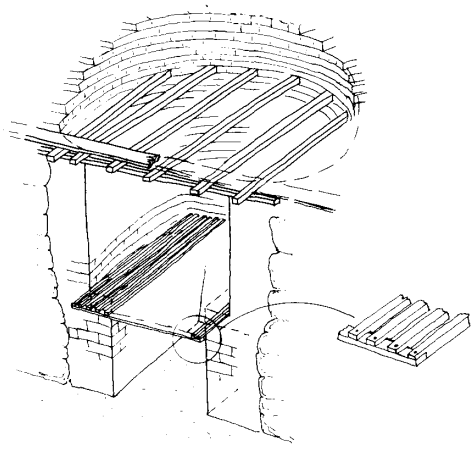


Fig. 5 Detail of grates at Draw Eye.

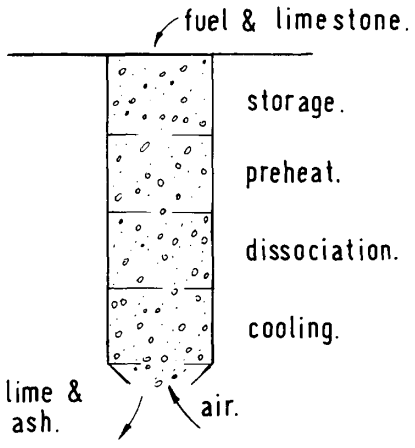


Fig. 6 Principle of Vertical Shaft Kiln.

Design Principles

The principle of lime burning is the conversion of the calcium carbonate of the limestone to calcium oxide. This is quick-lime, which is later treated with water to produce calcium hydroxide, slaked lime, which goes on the fields or into building work. The conversion is achieved by burning with coal — although wood, heather etc. will serve, in communities having these materials.

The process requires that the limestone is heated up gradually, then exposed to a high temperature for some hours. After this it is allowed to cool gradually, until it emerges as the finished quicklime. This can be done on a batch basis, much as in a potter's kiln or an oven. But it is much more efficient to have a continuous process, since the heating and cooling can be linked. Such a process is easily achieved with a vertical cylindrical structure, in which limestone and coal are fed at the top and the quicklime taken out at the bottom. Such a kiln has in effect four zones: at the top, a warming zone, through which the spent combustion gases pass, warming the limestone and coal; the zone below this is a combustion zone, where the limestone starts its conversion, and the coal builds up its heat; the third zone completes the reduction of the limestone and the coal disappears, apart from ash; the bottom zone is a cooling zone, where the fresh air being drawn up the kiln cools off the lime and makes it capable of being handled by the operators. The operating speed of the kiln is largely controlled by the rate of movement of air through the kiln. Figure 6 is a diagram of the four operating zones.

The shape of kilns is largely determined by the need to have these four stages of the process, all properly under control. Many of the early limeburners favoured a shape something like a tulip, when the inside is viewed in elevation, and it is this shape that we find at Closeburn today. But it seems it was not always thus. The earliest information available on the Closeburn kilns is in Singer's *Agriculture in Dumfriesshire* (1812). Mr Stuart Menteath, the proprietor, writes in 1810 to Singer and says: 'The form of lime kilns used here is oblong, viz 12 feet long at top and bottom and 24 feet high; 20 inches wide at bottom, and widening gradually to 4½ feet, at 16 feet, and then gradually drawn in to 4 feet at the top of the kiln'.

Not long after this the Closeburn kilns are described in an article in the *Farmers Magazine* of May 1815. Because of its rarity, a copy of this article is added as an appendix and the accompanying illustration as figure 8. The design has changed only a little from that in Singer's book. The kiln was elliptical in plan, about 30 feet high, at the bottom 10 feet long by 22 inches wide. The width tapers out to 4½ feet at 20 feet high and stays at that width to the top. In the comments Menteath says he considers a circular kiln, of not more than 5 feet in diameter and 30 feet high, is as economical as the oval kiln, but has the objection that it produces a small quantity of lime.

Not much more is heard of this circular concept and in 1830 Menteath is still interested in oval kilns. This appears in his essay awarded a prize by The Highland and Agricultural Society, published in their Transactions Vol. III of 1831. His entry was supported by models. He starts by saying that any kiln must be designed to suit the coal and limestone in use. He says he has used for many years a kiln of oval shape, not more than two feet wide at the bottom, widening to five feet at 18 feet high and continuing at that width to 28 feet high. These dimensions are much the same as those given in Singer 1812 and the 1815 Farmers Magazine paper, implying that Menteath had settled on this design and used it for many years. He continues with descriptions, some of which are not readily interpreted: he writes that he uses kilns of an egg shape and also oval, the latter being divided by arches across the kiln, descending four feet from the top; these arches permit circular openings to be formed for feeding in stone and coal at the mouth; and adds that this enables a kiln of any length to be constructed with numerous round mouths. It would appear that these openings were in a cap covering the top of the kiln, and that the kiln would be long, rather than circular, when seen in plan.

Carmichael's *Principal Limestone Quarries in Scotland* (1838) has been quoted in Part 2 of this paper. Describing Closeburn he remarks: 'The other parts of the kiln are equally novel and may be compared to two cones united at their base, being widest at the centre. The top and bottom diameters are 5 feet, the centre 15 and the depth 33 feet.' Clearly this kiln is circular in plan, obviously different from the 1831 shape, which was oval with considerable length. This design is quite near to the current shape, and it therefore appears that Menteath modified his ideas between 1831 and 1837. As noted above, the 1815 article quoted Menteath as favouring a circular kiln, so perhaps he moved to this concept during the 1830s, after his 1831 prize design had received public comment. The best inference that can be drawn is that Menteath built the present kilns between 1831 and 1837. In the absence of any evidence, it must be assumed that after this time the kiln was only repaired, not rebuilt. Menteath sold the property in 1848 and there is no word of subsequent owners having much interest in the limeworks.

Stuart Menteath's 1815 article expressed a preference for tall circular kilns, although he states that his operators preferred other shapes. It is interesting to read a modern international publication *Small-Scale Lime-Burning*' (Wingate 1985), which recommends the optimum shape as tall and thin, rather on Menteath lines. All the evidence that we have says that he was a brilliant man, and it may be that he was well ahead of his contemporaries in kiln design.

Another matter which is covered in the 1815 paper is the provision of covers and chimneys at the top of the kilns, which were in use at that time, much recommended by Menteath. There is no evidence of these in the surviving remains. Perhaps they

collapsed and were not replaced. Perhaps Menteath removed them, if he rebuilt to a circular design.

The fire arches at the bottom of each pot are big enough to enable a cart to be backed into the arch and loaded with the quick lime.

Materials

The temperature of the hot parts of the kiln required that fire-proof bricks were used for the lining of the kiln, laid in horizontal rings. We read that fireproof clays were available in the workings, but some of the bricks found on site come from brickworks in Strathclyde — especially Hurlford, Kilmarnock. Records show that Hurlford started about 1860, but these bricks may have been inserted during a rebuild of the kiln, so we do not obtain much dating information from them. It is clear that these bricks were heated nearly to fusing point because they are seen to be abraded by the passage of the lime and coal.

When the kilns were cleared of rubble recently, much of the material was a pink limestone in lumps up to the size of a football. If these were typical of the original working practice, they would have caused considerable abrasion of the firebricks, which were nearly plastic at working temperature.

Surrounding the firebricks were rings of ordinary bricks, laid horizontally, which were probably made from the clays that are available in this glacial area. Outside these are further rings of rough stones of local origin, which form the body of the kiln.

Tie Bars

The elevation of Figure 7 shows the end of a number of bars. These stand out from the face of the kiln, with plates and cotters located about 15 cm from the stone. These bars run through the kiln and the only excavation made, of one bar, shows the other end to have a cotter termination, bearing against the back face of the kiln. This back face is below ground level and cannot be seen now, except where the small excavation was made, but it seems probable that the back face originally stood clear of the ground level. The height above ground level of this original clear face can possibly be guessed from the fact that the tie bars are through only the top 2.5 metres of the kiln, implying that below this height the kiln did not stand clear but was built into the slope.

There is a timber beam, about 17 cm by 11 cm hanging down from one of the tie bars. On all the other bars the plates and cotters are about 15 cm clear of the stonework face, which clearance happens to be the same as the thickness of the piece of hanging timber. This makes it seem possible that all the tie bars were threaded through wooden beams, after which the plates and cotters were put on, to pull the bars up tight. It seems strange that wood should be used for this purpose, as normally tie bars on buildings have strong metal plates, because they are subject to considerable stresses. The kiln was also liable to great stresses due to the temperatures and we would expect to find metal and not wood used for plates. However there may be certain features of kiln operation which make it more desirable to have the softer and more pliable nature of wood.

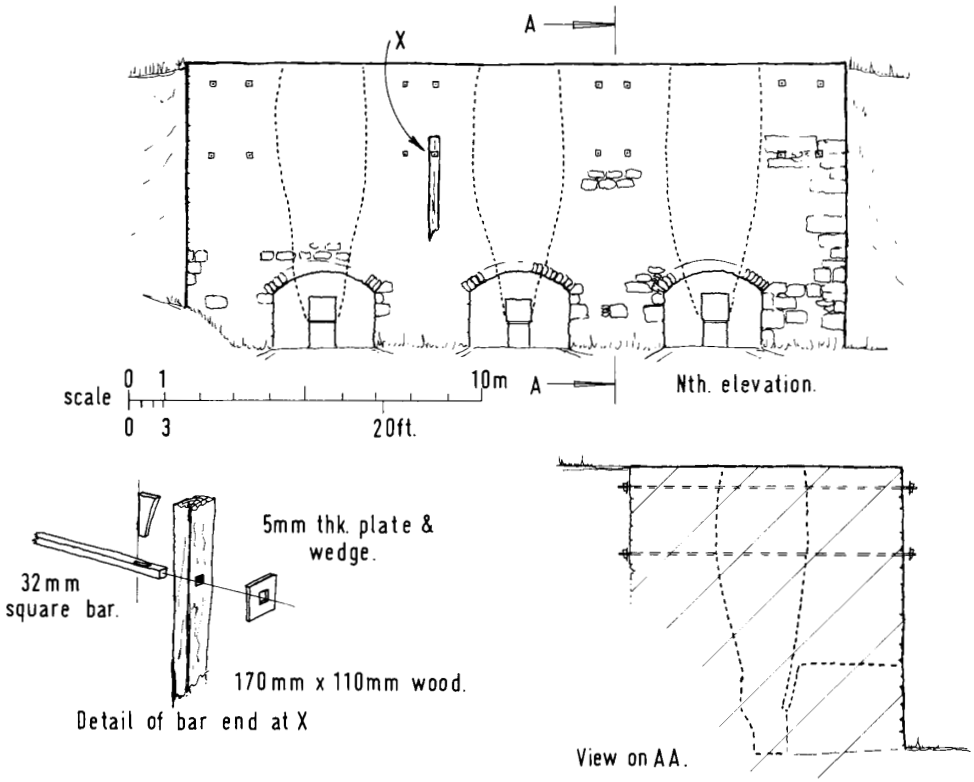


Fig. 7 Tie Bars.

Air Supply to Kilns

The *Farmer's Magazine* article of 1815 (see appendix) shows how the draw-eye was closed with iron doors, thereby controlling the entry of air and hence the rate of combustion. There is no other mention of such doors in the available Closeburn papers and there is no obvious way in which they would have fitted today's kilns. Descriptions of kilns in other districts mention such doors, so Menteath may have installed them at earlier times, then abandoned them in the 1837 rebuild. He may have had other methods of controlling the airflow, which are unrecorded. He was a great innovator.

Carmichael's 1838 paper *Principal Limestone Quarries of Scotland*, quoted in Part II of this paper, mentions a 'blast pipe to hasten combustion, supplied with air by a movement from the waterwheel'. It is interesting to note that this is the 'double cone' kiln. No details are given of the delivery of the air and its control.

The *New Statistical Account* 1841, also quoted in Part II, has a reference to a second 'wheel which puts in motion fanners to throw air into the bottom of the lime kilns'. As discussed in Part II, the matter of the second wheel is itself puzzling — possibly a confusion with the saw-mill. In addition there is no indication how the air was delivered to the kiln. We could assume the 'fanners' were sited close to the waterwheel, possibly on one of the positions where the stones have been grooved and studs fitted; perhaps they were driven by the large-radius gear wheel. It is not clear

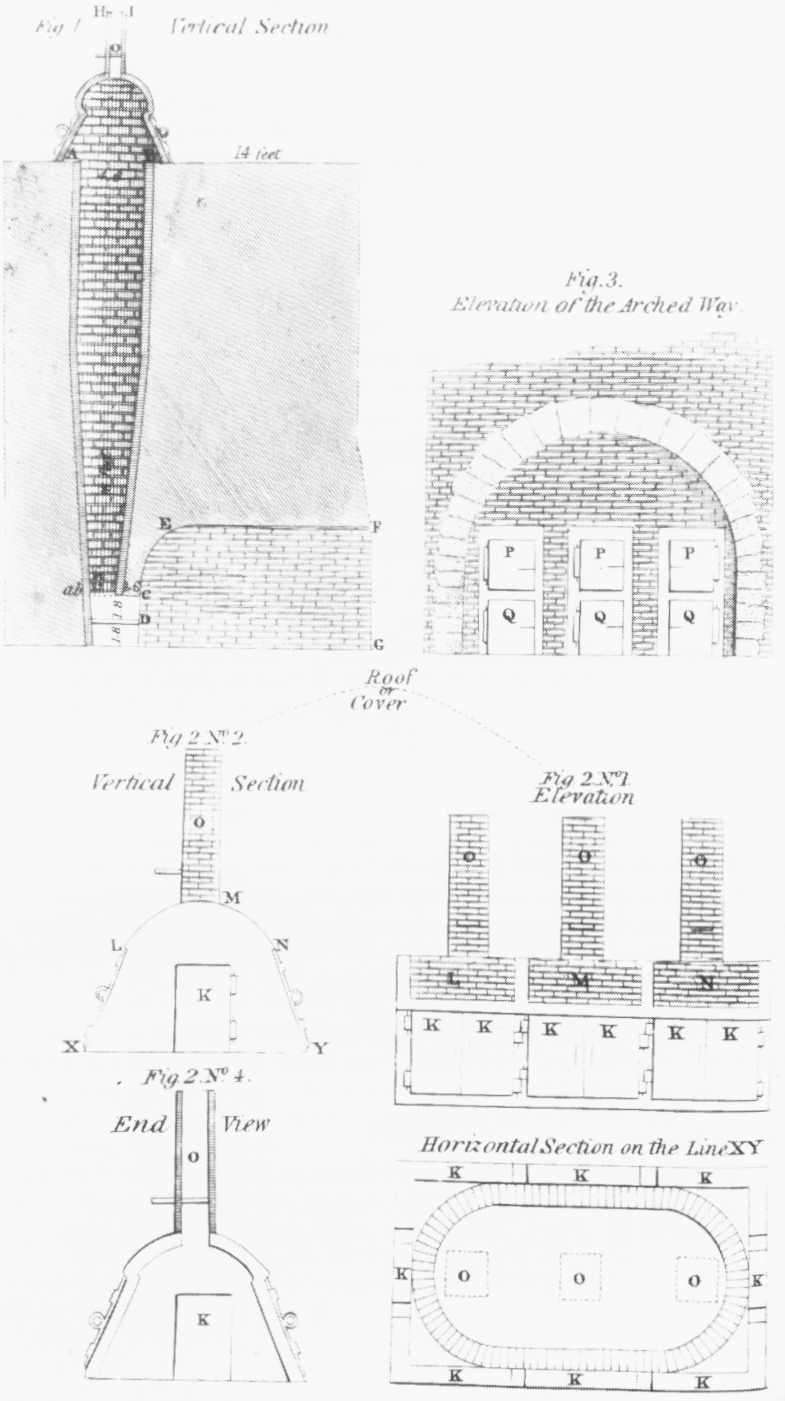


Fig. 8 Closeburn Lime Kilns.

how the air was delivered to the kilns — a distance of 30 metres. There are no ducts in the body of the kiln's stonework, so it seems possible that the ducts were of perishable material, such as wood or canvas, which has not survived. But it is not clear how the duct would fit into the crowded draw-eye, with carts being loaded and operators shovelling hot lime. No other limekiln reference source has been seen mentioning blowing kilns, while there are references to doors to control the draught. Kilns varied over the country to suit the limestone and coal available, so Closeburn may be unique. But it is possible that Menteath found the air-blast was not of benefit in economy or production rate, and gave it up after a period.

Miscellaneous Points

There are in places gaps in the stonework of the face and sides of the kiln, clearly not just fallen stones. These are weep-holes to permit run out of water which has fallen on the upper parts of the kiln. With the considerable heat and pressures built up in the kiln it would be dangerous to let water accumulate, then either freeze or turn to steam and damage the structure.

In the 1831 essay, Menteath states that with a narrow kiln it is possible to draw out every day two-thirds, or nearly three-fourths of what it contains of well-burnt lime; this gives three measures of lime for one of coal. In contrast, large circular kilns will not give out more than one-half of their contents daily, and yield two measures of lime for one of coal.

Menteath also records his practice of coking his coal at the mine at Mansefield, and thus reducing the weight that is carted the 25 miles by 8/20ths. He states that a coke kiln will produce a third more lime in a given time, with obvious advantages when there is high demand.

Conclusion

Although the kiln is the heart of the industry, it seldom has the same interest as plants such as quarries or smithies. Closeburn is interesting because Stuart Menteath was obviously concerned and went to such trouble to obtain good results, including his prize entry with a model.

It has not been easy to tease out the details of designs and dates, and there remains some doubt why the kilns have the present circular shape when Menteath had used oval kilns for so many years, and got prizes for it. Perhaps some other investigator will find a good reason.

Acknowledgements

The author is very grateful to Mr Graham Douglas, of The Royal Commission on the Ancient and Historical Monuments of Scotland, who drew all the figures. Also to the team of Manpower Services Commission who moved a lot of rock so that we could see what was going on.

APPENDIX

THE

FARMER'S MAGAZINE:

MONDAY, 8. MAY, 1815.

(No. LXII.)

BRANCH I.
ORIGINAL COMMUNICATIONS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Account of the Limekilns at Closeburn, Dumfries-shire. With an Engraving.

SIR,

THE use of lime in building, as well as in agriculture, is too obvious to require proof; and every improvement in the mode of burning it, whether it regards the quality of the lime, or the economy of fuel, and, still more, when it embraces both, becomes an object of national importance.

In the valley of Closeburn, on the river Nith, there is a body of excellent limestone, which is wrought on a very extensive scale by the proprietor Mr Monteath. It makes an ample return for the labour bestowed; and he has been at much pains to improve the lime works. Besides his own unwearied labour and experience at home, he has made it his business to visit every lime work of reputation in the island, and has selected and combined every thing that appeared to be advantageous; while he has made several improvements of his own. The result has been, that his kilns are probably the most perfect of any thing of the kind.

Instead of the *wide* and *shallow* circular kiln, common in the country, Mr Monteath has found much advantage from making the kilns elliptical and deep. So much with regard to the form of the kiln.—He has lately added some parts to it which are found of most important use.

The first is a kind of roof or cover.—The disadvantage of the want of some contrivance to protect kilns in stormy weather, has been long felt; and many attempts have been made, to apply some kind of cover, but, we believe, none with such success as that used at Closeburn, represented in the annexed sketch.

The next addition is having cast-iron doors below, at the opening where the kiln is drawn.

There is a grating, through which the ashes fall while drawing the kiln, which makes that operation a much less disagreeable employment than formerly; and the ashes and small lime thus separated are excellent for agricultural purposes.

There is often a great loss of fuel, from allowing limekilns to cool when there is not a demand; but in those of Mr Monteath, when there is no demand, all that is necessary to be done, is, to shut the cast-iron doors, above as well as below, and the dampers in the chimneys. The heat is thus preserved, and fuel saved, by keeping the kiln hot, to be ready for use as soon as wanted.

Fig. 1. is a vertical section, through the middle of the kiln, wherein A B is the mouth, into which the lime and coal are thrown. It is elliptical, being about 9 feet long, and 4½ wide. The kiln continues of the same width to about 18 feet from the bottom, when it begins to taper, until it is only 22 inches wide below.

C D is one of the three openings below, by which the lime is taken out of the kiln.

D E F G, is the arched way, by which the lime is removed when taken from the kiln.

H I B, the roof or cover of the kiln, (which is shown on a larger scale in Fig. 2. Nos. 1, 2, 3, 4.)

Fig. 2. represents the roof, which consists of a cast-iron frame, upon which the doors K K, &c. are hung. These doors are opened for the introduction of the lime and fuel.

The frame also serves to support the brick arches L M N, upon which are raised the chimneys O O O, for carrying off the smoke.

Fig. 3. is a front view of the archway, showing the doors for taking out the lime below.

P P P, the doors from which the larger burnt limestone is taken. There is a grating (*see* a b, fig. 1.) through which the ashes and smaller lime fall, which is removed from time to time by the doors Q Q Q. These last doors are kept shut, while removing the larger limestone from the doors P P P; and the people are thereby prevented from being annoyed by the dust.

Since writing the foregoing, I have been favoured with the annexed letter from Mr Monteath, which will serve more fully to elucidate the subject.

'SIR, *Closeburn Hall, Nov. 1st*, 1813.

'I received your letter of the 11th of last month, wishing me to send you some particular account of the covers which

I have placed upon the top of my lime-kilns. As you have the dimensions of the covers, I have only to state my opinion of their utility in facilitating the burning of limestone. I conceive the greatest advantage to be derived from them, is in the autumn and winter season, when a kiln is not worked more than 8 or 10 hours each day. When the fire remains long at the top of the kiln, during a great part of the remaining 16 or 18 hours of the 24, and the workmen are not working the kiln, the fire, by means of the cover, is prevented from escaping, by the cold and stormy weather at this season. It is likewise of much use in preventing the escape of heat, in case a kiln is allowed to remain unworked for a day or two, which frequently happens in our country sales, from an irregular demand for lime. I am of opinion, that the covers, with chimneys in them, increase the draught of air through the kiln; by which means, a given quantity of limestone is calcined in a shorter time. But, owing to the prejudices of the tacksman and his workmen, it is difficult to get at the truth of any thing:—The workmen allow, that owing to the covers, they put a less quantity of coal into the kiln in the evenings, in the winter season, than they would otherwise do if the kilns had no top; and also upon Saturday night, and upon Monday morning, when an open-topped kiln requires additional coal to make up for the greater loss, or escape of heat, than goes off from a covered kiln. When you were here, I mentioned to you my having fixed doors to the *eyes* of the kilns, which are useful, if it is necessary to allow a kiln to stand unworked, by preventing the lime from slacking at the bottom; and the doors have the effect of stopping the escape of the heat at top, which is frequently necessary, for the reasons I have above mentioned.

'I last year increased the height of my kilns from 24 feet to 30 and 32 feet, which I am of opinion has had a tendency to save fuel in the calcination of the limestone; but I was disappointed in my expectation of drawing out a greater additional quantity of burnt stone each day, than I was accustomed to do when the kilns did not exceed 24 feet in height.

'The dimensions of my kilns are now about 10 feet long; at bottom, 22 inches wide; at 20 feet high, after spreading gradually from the bottom, the width is $4\frac{1}{2}$ feet; and in the remaining ten or twelve feet, the sides of the kiln are perpendicular, and of course $4\frac{1}{2}$ feet wide at top. My contractor thinks that he can burn lime in a narrow kiln of those dimensions, with a less quantity of coal than is commonly used in large circular kilns I think a circular kiln, of not more than 5 feet in diameter, and 30 feet high, burns lime with as small a quantity of coal as the

long narrow oval kiln; but the objection to it is the small quantity of burnt lime it produces every day.'

Since the foregoing was written, Mr Monteath has suggested several improvements on the covers of the kilns, particularly that of using doors composed of fire-brick or fire-tile, in iron frames, similar to those of an air-furnace for melting iron. I hope soon to have an opportunity of giving the details of those improvements.

I am informed that many fatal accidents have happened to ships, from limekilns on the sea coast having misled the mariners on dark and stormy nights, by mistaking them for lighthouses. In such situations, these covers to kilns might be the means not only of saving property, but of preserving many valuable lives.

ROBERTSON BUCHANAN.

Glasgow, 23. Jan. 1815.

KIRKPATRICK FLEMING POORHOUSE

The First Ten Years

by

Duncan Adamson

This article is based on the minutes of the Kirkpatrick Fleming Combination Poorhouse. It is not in any sense a summary of the minutes — in which case the bulk of the writing would relate to finance. Rather, I have chosen to concentrate on four themes. My prime concern is to look at the evidence about the conditions of the inmates. The other three themes concern first the building of the Poorhouse, secondly the relations with the local clergy, and finally the appointment of governors for the Poorhouse. These latter themes are selected because they indicate the sorts of problems which the Poorhouse Committee (or simply, the House Committee, as it called itself) had to face.

Poorhouses have had a bad press, historically speaking, so that there is the danger of starting with a preconceived notion of the stern governor supervising under-fed, oakum-picking down-and-outs in drab, damp, ill-ventilated surroundings. Unfortunately, it would seem that in the early years at Kirkpatrick Fleming the image contained all too much reality. That's why people were unwilling to go to a building which was intended for 120 but was never recorded as having above 40 inmates. But it is fair to add that most of the blame lay with the Board of Supervision in Edinburgh rather than with the local House Committee. Indeed, as will be seen, the Committee were frequently taken to task for being too 'lax'. They were accused of giving the poor too much to eat and not insisting on tight enough discipline. The whole idea, after all, was supposed to be that people would come to the poorhouse only as a last resort.

Until 1845 each Scottish parish looked after its own poor, through its own poor inspector. Then an Act was passed which allowed parishes with a combined population of over 5,000 to set up a 'combination poorhouse'. The parish inspector, working with the Parish Board, would continue to look after the poor, but whenever they thought it appropriate they would recommend that paupers be sent to the poorhouse.

On 18th February, 1851, a meeting took place at Kirtlebridge, with representatives from six parishes — Graitney, Kirkpatrick Fleming, Dornock, Half Morton, Middlebie and Hoddom. Colonel Graham of Mossknow was in the chair, and with Mr Barr, factor for Springkell, represented Gretna and Kirkpatrick. Colonel Graham was also a representative of Half Morton and Mr Barr of Middlebie. He was to be the dominant figure in the House Committee for the next twenty-eight years. It was agreed to build a poorhouse, to be supported by each parish in proportion to its population, and to investigate the appointment of a schoolmaster and a chaplain. The poorhouse would be run, of course, by a governor, under the House Committee, which would have two representatives from each parish. The House Committee in turn was supposed to follow the rules laid down by the Board of Supervision in Edinburgh — although it was never likely that this would happen while such a persistent individualist as Colonel Graham was in the chair.

The first problem was to find a site. Kirkpatrick was an obvious choice. It was on the railway, and, of course, it had a double representation on the committee, since Graham and Barr both lived in the parish. It so happened that no fewer than six proprietors owned land near the church, schoolhouse and railway at Kirkpatrick — Sir John Heron-Maxwell (Springkell), Mr Ogilvie (Cove — who had been added to the committee), Mr Rae (Newton), Mr Little (Wicketthorn), Mr Bell (Kirkpatrick) and Colonel Graham himself. Several offered sites and one offered by Sir John was accepted (24th March, 1851). A number of meetings followed during which architects' plans were discussed, rejected, amended and so on and letters sent to the Board of Supervision, without whose approval the house could not be built. Then in January, 1852 came the bombshell. Sir John was willing to grant a charter for the land, but absolutely refused to get the concurrence of the heritable creditors on the estate. So the committee had to abandon the site and start again. Fortunately Matthew Rea (as it was spelt in the minutes) of Newton was willing to grant a site, this time without insurmountable problems. Pegs were put in in March 1852, and it was planned to open the Poorhouse on 1st July, 1853.

Meanwhile David Griffin and his wife from Kirkcudbright had been appointed governor and matron at a salary of £60 per annum plus one pauper's rations and an allowance equivalent to that for a 'class C' pauper. A surgeon, Thomas Burgess, was appointed medical officer at £50 per annum, on condition that he took a house within one mile of the Poorhouse. He was also to be paid for the cod-liver oil, trusses and bandages he used, and he was permitted to obtain assistance with important operations.

Right from the outset there was trouble with Edinburgh. The Board of Supervision insisted on a number of alterations to the plans. One was to prove particularly vexatious, and indicates the attitudes prevalent at the time. They wanted a high wall built in front of the House. Why? Because there could be no proper discipline

> 'unless the grounds to which the inmates are allowed access are so inclosed as not only to prevent ingress and egress without permission but also to prevent intercourse between the inmates and other persons unless with the sanction of the house governor.' (Minutes, 16-3-52).

The House Committee felt that the House would be much better without the wall (and, of course, would cost less, but they did not give that as a reason). They had already taken steps to ensure that the sexes would be kept separate. Colonel Graham went to Edinburgh to see the Board and promised to build the wall later if the Board would allow the opening to go ahead as scheduled on July 1st. The Board agreed. Arguments about the wall were to continue for a number of years. In the end a wall was erected, much too low, according to the Board, and not as they had wished, but it achieved a sort of grudging acceptance. When 'the boy Reid', one of the first inmates, escaped, the Board was at pains to point out that the absence of a wall made it easy to abscond. The House Committee's reply (quoted 11-11-53) indicates how the people of the parishes felt about the Poorhouse. Reid's escape, they wrote, was regretted but one of his character and want of intellect was almost impossible to control and 'could be kept only within the walls of a prison.' They added that to build walls in front of the House would be 'detrimental to the circulation of light and air, and . . . will give the Building still more the character of a prison, render it still more unpopular in the District, and be injurious to the Establishment.'

Griffin did not last long as governor. He departed in controversial circumstances on which it is hardly possible to make a reasonable judgement. However, one does notice that whenever Griffin's name appears in the minutes it is as the opponent of rather than as the advocate for the inmates. On the 5th September the 'Punishment Book' was approved by the committee. Two weeks later he complained of two boys — Reid was one - who constantly wet their beds. It is not clear what he expected the House Committee to do about it. They suggested that he consult the Medical Officer, and, if need be, change their diet. He also complained of insolence from Robert Wilson, who, on examination, said that his bed had, once, not been made, and on another occasion he was given bad potatoes. The committee rejected Wilson's allegations, but they accepted a general complaint from the inmates about their porridge. Griffin was instructed to give each six ounces of meal, daily, made into good, stiff porridge. This was soon abandoned when Griffin complained about the amount being left over. It was then fixed at 4 ounces.

In November of 1853, Griffin and his wife resigned. 'Understanding that I do not and that it is impossible for me to give general satisfaction as Governor . . . I hereby give notice . . .' The resignation came as the consequence of complaints made by Mr Murdoch, the local minister, and Sir John Heron-Maxwell. It so happened that both of these had been in dispute with the committee, (the dispute with Murdoch will be discussed later), so that it is possible that they were only too willing to find fault. Whatever the rights and wrongs, Sir John had sent a letter to the Board of Supervision which prompted them to send an inspector, Mr Peterkin, to investigate. Peterkin saw Murdoch who alleged drunkenness, malversion, cruelty and harshness against Griffin. The inspector could find no evidence to substantiate the charges, but nonetheless thought that his resignation should be accepted, because 'his management has been injudicious.'

Further evidence against the Poorhouse comes from a carefully worded letter from Hoddom Parish Board written in 15-11-53. An application for aid had been made by a pauper 'who entertained a great unwillingness to be sent at the present time' to the Poorhouse. This led to discussion about 'the conduct and fitness of the present Governor'. Without making a judgement (as they stressed), they suggested an investigation. Meanwhile, the Kirkpatrick Fleming Parish Board (of which Mr Murdoch was a member) had set up a committee to examine the treatment of the inmates. Unfortunately, the Kirkpatrick Fleming minutes do not seem to have survived.

The House Committee objected strongly to the actions of the local Parish Board. They pointed out that no one had ever 'regularly' brought charges before them. (One wonders if the word 'regularly' disguises the fact that they had received — as they must — informal complaints about Griffin.) They recorded what evidence they could in favour of the Poorhouse. Two mothers, Finlay and Steel, who had been for some time servants and nurses in the Poorhouse, and who must have been aware of the discipline, had, notwithstanding, applied for admission to the House of their children (23-12-53). (It may be observed that this was the year before the outbreak of the Crimean War, during which Florence Nightingale was to revolutionise the public image of the nurse. In 1853 nurses were generally among the poorest class of women.)

There was a postscript to the story, recorded on 31st March, 1854, when Mr Burgess obtained a better position. In his letter of resignation, after thanking the committee for their consistent kindness, he said

> 'There is one point, however, I cannot pass over in silence. I have to express my utter indignation and contempt for Mr Murdoch's conduct towards more than one officer of this establishment. I look upon the whole with perfect disgust and scorn.'

Unless one counts David Ewart (a solicitor in Ecclefechan), the clerk, there were only three 'officers' — Mr and Mrs Griffin and Burgess himself. No complaints about Burgess were ever recorded, but it is striking that he should resign soon after Griffin.

The next indication of how the inmates were treated is found in November, 1856, when Abraham Lamonby and his wife, Eliza Fell, were appointed governor and matron. On the recommendation of the surgeon, and on the advice of the governor, it was agreed that potatoes were now to be given twice a week. This, it is clear, is an increase. In June 1857 Lamonby was allowed to make another improvement. The vexing question of how much porridge they should get was once more under dis-cussion, and this time it was decided that adults, classes B and D, should get five ounces of meal for each breakfast and supper.

There had been no indication earlier of anything like a Poorhouse uniform, but in July, 1857 we read that the men's 'cloths' were in future to be made of moleskin, 'the same as the boys', the coats to be cut square at the front.' Around this time, too, there were bulk purchases of shoes (assorted sizes), woollen handkerchiefs, Glengarry bonnets and nightcaps. The motive for the bulk purchases would be economy, but it would lead to the Poorhouse people looking the same. Lengths of cloth for making clothes were also purchased from time to time. Indeed, the principal work done by the female inmates was probably housework and dressmaking. Another move towards uniformity of dress is recorded in December, 1857, when the governor was told to get a little warmer stuff to make frocks for the little girls and boys who attended the infant school, and to have the frocks made in the house.

There is no reference to the work done by the men until November, 1857, when Lamonby reported that he had got a few stones for the inmates to break. He was told to obtain more. In June, 1858 he was instructed to get a small supply of old ropes for the purpose of making oakum in wet weather. The 'work' element was never strong at Kirkpatrick Fleming, for, as the committee pointed out, the great majority of the inmates were either very old or very young. On several occasions it was necessary to employ local girls as servants because the Poorhouse women were unable to do the necessary housework themselves.

Lamonby was to remain governor until he died suddenly on New Year's Day, 1893, but this article concerns only his early years during which he was three times the subject of complaint — once by Sir John Heron-Maxwell, once by the Board of Supervision, and once by Mr Murdoch. Who else?

Sir John's name appears from time to time in these minutes, which is not altogether surprising, since he was the biggest landowner in Kirkpatrick Fleming parish. He had been in dispute with the committee over the site and over Griffin. Then, in 1855, he replaced Colonel Graham, the next biggest local landowner, as the

committee chairman. The minutes immediately became much shorter, although Sir John was not a particularly regular attender. In 1856, Colonel Graham returned as chairman, and held the post for another twenty years or so. The minutes regained their fullness, which is to the benefit of the historian, for Graham was not one to sweep unpleasant business under the carpet. Sir John made one generous gesture to the Poorhouse when he gave permission for his loft in the parish church to be used by the inmates. In 1858 he forwarded a complaint against Lamonby by Betty Scott, a former inmate. The House Committee took evidence from the surgeon, Carruthers, who had witnessed the alleged attack. He said that Lamonby asked her to lift up a pile of dirty clothes which she had left on the floor. She refused; he lifted her up 'after some altercation on her part', but not roughly nor in a passion, and took her for confinement. Carruthers saw her going about soon afterwards, when she made no complaint. A few days later she dismissed herself, still without complaint. The House Committee judged the complaint unjustified.

The next complaint, the reader may well feel, reflects more on the Board of Supervision than on the House Committee. It was the highly critical report of the visiting officer, W. A. Paterson; there were 30 inmates when he visited — 14 adult males, 7 females, 8 boys and a girl. Some plaster work was needed. There was an insufficient supply of Bibles and other books, and there were too few armchairs for the aged and infirm. The kitchen, scullery and bathroom showed signs of damp, and the lavatories needed attention. All these, no doubt, were legitimate points, and were immediately attended to. However, the House Committee were also faulted for increasing the amount of meal from four ounces to five for some of the adults. The discipline was said to be too lax in that the children were allowed out of the Poorhouse to attend school and the adults were allowed the liberty of the garden.

The reader may be puzzled by some of these points. So, it seems, were the House Committee. They pointed out that strict discipline was hardly required for people who were, in the main, old, inform, or children. Nor could they see what was wrong with letting the children attend the parish school. The Board of Supervision's attitude was made only too clear. The Poorhouse was intended to be cut off from the rest of the community — hence the objection to the garden. The Poorhouse was to be a 'test', by which, presumably, they meant that conditions should be such as to discourage malingerers. Kirkpatrick Fleming Poorhouse was not unpleasant enough. Inmates should not be allowed to attend church.

> 'There is considerable risk of impairing the efficiency of a Poorhouse as a test if the inmates are allowed on any pretext to go beyond the walls even for the purpose of going to church, and the privilege should be granted sparingly and only to those who are of good character. . . . No inmate should think he had the right. . . . The greatest evils have been found to be consequent on any general license of this kind.'

In the end the committee were allowed to continue sending the children to school. The danger, according to the Board, was that the adult inmates would prevail on the children to purchase food or spirits for them.

The third complaint against Lamonby came from Kirkpatrick Fleming Parish Board, who passed on a report from Mr Murdoch. The details of the complaint became obscured by a later dispute between Murdoch and the Parish Board as to

what exactly the minister had said, and the whole matter died the death of confusion. Mr Murdoch had been visiting a sick inmate, John Teasel, or Teasdale, and had noticed two broken panes of glass in the sick room. He reported this, not, as one might have expected, to the governor, but rather to one of the members of the house committee. Lamonby later claimed that only one pane was broken, and that he had covered it with paper, which the wind had blown off. Teasdale had died. Neither the minister nor the governor emerges well from the story. The minister claimed to have been shocked, yet did not mention the broken pane to the governor, who should have known about it anyway, and who took inadequate steps to deal with it.

The minutes do not report another inspection until 1869, when the report, while generally satisfactory, still thought conditions (with one exception) were too good. For example, *all* the inmates whether working or not, were given meat, and the children were able to communicate too much with the adults in the 'airing ground'. The exception — 'I directed the governor to admit light to the refractory cell.' Meat had been part of the diet from the outset. George Lindsay in Annan had won a tender for supplying beef in June 1853. The tenders, incidentally, reflect the value of the railway to the community. Carlisle dealers were regularly among the suppliers, and coal was brought from Canonbie.

One or two other points shed light on Poorhouse conditions. Water seems to have been pumped from a well which sometimes provided an inadequate supply in the summer. The children slept two to a bed until 1859, when they were given single beds. And in December 1858 the governor was instructed to give 'the usual extra dinner on New Year's Day.'

I have concentrated on the conditions in the Poorhouse. Two other themes recur throughout the early minutes. The first concerns the reluctance of the local ministers to visit the Poorhouse, and the second is the difficulty, until Lamonby's appointment, of getting a suitable person as governor.

The Board of Supervision's policy was that each Poorhouse should have a chaplain, but they were prepared to accept an alternative whereby the local ministers visited regularly on a rota basis. Why the local ministers were so reluctant to come is not clear. At first they said they would not, then that they would, but it seems they often missed their turn. It was not felt to matter too much while the inmates attended the parish church, and Mr Murdoch does seem to have paid fairly regular visits. The question blew up again in 1861, when the Committee were reminded that the inmates really ought not to attend the local church. The Board wanted services in the Poorhouse on Sunday afternoons. Fourteen local ministers were written to, and after a good deal of acrimony — mainly from Mr Murdoch — ten of them agreed and one, Mr Tait, refused. The others had not replied when the committee met on 17th February, 1862. Not all the ministers were in the established Church of Scotland. It is possible that the feelings caused by the Disruption were among the barriers to securing an agreement.

When Griffin resigned in November 1853, he agreed to stay on until a replacement came, which should not have been long, for no fewer than twenty-four applications were received. The committee proceeded to draw up leets on three separate occasions. The first time both applicants withdrew. The next time only one turned up, and he was found to be unsatisfactory. Finally, in March 1854, Mr and Mrs

Garvie were appointed. A year later Garvie disappeared. He had been advised that his conduct was to be examined because of unspecified irregularities alleged against him. Next day he was gone, although his wife remained until she was formally dismissed.

John Reddie, the next governor, lasted about a year before he left for Linlithgow. He drew up an inventory which showed that a number of blankets and sheets were missing and that receipts of food had not been properly recorded. It would seem that the committee regarded this as reflecting negligence rather than theft by the previous governors, for no action was taken. When Reddie left, Robert Jackson from Glasgow, was appointed successor, but five days later (June 23rd, 1856) he refused the post. The house committee was so angry that he was eventually taken to court for breach of agreement, and had to pay £10 damages.

Next time a leet of three was drawn up. It was par for the course when only one, Mr Weaving, turned up for the interview. He was appointed in June and resigned in August. The minute of August 11th, 1856, records that he had written a letter saying he would resign the post unless he were given a list of articles. The committee refused, Weaving went. It was soon after this that Lamonby was appointed. In this case two out of four on the short leet turned up — the unsuccessful candidate being Robert Roddan of Dumfries.

In order to understand why the Poorhouse committee found it so difficult to appoint a satisfactory governor, one would need to know more than I do about the supply and demand for such posts in the 1850s. These facts are, however, clear — first, that whenever there was a vacancy, there were numerous applicants; second, that the majority of applicants withdrew before, or failed to turn up for, the interview; third, of the six people who were appointed between 1853 and 1856, two had to be dismissed and three left almost at once of their own free will.

The subsequent history of the Poorhouse was in marked contrast to the first four years: six governors in the first four years, two in the next seventy. Mrs Lamonby died in 1885, and was succeeded as matron by Fanny Gordon. Lamonby himself was succeeded in 1893 by William Kerr, who was still governor in the 1920s, when the matron was Margaret Gordon.

In 1920 the Board of Health suggested that the Poorhouse needed a new name. What about Burnbank House, Glebe House or Solway View? The Committee decided instead on 'Notwen', being Newton in reverse.

The costs of printing this paper have been met by the Ann Hill Fund.

SORBIE TOWER

A field survey of the surrounding lands

by

Shan Grant and J. Scott Wood

In early July 1983, an architectural survey of Sorbie Tower (NX451470), Wigtown District, was undertaken at the invitation of the Hannay Family and was carried out simultaneously with an excavation on the Motte by Mr E. Talbot of Glasgow University. In addition, a field survey was made of the surrounding lands, in particular a heavily wooded area known as The Old Tower Plantation, lying to the north and east of the Tower. It is a report of this latter work which is now presented.

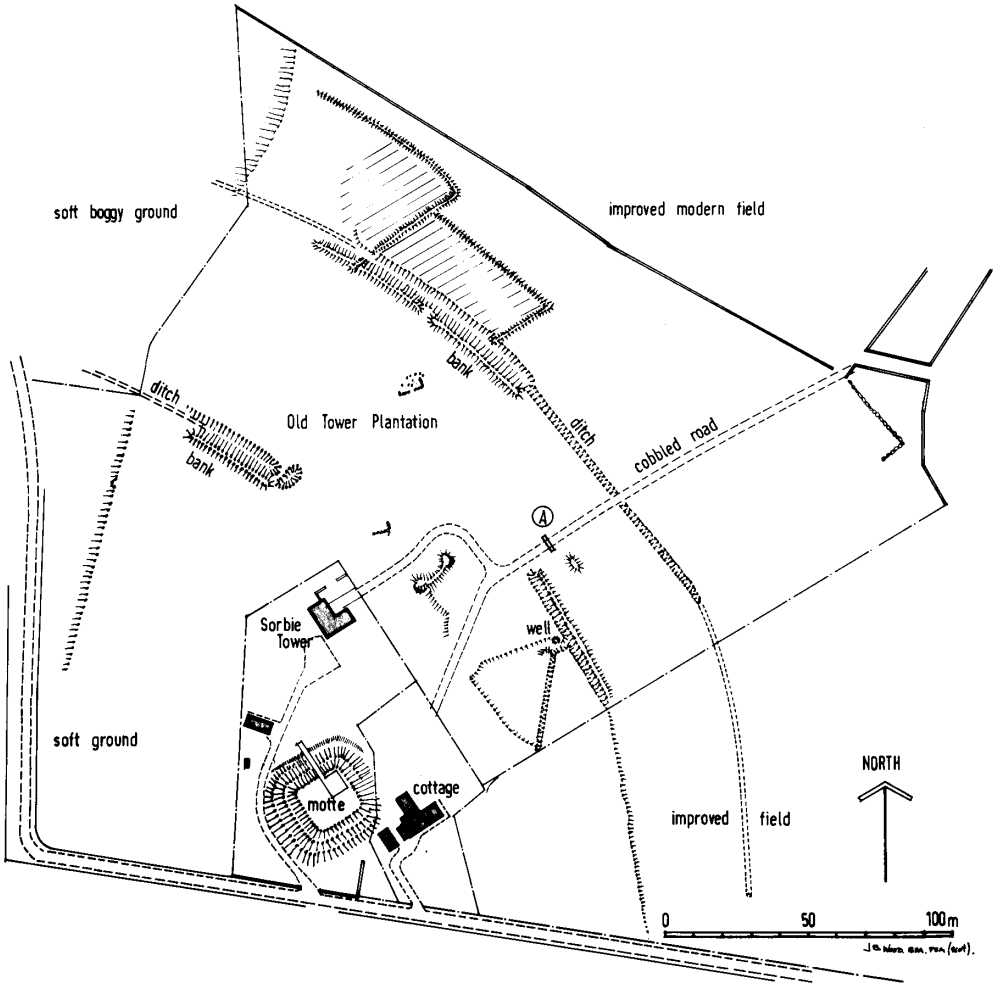


Fig. 1 General Plan of land surrounding Sorbie Tower.

The lands to the south and west have been extensively improved and farmed, the whole being drained by the Insh burn running from west to east only a short distance to the south of the Tower. The west side of the Plantation is bounded by a farm road and a substantially canalised tributary running from north to south. Despite this the extreme western edge of the Old Tower Plantation is still wet and boggy with ponding during the winter months. The Motte is located in the angle formed by the Insh burn and these wet lands. It is a low square mound, with two terraces or steps discernible on all but its eastern side. At the

base the mound is some 36m. square with a level top 17.5m. square. The remains of a silted up ditch are evident on the northern and western sides. The building of a modern cottage close to the eastern side has resulted in the ditch and terrace features being destroyed. The formation of a modern access road to the Tower has had a similar effect on the ditch to the south and west sides. Sorbie Tower stands some 55m. due north of the centre of the Motte and the land between has been levelled and landscaped in the recent past.

A well constructed road, some 3.30m. wide was traced running in a north eastern direction from the entrance yard of the Tower, through the entire length of the Plantation before disappearing at the fields beyond. As the road leaves the Tower, it travels some 40m. before making a curious right turn for 20m. then turning left to resume its original course which is maintained for the rest of its discernible length of 140m. The road was covered with a shallow layer of soil and conifer detritus and had evidence of wheel rutting.

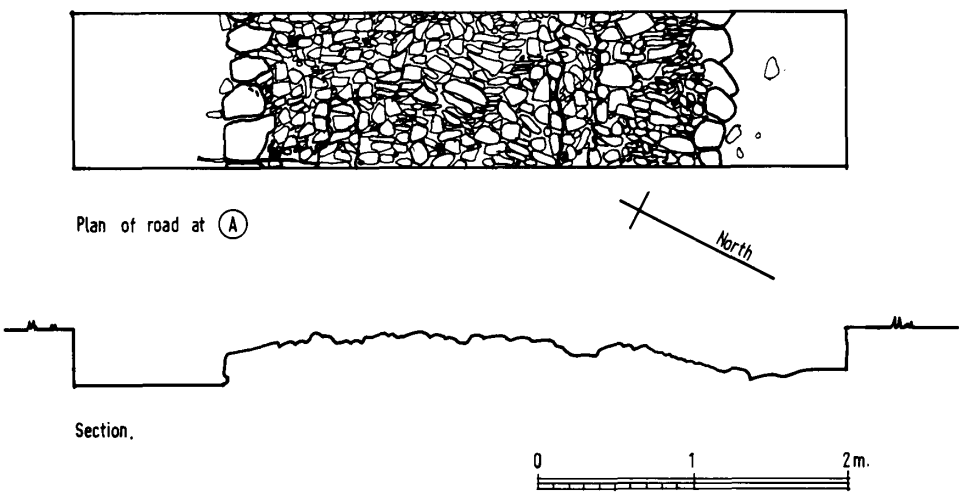


Fig. 2 Plan and profile of road at point A on General Plan.

Approximately 100m. from the Motte, the remains of a substantial ditch (over 2m. deep) and bank (some 1.5m. high) were noted running in an arc from the wet lands in the north to the Insh burn in the east. Beyond this, by a further 70m. to the north, there is a second ditch and bank of similar proportions, which closely follow the same arc as the first ditch, to a point some 50m. beyond it in the east. On the eastern flank both these features pass through a modern field, where they can be followed by observing the soft damp depressions and vegetation changes. In the northern sector, both these structures are substantial, the raised banks being on the inner sides with the ditches on the outer or northern sides.

Beyond the outer ditch, in the extreme north, there is an area of rig and furrow, enclosed by a system of low stone and earth walls. This might have been repeated in the extreme east corner where similar walling was observed.

Conclusions

It is reasonable to assume that in the past the area was largely waterlogged and boggy, with a spine of slightly higher dry land fanning out in a quadrant to the north east. The Motte is sited in the angle at the point of the fan. It is likely, that if a bailey did exist, it was in the area now occupied by the Tower immediately to the north of the Motte. Beyond this, ditch and bank systems were constructed across the widening quadrant. The innermost is not continuous and gives the impression of having been abandoned before completion, while the outer appears not to have achieved the full proportions intended throughout its length.

The road lies in the centre of the fan of land and aims directly at the possible bailey on the north side of the Motte. The curious double dog leg to arrive at the Tower may have been a diversion when the Tower was built. Despite this however, the present cobbled construction is younger than the outer ditch, for

although considerably settled into the ditch, the surface is continuous across it. Further to the north, where the ditch and bank works are at their most massive, the bank is pierced by a narrow passage through to the lip of the ditch, and it is possible this may have been an earlier crossing point.

The cultivated area seems to be of a later date as the walls enclosing it surmount the main ditch and bank at two points.

Acknowledgements:

Thanks are due to the Hannay Family for their support and encouragement, and to Fraser Hunter whose youthful enthusiasm was an inspiration. Connie Wood spent several days clearing routes for base lines and offsets but her untimely death has prevented her from seeing the results in print.

Bibliography:

Galloway Castles and Tower Houses. The Old Place of Sorbie. I. F. Macleod 1969.

11 October 1985
Annual General Meeting.
Mr A. E. Truckell was elected as an Honorary Member.
Speaker: Dr P. Stone — The Geology of South-West Scotland.

25 October 1985
Speaker: Mr A. Struthers — Farm Machinery.

8 November 1985
Speaker: Mr P. Hill — Recent Excavations at Whithorn.

22 November 1985
Speaker: Mr I. Munro — Listed Buildings.

6 December 1985
Speaker: Mr A. E. Truckell — Journeying to Samarkand.

10 January 1986
Members' Night.
Speakers: Mrs M. Martin — Botanical Collections.
Mr A. Mushet — Drumlanrig.
Mr M. MacLure — London Churches.

24 January 1986
Speaker: Dr D. Tervet — Acid Rain.

7 February 1986
Speaker: Mr R. Mercer — Excavations at Eskdalemuir.

21 February 1986
Speaker: Mr W. Hean — Gardens in Galloway.

7 March 1986
Speaker: Mr G. Stell — Morton Castle.

21 March 1986
Special General Meeting.
Speaker: Mr D. Smith.

RULES

As revised and adopted at the Annual General Meeting held on 10th October, 1986.

NAME OF THE SOCIETY

1. The Society shall be called "The Dumfriesshire and Galloway Natural History and Antiquarian Society."

AIMS

2. The objects of the Society shall be to collect and publish the best information on the natural sciences and antiquities (including history, records, genealogy, customs, and heraldry) of the three counties of Dumfries, Kirkcudbright and Wigtown; to procure the preservation of objects of natural science and antiquities relative to the district; to encourage local research and field activities in natural science and excavations by private individuals or public bodies and afford them suggestions and co-operation; to prevent as far as possible, any injury to ancient monuments and records, etc.; and to collect photographs, drawings and descriptions and transcripts of the same.

MEMBERSHIP

3. The Society shall consist of Life Members, Honorary Members, Ordinary Members, and Junior Members.

LIFE MEMBERS

4. Life Membership shall be gained by a composition fee of such sum as may be agreed on from time to time by the Annual General Meeting or a Special Meeting, which shall entitle the Life Member to all the privileges of the Society.

HONORARY MEMBERS

5. Honorary Members shall not exceed twenty in number. They shall be entitled to all the privileges of the Society, without subscriptions, but shall be elected or re-elected annually at the Annual General Meeting. Honorary Membership shall, as far as possible, be reserved (a) for those who have aided the Society locally, or (b) for those of recognised attainments in natural history, archaeology, or kindred subjects.

ORDINARY AND JUNIOR MEMBERS, ANNUAL SUBSCRIPTIONS, PRIVILEGES OF MEMBERS

6. Ordinary Members shall be proposed and elected at any Meeting of the Society by a vote of the majority present. They shall contribute annually on the 1st October or within three months thereafter such sum as may be agreed upon from time to time by the Annual General Meeting, or a Special Meeting. All Ordinary Members shall be entitled to attend the Meetings of the Society and shall receive gratis a copy of the "Transactions" of the Society on issue.

When more than one person from the same family and residing in the same house joins the Society, all after the first may pay half the subscription rate or such sum as may be agreed upon from time to time by the Annual General Meeting or a Special Meeting, and shall enjoy the privileges of the Society except that they shall not receive gratis a copy of the "Transactions."

Junior members are those who have not attained the age of eighteen. They shall be proposed and elected in the same way as Ordinary Members, but shall pay an annual subscription of such sum as may be agreed upon from time to time. Junior Members shall be entitled to all the privileges of membership, except that they shall have no vote nor shall they receive gratis a copy of the "Transactions." Junior Members shall be liable for the Ordinary Membership subscription on the first day of October following their eighteenth birthday, or within three months thereafter.

Subscriptions from newly elected Members are due immediately after election.

OVERDUE SUBSCRIPTIONS

7. Members whose subscriptions are in arrears shall not receive the "Transactions." If in arrears for fifteen months and having received due notice from the Treasurer, they shall cease *ipso facto* to be Members of the Society.

VISITORS

8. A Member may introduce a friend to any Ordinary Meeting of the Society.

OFFICE-BEARERS, COUNCIL, ELECTION

9. The business of the Society shall be conducted by a Council composed of a President, Past Presidents, four Vice-presidents, Secretary, Treasurer, and twelve Ordinary Members, together with Librarians, Curators and Editors. They shall be elected at the Annual General Meeting and shall be eligible for re-election with the following provisos:

The President shall not occupy the Chair for more than three years consecutively and shall not be eligible for re-election until the expiry of one year.

Each year one Vice-president and three Ordinary Members shall retire and shall not be eligible for re-election until the expiry of one year. In deciding who shall be ineligible for re-election, the Council shall take into account length of service and attendance at the Council meetings, but if vacancies occur owing to voluntary retirement or death, these vacancies shall reduce the retiring quota.

The Council shall have power to fill casual vacancies occurring during the year. Any person thus appointed shall be subject to the same conditions as those applicable to the person whom he replaces.

QUORUM

Five Members shall form a quorum at a Council Meeting.

FELLOWS

10. On retiring, Presidents shall become Fellows of the Society. This honour may also be conferred upon Members of the Society who have done outstanding scientific work for the Society. Such individuals shall be proposed by the Council for election at an Annual General Meeting. A Fellow shall be eligible for any office for which he is qualified.

COMMITTEES

11. The Council may appoint Committees for any specific purpose, and with such powers as may seem warranted by the occasion; any such Committee to be composed of not less than three Members of the Society, exclusive of the President and the Secretary, who shall be *ex officio* members of all Committees. Every Committee shall have power to co-opt.

SECRETARY'S DUTIES

12. The Secretary shall keep a Minute Book of the Society's Proceedings, shall conduct the ordinary correspondence of the Society and shall submit a report on the previous year's activities at the Annual General Meeting. The Secretary shall call all Meetings.

EDITOR

13. The Council shall appoint one or more Members of the Society as Editors of the "Transactions," who shall be *ex officio* Members of the Council.

TREASURER'S DUTIES

14. The Treasurer shall collect the subscriptions, take charge of the funds, and make payments therefrom under the direction of the Council, to whom the Treasurer shall present an Annual Account made up to 31st March, to be audited for submission at the Annual Meeting.

The insurance against fire and theft of all the belongings of, or of articles in charge of, the Society shall be the responsibility of the Treasurer.

INVESTED FUNDS

15. The Invested Funds of the Society shall be in the name of the President, Secretary, and Treasurer, for the time being, conjointly or held by the Nominee Company of the Society's Bank to the order of the said three Office-Bearers. Life Membership fees are to be regarded as capital, and are to be invested at the discretion of the above-named three Office-Bearers in any Stocks known as Trustee Securities, or in a Bank Deposit.

MEETINGS

16. The Meetings of the Society shall be held, as arranged by the Council, and at such meetings papers may be read and discussed, objects of interest exhibited, and other business transacted.

FIELD MEETINGS

17. The Field Meetings shall be held as arranged by the Council, to visit and examine places of interest, and otherwise carry out the aims of the Society.

ANNUAL GENERAL MEETING

18. The Annual General Meeting, of which not less than fourteen days' notice shall be given, shall be held in October, and at this meeting the Office-Bearers, Members of Council, and two Auditors shall be elected. Fifteen Members shall form a quorum.

Reports (general and financial) shall be submitted and any other competent business transacted. Office-Bearers and Members of Council shall be nominated by the outgoing Council, but it shall be competent for any two Members to make alternative or additional nominations, provided that they are in the hands of the Secretary, together with the consent in writing of the nominee(s), at least seven clear days before the meeting. A ballot shall be held if necessary.

SPECIAL MEETINGS

19. The Secretary or the President shall at any time call a special meeting of the Society on receiving instructions of the Council, or a requisition signed by six Members. Every Member of the Society must be informed of any such Special Meeting, of which not less than seven days' notice must be given. Fifteen Members shall form a quorum.

TRANSACTIONAL RIGHT TO PUBLISH PAPERS

20. The Council shall have the right to publish in the "Transactions," or otherwise, the whole, or part, of a resumé of, any paper read by any member or person at a meeting of the Society, and the Council shall decide what illustrations, plates, or diagrams shall be reproduced with any such papers.

SEPARATE COPIES OF PAPERS

21. Contributors of papers to the Society shall be entitled, if such papers be published in the "Transactions," to receive ten copies gratis of such papers as "separates" in pamphlet form.

LOANS

22. The Society is prepared to accept articles of interest for exhibition on loan, but they will not be responsible for their damage or loss by fire, theft, or any other cause. It is desirable that parties lending articles should state the value put upon them, that the Society (in their discretion) may insure the articles for a similar amount. The Council shall have the power to terminate or to refuse, the loan of such articles as they may from time to time see fit.

RULES

23. These Rules cancel all other Rules previously passed. They shall be printed in pamphlet form and a copy shall be supplied to every member and to every new member on his election. They shall take effect from the date of the Meeting at which they were adopted.

ALTERATION OF RULES

24. Alterations of these Rules or the addition of any new rule shall be made only with the consent of three-fourths of the Members, present and voting at an Annual General Meeting, or at a Special Meeting, notice of such proposed alteration or addition having been given in writing to the Secretary not less than eight weeks previous to such Meeting. The Secretary shall intimate to all Members resident in the British Isles that a change in the Rules is proposed.

Publications of the Society

Transactions and Journal of Proceedings: 1st Series—(a) 1862-3*, (b) 1863-4*, (c) 1864-5*, (d) 1865-6*, (e) 1866-7*, (f) 1867-8*. New or 2nd Series—(1) 1876-8*, (2) 1878-80*, (3) 1880-3*, (4) 1883-6, (5) 1886-7, (6) 1887-90*, (7) 1890-1, (8) 1891-2*, (9) 1892-3*, (10) 1893-4*, (11) 1894-5*, (12) 1895-6*, (13) 1896-7*, (14) 1897-8*, (15) 1898-9*, (16) 1899-1900*, (17) 1900-5 (in 4 parts)*, (18) 1905-6*, (19) 1906-7, (20) 1907-8*, (21) 1908-9, (22) 1909-10*, (23) 1910-11*, (24) 1911-12*. 3rd Series — (i) 1912-3*, (ii) 1913-4*, (iii) 1914-5*, (iv) 1915-6*, (v) 1916-8*, (vi) 1918-9*, (vii) 1919-20*, (viii) 1920-1*, (ix) 1921-2*, (x) 1922-3*, (xi) 1923-4*, (xii) 1924-5, (xiii) 1925-6*, (xiv) 1926-8*, (xv) 1928-9, (xvi) 1929-30*, (xvii) 1930-31, (xviii) 1931-33*, (xix) 1933-35*, (xx) 1935-36*, (xxi) 1936-38*, (xxii) 1938-40*, (xxiii) 1940-4*, (xxiv) 1945-6*, (xxv) 1946-7, (xxvi) 1947-8, (xxvii) 1948-9*, (Whithorn Vol 1), (xxviii) 1949-50*, (xxix) 1950-1 (with Index of Vols i to xxvii)*, (xxx) 1951-2*, (xxxi) 1952-3* (Hoddam Vol.), (xxxii) 1953-4, (xxxiii) 1954-5, (xxxiv) 1955-6* (Whithorn Vol. 2), (xxxv) 1956-7, (xxxvi) 1957-8, (xxxvii) 1958-9, (xxxviii) 1959-60, (xxix) 1960-1 (with Index of Vols. xxvii to xxxviii), (xl) 1961-2 (Centenary Vol.), (xli) 1962-3, (xlii) 1965 (new format), (xliii) 1966, (xliv) 1967, (xlv) 1968, (xlvi) 1969, (xlvii) 1970, (xlviii) 1971, (xlix) 1972 (with Index of Vols. xxxix to xlviii), (l) 1973, (li) 1975, (lii) 1976-77, (liii) 1977-8, (liv) 1979 (Wanlockhead Vol.), (lv) 1980, (lvi) 1981, (lvii) 1982, (lviii) 1983, (lix) 1984 (with Index of vols. xlix to lviii), (lx) 1985, (lxi) 1986.

Prices: Single Volumes (to Members) — To Vol. 53, £3; Vol. 54 on, £5, all plus postages.

Runs of Volumes (and prices to non-members) — On application to Hon. Assistant Librarian.

A List of the Flowering Plants of Dumf. and Kirkcud. by James McAndrew, 1882.*

Birrens and its Antiquities, by Dr. J. Macdonald and James Barbour, 1897*

Communion Tokens, with a Catalogue of those of Dumfriesshire, by Rev. H. A. Whitelaw, 1911.*

History of Dumfries Post Office, by J. M. Corrie, 1912.*

History of the Society, by H. S. Gladstone, 1913.*

The Ruthwell Cross, by W. G. Collingwood, 1917.*

Records of the Western Marches, Vol. I, "Edgar's History of Dumfries, 1746," with illustrations and ten pedigree charts, edited by R. C. Reid, 1916.*

Records of the Western Marches, Vol. II, "The Bell Family in Dumfriesshire." by James Steuart, W.S., 1932.*

Records of the Western Marches, Vol. III, "The Upper Nithsdale Coalworks from Pictish Times to 1925", by J. C. McConnel, 1962, £2.00 plus postage.

Notes on the Birds of Dumfriesshire, by Hugh S. Gladstone, 1923.*

A Bibliography of the Parish of Annan, by Frank Miller, F.S.A.Scot.*

Index to Transactions, Series 1 and 2. £2 plus postage and packing.

The Marine Fauna and Flora of the Solway Firth Area, by Dr. E. J. Perkins, 1972. 112pp. £2 plus postage and packing. **Corrigenda**. Free on receipt of s.a.e.

Birrens (Blatobulgium), by Prof. A. S. Robertson (1975), 292pp. 88 figs. 12 pls. £5.50 post free to members; £7.70 to non-members.

Cruggleton Castle, Report of Excavations 1978-1981 by Gordon Ewart, 1985. 72pp. 33 figs. £3.50 post free to members; £4.50 to non-members.

*Indicates out of print, but see Editorial.

Reprint of "The Early Crosses of Galloway" by W. G. Collingwood from Vol. x (1922-3), 37pp text, 49 crosses illustrated and discussed. For price and publication date apply to Hon. Ass. Librarian.

Publications in print may be obtained from the Hon. Assistant Librarian, Mr R. Coleman, 4 Lovers Walk, Dumfries.

Printed by Dinwiddie Grieve Ltd, Irish Street, Dumfries.