ISSN 0309 7560

the Forth Naturalist and Historian

Patricia Macdonald

UNIVERSITY JUBILEE ISSUE

VOLUME 16

the Forth Naturalist and Historian

Volume 16

Published by the Forth Naturalist and Historian, a University/Central Regional Council collaboration, and an approved charity. The University, Stirling, 1993.

ISSN 1 898008 01 9

ISBN 0 898008 01 9

Supported by BP in Scotland

Cover photograph of the University by Patricia Macdonald

Printed by Meigle Printers Ltd., Tweedbank Industrial Estate, Galashiels. Set in Palacio on 90gsm Fyneprint Paper with White Astralux 290

THE WEATHER OF 1992

S. J. Harrison
University of Stirling

This year brought slightly more of a mixed bag of weather than usual but most newsworthy weather events occurred overseas, the most notable being Hurricane Andrew which hit Florida during August. On the whole, the first half of the year was warmer than average, the latter half cooler. It was this latter half of the year which provided the most extreme weather events starting with heavy rain and gales in a very unsettled August, air frosts through October, gales and floods in South Wales in November, and a cold bleak December with freezing fog and snow almost up to Christmas.

Temperature and rainfall values referred to in the following have been taken from Parkhead, the University's climatological station, unless otherwise stated.

January. Unsettled and very wet at first, becoming more settled.

The recent trend towards wet and windy winter months was certainly in evidence for the first eight days of 1992. Scotland experienced a vigorous south-westerly airstrea'm bringing gales on the 2nd and 3rd and an exceptionally wet day on the 7th (34.6mm). The Allan overtopped its banks on the 3rd and 8th. After the 9th, night temperatures fell very sharply and there were moderate frosts when the sky cleared, falling to -4.9°C early on the 10th. Patchy mist and fog formed which was dense and freezing on the morning of the 15th. A very mild south-westerly airstream then developed and a minimum temperature of 6.9°C was registered on the morning of the 19th, but as the wind went round to the east, temperatures fell sharply, and the 21st and 22nd were very dull cold days. The daytime temperature reached only 1.9°C on the 22nd. Dense freezing fog was a frequent hazard in the mornings up to the 31st and on the 29th it persisted all day.

February. Mild and rather wet.

Temperatures rose in warm tropical maritime air and reached 11.7°C on the 5th. The weather remained mild and unsettled for several days but temperatures began to fall in colder polar air. Snow showers fell on the 16th and during the afternoon of the 17th there was heavy and continuous snow which began to turn to sleet at altitudes below 30m. The 21st and 22nd were together the wettest 48hr period of the month (23.0mm). Unsettled weather continued until the end of the month.

March. Mild but very dull.

Unsettled weather persisted for the first seven days and the 4th and 5th were very dull with low cloud and drizzle. The weather turned much more wintry on the 10th when heavy snow showers returned a cover of

snow to ground above 60m. More snow fell on the 12th and 13th in a fresh to strong WNW breeze, and was lying to a depth of 0.5 cms in Bridge of Allan on the morning of the 13th. As the wind backed to SW the temperature rose very quickly and on the 16th the daytime temperature reached 12.4°C and the snowline had retreated to 450m. The mild and cloudy weather lasted until the 21st when the wind again returned to WNW. The wind eventually veered NNW by the 24th and stayed there until the 27th. The weather was bright and sunny and the visibility was excellent in the cold Arctic air, but no night frosts occurred. The 31st was a particularly wet and windy day, the rain turning to sleet and snow by the late afternoon (30.5mm Parkhead, 47.1mm Bridge of Allan).

April. Dull. Dry at first becoming wetter.

Changeable weather continued for the first two days with further light snow showers falling on the 2nd. There were two bright and sunny days on the 4th and 5th but these were displaced by exceptionally dull and damp weather between the 6th and llth. A cold front crossed Scotland on the 12th and heavy hail showers fell in the cooler clearer polar maritime air behind it. The respite was, however, brief as cloud and rain returned on the 14th. Amounts of rain remained generally small, the 25th being the month's wettest day with only 8.2mm (6.6mm Bridge of Allan). There was a brief interlude of brighter weather on the 28th and 29th before rain returned again on the 30th.

May. Warm and moderately dry.

The first two days were bright and clear in a fresh WNW breeze but the weather became more settled in a mild, but occasionally quite vigorous, westerly airstream. Squally showers fell as snow on the 8th and as hail on the 10th and llth, but later on the llth heavy rain was falling in a strong south-westerly. By the morning of the 12th 14.2mm of rain had fallen, the month's largest daily total. The weather changed again on the 13th as Britain was affected by a very hot southerly airstream and on the 14th the daytime temperature reached a remarkable 28.0°C (29°C in Edinburgh, 28°C in Glasgow). The heat was, however, short-lived and on the 15th there was a return to fresher conditions. After five sunny days the warm spell came to an abrupt end on the 20th as a shallow thundery area of low pressure developed over south-east Scotland. From the 23rd the weather again became warm with an intermittent easterly breeze.

June. Warm and exceptionally dry.

Apart from the first few days, the weather was dominated for most of the month by high atmospheric pressure which maintained dry, but often cloudy, weather. The 1st was dull with drizzle but the weather improved slowly and, although there was a continuous cloud cover on most mornings, this usually cleared to give pleasantly sunny afternoons. With the wind in the east, haar was a frequent visitor to the east coast and this occasionally reached Stirling.

The 12th was particularly warm reaching the month's highest daytime temperature of 25°C. The weather became consistently sunny between the 18th and 25th but visibility was only moderate on days when a lower atmosphere haze developed. Warm sultry weather brought rain on 30th, the month's wettest day (5.0mm).

July. Cloudy and damp.

Any hopes of 1992 being the year of the much awaited long hot summer were soon dashed as the settled conditions of May and June gave way to unsettled weather from the Atlantic. The first four days were cloudy with occasional rain, although amounts were small in comparison to the heavy 48hr falls, in excess of 50mm, which occurred over England and Wales. On the 5th and 6th the weather became very warm and sultry and a temperature of 20.0°C was registered at 07.30GMT on the 7th in Bridge of Allan, where the maximum temperature reached 28.8°C later the same day (26.5°C at Parkhead). There was cloud and continuous light rain on the llth heralding the start of an extended spell of generally unsettled weather. A particularly vigorous depression moved slowly eastwards over Scotland between the 16th and 19th and the month's heaviest rain fell on the 17th. The 28th to 30th were dry with a light to fresh SW breeze but rain returned again on the 31st as another Atlantic system moved in from the west.

August. Unsettled and very wet.

The weather over the first five days was dominated by a south-westerly wind which was occasionally very blustery, and heavy rain fell on the 2nd, the wettest day of the month at Parkhead (15.6mm). After two pleasantly bright sunny days a thundery low moved northwards from France on the 8th and heavy rain fell over much of England. The rain reached Scotland by the afternoon of the 8th and persisted until the evening of the 9th but no thunder was heard in the Stirling area. The 19th and 20th were sunny, but the respite was brief as cloud and rain returned on the 21st. Although there were a few brighter intervals the weather was dominated by wind and rain, which was heavy at times over England and Wales. There were thundery outbreaks over central Scotland on the 29th and on the 30th the weather became very wet and windy with occasional thunder. Overnight SW gales caused considerable damage over England and Wales and continued throughout the 31st in Scotland.

September. Cold and wet.

Unsettled weather persisted into September and by the 3rd the winds veered towards a cool north-westerly direction. There was very heavy and continuous rain (25.5mm) in a strong SW wind on the 6th. Although the rain died away to showers by the 7th, a run of strong SW winds remained for several days. A shallow thundery low over southern Britain on the 17th and 18th brought violent storms with heavy rain, hail and lightning damage in England but in Scotland the weather was

little more than very dull and grey. of the 20th, the clouds had descended to low ground to give a very wet fog which turned to rain by the afternoon. There were spells of heavy rain in parts of Britain after the 21st, and severe floods occurred in parts of south-east England. Rainfall amounts in Scotland were, however, relatively small and it was not until the 29th that heavy rain fell (24.8mm).

October. Very cold but dry.

17.5mm of rain fell in Stirling on the 2nd, the wettest day of the month after which temperatures fell below freezing at Bridge of Allan on the 7th (-1.0°C) under clear night skies, the first autumnal frost. Mornings were occasionally misty with a heavy dewfall. Cloud amounts were remarkably small at times which allowed night temperatures to fall below freezing on the 19th (-2.5°C). The skies again cleared briefly on the 25th and 26th causing night temperatures to fall below freezing, reaching -5.5°C on the 25th, but wind and rain returned on the 27th.

November. Mild and wet.

24.1mm of rain had fallen by by 09.00 on the 2nd causing the Allan to overtop its banks a few hours later. There was a marked increase in daytime temperature which reached 15.5°C on the 5th but the weather remained generally dull with occasional drizzle until the 7th. As the wind veered westerly, showers of sleet fell on the llth and the first substantial fall on the local hills brought the snowline down to 450m. The month's lowest temperature -4.3°C was registered at 09.00 on the 14th. Generally unsettled weather returned late on the 14th although there were a few sunny spells over the following days. By the 21st the weather showed signs of a return to the strong winds and rain familiar in recent winters. The 23rd and 27th were unpleasantly wet and windy days but rainfall amounts in Scotland were, however, considerably less than in south-west England and South Wales where 25mm of rain was exceeded on several successive days resulting in severe floods in the Welsh valleys by the 30th.

December. Unsettled and wet at first, becoming dry and cold.

A vigorous westerly airstream dominated the first three days bringing heavy rain, adding to the already serious flood problems in the south-west corner of Britain. 15.7mm was registered at Parkhead on the 1st. By the 4th temperatures had fallen in cold Arctic air and it began to snow. On the morning of the 5th the temperature fell to below freezing (-1.2°C) and there was a lethal glaze on local pavements and roads. By contrast, the 6th was wet and windy (13.3mm). Dense fog formed in the cold damp air on the 9th which persisted for much of the day. Snow returned on the 15th and 16th, and 45cm fell in Aviemore, which brought down overhead power and phone lines. Although no snow lay in central Scotland, except on the highest ground, snow falling overnight on 18th/19th lay to a depth of 1cm or so at the start of a spell of very cold weather. There were spells of

snow which lay to 2cms or more by the 22nd. An additional hazard was dense freezing fog which persisted all day on the 20th when the maximum temperature in Bridge of Allan reached only -2.6°C. Minimum temperatures fell below -5.0°C on consecutive nights on the 20th and 21st. With Christmas approaching the weather on the 24th became mild and dull for a while but freezing fog returned on the 29th. More unsettled weather was imminent as Hogmanay approached.

Storms and floods in Scotland 1-3 January

With Scotland sandwiched between high pressure over southern England and very low pressure over Iceland there was a brisk start to 1992 in northern Scotland. Severe gale force winds caused considerable structural damage to the Shetlands. Irvine (1992) writes "Gusts exceeding 100 mph were recorded at Sumburgh. The wind was particularly violent in hail showers. Two people were killed when the hut in which they were sheltering was blown over the cliffs into the sea. Many houses were damaged and some, including two hotels, were demolished This is thought to be the worst *hurricane* in Shetland since the south-east hurricane of 16 February 1990". The wind was accompanied by rain and, although there was little wind damage in the Stirling area, there was widespread flooding and the Allan overtopped its banks. Irvine S G 1992 The Shetland hurricane of 1 January 1992 *Journal of Meteorology (UK)* 17 (167) 96.

Increasing Wetness in Scotland

During the period 1970 to 1989 the mean annual rainfall increased markedly over Scotland to produce the largest inter-decadal shift in hydroclimate that has occurred for 60 years. Consequently, several drainage basins showed amplified increases in annual river flows over the two decades. For some rivers the flows also appear to have become more variable, although the patterns are not consistent between individual basins and suggest the presence of regional factors. There has been a definite increase in the annual spill of water from reservoirs in Scotland but it has proved impossible to link the shift in hydrological conditions directly to increased flood events or flood losses. It is important that some central initiative is taken for the future collection of information on flood emergency events and data on economic losses in Scotland.

A questionnaire survey of senior water managers in Scotland indicated a high level of awareness of existing climatic impacts coupled with concern for future conditions. If, as a result of climate change, there is to be a longer-term trend towards wetter conditions over Scotland, a more detailed study of the two recent decades could provide an analogue for future water management strategies. Given the present state of knowledge, the recent fluctuations cannot be regarded either as unusual in the context of very long-term records, or as a fingerprint of future climatic changes. This is because what appears as a trend in the short term may be only part of an oscillation in the longer term. (K. Smith).

Weather Radar Study

This ongoing one-year project, scheduled between May 1992 and May 1993, is looking at the potential use of both real-time and archived weather radar data in Scotland. A variety of information collection techniques, including in-depth interviews and questionnaires, have been used to determine the existing demand for short-term (0-6 hours ahead) weather forecasts and to assess the likely demand for more specific precipitation forecasts available from weather radar. Apart from looking at the potential applications and financial benefits, more detailed studies of actual decision-making processes are being undertaken with the cooperation of two organisations which currently access radar images directly (K. Smith).

These notes have been extracted from the Annual Climatological Bulletin which can be obtained for £2.50 from Dr S. J. Harrison, Department of Environmental Science, University of Stirling, FK7 4LA.

	Maximum Temperature	Minimum Temperature	Soil Temperature	Rainfall.
	°C	°C	oC	mm
			(0.3m)	
January	6.2	0.3	2.9	107.3
February	6.6	0.5	2.7	66.4
March	8.9	1.7	4.5	85.5
April	11.6	3.2	7.6	42.4
May	15.3	5.7	11.6	56.2
June	17.5	8.2	14.7	56.1
July	19.8	10.7	16.6	62.7
August	19.1	10.0	16.2	72.8·
September	16.0	8.1	13.7	94.5
October	12.7	5.3	10.1	94.3
November	9.0	2.4	6.2	101.4
December	7.2	1.3	3.8	96.6
YEAR	12.5	4.8	9.2	936.2

Climatological averages for Parkhead 1971-92

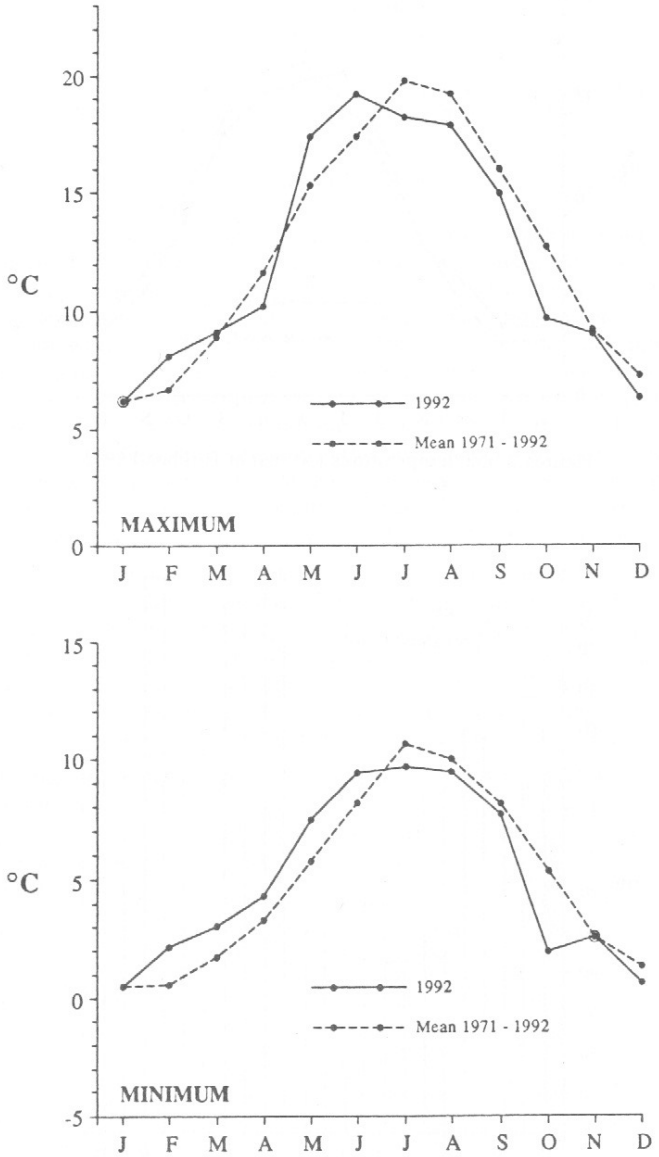


Figure 1. Air Temperatures at Parkhead 1992

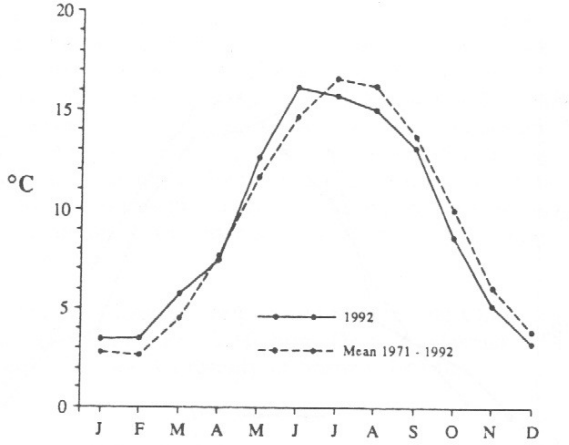


Figure 2. Soil Temperatures at Parkhead 1992

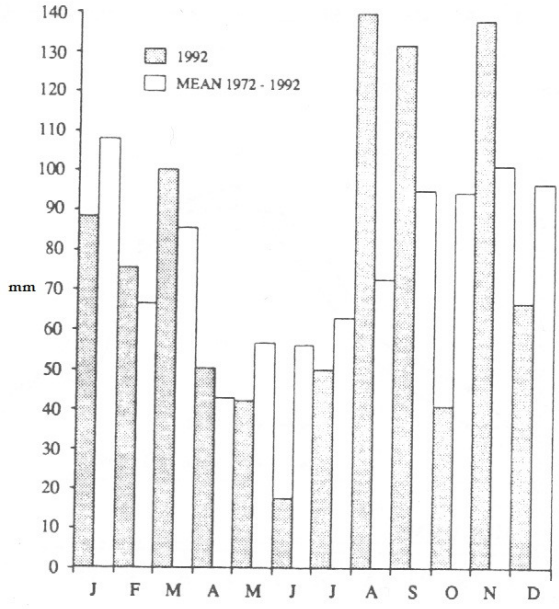


Figure 3. Monthly Rainfall at Parkhead 1992

RECENT CHANGES IN THE WEATHER IN CENTRAL SCOTLAND

S. J. Harrison
University of Stirling

A presentation to the 18th Man and Landscape Symposium 'Environment: 25 Years of Change'. Forth Naturalist and Historian: Stirling November 14th 1992.

INTRODUCTION

Scotland's climate is characteristically very variable which is due largely to two sets of controlling factors. The first is the interaction between the meteorological influences of the Atlantic Ocean to the west and the large Eurasian landmass to the east. The climate of Scotland thus becomes a balance tween ocean (equable and moist) and continental (extreme and drier) influences. The second is its mid-latitude location where a progression of eastwards-moving depressions and their associated fronts results in very distinctive changes in the weather Indeed it has been said that Scotland doesn't have a climate, only weather. Long spells of unchanged weather are relatively rare and are usually given the label 'exceptional'. Prominent examples of such spells are the very cold winter of 1981/82 when temperatures in the Stirling area fell below -10 (for a protracted period, and the summer of 1985 when the rain seemed endless. Looking back over the last 25 years, Scotland's climate was very variable when the University of Stirling was established and it remains very variable in 1992. Because of this variability it is very difficult to identify any broad climatic trends over such a short period and it is even more difficult to find a single cause, or set of causes, should any trend become apparent. Without an adequate supply of meteolorological data these tasks become almost impossible. **Table** 1) Central Region has not been well served by meteorological

Table 1. Climatological stations reporting to the Monthly Weather Report of the Met Office.

	Alt.(m)	Grid Ref.	Record	
Aberfoyle	27	NN 530 004	1969	-1975, 1985-c
Arrochymore	30	NS 415 918	1972	—c
Balquhidder	136	NN 520 206	1983	-c
Callander	107	NN 634 080	1967	-1981
Crianlarich	174	NN 367 284	1975	
Earls Hill	335	NS 725 882	1963	-1980
Falkirk (Sewage Works)	3	NS 902 820	1967	-c
Grangemouth (Ref.)	2	NS 943 813	1971	-c
Killin	116	NN 546 348	1987	-1989
Loch Venacher	84	NN 598 063	1982	-c
Mugdock Park	165	NS 546 780	1991	-c
Parkhead	35	NS 815 969	1971	—c
Stirling (B'flats)	38	NS 786 925	1918	-1982
Stirling (Sewage Works)	7	NS 808 935	1984	—c
Tyndrum	168	NN 359 283	1991	-c

c = current

observation (many of the few observing stations having had relatively short lifespans. The University's own climatological station at Parkhead (Airthrey Gardens) has been maintained by the Department of Biological Sciences since 1971 and, although in a far from perfect site, has provided a reliable and continuous record for the area. The University's other station, near Carim Lodge in the Ochil Hills, was operated from 1980 to 1991 when a lack of resources forced its closure. There are now no sources of climatological data for this extensive hill area. An analysis of data from the Parkhead and other local stations provides an indication as to whether the climate in the late 1960's and early 1970's was any different from what is experienced in 1992.

HAS THE CLIMATE REALLY CHANGED?

The general impression, particularly amongst keen gardeners and other outdoor enthusiasts, seems to be that winters have become warmer, with fewer frosts and less frequent snowfall, and are both wetter and windier. The summer months have perhaps become cooler and cloudier with all too infrequent glimpses of an elusive sun. It is very difficult to establish whether these are based on real experience or whether there is a strong element of suggestion from a national press which is always eager to dwell on the sensational. However, there is a grain of truth in these perceptions which is borne out, to some extent, by scientific observation.

In the following analyses cross checks have been made, where possible, between pairs of climatological stations to ensure that any changes detected are not due to local factors such as growing trees or new buildings in the vicinity which could affect the observations. Annual means or totals have been derived, together with means and totals for the winter (October to March) and summer (April to September) half-years.

(A) Sunshine

There are few records of sunshine for central Scotland but observations from Prummond Castle, near Muthill, and Ardtalnaig, on the shores of Loch Tay, provide some indication of local changes in the duration of bright sunshine since 1971 (Figure 1). The records show a slight decrease in annual mean daily hours of bright sunshine which is attributable to a more marked decrease in Iho summer half-year. During winter there has been no obvious change. This deiTe.iso in summer sunshine is a result of a tendency towards more cloudy we.itlier conditions.

(B) Air Temperatures

Observations of air temperatures have been taken from Parkhead and Falkirk (Sewage Works) for the period 1971 to 1990 and a distinction has been made between mean daily maximum (primarily daytime) and minimum (night-time) temperatures. The former reveal a downwards drift in temperature until the mid-1980's when there was a very sudden upturn (Figure 2). This latter change has fueled much

speculation regarding a globally warmed climate but in the most recent 24 months it has shown some signs of being reversed. In contrast, it is very difficult to isolate any significant trend from the minimum temperature lorord, although again there is some indication of a slight downward trend lo 1985/86 with a subsequent increase (Figure 3).

(C) Rainfall

Rainfall data exhibit the clearest and most remarkable changes in recent i lei ades, from the drier years of the early 1970's to the much wetter late 1980's. An analysis of rainfall observations from gauges at Parkhead and Ben Ledi shows ,i steady increase in annual rainfall over 20 years, to the extent that the rainfall lor 1990 was more than 40% higher than in 1973 (Figure 4). The seasonal sub-totals reveal that much of this increase has occurred in the winter half-year. An analysis by Rowling (1989) of rainfall data from Bridge of Allan and river discharge data for the Allan Water from Kinbuck (Figure 5) suggests that much of the increase in the winter half-year has actually occurred during the late autumn months.

(D) Windiness

There are almost no accurate wind records for central Scotland so reliance has had to be placed on crude wind-force estimates from Parkhead. An analysis of the frequency of days with winds of force 4 or greater at 09.00 GMT during December, January and February reveals no consistent change in windiness (Figure 6). However, a recent analysis of gale frequencies in southern Sweden, at a similar latitude to Scotland, (Franzen 1991) has revealed a clear increase since 1940.

Thus the available evidence appears to suggest that there have been marked changes in recent years with winters having reduced snowfall and snowlie, fewer frosts and greater rainfall totals. Summers may have become cloudier and very slightly damper. However, it needs to be stressed that some of the most noteworthy changes have tended to occur in the last six years. An index of winter severity in Scotland (Harrison 1993), when applied to eight climatological stations in Scotland (Figure 7), emphasises the very recent nature of the shift to warmer winters (Figure 8).

WHY HAS THE CLIMATE CHANGED?

It is tempting to lay the blame at the door of global warming as many of the recent changes in local climate appear to conform with those predicted as a result of increases in greenhouse gases in the lower atmosphere. The Report of the International Panel on Climate Change (Houghton et al 1990) estimate'. that by 2050 AD Scotland's mean air temperatures could be 2 to 4"C[1] higher than at present, winter (DJF) rainfall greater by up to 80mm and summer (JJA) rainfall greater by up to 10mm, and mean atmospheric pressure in winter lower by 5mb and in summer higher by 1mb. Central Scotland certainly appears to have

become warmer and wetter but it is unwise to link such localised changes into the global; scale being considered in the IPCC Report as a great number of local and regional factors may produce the same set of changes. For example, changes towards a warmer and wetter winter climate in the United Kingdom have been linked to pressure patterns over the eastern North Atlantic (Moses et al 1987) leading to a stronger and more frequent oceanic westerly airflow.

A CAUTIONARY NOTE

With so many newspaper headlines predicting the dire consequences of global warming it is easy to forget that the upturn in winter temperature in Scotland has been a relatively recent phenomenon. From the late 1960's to the mid-1980's there appeared to be a trend towards cooler climatic conditions, shown in the greater severity of winters **(Figure** 8). Far from being concerned with global warming, most newspapers and scientific journals were predicting the forthcoming ice-age **(Figure** 9). This contrasts very starkly with headlines from local Scottish newspapers in recent years **(Figure 10).** Perhaps the only lesson that can be learned from this is that scientific, and eventually public, opinion changes almost as frequently as does the Scottish weather.

REFERENCES

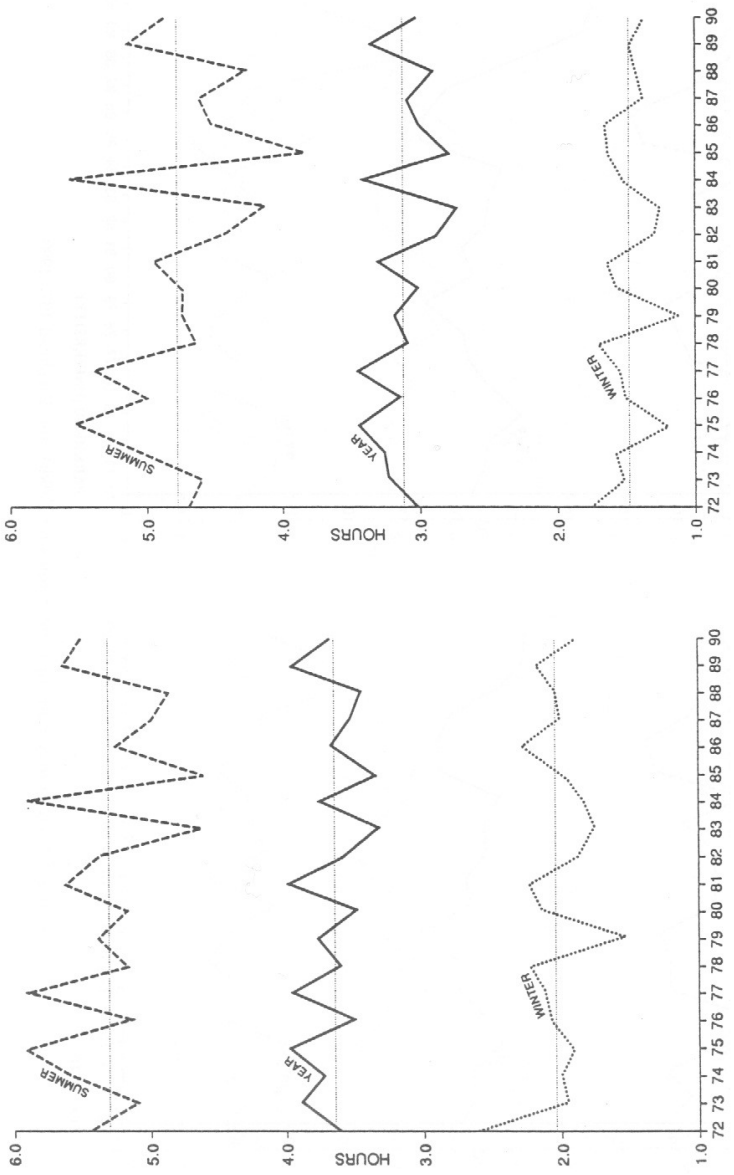
Franzen, L.G. 1991. The changing frequency of gales on the Swedish west coast and its possible relation to the increased damage to coniferous forests of southern Sweden *International Journal of Climatology* 11, 769-793.

Harrison, S.J. 1993. Differences in the duration of snow cover on Scottish ski slopes between mild and cold winters. *Scottish Geographical Magazine* 109 37-44

Houghton, J.T., Jenkins, G.J. and Ephraums, J.J. Editors, 1990. Climate Change: The IPCC Scientific Assessment. Cambridge University Press.

Moses, T., Kiladis, G.N., Diaz, H.F. and Barry, R.G. 1987. Characteristics and frequency reversals in mean sea-level pressure in the North Atlantic sector and their relationsip to long-term temperature trends. *Journal of Climatology 7,* 13-30

Rowling, P. 1989. Rainfall variation and some implications for flooding in the Allan catchment, central Scotland. *Weather* 44, 146-154



DRUMMOND CASTLE ARDTALNAIG

Figure 1 Average Daily sunshine hours for Drummond Castle and Ardtalnaig 1972-1990

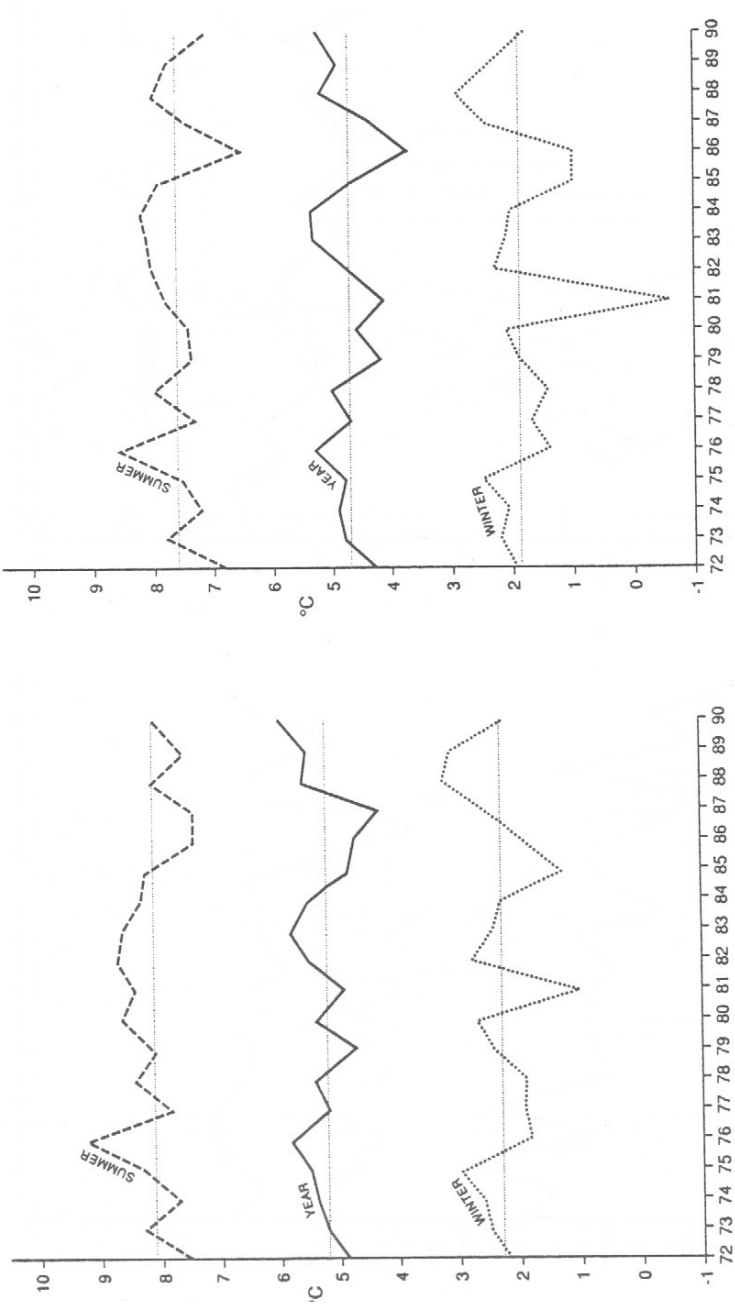
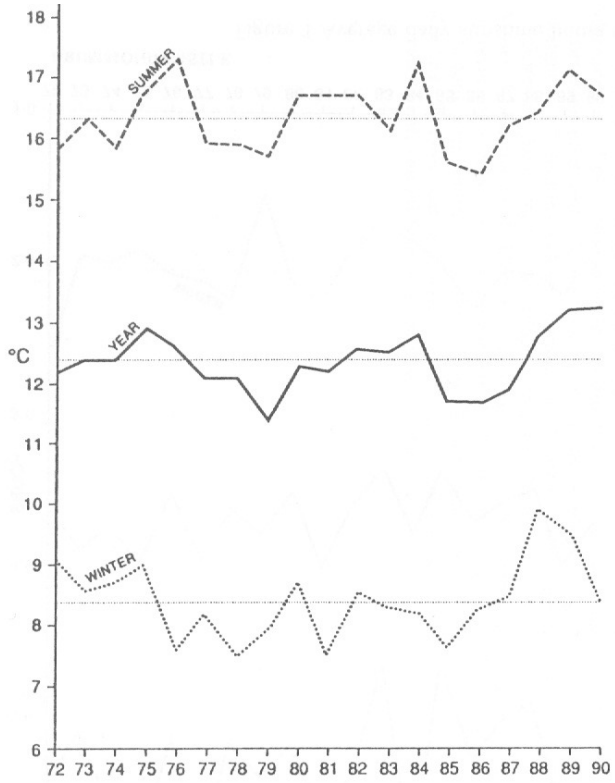
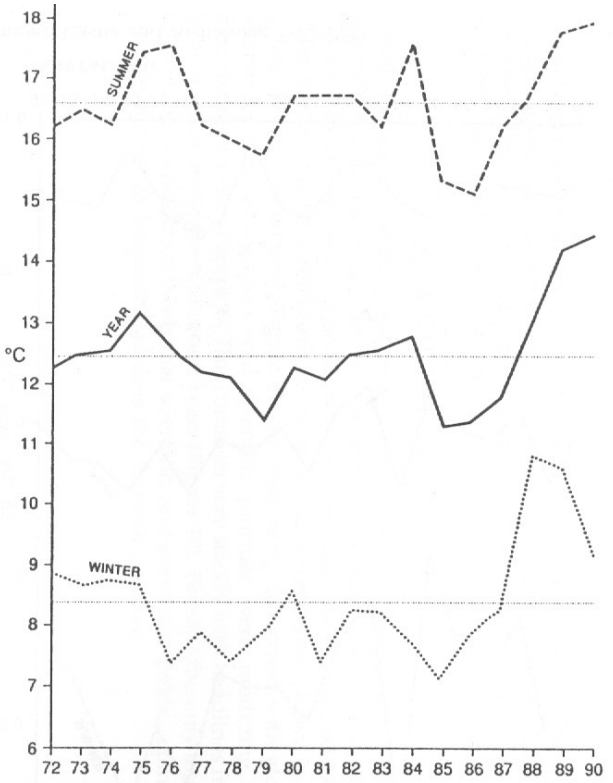


Figure 2 Average maximum air temperature for Falkirk and Parkhead 1972-1990

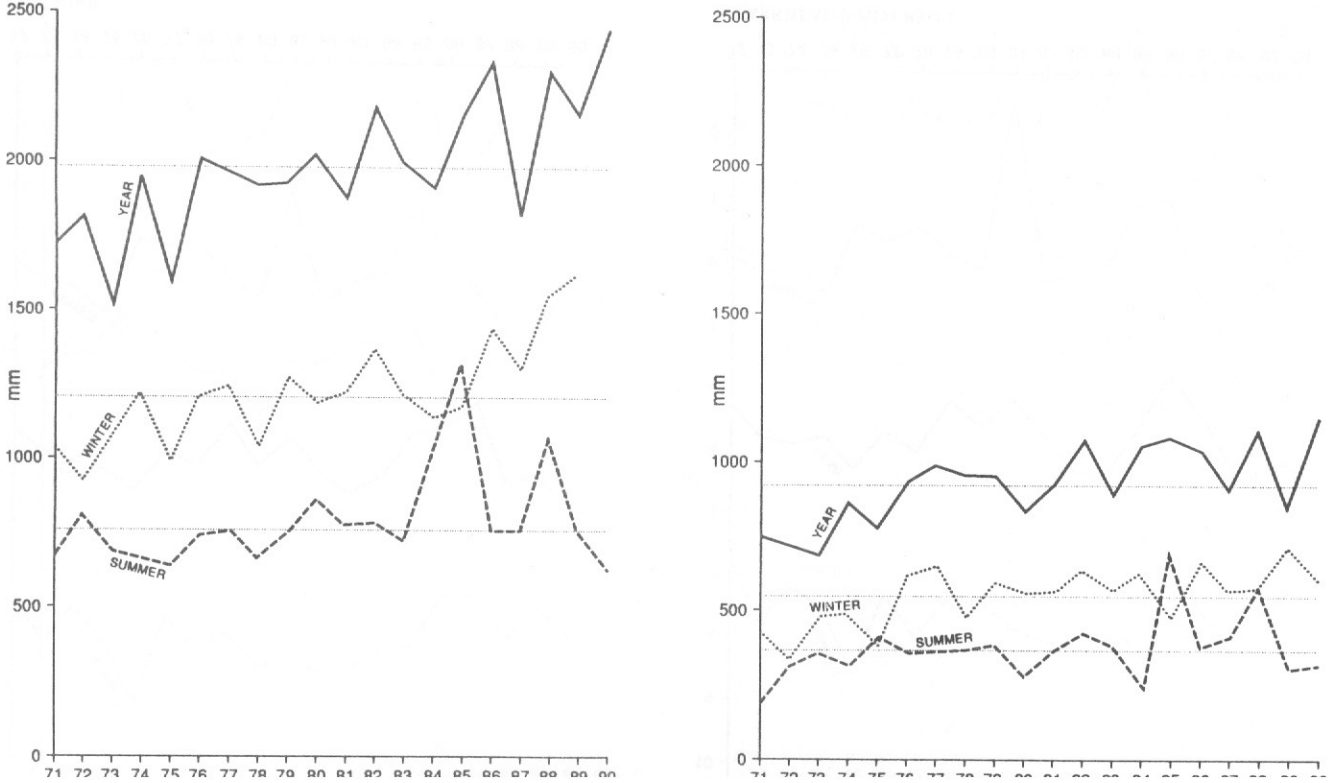


FALKIRK



PARKHEAD (UNIVERSITY)

Figure 3 Average minimum air temperature for Falkirk and Parkhead 1972-1990



BEN LEDI PARKHEAD (UNIVERSITY)

Figure 4 Average rainfall totals for Ben Ledi and Parkhead 1971-1990

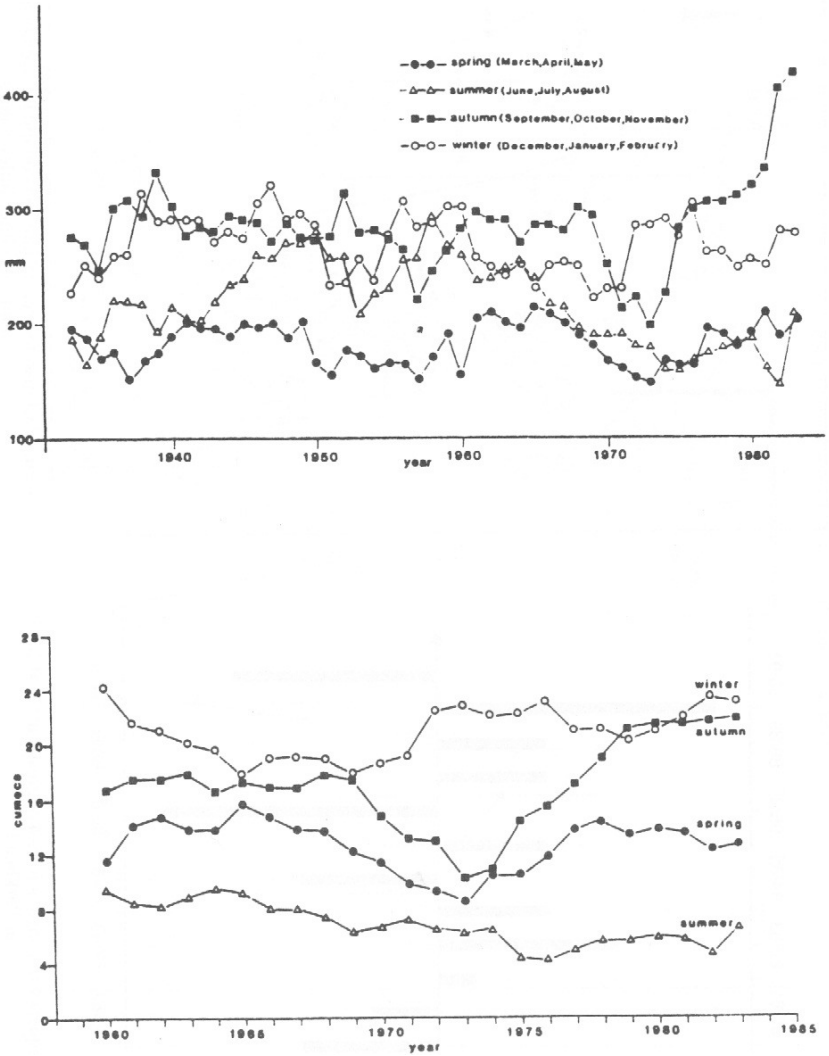
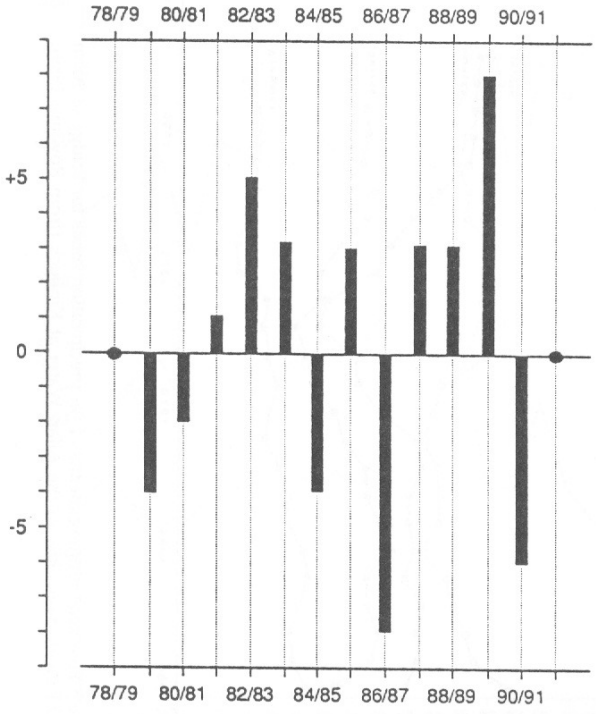
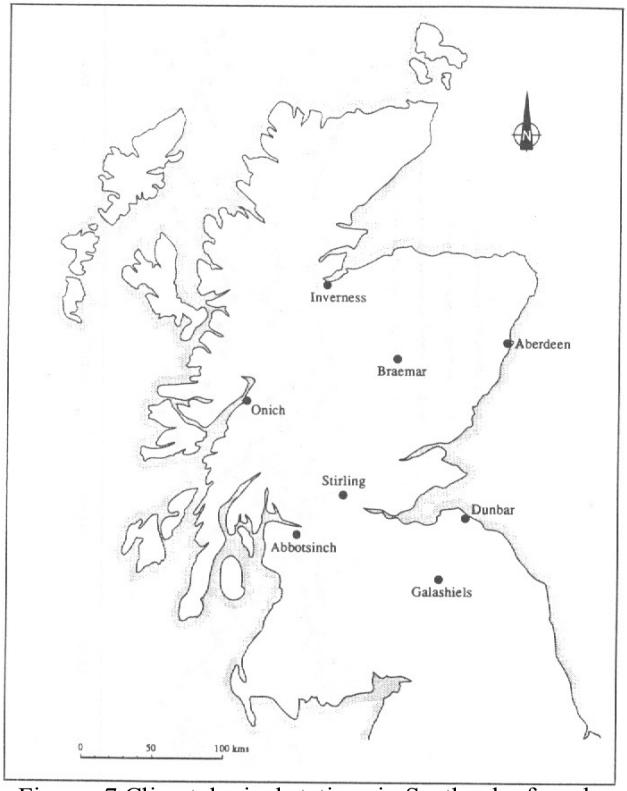


Figure 5. Five year running means of (a) precipitation totals for Bridge of Allan and (b) main daily flow in the Allan Water at Kinbuck (from Rowling 1989)



Figurer 6 frequency of wind force 4or greater at 09.00 GMT at Parkhead



Figurer 7 Climatological stations in Scotland referred to in the derivation of winter index values

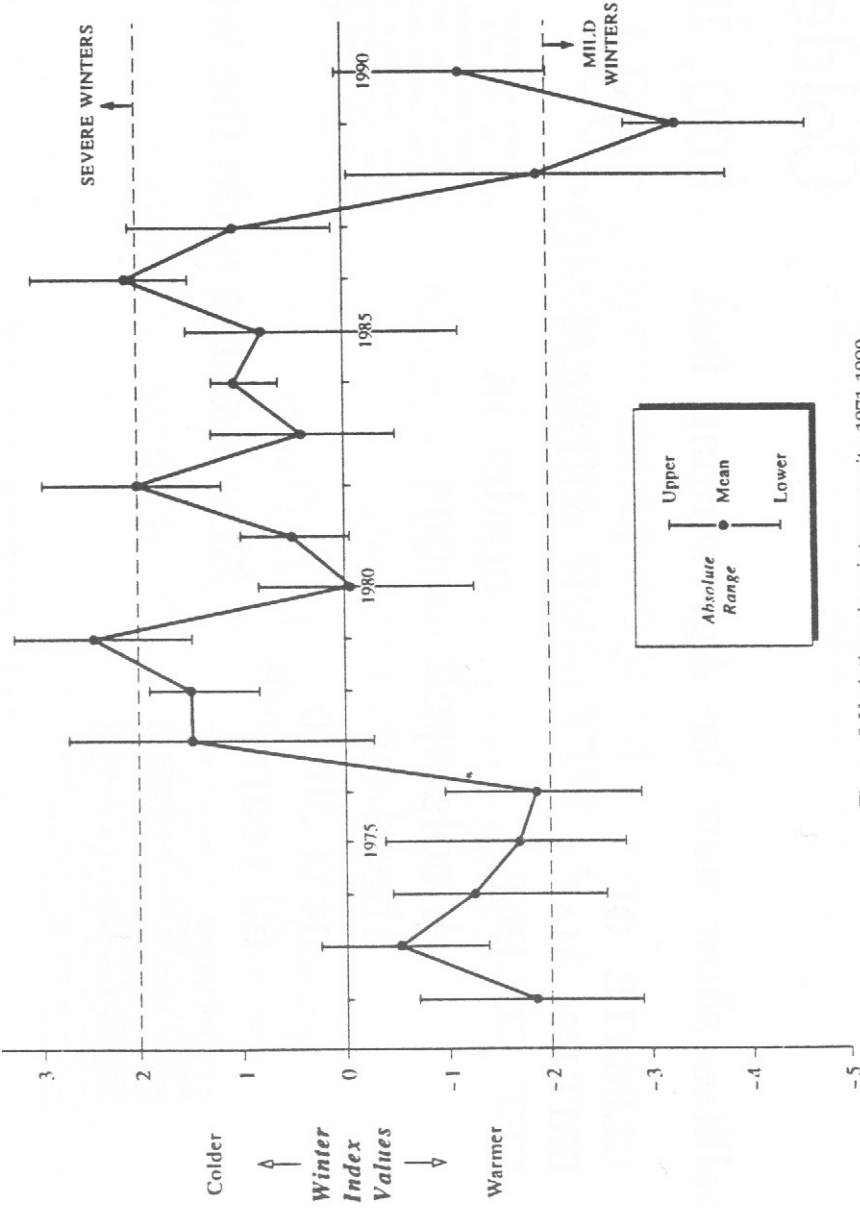


Figure 8 Variations in winter severity 1971-1990

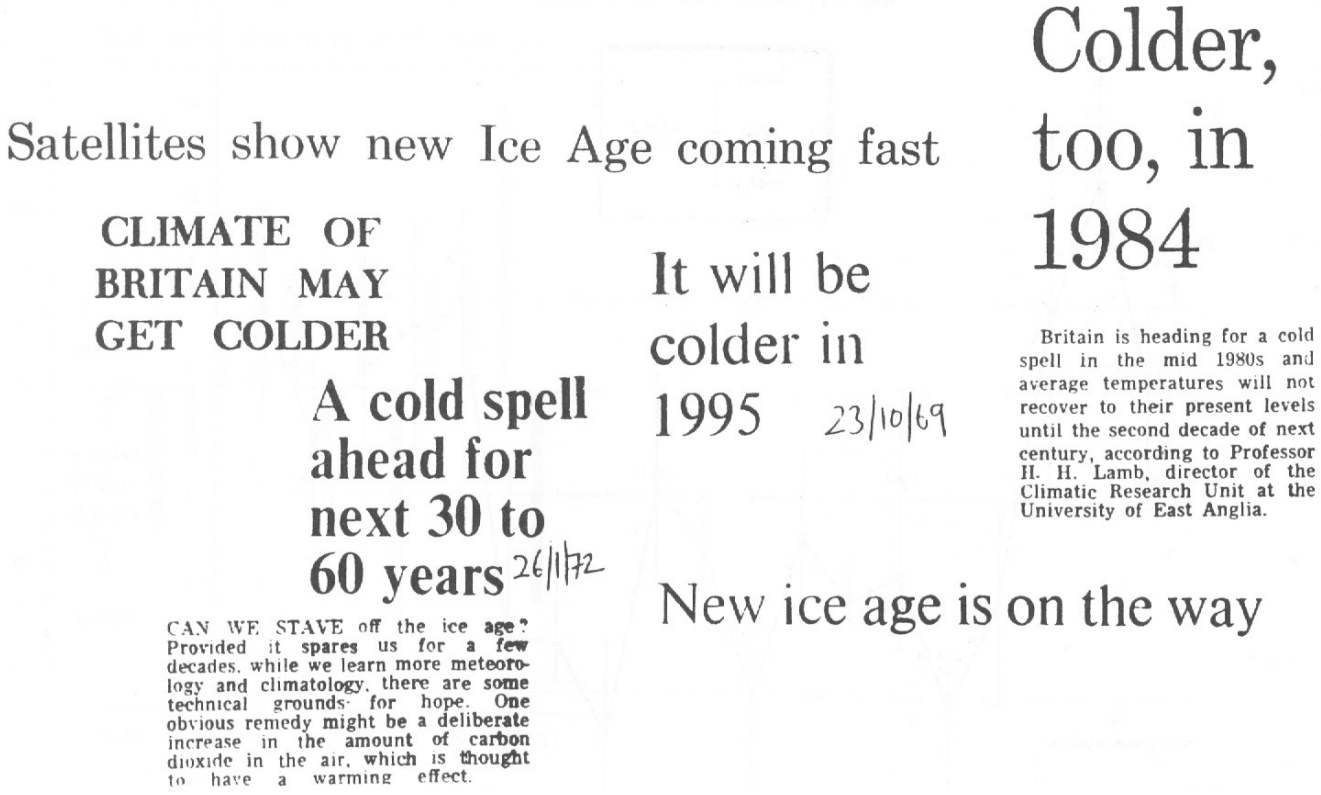


Figure 9 Press headlines referring to cooling trends

Figure 10 Recent press headlines referring to global warming trends

BOOK REVIEW

The Islands of Loch Lomond Clare Calder and Lynn Lindsay. Famedram 1993. 80p. £3.95.

This is a reasonably complete and long needed study on the subject. Many visitors take these beautiful islands for granted without giving them the consideration needed to preserve them. The book covers much detail of many of the islands from the historical and topographical point of view and is illustrated throughout by maps of the islands complete with (rather small) keys to their position on the loch. Individual sketches by Lynn Lindsay, the author's daughter, provide interesting views and aspects. Altogether a much needed and interesting guide which, it is hoped, will help reduce the spoliation often cuased by inconsiderate casual and regular visitors. Priced at £3.95, this is undoubtedly good value for money.

I should like to add though that this was published long after my own guide - *The Lure of Loch Lomond* complete with charts - was first circulated among old friends around the world whose interests include anything Scottish. At the same time a copy submitted to the Forth Historian and Naturalist was on show at the Loch Lomond Symposium in 1989. This guide covers the surrounding area and every island - historically and legendary. Publication so regrettably delayed by a deluge of work on the Editorial Board and a shortage of funds, is now expected fairly shortly. The two books will, it is hoped, eventually form companion guides to this most beautiful of Britain's inland

waters.

Ron McAllister

Book Notes

Shell. 1993 Guide to a better Britain. Scottish edition. Grants, helpful publications and organisations; project information and management. Shell Better Britain Campaign, Red House, Hill Lane, Birmingham, B43 6LZ. 40pp.

Managing the countryside around towns - experience in the Central Belt. Report on a March '93 seminar as a supplement in *Rural Forum Scotland* issue 31 Summer 1993.

FORTH AREA BIRD REPORT 1992

C. J. Henty
University of Stirling

This report is compiled from a larger archive of records submitted to the local recorder under the national scheme organised by the Scottish Ornithologists Club (SOC). The Central Region area covered by the report comprises the Districts of Falkirk and Clackmannan together with Stirling District, but excluding Loch Lomondside and other parts of the Clyde drainage basin. Records from Carron Valley may be published both here and in the report on Clyde birds.

There have already been some changes in the known status of some species since the publication in volume 15 of this journal of the 'Check List of Birds of Central Scotland', which may be regarded as a supplement to the Birds chapter of the forthcoming book *Central Scotland - land, wildlife, people.* That Check List covers the whole area of the present Central Region hence is somewhat more extensive than the SOC reporting area of this Bird Report series.

Thus the first potentially breeding Nightjar for many years was heard in June in Loch Ard Forest whilst a small colony of Lesser Black-backed Gulls now breeds on buildings in Grangemouth and, in the same place, the Herring Gull may have reestablished itself as a breeding species. It is now clear that Eiders are much more regular visitors to our part of the Forth estuary than suggested previously.

There a few changes in presentation this year. There are some species where I have either received no records or cannot make any useful comment but birds have definitely been in the area in 1992 or can be presumed present; these species are now included in the main list with a brief editorial remark. The presentation of localities within the Carse of Stirling has been simplified : Drip Moss should be taken to include what might previously have been specified as Nyadd, Hill of Drip, Blackdub, Westwood and Chalmerston (Road) - this mainly applies to Whooper Swan where a group in the area may move around and split up. It is probably still useful for observers to refer to the detailed location.

The weather this year was not specially remarkable, May and June were warmer and dryer than usual but most of the rest of the year had very windy and unsettled weather. August, September and November were particularly wet and the total rainfall was close to the 20 year average. There were brief cold spells in mid and late January, mid February and mid March. Autumn was generally colder than usual with a spell of snow and frost before Christmas.

The drake American Wigeon at Gartmorn Dam at both ends of the year was an addition to the area list, subject to the decision of the British Birds Rarities Committee; another caution is that the bird could be an escape, a

possibility enhanced by the observation of one in eclipse on the Forth in August, which suggests that it may have hung around the area all year. Numbers of Black-tailed Godwits have been continued to be consistently high around Grangemouth for much of the year, however the autumn passage of the scarcer waders was generally poor. A January record of Quail at Kinneil was noteworthy. A new hazard for breeding grebes was noted with Coots taking the eggs of Little and Great Crested Grebes. Some comments on the abundance of common resident species have been made, quoting data on records per kilometre of transect or per hour, or % frequency out of all species recorded. For less common species I sometimes mention data in terms of the numbers of pairs or apparently occupied territories for particular locations. For many species the records sent in are very unrepresentative of their general distribution; this applies particularly to very common species or to those that are secretive or breed in inaccessable places. Readers can consult the the Check List, but in addition, as last year, I have put, after the species name, a coded summary of general distribution according to this scheme -

B - Breeding status, widespread (in more than five 10 km squares)
b - " " , local, scarce (in fewer than five 10 km squares)
W - Winter status, widespread or often in groups of more than ten.
w - ' , local, scarce (local and usually fewer than ten in a group)
P - Passage (used when species is usually absent in winter, P or *p* used for widespread or local as in winter status) *S* or s - Present in summer but do not normally breed.
Thus *BW* would be appropriate for Robin, *B* for Swallow, p for Ruff and *SW* for Cormorant. No status letter is used if a species occurs less than every other year. An asterix (*) in front of the species name means that all records received have been quoted.

For several species of waders and duck more information has been received than can be sensibly reported in full detail. In these cases I have mentioned the more striking individual records and summarised the rest for each month or half-month as the minimum number of birds that can reasonably account for the records; this means adding up the maximum numbers recorded for what I take to be distinct localities. These Area summaries clearly have limitations, underestimating when an important locality has not been visited and overestimating if the same flock has been reported from two places that I have assumed to be separate; however, this is the best way of giving a more systematic description of the seasonal pattern of occurrence.

The following abbreviations have been used : AoT - apparently occupied territory, BoA - Bridge of Allan, c/n - clutch of n eggs, CP - Country Park, GP - gravel pit, juv - juvenile, L. - Loch, NR - Nature Reserve, Res - Reservoir, WG - Wildlife Garden, Y - young.

This report has been compiled from records submitted by: M. Ashcroft, M. V. Bell, H. Bickerstaff, Birdline Scotland, A. Blair, W. R. Brackenridge, R. A. Broad, D. M. Bryant, H. E. M. Dott, D. Garratt, S. Hashim, B. Hay, C. J.

Henty, J. G. Harrison, A. Knight, D. McEwen, J. T. McEwen, A. Maciver, G. Owens, S. Sankey, J. Sankey, R. Shand, M. Steward, B. R. Thomson, D. Thorogood, M. Trubridge, J. Wheeler.

Thanks are due to the Deputy Recorder, W.R. Brackenridge, for assistance and advice on records and to Dr S. J. Harrison for a copy of the Annual Climatological Bulletin (1992). Apologies to Mrs Hay for 1991 records going astray during the compiling process.

SYSTEMATIC LIST

Codes - F and C indicate records from Falkirk and Clackmannan Districts S and SWP those from one time Stirlingshire and southwest Perthshire parts of Stirling District.

*RED-THROATED DIVER *Gavia stellata (b,w)*

1 Loch A 11 July; Pair Loch E, reared 1 young from c/2 (MT).

*BLACK-THROATED DIVER *Gavia arctica (b)*

2 Loch A 25 April, 1 on 1 July and adult with juv on *5 S*eptember. Pair reared 1 young on Loch F (MT).

LITTLE GREBE *Tachybaptus ruficollis (B,w)*

F 1 Skinflats Pools 20 February, 13 September to 17 October (AB GO).

C 9 pairs Gartmorn but only 2 broods (3 young) reared, many pairs recycled 3 times and failed due to Coot predation (MC).

S At Airthrey 1 on 14 January, 6 by 18 February; *5* pairs nested late and only 4+1 fledged - worst in six years (MVB); 9 still there 17 October and 3 on 21 November but none on 12 December (SH). 1 Cocksburn Res 28 July (CJH).

GREAT CRESTED GREBE *Podiceps cristatus (b,W)*

F Kinneil: 21 on Mar 3, 2 on 10 May (DT). 18 on 18 July & 120 on 29th, 100 on 21 August & 110 on 23rd, 108 on 13 September & 56 on 21st, 222 on 12 December (AB MVB DMB HEMD CJH DT). 26 Skinflats 19 January & 5 on 23 September (AB MVB).

C Gartmorn Dam : 2 on 19 January, 2 pairs attempted to breed but were predated by Coot (MC). 2 on Forth at Cambus 2 April (CJH).

S 4 Carron Valley Res 9 April (LLBR).

SWP 11 Lake of Menteith 2 March, 3 pairs on 10 April (RAB DT).

*RED-NECKED GREBE *Podiceps grisegena* (w)

F 1 Skinflats 5 March (DM).

*SLAVONIAN GREBE *Podiceps auritus* (w)

F 1 Skinflats Pools 13 September & 27 October (AB).

SWP 2 Lake of Menteith 11 January (RAB).

*FULMAR *Fulmarus glacialis (p)*
F 2 Kinneil ->W 30 August (DT).

*MANX SHEARWATER *Puffinus puffinus*
F 1 ->E Skinflats 16 September (GO).

*GANNET *Sula bassana (p)*
F All juvs: 11 Skinflats & 8 Kinneil 13 September, maybe same birds (MVB JC). 2 Skinflats 15 September, 1 on 7 November flew with geese and landed with them on a mudbank (GO).
WP 1 juv ->NW Flanders Moss 17 September (DG).

CORMORANT *Phalacrocorax carbo (S,W)*
Forth estuary 10 December (DMB).
F 80 Bo'ness 10 December (DMB).
C 4 Gartmorn 22 February (BRT). 140 S.Alloa 10 October & 240 on 8 November (CJH).

GREY HERON *Ardea cinerea (B,W)*
F Skinflats: 10 on 20 June, 6 on 7 July, 9 on 8 August, 10 (juvs) on 13 & 29 September, 16 on 31 October, 12 on 10 December (AB MVB GO RS). 7 Kinneil 29 June, 9 Grangeburn 22 July (RS).
C 2 pairs reared 3 young Gartmorn (MC).

MUTE SWAN *Cygnus olor (B,W)*
F 7 Kinneil 1 October (RS), 1 Skinflats 19 July & 25 Oct (AB) - scarce at these sites.
C Gartmorn: max 17 on 3 January, 2 pairs reared 9 young; pair Delph Pond reared 5, pair Cambus reared 4 although 8 on 16 June (WRB MC CJH).
S Pair at Airthrey reared 5 young (MVB).

WHOOPER SWAN *Cygnus cygnus (W)*
F 2 Skinflats 16 February (MVB).
C 15 (5 juv) Gartmorn 19 January (DT). 30 (5 juv) Gogar 14 March, with 11 Mute Swans, 18 (2 juv) on 28th with 9 Mutes (CJH). 2 Ad Tullibody Inch 10 October (CJH). Gartmorn: 58 (max) on 16 December, 20 from W at dusk on 19th (MC CJH) - one of 25 on 21st had a yellow ring CIL on right leg (JC).
S 27 Blairlogie 15 February (DMB).
SWP Totals for Stirling Carse: 44 on 3 January, 45 on 8 February, 54 on 7 March & 73 on 22nd, 10 on 5 April (MVB DT). 23 Drip Moss 18 January, 24 on 3 March & 26 (3 juv + 5 Mute Swans) on 27 March (CJH MT). 1 Lake of Menteith 4 April (DT). L.Katrine (max): 4 on 24 January, 10 on 6 February, 21 on 28 March, 6 on 1 April (MT). 11 adults L.Dochart & 10 on 8 March; 3 (1 juv) L.Lubnaig on 26 January (DMB DT). 1 on Forth at Aberfoyle 10 May (CJH). 2 Thornhill 8 October & 6 on 28th, 18 on 14 November (SS MT). 12 (1 juv) Stirling Carse 31 October & 20->W on 23rd, 22 on 6 December (MVB

DT MT). 70 Kippen 29 November (SS). 33 L.Dochart 23 & 24 October & 25 on 21 December (RAB MT). 2 L.Katrine 1-9 December (MT). 9 L.Venachar 27 December (CJH)*

*BEAN GOOSE *Anser fabalis (w)*

F 94 L.Ellrig 18 October, 100 on 1 December (RS). Feeding in fields near Falkirk with Greylags : 100 on 24, 27 & 30 November , 124 on 15 December & 54 on 20th (AM).*

PINK-FOOTED GOOSE Anser *brachyrhynchus (W)*

2870 Forth valley 8 February & 1960 on 7 March (rather low, MVB).

F Skinflats: 25 on 2 February; 7 on 29 September, 745 on 17 October & 1850 on 25th, 1500 on 14 November & 2596 on 22nd, 900 on 12 December (AB DMB MVB WRB CJH GO).

C Alloa Inch: 400 on 25 April & 600 on 26th, 410 on 2 May. 3 Bandeath 28 June (DMB)

S 200 on grass Buchlyvie 21 March (RAB). 67 ->N Dumyat 10 May CJH). Heard Stirling 16 September (DT), BoA 5 October. 50->S & 40->SE BoA 7 October (CJH).

SWP 2440 Lake of Menteith 8 March & 3700 on 3 April. 3700 Thornhill 12 April (SS). 2370 on grass Gartmore 5 April (RAB). 3 L.Katrine 18 May (MT). 350 Thornhill 20 September to 3100 on 12 November (SS). 5900 Lecropt 6 December (MVB).

*WHITE-FRONTED GOOSE Anser *albifrons (w)*

F 1 Kinneil 28 January; 1 Skinflats 29 October & 12 & 14 November (AB RS). SWP 2 Thornhill 23 February (Greenland race, with Pinkfeet, DT).

GREYLAG GOOSE Anser anser *(b,W)*

Forth valley: 1345 on 7 March & 830 on 5 April (MVB).

F 3 Skinflats 19 January & 30 April, 8 on 17 May & 5 on 18th; 210 on 22 November, 3 on 10 December (AB DMB MVB). 150 Kincardine Bridge 25 October (CJH).

C 620 Gartmorn 19 January (MVB) & 1200 roosting on Forth at Cambus on 25th (MC), 33 there on 24 December (CJH). 23 flew in at Gartmorn at dusk on 16 December & 35 on 19th (CJH).

S 200 Kippen 5 February (SS). 92 L.Coulter on 11 October & 550 on 19th (WRB CJH). SWP 700 Drip Moss 4 April (DT). 5->S Strathyre 7 October, 18 L.Venachar on 29th (CJH). 100 Thornhill 11 November (SS). 130 Drip Moss 6 December (MVB).

*SNOW GOOSE Anser caeruiescens

S 2 (blue form) North Third Res 3 February (presumably escapes MA).

*CANADA GOOSE Branfa *canadensis (b)*

S 2 Airthrey 22 September, driven off by Mute Swans (MVB).

SWP 2 pairs Cromlix 4 April (WRB).

*BARNACLE GOOSE *Branta leucopsis (w)*

F 200 (2 flocks) ->SE Grangemouth 3 October (WRB). Skinflats: 58 on 15 October, 16 on 18th, 23 on 28th; 2 on 14 November, 21 on 7th & 5 on 22nd (with Pinkfeet); 7 on 1 December (AB DMB JC GO RS).

SWP 1 Drip Moss 7 March; 8 Lecropt 6 December & 1 on 19th (MVB). 4 Thornhill on 26 December (JC).

*BRENT GOOSE *Branta bernida (w)*

F 16 (light form) Skinflats 18 October (DMB).

SHELDUCK *Tadorna tadorna (b,W)*

4283 Forth estuary 13 September. In spring 248 territorial pairs between Stirling and Forth Bridge, concentration between Alloa and Cambus where 37 pairs produced 11 broods (DMB).

F Kinneil: 70 on 7 May & 86 on 28th; 1500 26 July, 4400 on 2 August & 1800 on 21 September (DMB HEMD DT). Skinflats: 430 on 19 January, 574 on 16 February, 100 on 30 May & 3 June, 1000 on 20 September, 500 on 8 October, 504 on 10 December (MVB DMB AB WRB). 1 over M9 at Dalderse 12 December (WRB).

WIGEON *Anas penelope (b,W))*

937 Forth estuary 19 January (DMB).

F 175 Carriden 26 January (DMB). Skinflats: 66 on 19 January, 2 on 16 May, 10 on 28 June, 25 on 23 September, 36 on 4 October, 40 on 10 December (AB MVB). 130 Kinneil 12 December (DT).

C 1600 Gartmorn 4 January (MC), 300 on llth (WRB). 173 Bandeath 20 February (DMB). 5 Cambus 4 June (CJH). S 17 L.Coulter 19 January (WRB).

*AMERICAN WIGEON *Anas americana*

C Gartmorn: Male 3, 11 & 18 January, 3 October to 12 December (WRB JC MC CJH) . Male in eclipse Alloa Inch 23 August (DMB). (it seems possible that one bird was in the area all year, Ed).

*GADWALL *Anas strepera (p)*

C Pair Cambus 25 & 30 April, 9 & 17 May, F on 5 & 16 June (MA DMB WRB CJH). 1 Gartmorn 12 January & 2 on 28 November (DMB RS).

TEAL *Anas crecca (B,W)*

1400 Forth estuary 19 January (DMB)

F 239 Skinflats 19 January & 217 on 10 December, 23 on 17 April & 6 on 24th. - increase here coincident with fewer at East Grangemouth (MVB). 3 Skinflats 4 June, 10 on 25 July to 100 on 28 August (AB GO). Male Green-winged Teal *A.c.carolinensis* 9 & 11 June (AB GO RS). Kinneil: 250 on 9 February, 234 on 15 March, 52 on 21 September, 270 on 12 December (DT HEMD).

C Max 420 Gartmorn 12 December (MC). 95 on Forth at Manor Powis 19 January & 172 Bandeath 20 February (DMB). 18 Cambus 2 April & 7 on 8th, 10 on 4 June (CJH).

S 60 L.Laggan 31 October (DT). 1 Airthrey 22 September (DMB). Female with 6 young Carron Valley Res 2 July (SS). SWP 120 Lake of Menteith & 54 L.Macanrie 2 March (RAB). Pair on pools Meall nan Frean (660m) 17 May (DT).

MALLARD *Anas platyrhynchos (B,W)*

1333 Forth estuary 19 January (DMB).

F Skinflats: 455 on 19 January, 104 on 16 February, 240 on 7 July, 125 on 13 September & 334 on 10 December (MVB CJH).

C 2 broods of 7 young Cambus 17 May (CJH). 32 on Devon at Menstrie 26 December (BRT). Gartmorn, max 780 on 12 December (MC).

S Airthrey: 602 on 14 January -high count, 274 on 18 February, 410 on 7 July; autumn max 450 on 12 December (MVB SH). A poor breeding season (although 3 early broods on 25 March) - at least 48 broods (9 probably replacements) but 21 total failures and 117 young fledged from 27 broods (MVB). 134 North Third Res 19 January (WRB). 130 L.Laggan 31 October (DT).

PINTAIL *Anas* acute *(W)*

F Skinflats: 84 on 9 January, 42 on 1, 14 & 16 February & 48 on 15th , 30 on 5 March; first autumn 3 on 12 September, 15 on 8 October & 26 on 31st, 51 on 13 November, 48 on 6 December & 56 on 10th (AB MVB WRBL DM GO). Kinneil: 1 on 26 January & 3 on 19th, 33 on 16 & 19 February, 24 on March 14, last 4 on 30 April; 6 on 9 September, 16 on 11 October (AB DMB GO RS DT).

C 1 Bandeath 20 February, 5 Alloa Inch 30 August (DMB). Area summary:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
85	76	30	19	0	0	0	5	6	16	51	56

*GARGANEY Anas *querquedula (p)*

F Male Skinflats 8 & 9 June (GO RS).

*SHOVELER Anas *clypeata (p)*

F Skinflats: Female on 29 June & with juvenile 25 July (GO), 3 on 2, 10 & 12 August & 2 on 14th (AB DMB RS). 1 Grangemouth 13 September & 1 Kinneil 1 December (MVB RS).

C Gartmorn: 4 on 6 September & 3 on 27th, 4 on 3 October (MC CJH). 2 Cambus 4 August, 1 on 5 September (MA WRB). 2 Alloa Inch 30 August (DMB). SWP Male Doune Ponds 3 May (WRB). 1 L.Watston 6 August (DMB).

POCHARD *Aythya ferina (W)*

Winter numbers generally low this year (Ed).

F 1 Skinflats 15 May (GO).

C Gartmorn: 18 on 3 January, 78 on 31 October, 30 on 19 December (MC CJH).

S 6 North Third Res 18 February (WRB). 2 Airthrey 2 March (DMB). SWP 6 L.Watston 6 August (DMB).

TUFTED DUCK *Aythya tuligula (B,W)*

F Skinflats Pool: 2 on 20 April & 15 May, 1 on 24 & 28 June, 4 on 29th (AB GO).

C 74 Gartmorn 3 January & 283 on 6 November (MC). M Cambus 9 May (CJH).

S Airthrey: 56 on 14 January, 85 on 12 December (MVB SH). 9-12 pairs, at least 5 broods fledging 10 young, a poor year (MVB). 1 Cocksburn Res 5 April (CJH).

SWP 4 Pairs Ashfield May-June, 1 brood of 3 young (WRB).

*SCAUP *Aythya mania (w)*

F Kinneil: 4 on 20, 24 & 30 April & 15 October, 3 on 10 May, 1 on 8 August & 2 on 21st, 5 on 29 September (AB DMB JC GO RS DT). Male Skinflats 12 July (AB).

C 1 Gartmorn 2 April (MA).

*EIDER *Somateria mollissima (w/p)*

F 9 Carriden 26 January, 5 Blackness 25 April, 1 Skinflats 25 April & 2 May (DMB). Pair Kinneil 23 April (GO).

*LONG-TAILED DUCK *Clangula hyemalis (w)*

SWP Male Lake of Menteith 8 & 21 March (RAB JC).

GOLDENEYE *Bucephula dangula (W)*

297 Forth estuary 19 January (DMB). Only small flocks noted in autumn (Ed).

F 145 Carriden 26 January & 14 on 25 April (DMB). Skinflats Ponds: 8 on 19 January & 6 on 16 February; 1 on 3 October, max 12 from 31 October to 8 December (AB MVB GO). 6 Carronmouth 1 February & 12 on 15th (GO).

C 39 Gartmorn 18 January (MC). 54 Cambus 19 January, 43 Bandeath 20 February, last 4 on 8 April; 11 on 8 November (DMB CJH). 3 on Devon at Menstrie 26 December (BRT).

S 11 Cambuskenneth 19 January, 52 (15 ad M) on 16 February & 15 on 27 March, 6 on 20 December (DMB CJH). Male Airthrey 26 May (DMB).

SWP 15 L.Venachar 26 January; 15 Lecropt 27 March (CJH). 160 Lake of Menteith 4 April (DT).

*SMEW *Mergus albellus (w)*

C Male on Forth at Manor Powis 1 February, with Goldeneye (MA). Female Gartmorn 28 & 31 March & 2 April (MA MC).

RED-BREASTED MERGANSER *Mergus senator (B,W)*

114 Forth estuary 10 December (DMB).

F Skinflats: 29 on 19 January & 67 on 16 February, 97 on 10 December (MVB).

S 1 North Third Res 20 March (WRB).
SWP Females with broods at Ashfield, 6 on 20 June, 10 in July (WRB BH).

GOOSANDER *Mergus merganser (B,W)*
F Skinflats: 5 on 19 January, 1 on 2 September & 9 on 12th, 8 on 3 October, 3 on 1 November, 12 on 10 December (AB MVB). 6 Carronmouth 1 February (GO).
C 12-18 in January-March on Devon at Dollar (MC). 2F on Devon at Alva 26 December (BRT). 9 on Forth at Bandeath 20 February, 4 on 24 December (DMB CJH).
S 5 Cambuskenneth 19 January, 6 on 16 February & 13 on 27 March (DMB CJH). SWP 7(4M) L.Katrine 15 March (RAB). 2 pairs Ashfield January to March (WRB). Pair Doune ponds 3 March. 13 Lecropt 27 March, 5 on 7 April (CJH).

*RUDDY DUCK *Oxyura jamaicensis (b)*
C 1 Gartmorn 22 October (JC).
SWP 6 L.Watston 6 August - 2 adult males, 1 female, 3 nearly full grown young (DMB).

HEN HARRIER *Circus cyaneus (b?,W)*
C Pair displaying Ochils 23 May (MC).
SWP 1 Flanders Moss 22 March, male Thornhill 12 August, 20 September, 6-9-18 October (SS AK). 1 Strathyre 7 October (CJH). Braes of Doune: 2 Ringtails (1 interacting with Peregrine) Slymaback 4 April, none seen 21 June (WRB); Male Dalbrack on 12 December (JGH).

*GOSHAWK *Accipiter gentilis*
S 1 over Airthrey 13 April, left S (DMB).
SWP 1 Balquhidder 5 March (JC).

SPARROWHAWK *Accipiter nisus (B,W)*
F Seen through year at Skinflats, Jupiter WG (AB WRB GO RS).
C Pairs reared 3 young Woodhill, 4y Brucefield (MC). In garden at Menstrie 5 January & 3 August - latter chased by House Martins (BRT). 1 Red Carr Wood 13 January (CJH).
S Regularly BoA, especially in late afternoon (JMC).
SWP occasional Dunblane (BH), Loch Ard Forest (CJH).

BUZZARD *Buteo buteo (B,W)*
F Torwood: 1 on 1 May, 4 on 5 September, 7 on 16 September (AB). 2 at M9/M876 junction October & December (WRB DT JW).
C Pair reared 3 at Dollar (MC).
S Pair bred Plean CP (RAB & M Swan). 10 Kippen Muir 8 March, 1 Mains of Glinn & 4 Boquhan 9 February, 1 Stronend 8 October (CJH) DT). 1 ->N BoA 21 August (CJH). Pair through year at Airthrey, 7 on 22 September (DMB). SWP 5 At Loch Ard Forest in July-early August. 4 L.Venachar 25 January

& 1 on 3 February (CJH). 3 Glen Ogle 20 April (WRB). 1 Lanrick 26 January, 1 L.Rusky 28 December, 4 N of Doune Ponds 3 March & 5 on 3 May (WRB CJH DM). 1 Blairdrummond 26 April, 4 Hill of Row 23 January & 3 March. 1 Keir 27 March; 1 Kippenrait 25 January, 4 on 14 March & 4 in April (not seen 6 June), 3 on 23 August (BH CJH). 2 Sheriffmuir 10 October. 1 Glensherup 17 June with white carpal patches on upper wing (CJH).

GOLDEN EAGLE *Aquila chrysaetos (b,w)*

SWP Nine home ranges were monitored with birds present in eight, of these, six sites definitely were occupied by pairs. The vacant site is really a notional one, not having been occupied for several years. Breeding was confirmed at four sites, chicks hatched in three with single chicks fledged from two of them. (RAB PS-A).

*OSPREY *Pandion haliaetus (p)*

S 1 or 2 Carron Valley Res May to early September (LLBR). 1->N BoA 21 June (DMB).

KESTREL *Falco tinnunculus (B,W)*

F 8 regular hunting locations along M9 (WRB). All year at Skinflats, in July females feeding fledged young (AB).

C Pair Alva Glen reared 4 young, 2 pairs Wood Hill reared 5 young (MC).

*MERLIN *Falco columbarius (b?, W)*

F 1 Skinflats 10 & 22 January, 1 February, 13 September, male on 12 February (AB GO). 2 Airth Shore 13 September (AB).

S 1 found injured Corriearklet 23 November, died next day (MT). SWP pair Braes of Doune (MC). 1 Thornhill 6 October (SS).

PEREGRINE *Falco peregrinus (B,W)*

Area summary: Of 20 territories checked 17 were occupied (two apparently by single birds); 11 pairs known to be successful rearing at least 26 young (PS-A et al).

F Around Grangemouth January, March, August, September, October, November, December, max 3 Skinflats 22 January (AB WRB DM DT). 1 at Kinneil on 14 October stooped 3 times at a Spotted Redshank which apparently escaped in a sluice pipe (RS); pair on 12 December were hunting in concert (DT).

C 3 pairs reared 8Y, 1 Cambus 10 March (MC).

S 1 Airthrey 8 October (MVB). SWP The female of a pair at a new site was pink in plumage and hatched two pink chicks, neither of which fledged (MT- see Scottish Birds Vol 17: 68). 1 Thornhill January, April, October; Glen Ogle July (BH JS SS). RED GROUSE *Lagopus lagopus (B,W)* SWP Calling Ward of Goodie 13 March & *5* April (SS). 4 Ledard 19 August (SS). 9 Kippenmuir 31 October (DT). Small

numbers Cromlix Moor 4 April & 21 June (WRB).

PTARMIGAN *Lagopus mutus (b,w)*

S 4 juveniles Ben Lomond 4 September - regularly noted here but few reports of successful breeding (LLBR).

BLACK GROUSE Tefrao *tetrix (B,W)*

C Lek of 7 males Commonedge Hill in April (MC).

S 7 males (display and sparring) Carron Bridge 19 October (CJH).

SWP 3 F Balquhidder 12 January; 7M Ardeonaig 19 February (RAB). 4 NE of Callander 14 March (RS). 10 L.Voil 5 March, 6 Glean a'Chroin 10 March & 23 (20M) on 11 October (JC). 1 M Menteith Hills 1 November (AK). Lek with 7 males L.Arklet (LLBR).

CAPERCAILLIE *Tetrao urogallus* (b,w) No records received.

*REDLEGGED/CHUKAR PARTRIDGE *Alectoris rufa/chukar (b,w)*

S In BoA, on road at edge of Mine Wood , pair on 9 April & 1 on 29 May presumably lost, released hybrids (MA CJH). 2 pairs Pendreich

- Kippenrait in May-June (MA).

GREY PARTRIDGE *Perdix perdix (B,W)*

F Skinflats: 6 on 12 January (GO). 5 on 3 June, 10 on 12 September & 15 on 23rd; 23 in 2 coveys 8 October, 17 on 27th & 10 on 31st (AB WRB). 10 Grangemouth in April (WRB). C 9 in stubble at Alva 26 December (BRT). SWP max 12 at Ashfield (WRB).

*COMMON QUAIL Cofurmx *cotumix*

F 1 Kinneil 17, 25 & 26 January (AB WRB GO RS).

SWP 2 calling Thornhill (West Moss Side) 2 June to 7 July (SS).

COMMON PHEASANT *Phasanius colchicus (B,W)*

C In small numbers on bank of R.Devon at Menstrie (BRT).

*WATER RAIL *Rallus aquaticus (w)*

F 1 Kinneil 6 January (RS). 2 Carron Dam 1 February (WRB).

C 1 Gartmorn 23 February & 19 March (MC). 2 Tullibody Inch 10 October (CJH). SWP 1 L.Watston 6 August (DMB).

MOORHEN *Gallinula chloropus (B,W)*

C 4 pairs Cambus (WRB).

S Airthrey: 56 on 14 January, 64 on 12 December (MVB SH). 24 pairs fledged 55 young (1 triple & 1 double brooded, 6 total failures) MVB).SWP 3 pairs Doune Ponds, 2 pairs Ashfielld WRB).

COOT *Fulica atra (B,W)*

F Skinflats max 7 on 20 April (GO).

C 800 Gartmorn 3 January, 57 on 23 February & 34 on 1 April (MC). Cambus: 16 on 16 February, 23 on 15 March, 15 on 2 April (CJH), 4 pairs reared young (WRB).

S 86 Airthrey on 14 January, 95 on 12 December (MVB SH). 26 pairs of which 24 nested, but only 10 were successful rearing 31 young—Mink predation (MVB).

OYSTERCATCHER *Haematopus ostralegus (B,W)*

809 on Forth estuary 10 December (DMB).

F Kinneil: 165 on 26 July , 140 on 12 December (DT). Skinflats: 69 on 19 January & 80 on 16 February, 211 on 28 July, 54 on 10 December (MVB GO).

C First heard Menstrie 26 February (BRT).

S 310 Cragforth 23 February, 400 on 3 March; 26 Kippenmuir 8 March (CJH DT).

SWP First heard Ashfield 13 February, 35 Barbush GP 3 April (WRB). 6 Glen Lochay 22 March (DT).

RINGED PLOVER *Charadrius hiaticula (b,W)*

Forth estuary: 160 on 13 September (DMB).

F Skinflats: 1 on 20 April, 22 on 15 May & 53 on 17th (GO); 20 on 8 August, 12 on 13 September (DMB MVB). 5 Higgins Neuk 13 September (AB).

C Pair reared 2Y Gartmorn (MC).

SWP Pairs at Barbush GP 3 & 20 April & at Argaty GP in May (WRB).

*DOTTEREL *Charadrius morinellus*

C Pair Ben Cleuch 10 May (MC).

GOLDEN PLOVER *Pluvialis apricaria (B,W)*

702 Forth Estuary 10 December (DMB).

F Skinflats: 35 on 22 January, 91 on 13 February; 200 on 17 October, 660 on 10 December (AB MVB GO). Kinneil: 500 on 18 January, 96 on 3 October & 520 on llth (DMB GO DT). Many Bo'ness 30 August & 700 on 26 September (DT). 140 Blackness 4 October & 570 Higgins Neuk on 25th (CJH). 40 L.Ellrig 6 October (SS).

C Pairs on Kings Seat & Ben Cleuch (MC). 165 Tullibody Inch 1 October & 84 on 15 November (MC CJH).

SWP Pair Slymaback 21 June, probably with young (WRB). Scarce inland in winter even on low ground - 9 Thornhill 26 January (DT), 19 on 20 April (SS).

GREY PLOVER *Pluvialis squatarola (W)*

F 1 Kinneil 23 April & 23 August (GO). 1 Skinflats 13 September & 13 on 8th October (WRB MVB). (Scarcer than usual this year, Ed).

LAPWING *Vanellus vanellus (B,W)*

4588 Forth Estuary 13 September (DMB).

F Skinflats: 1410 on 19 January, 160 on 4 September, 1200 on 13 September, 1125 on 10 December (MVB AB). Kinneil: 500 on 18 January, 300 on 9 February, 200 on 26 July, 400 on 21 September (HEMD DT).

C 4 pairs Cambus 8 April & 17 May (CJH). 2000 Tullibody Inch 30 August & 1 October, 2810 on 13 September (DMB CJH). 65 Alva 20 December & 68 on 26th (BRT). SWP Displaying at Lecropt 3 March (CJH). 12 pairs Ashfield, 8Y reared (WRB). 190 Lecropt 29 November (MVB).

KNOT *Calidris canutus (W)*

2644 *Forth* Estuary 19 January (DMB).

F *Kinneil*: 2500 on 17 January strafed by Peregrine (WRB), 600 on 2 February (AB), last 1 on 24 April (GO); 1st of autumn 1 on 27 July (RS), 500 on 12 December (DT).

*SANDERLING *Calidris alba*

F 2 Skinflats 15 May (GO).

"LITTLE STINT *Calidris minuta (p)*

F 2 Skinflats 1 September (GO).

"CURLEW SANDPIPER *Calidris ferruginea (p)*

F 1 Skinflats 17 May & 2 on 18th, 1 on 8 June (AB GO RS), 1 on 27 August *in* red plumage (WRB).

C 1 Tullibody Inch 1 October (CJH).

DUNLIN *Calidris alpina (b?,W)*

5369 Forth Estuary 19 January (DMB).

F Skinflats: 4400 on 19 January, 2420 *on* 16 February; 115 on 15 September, 110 on 14 November, 1325 on 10 December (AB MVB).

RUFF *Philomach us pugnax (p)*

F Kinneil: 1 on *28* June & 2 on 29th, 1 on 7 August, 4 on 16 & 6 on 17th,8 on 20th, 3 on 22 August to 7 September, 1 to 20 October (AB GO RS DT). Skinflats: 1 on 24 & 28 June, 1 from 8 to 30 August & from 9 to 21 September, max 2 on 28 August and 3 on 14 September (AB HEMD GO RS).

	Jun	Jul	Aug	Sep	Oct
Kinneil	01	00	48	31	11
Skinflats	01	00	12	31	00

C 6 Alloa Inch 23 August and 20 on 30th (DMB). 1 Tullibody Inch 22 October (JC).

Monthly Area Totals

Jun	Jul	Aug	Sep	Oct
2	0	30	6	2

*JACK SNIPE *Lymnocryptes minimus (w)*

F Kinneil: 2 on 6 January, 5 on 19th, 13 on 22nd & 4 on 28th; 3 on 9 February & 2 on llth; 9 on 12 October, 14 on 14th & 7 on 20th; 7 on 1 December (AB GO RS DT).

SNIPE *Gallinago gallinago (B,W)*

F 17 Kinneil 20 August & 18 on 23rd (GO DT), 52 on 12 October to 32 on 20th (RS). Up to 3 Jupiter WG November - December (WRB).

C 25 Longcarse 30 August & 9 on 10 October (DMB CJH), 32 by Devon at Tillicoultry on 31st (MC).

S 10 Cambuskenneth 27 March. 23 Haws Marsh (BoA) 13 February & 26 on 26th (CJH).

SWP 10Lecropt 27 March (CJH). 1 Ashfield 3 April but no drumming (WRB). 1 at 600m Meall na Frean (Balquhidder) 17 May (DT).

WOODCOCK *Scolopax rusticola (B,W)*

F 2 Carron Dam 1 February, 1 Jupiter WG 1 December (WRB).

C Pair with 3Y (2nd brood) Gartmorn 23 August (MC).

S 3 Torwood 2.1 June (AB).

SWP In January singles at Sheriffmuir, Ashfield, L.Ard Forest (WRB BH CJH). 1 Thornhill 15 November (SS). (Certainly an underrecorded species at all seasons, Ed)

BLACK-TAILED GODWIT *Limosa limosa (W)*

F Kinneil: spring max 57 on 25 April (DMB), autumn 77 on 18 October (RS). 21 Bo'ness 26 January (DMB). Skinflats: max 56 on 14 May (GO). 11 Carron mouth 11 to 15 February (GO). 22 ->E Bo'ness 7 December (RS). Half-monthly summaries (from notes by AB DMB WRB JC HEMD JTM GO RS DT)

	Jan		Feb		Mar		Apr		May		Jun		Jul		Aug		Sep		Oct		Nov		Dec	
Kinnl	26	34	34	0	51	24	54	57	42	0	0	0	0	18	20	46	41	33	60	77	13	0	47	27
Skinf	0	5	0	6	0	0	0	3	56	25	48	46	10	7	18	14	25	17	4	14	18	22	12	4

C 10 Tullibody Inch 10 May, 22 Cambus on 24 May & 12 on 28th (MA). 18 Cambus 28 June, 2 in full red plumage (CJH), 18 at Bandeath same day, presumably same birds, also 15 on 1 July, 10 on 8 August & 8 on 30th (DMB).

Up to the end of April birds were mainly at Kinneil with up to 34 from January to mid-February and then fewer until mid-March, when numbers increased markedly. Counts stayed high, at Skinflats, through May and June but dropped in July - flocks seen higher up the estuary may indicate a departure. Numbers increased again through August to October, with Kinneil increasingly favoured, and large flocks were seen to the end of the year.

Area Summary

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
34	34	51	60	68	48	25	70	66	91	35	59

BAR-TAILED GODWIT Limosa *lapponica (W)*

354 Forth Estuary 19 January (DMB).

F 150 Kinneil 17 January & 2 February, last spring record 1 Skinflats 17 April . 1st of autumn 1 Kinneil 18 July (AB WRB GO).

*WHIMBREL *Numenius phaeopus (p)*

F Skinflats: 2 on 28 April. 3 on 19 July & 4 on 31st, 3 on 8 &13 August, 1 on 16 September & 8 October (AB WRB GO RS DT). Kinneil: 2 on 14 July to 6 August, 4 on 23rd (AB DMB RS DT).

C 2 Tullibody Inch 23 August (DMB).

	Apr /	Jul	Aug	Sep	Oct
Kinneil		22	23	00	00
Skinf	02	04	31	11	10

Area summary

Apr /	Jul	Aug	Sep	Oct
2	6	8	1	1

CURLEW *Numenius arquata (B,W)*

1440 Forth Estuary 10 December (DMB).

F Skinflats: 360 on 19 January, 150 on 2 February, 182 on 14th & 257 on 16th; 320 on 13 September & 275 on 10 December (AB MVB GO). 160 Powfowlis 7 July (CJH). Kinneil: 200 on 26 July & 300 on 16 August (DT). (Note return to estuary in early July, Ed).

C 300 Tullibody Inch 15 March, 60 on 1 October & 80 on 24 December (CJH).

S 60 Kippen Muir 8 March (DT) - (rather early spring return to moors, Ed). SWP Pair Ashfield (WRB). Frequent Glensherup 17 June (CJH).

SPOTTED REDSHANK *Tringa erythropus (p)*

F Kinneil: 1 on 17 August; 7 between 6-13 September, max 3 on 7th; 1 on 11 & 14 October. Skinflats: 1 on 3 & 18 September, 2 on 16th (AB DMB GO RS DT). 2 Airth shore 13 September (AB). Area Totals : August 1. September 7. October 1.

REDSHANK *Tringa totanus (B,W)*

2637 Forth Estuary 19 January (DMB).

F 2 pairs Skinflats (WRB). Kinneil: 250 on 17 January, 240 on 27 July (WRB CJH). Skinflats: 860 on 19 January, 840 on 16 February; 35 on 29 June, 150 on 17 July, 660 on 13 September, 300 on 22 November, 885 on 10 December (AB MVB). SWP 2 pairs Ashfield (WRB). 5 Watershoot Res (Sheriffmuir) 6 June (CJH).

GREENSHANK *Tringa nebularia (p)*

F 1 Dunmore 19 April. Skinflats: 1 on 13 June; 1 on 19-24 July & 2 on 25-31st; regular through August & September with max 6 on 11th August and 9 on 13th September; 4 on 4th October. Kinneil: from 14 July to 23 August, max 4 on 21 August. (AB DMB JC HEMD GO RS DT).

C Alloa Inch: 6 on 23 August & 10 on 30th, 5 on 13 September (DMB).

Summary

	Apr	/	Jul	Aug	Sep	Oct
Kinneil	0 0		1 1	1 4	0 0	0 0
Skinf	1 0		0 2	6 4	9 8	4 0

Area totals

Apr	May	Jun	Jul	Aug	Sep	Oct
1	0	1	3	20	14	4

*GREEN SANDPIPER *Tringa ochropus (p)*
F Skinflats: 3 on August 3, 4 on 10th, 1 on 28th (AB RS). Kinneil: 2 on 21 to 23 August, 1 on 6 September (AB DMB)
SWP 1 Thornhill 27 & 28 August (SS).

Area totals: August 7, September 1.

*WOOD SANDPIPER *Tringa glareola (p)*
F 1 Kinneil 21 July (RS).

COMMON SANDPIPER *Tringa hypoleucos (B)*
No reports on breeding status
F 2 Skinflats 24 April (GO), 1 Carronshore on 28th (AB). Skinflats: 1 on 3 June, autumn passage started with 4 on 17 July, regular till 1 September with peak of 9 on 24 July; last 2 on 13 September (when also 2 Grangemouth) (AB MVB GO DT). Kinneil: 3 on 26 July; peaks 6 on 2 & 6 August, last on 23rd (AB GO RS DT). 5 Higgin's Neuk 10 August (RS)
C 1st 4 Cambus 30 April, 2 on 4 June (DMB CJH).
S 1 Airthrey 28 July (MVB). 10 Carron Valley Res 29 July (DT).
SWP 1st Barbush 24 April (WRB).

Autumn passage summary

Jul	Aug	Sep
023	135	50

TURNSTONE *Arenaria interpres (W)*
30 Forth Estuary 19 January (DMB).
F Max 2 Skinflats January-February, July, December (MVB GO RS).

*POMARINE SKUA *Stercorarius pomarinus (p)*
F 1 Kinneil 23 September (RS).

*ARCTIC SKUA *Stercorarius parasiticus (p)*
F 9 (8 adult) Kinneil 30 August - 6 flew high to W (DT). 1 ->W Skinflats 6 September (DMB).

*GREAT SKUA *Stercorarius skua*
C 1 ->E at S. Alloa 30 August (DMB). (seems to be the 1st record for Clackmannan, Ed).

*LITTLE GULL *Larus minutus*
F 1 Immature Skinflats 3 June (AB).

BLACK-HEADED GULL *Larus ridibundus (B,W)*
F 300 Skinflats 11 October (AB).
C 1450 Tullibody Inch 24 December (CJH).
SWP 200 pairs early in breeding season at Ashfield, only 80 by late May and 50 young reared (WRB).

COMMON GULL *Larus* can us *(B,W)*
SWP 1800 Lake of Menteith 22 March (CJH). 6 pairs Barbush, only 2 bred (WRB).

LESSER BLACK-BACKED GULL *Larus fuscus (S,w)*
F 20 pairs Grangemouth, nest on Zeneca buildings, 1 through December (WRB). 6 Skinflats 31 October (GO). 2 Kinneil 6 January (RS).
S 1 Stirling 29 February (DT) & 1 on 11 March (CJH). 50 Fallin tip & 50 over Cocksburn Res 28 July, 70 Gargunnock 22 August, 22 Myot Hill 5 October (CJH). SWP 3 adults L.Venachar 5 January (CJH).

HERRING GULL Larus *argentatus (S,W)*
F 1 pair Grangemouth, nesting not proved (WRB).
S 1300 Fallin tip 14 March & 1200 on 28 July (CJH). SWP 460 on roost at L.Venachar 5 January (CJH).

*GLAUCOUS GULL Larus *hyperboreus (w)*
F 1 sub-adult Kinneil 20 August (DT). 1 2nd winter 10 October (JC).

GREAT BLACK-BACKED GULL Larus *marinus (S,W)*
SWP 49 (25 Adult) roost L.Venachar 5 January (CJH).

*KITTIWAKE *Rissa tridactyla (P,w)*
F 150 ->W Kinneil 23 March (RS). Flock circling high over Grangemouth 10 May (WRB) .75 Kinneil 30 August, 65 high to W (DT).
C 1 Alloa Inch 30 August (DMB).

SANDWICH TERN Sterna sandvicens/s *(P)*
F 99 Carriden 31 July; 50 Higgin's Neuk 10 August (RS). 50 Kinneil 21 August (DMB). 2 Skinflats 8 June, 6 on 29 July, 150 on 16 September (AB GO).
C 60 Tullibody Inch 8 August (DMB). 2->NW Cambus 20 August (CJH).

COMMON TERN Sterna *hirundo (B)*
F 4 Kinneil 24 April (GO). 19 Skinflats 2 May, 73 pairs Grangemouth colony 23 June (DMB WRB).

*BLACK TERN *Chlidonias niger*
F 1->E Skinflats 16 September (GO). 2 (1 adult) Kincardine Bridge 13 September (MVB).

GUILLEMOT *Una aalge (W)*
No reports received.

ROCK DOVE / FERAL PIGEON *Columba livia (B,W)*
F 300 at Zeneca, Grangemouth, through year (WRB).
C 540 in tilled field at Alloa 24 October (CJH).

STOCK DOVE *Columba oenas (B,W)*
C 2 Myreton 28 April (CJH). 20 Cambus 23 August (DMB).

WOODPIGEON *Columba palumbus (B,W)*
F max 177 Skinflats 31 January (GO).
C 90 Alva 26 December (BRT).
SWP 1200 L.Watston 25 October (MVB).

COLLARED DOVE *Streptopelia decaocto (B,W)*
C 20 feeding on tideline Tullibody Inch 1 October (CJH). Max 17 Menstrie 24 December (as last year, BRT).
S 8 BoA 19 January & 11 on 2 February, similar to last five years (JMC).
SWP 1 pair Ashfield WRB).

CUCKOO *Cuculus canorus (B)*
C 1 Muckhart 9 May (DMB).
S At Cockburn Res and Sheriffmuir 16 May (MA). SWP 1st Thornhill 24 April (SS),1 L.Ard Forest 7 May (CJH) & 2 on 14 May (WRB).

*BARN OWL *Tyto alba (b,w)*
SWP Pair raised 3 young in chimney cavity on Main Street Callander (MT). 1 Keir 24 January (WRB). 1 Thornhill 12 September (SS).
TAWNY OWL *Strix aluco (B,W)*
C heard Menstrie early August (BRT).
SWP 2 calling Dunblane 5 January (WRB).
(As with other nocturnal species, greatly underrecorded, Ed)

*LONG-EARED OWL *Asio otus (b,w)*
F 1 Skinflats 5 July (GO) - presumably breeding not far *away?* (Ed).
S 1 Carron Valley in September (LLBR).

SHORT-EARED OWL *Asia flammeus (b,W)*
F Kinneil: 4 on 18 January, a few records till 2 on 13 April; 3 on 12 December. Skinflats: 1 on 10 January, a few records till 2 on April 5 & 1 on 20th. 1 on 29 June, autumn from 1 on 24 August with max of 5 on 29 September, 4 on 3 October, then 1 or 2 to end year (AB HEMD GO DT).

Half monthly summary for estuary:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Oct 14	21	01	21	00	01	00	01	25

C Pairs present at E.Ochils site, predated on by peregrine (MC).
SWP 1 Braes of Doune (Slymaback) 4 April, 4 in young conifers 26 April (WRB). 2 Glen Sgione (Balquhidder, young plantation) 12 January (RAB). 2 Lecropt 19 December & 1 Sheriffmuir on 20th (MVB).

*NIGHTJAR *Caprimulgus europaeus*
SWP 1 singing L.Ard Forest 24 June (Forest Enterprise per MS).

SWIFT *Apus apus (B)*
F 1st Grangemouth 8 May (WRB)
S At Stirling 11 May to 18 August (DT), 50 in late July, 17 on 8 August, last on 31st (WRB CJH). 2 Airthrey 13 May (MVB). BoA: 10 on 10 May, 20 on llth (DMB), 50 on 6 July & 40 on 21st, 17 on 7 August (CJH). 1 Hill of Kinnaird 23 August (DT).
SWP 2 Blairdrummond 11 May (CJH). 3 pairs Ashfield, max 12 in early August (WRB).

*KINGFISHER *Alcedo atthis (b,w)*
F 1 Skinflats 23 September; 2 Stenhousemuir 24 October, 1 Carronshore 5 November (AB). 2 Jupiter WG 24 March (WRB).
C Pair reared two broods (11 young) on Devon (MC). 1 Cambus 25 April (WRB).
S 1 Airthrey 18 February & 3 March (MVB), & from 13 March to 15 December (DMB). SWP 1 Ashfield 15 April & in September (WRB). (Seems to be maintaining its sparse status, no doubt long stretches of suitable lowland rivers are not covered, Ed)

GREEN WOODPECKER *Picus viridis (B,W)*
C Calling Menstrie from 4 March and on 27 December (BRT). Successful breeding at Woodhill and in Hillfoots Glens (MC).
S Recorded in spring Carron Valley Res, Plean CP, Mine Wood, Airthrey, Blairlogie (MA DT). SWP 1 L.Katrine oaks 3 February, L.Ard Forest 22 March (CJH).

GREAT SPOTTED WOODPECKER *Dendrocopus major (B,W)*
No spring/summer reports from main breeding areas, only straying birds or winter records. * indicates known breeding locality.
F 1 Skinflats 12 January (GO).
C 1 by Forth, Blackgrange 2 & 4 April (WRB CJH).
S 2 Mine Wood* 9 January, 1 Abbey Craig* 11 February (CJH).
SWP 1 Drumore Wood* 14 January, 1 L.Katrine* oaks 3 February, L.Ard Forest* 22 March (CJH).

SKYLARK *Alauda arvensis (B,W)*
F 20 Kinneil 10 January (GO). 20 singing on reclaimed land Grangemouth 8 April (WRB).

SAND MARTIN *Riparia riparia (B)*
F 1st Carronshore 12 April (AB).
S 4 Airthrey 1 April, in blizzard , 6 on 2nd (MVB DMB).
SWP 5 Lake of Menteith 29 March (DT). 1st Thornhill 13 April (JS). 4 Barbush 6 April (WRB), 516 occupied nests (M.Alves). 50 nests Argaty (WRB).

SWALLOW *Hirundo rustica (B)*
F 1 Kinneil 24 April (GO). 2 Skinflats 20 April, 10 on 28th; last 2 on 4 October (AB RS).
C 20 Gartmorn 18 April (MC). 1 Menstrie 22 April (CJH).
S 2 Airthrey 12 April (MVB), 1 BoA on 13th (DMB). Last Stirling 30 September (DT). SWP 3 L.Iubhair 20 April, Thornhill on 21st; 30 Port of Menteith 28 September, last Ashfield 10 on 3 October (WRB DM SS). Last Dunblane 10 October (MVB).

HOUSE MARTIN *Delichon urbica (B)*
F 1 Skinflats 28 April (RS).
C 20 Menstrie 30 September, last 6 on 3 October (BRT). 1 Airthrey 22 April, 140 on 10 September (MVB). Last Stirling 30 September (DT).
SWP 2 Lake of Menteith 3 May, 15 on 28 September with pair still feeding young (WRB DM); arrived Ashfield 20 May, 7 pairs (WRB).

TREE PIPIT *Anthus trivialis (B)*
SWP 2 L.Ard Forest 14 May (WRB), frequent on 20th (CJH). Last numbers 6 on 6 August (CJH).

MEADOW PIPIT *Anthus pratensis (B,W)*
F 10 Kinneil 5 January (AB).
C 250 Alloa Inch 13 September (DMB). 3 high on Wood Hill 20 December (BRT).

ROCK PIPIT *Anthus petrosus (w)*
F 1 Higgin's Neuk 4 March (MA).

GREY WAGTAIL *Motadlla cinerea (B,w)*
F 4 at Jupiter WG in late February, pair nested nearby (WRB). 2 Kinneil 5 January & 1 on 16 February (AB). S Post breeding dispersal: Female + 2 juveniles Airthrey from 22 May (MVB).
SWP Pair bred Ashfield (WRB).

PIED WAGTAIL *Motadlla alba (B,W)*
F 7 White Wagtails Kinneil 10 May (DT).

*WAXWING *Bombycilla garrulus (w/W)*
S 7 Stirling 9 & 10 March (M.Stewart per DT). No autumn reports.

*RED-BACKED SHRIKE *(Lanius collurio)*
SWP Male Thornhill 8 July (SS).

DIPPER Cindus *cinclus (B,W)*
C present on all Hillfoots burns (MC).

WREN *Troglodytes troglodytes (B,W)*
SWP In January-February scarce but regular in Trossachs spruce and oakwoods, frequent in lowland deciduous. In May-June one of commonest species in mixed woodland at Blairdrummond, 3.9 records per Km transect (CJH).

HEDGE SPARROW *Prunella modularis (B,W)*
SWP Much scarcer than Robin in mixed woodland at Blairdrummond May-June (CJH).

ROBIN *Erithacus rubecula (B,W)*
SWP 2 records per Km transect in mixed woodland at Blairdrummond May-June (CJH).

REDSTART *Phoenicurus phoenicurus (B)*
F 1 in garden at Carron 11 August, 1 Skinflats on 24th (AB). SWP 2 singing Drumore Wood 14 May (WRB). At Trossachs nestbox site 33 attempts raised 159 young (HR).

WHINCHAT *Saxicola torquata (B)*
F 1 Kinneil 10 May. Skinflats: Male on 29 June, 5 immatures on 5 July (bred locally ? Ed), autumn max 10 on 31 July, 3 on 23 August & 4 on 14 September, last on 16 September (nb no records 2 to 22 August) (AB GO DT).
C Pair Commonedge Hill, 3 pairs Burn of Sorrow (MC).
S 3 Carron Valley Res 13 September (DT). SWP 1st Thornhill 29 April (SS). 2 L.Ard Forest 14 May (WRB). Family party Glen Ogle in July (BH).

*STONECHAT *Saxicola torquata (b,w)*
SWP Breeding pairs Beinn Uamha (L.Chon) & QEFP NN405088 (MT). Male Easter Poldar (Flanders Moss) 10 May (SS). 3 (2M) Milour Moor plantation 25 October (WRB).

WHEATEAR *Oenanthe oenanthe (B)*
F 2 males Kinneil 24 April (GO), 4 (2 characteristic Greenland race) on 2 May (DMB). 1 Jupiter WG 18 July (WRB) & 3 Kinneil on 29th (CJH). 1 Skinflats 7 September (AB).
SWP 3 Glen Kendrum 5 April (RAB), 1st Thornhill on 22nd (SS). 2 Glen Ogle 20 April (WRB).

*RING OUSEL *Turdus torquatus (b)*
SWP 1 Monachyle Glen 29 May. On 30 May singing Inverlochlarig & 2 Glen Gione (Balquhidder) (RAB). Probably under-recorded due to remoteness of many breeding sites (Ed).

BLACKBIRD *Turdus merula (B,W)*
SWP Slightly commoner than Song Thrush in mixed woodland at Blairdrummond in May-June (CJH). FIELDFARE *Turdus pilaris (W)*
F 3 Skinflats 11 October & 200 on 31st (AB).
C 95 Menstrie 6 December, 40 Silver Glen on 20th, 55 Gartmorn on 25th, 60+40 Menstrie on 26th (BRT).
S 150 Stronend 9 February, 110 Sheriffmuir 5 April (CJH). 150 Kippen Muir 31 October & 200 Frew Toll (DT). Airthrey: 120->W 11 November, 200-W on 13th & 80-W on 17th (MVB). SWP 20->WNW Braes Doune 15 October (CJH), 500->SW Ashfield 5 November (WRB). 150 Kinbuck 29 November, 100 Drip Bridge 6 December (MVB). 187 Callander 12 December (DM).

SONG THRUSH *Turdus philomelos (B,W)*
F 30 with Fieldfares & Redwings Skinflats 31 October (AB).
S Much scarcer than Blackbird in January in lowland deciduouswoods (CJH).

REDWING *Turdus iliacus (W)*
F max 22 Grangemouth in January (WRB). Many Skinflats 31 October (AB), 15 on 6 November (GO).
C 12 with Fieldfares Menstrie 26 December (BRT).
S 20 BoA 6 & 7 March, much subsong (JMC). 34->W Airthrey 6 October (MVB). 50 Kippen Muir 31 October (DT).
SWP 50->WNW Braes Doune 18 October (CJH).

MISTLE THRUSH *Turdus viscivorus (B,W)*
No reports of large flocks in Autumn. SWP Pair Ashfield (WRB).

*GRASSHOPPER WARBLER *Locustella naevia (B)*
F 2 singing Carronshore 25 April (AB). Skinflats: 1 on 28 April, 9 May, 2 on 10th, 3 on 15th, present to 24 July (GO RS).
C 1 Cambus 19 May (WRB).
S 1 singing R.Allan at BoA 27 April & 1 May (JMC).
SWP Singing Flanders Moss (E Poldar) 10 May (SS), Blairdrummond Moss on 5 May & 10 June (CJH), Inverlochlarig on 30 May (RAB).

SEDGE WARBLER *Acrocephalus schoenobaenus (B)*
F 1 Skinflats 28 April (RS), 7 on 10 May (GO RS). 2 Kinneil 10 May DT). 1 Carronshore 14 May (AB).

C 5 AoT Gartmorn (MC). 1 AoT Cambus (CJH).
SWP 1st Blairdrummond Moss 11 May (CJH).

WHITETHROAT *Sylvia communis (B)*
F Singing Carronshore 3 May (AB). 1st Skinflats 9 May (GO), 1 Kinneil 10 May (DT). 3 AoT Jupiter WG, at least 1 pair bred (WRB).
C 4 AoT Gartmorn (MC). SWP 1 pair Ashfield (WRB).

GARDEN WARBLER *Sylvia borin (B)*
F 1 Skinflats 13 August (GO).
C Breeding pairs: 3 Brothie Burn, 1 Gartmorn, 2 Dollar Glen, 2 Alva Woodland Park (MC).
S Singing Airthrey 5 May (MVB). SWP 2 singing Aberfoyle 10 May (CJH).

BLACKCAP *Sylvia atricapilla (B,w)*
F Male Bo'ness 20, 22 & 23 January (RS). Migrants: Male Skinflats 26 April, 1 on 27 September (AB GO). Present Grangemouth mid May (WRB).
C Pair reared 5 young Gartmorn (MC).
S Singing BoA 20 April (CJH), Airth 2 June (AB). Male Airthrey 10 May (MVB), last on 6 November (DMB). SWP 1 Aberfoyle 6 January (MT).

WOOD WARBLER *Phylloscopus sibilatrix (B)*
C 2 AoT Wood Hill 23 May (MC).
S Singing Mine Wood 4 May (WRB).
SWP Singing Fairy Knowe 10 May (CJH). Present in May Drumore Wood, Kilmahog (WRB).

CHIFFCHAFF *Phylloscopus collybita (B)*
F 1 Kinneil 19 December (JC).
S Singing BoA 7 April (JMC). 1 Torwood 1 May (AB). 1 by Forth at Manorneuk 29 November (JC).
SWP 1 Lake of Menteith 29 March (DT). Singing Ashfield 1 April, Doune Ponds on 17th (WRB).

WILLOW WARBLER *Phylloscopus trochilus (B)*
F 1 Carronshore 24 April (AB), 1 Skinflats on 26th (GO). 3 AoT Jupiter WG, 1st on 27 April (WRB).
C Frequent Menstrie 28 April (CJH). 6 at Gartmorn (MC).
SWP 1 Kinbuck 19 April (MVB). Singing Blairdrummond 26 April, one of commonest species in mixed woodland, 4.7 records per Km transect (QH).

GOLDCREST *Regulus regulus (B,W)*
F Through year at Skinflats (AB).

SPOTTED FLYCATCHER *Musdcapa striata (B)*

C 2 pairs reared 9 young Gartmorn (MC).

S 1st BoA 31 May (DMB).

SWP 2 L.Ard Forest 14 May (WRB). 1st Rhuveag 17 May (DT). 1 pair Ashfield (WRB).

PIED FLYCATCHER *Ficedula hypoleuca (b)*

SWP At Trossachs colony 50 nest attempts fledged 288 young (HR). Male Gartmore 10 May (CJH). 2 Males Rhuveag 17 May (DT). Singing Kilmahog 19 May (WRB).

LONG-TAILED TIT *Aegithalos caudatus (B,W)*

F 12 Carronshore 10 January & 10 on 23 October ; 15 Skinflats 25 October (AB). Regular Jupiter WG Oct-Dec, max 15 on 1 December (WRB).

C 8 pairs bred Gartmorn, nests : 3 gorse, 3 birch, 1 blackthorn, 1 ivy; 1st egg 23 March (MC). 12 Gartmorn 9 December (CJH). 12 Menstrie 14 November & 10 on 20th (BRT).

S 7 Mine Wood 9 January (CJH). SWP 20 Loch Ard Forest 10 August (CJH). 30 in 5 flocks L.Katrine oakwoods 4 October (DM).

COAL TIT *Parus ater (B,W)*

SWP Commonest species Strathyre (spruce) 19 January - 22 (81%) in 2 hrs; also L.Achray spruce on 26th - 9 in 111 min; (compare 4 (5%) in 90 min Mine Wood 9 January; 6 (11%) in 80 min Red Carr on 13th; 8 (13%) in 70 min Abbey Craig 11 February). 33 Loch Ard Forest 30 July (CJH). 30 in 5 flocks L.Katrine oakwoods 4 October (DM).

BLUE TIT *Parus caeruleus (B,W)*

F Through year at Skinflats (AB).

C Commonest species Red Carr 13 January - 26 (47%) in 80 min; 8+5 in reeds Tullibody Inch 1 October (CJH).

S Commonest species Mine Wood 9 January -23 (31%) in 90 min; Abbey Craig 11 February - 19 (31%) in 70 min (CJH). SWP Just commoner than Coal Tit in mixed woodland at Blairdrummond May-June, 2.9 records per Km transect (CJH).

GREAT TIT *Parus major (B,W)*

S Winter frequencies: Mine Wood 15 (20%) on 9 January; Red Carr 6 (11%) on 13th; Abbey Craig 8 (13%) on 11 February (CJH).

TREECREEPER *Certhia familiaris (B,W)*

Winter frequency in 3 deciduous woods Jan-Feb: 7 (3.6%) in 240 min (CJH).

F 1 at Skinflats 2 February & 1 November (AB).

JAY *Garrulus glandarius (B,W)*

C 2 pairs Forestmill (MC).

S Pair Torwood 1 May (AB), Mine Wood 7 May (MA).

Whilst widespread west of Stirling these sites are toward the east of the region where the species is much more thinly distributed.

MAGPIE *Pica pica (B,W)*

C Nest building in Menstrie 1 March (BRT).

S 22 Stirling bypass 4 March (BRT). 3 Mains of Glinn (Stronend) 8 October - exposed site at 160m (CJH). SWP 1 Ashfield November-December (WRB).

JACKDAW *Corvus monedula (B,W)*

SWP 20 pairs Ashfield (WRB).

ROOK Corvus *frugilegus (B,W)*

C 330 Menstrie 27 December (BRT).

S 5000 in stubble at Plean in early December (WRB). 3000 BoA 27 January flying, with Jackdaws, S at dusk; 1600 (with many Jackdaws) Mine Wood 31 December, at dusk from NE, presumably to roost (CJH). Rookery nest counts: BoA(N) 62 in pines & 37 in deciduous on 19 April. BoA(S) 172. Witches Craig 40 on 22 April. 82 Myreton 28 April (CJH). 123 at Gartmorn (MC).

SWP Post breeding visits to hill grazing: Glensherup 200 Green Knowes & 30 Mailers Knowe 17 June (CJH).

CARRION CROW Corvus corone *(B,W)*

C 70 Alva (on grass) 26 December (BRT).

RAVEN Corvus *corax (B,W)*

15 territories checked, 13 occupied; 9 pairs successful of which 6 reared 18 young (PS-A)

SWP Pair Kirkton Glen 19 January (SS). 3 Menteith Hills 23 February, 5 Ben Chabhair 15 March, pair Rhuveag 17 May (RAB DT). 2 Braes of Doune 10 October (CJH). 2 Ben Ledi (1 v.tame) 6 July (WRB). 1 L.Ard Forest 4 August (CJH). 27 Glen Kendrum 26 January (RAB).

STARLING Srurnus *vulgaris (B,W)*

F Feeding flocks in Bo'ness garden down from 50 in 1991 to 20 in 1992 (RS).

S 200 Sheriffmuir 6 June. 2000 Bandeath at dusk 7 November, probably roosted (CJH).

HOUSE SPARROW Passer *domesticus (B,W)*

F Feeding flocks in Bo'ness garden reduced from 30 in 1991 to 12 in 1992; 150 Skinflats 8 August (RS).

TREE SPARROW Passer *montanus (B,W)*

F Skinflats: Recorded January, May to October with max 13 on 27 August, 20 on 27 & 15 on 3 October (AB GO).

S 1 singing BoA 7 March (JMC). 6 Bannockburn 13 November (WRB). SWP 1 Lecropt 24 May (WRB), 105 Drip Moss 12 December (MVB).

CHAFFINCH *Fringilla coelebs (B,W)*

In January very scarce (1 in 8.18 hr) in Trossachs spruce & oak, regular but scarce in lowland deciduous (4 in 5hr); by 11 February frequent and singing in Abbey Craig (CJH).

S 200 BoA 9 October (CJH).

SWP 300 Arnprior 8 March (DT). 300 Drip Moss 22 November (MVB). 20 ->*S* L.Lubnaig 7 October (CJH). Commonest breeding passerine in mixed woodland at Blairdrummond, 12.5 record per Km transect (CJH).

*BRAMBLING *Fringilla montifringilla (w)*

S 1 *Arnprior* 8 March & 50 on 31 October (DT). SWP 12 Thornhill 18 October (AK). 2 Kinbuck 8 November & 1 over Ashfield early in month (MVB WRB).

GREENFINCH *Carduelis Moris (B,W)*

C 12 Menstrie 23 & 27 December (BRT).

GOLDFINCH *Carduelis carduelis (B,W)*

F 7 Jupiter WG October-December (WRB). Present all year at Skinflats (AB).

C 84 Grassmainston 27 September (MC). 26 Tullibody Inch 1 October (CJH). 4 on burdock & thistle Menstrie 14 November (BRT).

S 8 Kippenrait 25 January. 20 L.Carron 7 November (CJH). 20 Airthrey 8 December (MVB). SWP 19 Cromlix 1 February (MVB). Probably bred Ashfield (WRB). 32 on rough grazing Callander 12 December (DM).

SISKIN *Carduelis spinus (B,W)*

F 15 Skinflats 20 April (AB); regularly 4 in Bo'ness garden January-February (1st occurences), max 30 (RS).

C 6 Myreton 28 April (CJH). 27 in alders Menstrie 26 December (BRT).

S Singing BoA 18 May, no evidence of nesting (CJH).

SWP Small flocks Glensherup spruce 17 June (CJH). 12 L.Katrine 4 October (DM), 50 L.Venachar 29 October (CJH). Seems to have been a distinct increase in the breeding season in the Hillfoots-Devon Valley since the Devon Survey (Ed).

LINNET *Carduelis cannabina (B,W)*

F Present all year Skinflats (AB); 3 Jupiter WG April-May (WRB). 6 in spring around Grangemouth High School, pair nested but the 6 eggs disappeared (JW). SWP 200 Thornhill 25 January, 200 Lecropt on 29 November, 200 Baad 12 December (MVB). 80 Chalmerston 27 December (CJH).

TWITE *Carduelis flavirostris (B,W)*

F 187 on Saltmarsh at Skinflats 21 November (GO), 5 on Pools on 14th (AB). 140 Kincardine Bridge 30 December (JC).

S Birds singing above Fintry 14 May (LLBR).
SWP 80 Kinbuck 19 February & 45 on 23rd, 30 on 1 March (MVB JC), 32 Ashfield 11 April & 8 on 25th (WRB). These are probably offshoots of a much larger wintering population in Strathallan just over the Tayside border, eg huge flock here in autumn (MVB).

REDPOLL *Carduelis ilammea (B,W)*
SWP 1 Blairdrummond 11 May; several singing L.Ard Forest (Garbeg, Clashmore) on 20th. Throughout Glensherup on 17 June (CJH). 34 in birches Callander 12 December (DM).

BULLFINCH *Pyrrhula pyrrhula (B,W)*
F Pair Jupiter 7 January, 1 Carron Dam 1 February (WRB)
SWP 27 in deep heather at 600m, Monachyle Glen 12 January (RAB). 4 in heather L.Achray Forest on 26 January (CJH). 5 males in birches Callander 12 December (DM).

COMMON CROSSBILL *Loxia curvirostra (b,W)*
S 3 BoA 26 April (CJH). Small numbers Carron Valley at end of year (LLBR). SWP A few L.Ard Forest 10 August (CJH). (only record, Ed)

HAWFINCH *Coccothraustes coccothraustes (b?,w)*
No records received.

*SNOW BUNTING *Plectrophenax nivalis (W)*
C 18 Kings Seat 12 December (MC).
SWP 45 Ardeonaig (RAB SS). 6 Glen Gyle 13 March, 4 Glen Lochay (Badour) on 19 December & 1 on 28th, 1 Meall nan Tarmachan 21 December (RAB). 38 + 64 Braes of Doune 8 December (MC) & 2 Glen Finglass on 5th (JC). 2 Females Ben Lomond 19 April (LLBR) (quite late date for this area, Ed).

YELLOWHAMMER *Emberiza citrinella (B,W)*
F 11 Carronshore 11 February (AB).
C 4 Menstrie 26 December (BRT).
SWP 2 AoT Ashfield & 2 Doune railway mid-May (WRB). Commonestfinch-bunting on carse farmland Blairdrummond Moss in May-June (CJH).

REED BUNTING *Emberiza schoenidus (B,W)*
F Present all year Skinflats (AB). Singing Jupiter WG April (WRB).
C 3 AoT Cambus 17 & 19 May, 2 on 4 June, 3 on 5th(WRB CJH).
S 11 in stubble Cambuskenneth 20 December (CJH).
SWP Pair Ashfield (WRB).

*CORN BUNTING *Miliaria calandra (b,w)*
F 1 singing Powfoulis-Skinflats through May & 23 June (AB DMB WKH RS). Singing Powbridge (Higgin's Neuk) 10 May (DT).

Additions and corrections to 1991 Report

GOOSANDER Mergus *merganser*
SWP Female with 6 young L.Venachar 15 June (BH).

DOTTEREL *Charadrius morinellus*
One also seen and photographed on Ben Cleuch on 21 August by JP & CJ Davis.

SHORT-EARED OWL *Asio flammeus*
SWP 1 Glen Ogle 29 June (BH).

WAX WING *Bombycilla garrulus*
Correction to 1991: delete "SWP 50->W L.Arklet 27 November"; substitute
S 50->W Stirling 27 November" - apologies to MT, Editor's mistake.

EDITORIAL NOTE - forthcoming book

We hope to publish by Christmas a substantial new book to promote knowledge and study of the environment of our area - *Central Scotland - land, wildlife, people.*

Considerable labours over the last year are about to achieve this new survey to succeed the 1974 *Stirling Region* produced by the University for the British Association. The book's 14 illustrated and indexed chapters give a readable authoritative review of the region's -Land - Geology: Climate; Soils; Vegetation and Flora Wildlife - Birds; Mammals; Butterflies; Aquatic Life; Nature Conservation People - Agriculture; Industry; Population; Politics; Sport and Recreation

Thanks to sponsorship by BP, Scottish Natural Heritage and United Glass, Alloa we are holding the price low at £12.50.

Order inquiries welcomed - L. Corbett 30/10/93

OUR BIRDS - A CONSERVATIONIST'S VIEW

Stephen Sankey
The Royal Society for the Protection of Birds

This paper is based on the presentation to the 18th Man and the Landscape Symposii 1992, 'Stirling and Forth Environment - 25 years of Change'. A Stirling University Jubilee year event.

In any dynamic ecosystem or series of habitats over time there have to be species that are winners and losers. This might happen naturally without the hand of man, such is the way of the world, but twentieth century change is rapid, forced by technological advances and population pressures, and the Stirling/Forth area reflects these changes. Ecologists, naturalists and ornithologists tend to have greater concerns for the rarer species than commoner ones. For the birdwatcher it is more thrilling to see an osprey than a house sparrow. For an ecologist or scientist it is more challenging to understand the reasons for the decline of the corncrake than the rise of the chaffinch. As conservationists it is the rarer birds we must dedicate our resources to protect. Not just the species themselves, for that is not possible in isolation, but the habitats in which they live, and upon which they depend.

Over the last 25 years, we have lost such species as Common Scoter from Loch Lomond, Corncrake from the Carse, and witnessed severe population crashes of certain species of wader on the Firth of Forth. Only about 110 pairs of Common Scoter breed in Great Britain today, and although the population was probably about the same or slightly less 25 years ago (Batten 1990) it is almost certain that they no longer breed on the Loch Lomond islands. Recreation pressure and disturbance is the likeliest cause of their demise. The surveys for the BTO Atlas begun in 1968, show Corncrakes dotted all the along the Carse of Stirling (Sharrock 1976). Flanders Moss once held five species of game bird - Capercaillie, Blackcock, Red Grouse, Partridge and Pheasant, but both the big black species seem to have deserted the site. Sadly the Montagu's Harrier which bred in the area in the 1950s has never returned (Blake 1978). Of course there have been some gains. Ospreys have come southwards into the area, since recolonisation at Loch Garten in 1954. What a superb breeding year they had this season - the best for over 2 centuries - with more than 100 young fledged from nests in Scotland!

Pied Flycatchers have done well thanks to the nest box schemes of Henry Robb on Loch Katrineside in the '70s and the RSPB on Loch Lomondside in the '80s. Natural nesting holes are scarce in the coppiced oak of the area, but these birds take readily to artificial nest sites and have prospered over the years. But habitats are dynamic. We started to lose Pied Flycatcher chicks to a predator at Inversnaid a year or two back. Our warden's suspicions were confirmed when a camera caught a Pine Martin at one of the next boxes, the first positive sighting on Loch Lomondside for many decades. Pine Martins are extending their range again, and we're delighted to have them on our reserve on Loch Lomond -

though sadly we have had to take many next boxes down for the sake of the Flycatchers.

Now to focus on habitats and landuse, and how these may have changed in the Forth catchment since the '60s. The RSPB's *Campaign for the Countryside* is trying to get the central message of Common Agricultural Policy reform and the greening of agricultural production through to its membership and the politicians, and its report, *Our Countryside Our Future* highlights the massive changes that have occurred in our countryside since the war. For example—in 1970 the support for beef cattle was 18X that of sheep. Now it is only 7X so farmers are more reluctant to keep cattle. In general a greater number of cattle is desirable for wild bird conservation because of their grazing style and winter keep requirements. In Central Region sheep outnumber cattle by 6: 1 and more than two-thirds of the area farmed remains as rough grazing (Central 2000 1990).

Since 1970 the afforestation of heather moorland has continued apace, and this and overgrazing damages over 20,000 ha of moorland in Britain each year, much of it in Scotland. In recent years this threat to the uplands has lessened considerably, mainly due to fiscal changes introduced by government. Between 1984 and 1991, 27% of hedgerows in Scotland were destroyed in the interests of agricultural efficiency.

It's difficult to focus these changes precisely on the Forth catchment because of administrative boundaries, but we can be sure that local changes have mirrored these national trends, because landowners and land managers follow national grants; and land values follow national trends.

A good thing about birds is that we can use them as indicators of the health of the environment. They are the canary in the miner's cage and pit shaft. They are relatively easy to count and monitor, and very many people are interested in birds as the RSPB's current membership of 850,000 testifies. The Peregrine Falcon, for example, experienced a population crash after the war. By 1963 the British total was down to 360 pairs, caused by organochlorine pesticides (Batten 1990). The residues of such persistent toxins accumulated in these predators at the head of the food chains, and caused a thinning of the egg shells. Bans on the use of these chemicals have achieved a recovery, and in the 1991 national Peregrine survey 57 pairs occupied territories around this area (Central Scotland Raptor Study Group 1992).

Let's stay with upland birds and the considerable debate in recent decades about afforestation. The advent of Indicative Forestry Strategies as part of the structure planning process in recent times has been a significant step forward, in that authorities such as Central Regional Council now prepare strategies which zone land into the broad categories of sensitive, potential and preferred land from the point of view of afforestation. Perhaps more importantly, this process has focussed the thinking of all the agencies concerned and led people to realise the importance of surveying and monitoring the land for wildlife and other values.

The RSPB remains seriously concerned about the potential impacts of afforestation on upland birds, however, and is involved in the arguments - for example over the Flow Country and other critical areas. Locally, afforestation has had a major impact on the landscape over the last 25 years, with the plantings of the Queen Elizabeth Forest Park and the Carron Valley approaching maturity. In 1991 Central Regional Council reported that in the north of Stirling District 42% of the plantable rough grazings was under trees or had been given approval for planting (Central 2000 1990). This in turn has had an impact on the birdlife, with the forests entering their least valuable stage from the point of view of the rarer species. When the plantation phase ends (in 10-15 years), and the canopy closes - the thicket stage begins, and open hill species have insufficient ground for nesting and feeding. Rides within forests are insufficient, and the majority of open hill species will not nest in clear-felled areas. Birds such as Hen Harrier, Curlew and Lapwing have lost out to this afforestation in the last 25 years, and there is so far no evidence that the Merlin is changing its habits here (unlike in Wales, Northumbria or Galloway) and beginning to nest in forests.

A main impact of afforestation in this area has been the piecemeal and unplanned loss of open upland habitats, including heather moorland, on such sites as the Campsie Fells and the Braes of Doune (RSPB 1990). But systematic surveys have not been conducted for many species or areas over time, and in many instances we are noting the subjective feelings of amateur ornithologists. Without these bird watchers - recorders, raptor workers, estuary and geese workers and so on - the planners and decision makers would have much less information upon which to make decisions. On behalf of the RSPB I would like to thank them for their efforts over the last 25 years.

One group of birds that has been well recorded, however, is the shorebirds of the Firth of Forth. Regular counts of the wildfowl in the Grangemouth-Alloa area began in the early 50s, but the Birds of Estuaries Enquiry (1969-75) heralded the first systematic and co-ordinated counts of the Forth (Prater 1981), and still does today, thereby making comparisons over time possible. Bryant (1987) conducted a comparative study, and showed population falls from the '70s to the mid '80s of wildfowl from 25-30,000 to 10-15,000; and waders from 50-65,000 to 30-40,000. He concluded that the causes of the declines amongst waders, for example Knot - down from 16,000 to 8,000 - or Dunlin - down from 13,000 to 6,000 - were not easy to identify, and may include natural factors in addition to man's activities e.g. land claim. Land claim for agriculture and industry has substantially reduced intertidal areas by 50% over the last 200 years, including much industrial activity at Kinneil and Torry Bay in recent decades (McLusky 1987). Vast improvements in water quality on the Forth - as with the Clyde -has led somewhat ironically to a decline in some species, most notably the spectacular crash of the Scaup numbers on the Outer Forth from 13,000 to 1,500. More locally other species that have shown declines in the

Inner Forth include Mallard and Teal (Thorn 1969). But not all is gloom and doom. Species that are increasing in the Inner Forth include Shelduck - up from 1,500 in 1969 to 2,400 last winter. Kinneil is an outstanding site for them because it holds a post-breeding moulting flock, an unusual feature in Britain. Knot and Teal are on the increase again at 9,500 and 2,000 respectively, whilst Redshank (3,500) and Curlew (2,100) appear to be increasing. In the winter of 1991/92 the Inner Firth of Forth still supported four species of international significance - Shelduck, Knot, Bar-tailed Godwit and Redshank; and another five species of national significance, that is holding 1% or more of the British population - Great Crested Grebe, Cormorant, Teal, Dunlin and Curlew. Statistically it is still the 10th most important estuary in Britain, holding 72,000 waterfowl (Kirby et al 1991), and we need to be ever vigilant over the next 25 years to ensure that its status does not decline further.

So what of the next 25 years? There remain some serious threats to the avifauna of the area. Easily the most significant to the Inner Firth of Forth is the threat of further land claim, including the continued support by the Regional Council for an investigation into the feasibility of a tidal barrage across the Forth at Kincardine. The Scottish Office has reserved its approval for this proposal in the recently adopted Central 2000 structure plan, for the RSPB commissioned a report in 1991 which predicted that the barrage would have a deleterious effect on our Skinflats reserve and its waterfowl. While the Regional Council has a good track record for environmental projects - this particular idea is a bad one. The intertidal habitat and its shorebirds on the Forth is quite rightly safeguarded by European designations. Whatever your view of Maastricht, the EC has protected the environment splendidly, particularly with its wild birds and habitats Directives.

We must continue to liaise with the planning authorities and the Forestry Authority to ensure a correct balance between afforestation and other landuses in the Forth catchment. The Forest Enterprise is currently planning the re-structuring of its forests which will give some excellent opportunities to enhance some species, and is doing some fine work in the provision of nest boxes to secure the return of the barn owl. Agricultural policies must be greened as much as possible. We must ensure that current agricultural surpluses are turned into farming schemes that genuinely benefit wildlife and birds without hurting the farmer who has to make his living from the land. I live on the Carse of Stirling, amongst the 3,700 Pinkfeet that roost on the Lake of Menteith each winter. Over 3,000 came over the house just this week. These birds have an aesthetic and sporting value which doesn't mean much to the farmers on whose land they feed. Different agricultural mechanisms are required to resolve this conflict. While 25 years ago on the Carse of Stirling Corncrakes could be heard - this year there were none. RSPB research points towards earlier cutting associated with increasing silage production as the principal cause of their spectacular decline. I'd like to hope that hay producing areas could once more resound to their call since current RSPB, Scottish Natural Heritage, and Scottish Crofters Union initiatives are paying crofters and farmers to delay cutting until 1st August;

and to mow in a Corncrake friendly fashion - both policies designed to protect the vulnerable Corncrake broods. To end optimistically we hope that agri-environment schemes on the horizon work for the conservation of both farmers *and* Corncrakes on the Carse of the future.

REFERENCES

BATTEN, L. A. et al 1990.Red Data Birds in Britain, RSPB/NCC, T. & A. D. Poyser, London. BLAKE, E. A. 1978.Montagu's Harrier Breeding in Scotland, *Forth Naturalist & Historian, 2*, 3-30.

BRYANT, D. 1987. Wading birds and wildfowl of the estuary and Firth of Forth, Scotland. *Royal Society of Edinburgh Proceedings* 93B, 509-520 Central Scotland Raptor Study Group. 1992. Pers. comm. Central 2000, 1990. Central Regional Council Structure Plan Report of Survey.

KIRBY, J. S., FERNS, J. R., WATERS, R.J., PRYS-JONES, R. P. 1991. Wildfowl and Wader Counts 1990-91, The Wildfowl and Wetlands Trust, Slimbridge. MCLUSKY, D. 1987. Intertidal habits and benthic macrofauna of the Forth estuary, Scotland, *Royal Society of Edinburgh Proceedings* 93B, 389-399.

PRATER, A. J. 1981. Estuary Birds of Britain and Ireland, T. & A. D. Poyser, London. RSPB. 1990. RSPB submission to Central Regional Council Indicative Forestry Strategy.

SHARROCK, J. T. R. 1976. The Atlas of Breeding Birds in Britain and Ireland, BTO/Irish Wildbird Conservancy, T. & A. D. Poyser, London.

THOM, V. 1969. Wintering duck in Scotland 1962 - 1968, *Scottish Birds* 5.

Honour for John Mitchell - July 1993

S N H's well known Warden at the Loch Lomond National Nature Reserve has been made an Honorary Master of Arts for his contribution to the study of Scottish wildlife in education and practical nature conservation over the last quarter century. He has frequently assisted student projects and written and lectured for the University, and more widely for the F N & H, Glasgow Natural History Society and others, on the flora and fauna of the Loch Lomond area. He has also been regularly involved with the Stirling District database in its long-term monitoring of species including Peregrine, Raven and Grey Heron.

This is not his first accolade. In 1988 the Institute of Biology awarded him a Chartership for personal contributions to the biological sciences.

Congratulations

THE HERONRY AT GARTFAIRN WOOD, LOCH LOMONDSIDE - AN UPDATE

John Mitchell

Scottish Natural Heritage

Compared to most heronries in Central Scotland the 60 year old colony of Grey Herons *Ardea cinerea* at Gartfairn Wood (NS 434894) on Loch Lomondside is well documented, including studies on population trends (Mitchell 1978) and diet (Giles 1981; Adams & Mitchell *(in prep).* The Gartfairn Heronry, which is mainly in oak trees, is known to have moved about 2 km from Rushypark Plantation within the policy woodlands of Buchanan Castle in the early 1930s, the colony building-up to a peak of 39 occupied nests in the mid 1970s.

Reports that nesting herons were apparently moving back to the grounds of Buchanan Castle were first received in 1983 (D. MacFadyen *pers comm),* but not confirmed until two years later when four occupied nests were found in a Sitka Spruce plantation beside East Lodge (NS 472879). A second splinter colony of two or three nesting pairs in a conifer plantation situated alongside the former walled garden (NS 467887) has since been abandoned. The gradual transfer of nesting herons has continued ever since, so that by the nesting season of 1993 the Gartfairn colony had been reduced to six pairs and the East Lodge colony built-up to 25 pairs.

The reasons behind the shift can only be surmised, as Gartfairn Wood is rarely disturbed. There is little doubt however, that the herons' feeding opportunities in the low-lying grazing marshes in the vicinity of the wood have been significantly reduced by more frequent early spring flooding in recent years In addition, a number of oaks regularly used for nesting by the Gartfairn colony have been lost due to successive winter gales.

It is unfortunate that strong winds over the winter of 1992/93 also badly damaged the Buchanan Castle conifer woodlands. The effect of this wind-throw could lead to the early harvesting of the 30 year old Sitka Spruce plantation at East Lodge, resulting in the herons being on the move once more.

REFERENCES

ADAMS, C. and MITCHELL, J. in prep. Response of Grey Herons *Area cinerea* to rapid change in prey availability.

GILES, N. 1981. Summer diet of the Grey Heron. *Scottish Birds* 11, 153-159

MITCHELL, J. 1978. The Heronry at Gartfairn Wood, Loch Lomondside. *Forth Naturalist and Historian* 3, 56-67

BIRD COMMUNITIES IN OAK AND NORWAY SPRUCE WOODLANDS ON LOCH LOMONDSIDE - A LONG-TERM STUDY

D. M. Bryant

University of Stirling

INTRODUCTION

The woodland bird communities of Loch Lomondside have been the subject of many studies over the past twenty years (Mitchell 1986). These have documented the bird communities of semi-natural woodlands in different parts of the Loch Lomond National Nature Reserve, as well as other areas within the Regional Park (Williamson 1974, Williamson et al. 1973, Shaw 1976). There have been few long-term studies of woodland bird communities, however, either by Loch Lomond or more generally in central Scotland (Bryant et al, in press). This study aimed to describe the bird communities of contrasting semi-natural and planted woods by Loch Lomond, and to examine any temporal variations associated with habitat changes or other factors which could have affected the relative or absolute abundance of species.

STUDY SITE AND METHODS

The study was carried out in adjacent deciduous and coniferous woodlands in Rowardennan Forest on the eastern shore of Loch Lomond. Ross Wood is part of the Loch Lomond Oakwood Forest Nature Reserve and is included in the Rowardennan Woodlands SSSI (Site of Special Scientific Interest). It is dominated by Oak *Quercus spp,* forming a high canopy, which is interspersed by Alder *Alnus glutinosa,* Rowan *Sorbus aucuparia,* Birch *Betula spp,* Beech *Fagus sylvatica,* Holly *Ilex aquifolium,* Hazel *Corylus avellana* and Hawthorn *Crategus monogyna* (Tittensor 1970). The canopy was only occasionally broken by clearings at the time of the study. The wood had been underplanted in 1957-60 with scattered conifer blocks (Norway Spruce *Picea abies* and Douglas Fir *Pseudotsuga menziesii).* Their removal, however, was underway by 1989, so that in 1992 only scattered conifers remained. The survey route followed a narrow track westwards from the University Field Station (NS377960) to the south side of Ross Point (NS376956). Conventional wooden nestboxes were placed on trees beside the access track in the early-1980s and augmented by a large number of suspended concrete boxes in 1989. Sallochy Wood is a coniferous plantation which also forms part of Rowardennan Forest. The survey route extended from NS382957 near Sallochy car park to NS386954, via a broad ride running to the east, then a forestry track running southwards. The mature forest, planted in 1952-54, was predominantly of Norway Spruce, which bordered 82% of the survey route. The remainder comprised two small blocks of Japanese Larch *Larix kaempferi* and one of Sitka Spruce *Picea sitchensis.* The only forest edge habitat

included in the survey lay along the fringe of the rides used for access. Small remnant clumps of Oak woodland occurred in three areas alongside the survey route, while Birch, Willow *Salix spp.*, Broom *Sarothamnus scoparius* and Gorse *Ulex europaeus* were scattered over the grassy rides. Neither the oak wood nor the spruce forest had a significant shrub layer, except that the underplanted conifers in Ross Wood probably served as such during the early part of the study. The field layer in Ross Wood was ungrazed, except by a few deer, and was comprised of Bracken *Pteridium aquilinum*, Bilberry *Vaccinium myrtillus*, Heather *Calluna vulgaris* and various grasses and herbs. The field layer was essentially absent beneath the spruce canopy although lying dead timber and patches of grasses and ferns provided cover in some places.

Observations were *carried* out over periods of 55-95 minutes, by means of point counts. These involved a slow walk, punctuated by halts of 3-5 minutes. The number and position of singing birds and any sightings were noted at each stop. Halts were spaced so that there was no overlap between counts. Sightings comprised birds at rest, calling or in flight, birds carrying food, and pairs; each being assumed to represent a single breeding pair. To avoid 'double-counting' of pairs, sightings data were not included if singing birds were also noted at the same point. For analysis purposes, singing birds and sightings were classified similarly as 'territories', on the assumption that each singing male, or sighting of an adult bird or pair, represented a breeding territory. While totals of poly-territorial species, such as Wood Warblers, could be inflated under this assumption, the short duration of the surveys effectively eliminated this risk. Point count methods are described in detail by Bibby et al (1992). Few birds were recorded >50m from the observer, although no formal distance measuring was undertaken. Distant singing thrushes were excluded, however, since their songs are far carrying. Other exclusions based on distance were some calling Cuckoos and some sightings of Buzzard, Wood Pigeon and Carrion/Hooded Crow. Swifts, Swallows and House Martins flying above the canopy were never included. All counts were made by the author while leading student groups; this may have reduced the detection frequency of the quieter or more wary species.

The study was carried *out* in early June during the period 1982-1993 (except 1985). During 1982-1986 two surveys of the oak and spruce habitats were carried out each year. From 1987, however, there was only a single annual survey of each type of wood **(Table** 1). The small number of annual surveys inevitability reduces the reliability of the results compared to more intensive monitoring exercises, such as involved in territory mapping. It also precludes statistical analysis of year to year differences. Attention is therefore focused on the overall composition of the communities, investigated over 11 years, as well as the most marked annual changes noted. Latin names of all species mentioned in the text or seen in the woods during the week of the surveys are given in Appendix 1.

RESULTS

Consistency of counts

Two counts per year, two or three days apart, were available for both the oak and spruce woodlands over the first four years of the study. In 83% of cases (n=228) territory counts were identical or differed by only one territory for each species. Although many of these comparisons involved just a few individuals, they do imply a general consistency of the point count methodology. At the other extreme, three species showed some marked discrepancies between counts a few days apart, indicating that single counts can be an unreliable guide to abundance. These were Coal Tit, Robin and Willow Warbler (Tables 2,3); with respectively 3/8, 5/8 and 4/8 point counts differing by more than 2 territories per survey. This variability presumably reflected changing singing behaviour, since none of these species is normally difficult to detect. In view of this variability, only the most extreme year to year differences in the number of territories are considered for these three species.

Comparison of oak and spruce bird communities

The average number of species was similar in the oak (16.4) and the spruce (14.2) forests, as was the total number of territories counted on each survey (52.5 and 53.9 respectively) (Tables 2,3). Since the survey methods and the time spent and distances covered in each habitat were similar, a similar density and variety of birds in both habitats is implied. Brief surveys of this type, however, risk under-recording scarce species. For example, eight additional species, plus three aerial foragers, were noted in or over Ross Wood outside the formal survey time in the course of this study (Appendix 1).

The principal species in both Ross Wood and Sallochy Wood were Robin, Chaffinch and Wren; although Chaffinches were more frequent than Robins in the latter (Tables 2,3). Together these comprised 44% and 49% of the oak and spruce wood communities respectively. Other species occurring at a frequency of >5% in oak were Willow Warbler, Wood Warbler, Pied Flycatcher and Blue Tit (Appendix 1). Two of these, Wood Warbler and Pied Flycatcher, are deciduous woodland specialists, particularly associated with oak woods in the west of Britain. In the spruce forest, Goldcrest, Coal Tit and Siskin were ranked next in abundance; these are characteristic of coniferous rather than deciduous woodland. Crossbills were recorded in two years (1987 and 1991) when they were generally abundant in the area (Henty 1992). Goldcrests, Coal Tits and Siskins were also recorded in the deciduous Ross Wood, although visits by Siskins to 'feeders' on the University Field Station buildings, perhaps from outside the wood, and their obvious calls may have inflated the frequency of records of this species relative to their general abundance within the wood. The Wood Warblers and a single Pied Flycatcher noted in the spruce forest were exclusive to oak 'islands' within the conifer habitat. Tree Pipits occurred in both woodland types, although they were associated with rides in the spruce forest. Blackcap and Garden Warbler were also found in small numbers in both woodland types. They occurred in the vicinity of conifers within Ross Wood

before they were removed. In the spruce plantation they were found in scrub along the edges of rides.

Changes in number of territories in Ross Wood

The abundance of most species was rather constant from year to year. For example, 16 species ranged between zero and two territories over the entire 11 years of the study (Table 2). A decline was found for the Coal Tit, probably related to the removal of conifers, since no similar trend was found in the spruce forest. Willow Warblers declined after 1986, with the number of territories roughly halved. Wrens increased markedly after 1986, as also occurred in Sallochy Wood. Pied Flycatchers increased following the provision of concrete nestboxes, with a marked rise in territories in the year following, in 1991. Robins apparently fluctuated irregularly, but this might have partly reflected changes in detectability due to weather (Table 1) or other factors, given the day to day changes noted during the first four years (see above). Wood Warblers fluctuated from 1 to 8 recorded territories, but were usually represented by 3-6 singing males (Table 2).

Twenty eight species were recorded in Ross Wood over the study period, excluding species only noted outside the observation periods (see above and Appendix 1). The number of species recorded during surveys each year ranged from 12 in 1993 to 22 in both 1987 and 1991. Annual variation in the number of species present in Ross Wood is likely to be less than this, however, because some apparent absences were probably due to a failure to record scarce or inconspicuous species. Treecreeper, Long-tailed Tit and Bullfinch may have been under-recorded since neither their calls or habits, at least by early June, render them obvious.

Changes in number of territories in Sallochy Wood

Numbers of Chaffinches were remarkably constant at 10-14 territories between 1982 and 1993 (Table 3). Many of the less frequent species were represented by two or fewer territories throughout the 11 years. In contrast to Ross Wood, there were no marked long-term increases or declines. There were, however, some obvious fluctuations, especially for Wren, Song Thrush, Robin, Willow Warbler, Goldcrest, Siskin, Tree Pipit and Crossbill. Indeed, in occasional years Robins and Wrens were more frequent than Chaffinches. Goldcrests were particularly scarce in 1986 and 1991, as were Robins in 1982.

Twenty nine species were recorded in Sallochy forest during the point counts (Table 3). Besides an anomalously low value on one of the two surveys in the first year, probably related to poor weather on the day (Table 1), the number of species recorded annually was slightly more constant than in Ross Wood; ranging from 10 to 17. As for Ross Wood, however, inconspicuous species may have been under-recorded, thereby tending to exaggerate the year to year changes in number of species.

DISCUSSION

The same three species dominated the bird communities of the oaks in Ross Wood and the spruce plantation at Sallochy. Chaffinch, Robin and Wren are very widespread species, common throughout Loch Lomond's woods (Mitchell 1986) and also occurring widely on farmland and in gardens. At the same time, both woodland types held species typical of their type, with Wood Warbler, Pied Flycatcher and Redstart in Ross Woods and Goldcrest, Coal Tit, Siskin and Crossbill in the coniferous Sallochy Wood. The occurrence of these species in apparently 'atypical' woodland types was also noted, but was mainly due to small patches of conifers and deciduous trees in habitats dominated by the other woodland type. Even so, small numbers of these species do become established in apparently atypical habitats (Yapp 1962, Mitchell 1986), illustrated by the presence of some Coal Tits in Ross Woods after the removal of most conifers, as well as occasional Chiffchaffs in the spruce forest. The presence of Coal Tits in local oak woodland has been noted previously (Yapp 1962, Shaw 1976), as has the occurrence of Chiffchaffs in conifer plantations elsewhere (Simms 1971).

Numbers of most species were rather constant throughout the study. Indeed, in nearly all years the same species were recorded as dominants or were scarce. This suggests that earlier studies of woodland bird communities on Loch Lomondside (Mitchell 1986) were likely to have been broadly representative of long-term community patterns, even though most were carried out within a single season. Species such as Wren and Goldcrest are known to be depressed by harsh winters, however, so some short-term studies could be affected by such factors. The scarcity of Wrens across both woodland types in 1982 and 1986 may have been due to relatively cold winters immediately before (Harrison

Marchant et al 1990). The scarcity of Goldcrests in 1986 also reflected the prolonged cold weather of early 1986 which caused the national Goldcrest index of the Common Bird Census (CBC) to fall to its lowest recorded level. Both Wrens and Goldcrests also apparently took several years to recover from their 1986 level. The lowest number of Goldcrest territories occurred in Sallochy in again coinciding with a low point in the CBC index (Marchant and Musty 1992), perhaps related to the extended period of night frosts in February (Harrison 1992). The scarcity of Robins in Sallochy in 1982 could also reflect an effect of the previous winter, which was also observed nationwide (Marchant et al 1990). Any simple relationship with average winter temperatures or frosts, however, is bound to provide an inadequate explanation of population changes. For example, other causes must be sought for the low numbers of Wrens at Sallochy in 1992. Treecreepers and Long-tailed Tits can also be affected by harsh winter weather, but numbers were too few in this study to warrant detailed consideration. Habitat change is likely to have played a part in the numerical changes of some species in Ross Wood, associated with a scheme to remove conifers from the oakwoods in the Loch Lomond Oakwood Forest Nature Reserve (see above). The effects of this are

sometimes difficult to distinguish from nest box provision, however, since both occurred over the same period. The increase in Pied Flycatcher was probably due to both factors, since they settled in some newly cleared areas containing boxes. There was no comparable effect on Redstarts, however, perhaps because their numbers were affected by factors operating outside the study area (Marchant et al 1990) or because of competition with Pied Flycatchers (Edington and Edington 1972). There were no indications of habitat changes in the spruce forest affecting the bird community, perhaps because the plantation was already about 30 years old at the start of the study. No clear felling occurred during the study, and no other obvious signs of management were noted.

Shaw (1976) studied the bird community at Craigrostan, another predominantly oak woodland a short way to the north of Ross Wood on Loch Lomondside. The relative abundance of species was very similar to the present study, with Chaffinch, Robin, Wren, Willow Warbler and Wood Warbler also comprising the most frequent five species. He noted Chaffinch as the commonest species, although this was not so in Ross Wood, either over the full study period or in any single year. Craigrostan and Ross Wood both held typical western oakwood species, such as Pied Flycatchers and Wood Warblers, whereas these were not recorded in some of the other Loch Lomondside woods (Williamson et al 1973, Mitchell 1986). The density of Wood Warblers on Loch Lomondside is amongst the highest in Scotland (Bibby 1989). This survey indicates that the data gathered in 1984 for Bibby's study were from a period when numbers in Ross Wood were apparently about their average level.

Simms' (1971) study of Norway Spruce in Scotland showed the Wood Pigeon was easily the most abundant species (38%). Perhaps because Sallochy Wood was remote from lowland farmland, Wood Pigeons were scarce in this study (2%). Alternatively, a more appropriate comparison may be with mixed conifer forests, where Simms also found Wood Pigeons to be infrequent. Robins were likewise scarce in Simms' sample of Scottish spruce forests, but were relatively abundant in mixed pine/spruce/larch forests. Indeed, in those forests Chaffinch, Wren and Robin were the commonest species and together comprised 57% of the bird community, broadly similar to the proportion in Sallochy in this study. Siskin was not recorded by Simms, but this is expected since his studies were carried out before this species became very widespread, at least in central Scottish forests (Bryant 1975 and 1993).

No difference was found in this study between the number of species (richness) or territories (density) in the oak and spruce woods. While semi-natural woodlands generally hold more species and individuals than conifer plantations (Moss 1978), the particular value of spruce as a habitat for birds in Scotland has been noted previously (Newton and Moss 1977). As stressed by many earlier authors, however, these points cannot be taken to imply an equality of conservation value for the two woodland types (Stowe 1987, Avery and Leslie 1990). The oakwoods of Loch Lomondside harbour important populations of typical species, particularly Pied Flycatcher, Wood Warbler,

Redstart and Tree Pipit. Since most of the other species also occur widely in mixed and conifer woodlands as well as on farmland and in gardens, it is particularly this quartet of summer migrants, and those exploiting dead wood such as Woodpeckers, which should be at the focus of conservation management in these woods.

SUMMARY

Bird populations were studied using point counts in two woodlands on Loch Lomondside over a period of 11 years. Both the oak (Ross Wood) and spruce (Sallochy Wood) were dominated by Chaffinch, Wren and Robin. The oak wood held relatively large numbers of Pied Flycatchers, Wood Warblers, Redstart and some Tree Pipits, whereas the spruce forest had Goldcrest, Coal Tit, Siskin and occasional Crossbills. Numbers of the majority of species remained relatively static, but fluctuations were marked for some, especially in the spruce bird community. Wrens and Pied Flycatchers increased in the oak woodland during the study, while Willow Warblers may have declined. No such consistent changes were found amongst the spruce forest birds. Goldcrest populations, and less consistently Wrens and Robins, fell after moderately severe winters.

ACKNOWLEDGEMENTS

I am grateful to Cliff Henty and John Mitchell for their valuable comments on the manuscript. Mike Steward kindly provided background information on Rowardennan Forest.

REFERENCES

AVERY,M. and LESLIE,R. 1990. Birds and Forestry. Poyser, London.

BIBBXC.J. 1989. A survey of breeding Wood Warblers *Phylloscopus sibilatrix* in Britain, 1984-1985. *Bird Study,* 36: 56-72

BIBBXC.J., BURGESS,N.D. and HILL,D.A. 1992. Bird Census Techniques. Academic Press, London. BRYANT,D.M. 1975. Birds of the Stirling Region. In: The Stirling Region, pp. 123-146. Editor D.W.G.Timms, University of Stirling.

BRYANT,D.M., BELL,M.V., HENTY,C.J. and NEWTON,S.F. 1993. Birds. In: Central Scotland -- Land, Wildlife, People. Editors, L.Corbett, N.Dix, D.M.Bryant, D.S.McLusky, N.Tranter and B.J. Elliott, Forth Naturalist and Historian, Stirling.

EDINGTONJ.M. and EDINGTON,M.A. 1972. Spatial patterns and habitat partition in the breeding birds of an upland oakwood. *Journal of Animal Ecology* 41, 331-357 HARRISON,S.J. 1990. Annual climatological bulletin No. 11, 1989. *Forth Naturalist and Historian* 13: 3-24

HARRISON,S.J. 1992. The weather of 1991. Forth *Naturalist and Historian* 15: 11-18

HENTY,C.J. 1992. Forth area bird report 1991. *Forth Naturalist and Historian* 15: 27-53

MARCHANTJ.H. and MUSTY,L. 1992. Common bird census: 1990-91 index report. *British Trust (or Ornithology News* 182: 9-12

MARCHANTJ.H., HUDSON.R., CARTER,S.P. and WHITTINGTON,P. 1990. Population trends in British breeding birds. British Trust for Ornithology, Tring.

MITCHELL, J. 1986. Summer birds of Loch Lomondside's semi-natural woodlands. Loch Lomondside's seminatural woodlands. *Loch Lomond Bird Report 14: 12-27*

MOSS,D. 1978. Song-bird populations in forestry plantations. *Quarterly Journal of Forestry* 72: 5-14

NEWIDN,1. and MOSS,D. 1977. Breeding birds of Scottish pinewoods. In. Native Pinewoods of Scotland, pp.26-34. Editors, R.G.H.Bunce and J.N.R.Jeffers. Institute of Terrestrial Ecology.

SHAW, G. 1976. The breeding bird community of the hillside oakwoods of Loch Lomondside. *The Western Naturalist* 5: 41-52

SIMMS,E. 1971. Woodland Birds. Collins, London.

SIDWE,T. 1987. The management of sessile oakwoods for Pied Flycatchers. *RSPB Conservation Review* 1: 78-83

TITTENSOR,R.M. 1970. History of the Loch Lomond oakwoods. *Scottish Forestry 24:* 100-118

WILLIAMSON,K. 1974. Oak wood breeding bird communities in the Loch Lomond National Nature Reserve. *Quarterly Journal of Forestry* 68: 9-28

WILLIAMSON,K, IDLE,E. and MITCHELL,J. 1973. Bird communities of the mainland section of Loch Lomond National Nature Reserve. *The Western Naturalist* 2: 15-28

YAPp,B. 1962. Birds and Woods. Oxford University Press.

TABLE 1. ROWARDENNAN FOREST SURVEY DATES: 1982-93+

Year	Ross Wood	Sallochy Wood
1982	*6/6:* 09.40, 75min§	*7/6:* 10.15, 80min
	9/6: 09.45, 85min	*10/6:* 11.25, 90min§
1983	*5/6:* 09.38, 60min	*6/6:* 10.24, 56min
	7/6: 10.38, 75min	*8/6:* 10.50, 60min
1984	*8/6:* 09.25, 48min	*9/6:* 10.40, 55min
	10/6: 09.55,50min	*11/6:* 10.40, 55min
1985	No observations	
1986	*6/6:* 09.40, 84min	*7/6:* 10.15, 60min
	8/6: 09.45, 75min	*9/6:* 10.40, 50min
1987	*5/6:* 10.00, 80min	*7/6:* 10.00, 75min
1988	*7/6:* 09.25, 70min	*9/6:* 10.00, 58min
1989	*6/6:* 09.24, 86min	*8/6:* 10.00, 60min
1990	*8/6:* 09.35, 75min§	*10/6:* 11.15, 74min
1991	*7/6:* 09.30, 95min	*9/6:* 11.00, 63min
1992	*7/6:* 09.30, 70min	*9/6:* 11.00, 60min
1993	*8/6:* 10.13, 67min	*9/6:* 11.11, 62min

§ Adverse weather probably affected counts.

- Date, starting time and duration (minutes) are listed for each survey

TABLE 2. ROWARDENNAN: ROSS WOOD (OAK)

Species (%)§	82	83	84	85	86	87	88	89	90	91	92	93
Buzzard				*						1		
Wood Pigeon	1		1			1	1			1		
	0		0									
Cuckoo 1%	1	1			1	1	1	1		1		
	1	0			0							
Great-spotted Woodpecker						1					1	
Tree Pipit	1	1	2		2	1		1	1	1	1	
(2%)	1	2	2		1							
Wren (14%)	0	3	2		2	6	8	11	11	10	12	14
	3	3	2		2							
Robin (16%)	8	7	5		10	13	7	9	5	11	8	10
	5	9	9		5							
Redstart (3%)		2	3			2	2	3	1	1	1	
		3	4									
Blackbird (2%)	1	1	1		1	1	2		2	2	1	2
	1	2	1		0							
Song Thrush	2		2			1	1		1	1	2	2
(2%)	2		0									
Mistle Thrush					1	1			1	1	1	
					0							
Garden			1		2			1		1		
Warbler			0		2							
Blackcap (2%)		1	0		1	2	3			2		1
		2	1		0							
Wood Warbler	1	3	5		6	5	3	8	4	3	5	5
(8%)	1	6	4		5							
Willow	10	13	10		12	3	2	5	2	2	3	6
Warbler (11%)	13	11	7		9							
Goldcrest		1			1	1						
		1			0							
Sl?Jotted		0	0		1	1	1				1	
lycatcher		1	1		1							
Pied Flycatcher	0	0	1		1	3	2	3	3	10	2	6
(6%)	1	1	2		2							
Long-tailed Tit	0	0	1		1							
	1	1	0		0							
Coal Tit (3%)	1	3	3		3	2	1	2				2
	3	0	2		0							
Blue Tit (5%)	0	2	1		2	2	3	1	2	2	2	8
	2	3	2		2							
Great Tit (4%)	1	2	3		1	2	3		2	2	4	2
	1	2	1		3							
Treecreeper			1		1	1	1					
			2		0							
Jay	1	0								1		
	1	1										
Carrion Crow	1	1			1	1		1		1		
(1%)	1	1			1							
Chaffinch	6	7	6		9	10	7	8	3	8	7	10
(14%)	9	6	8		8							
Siskin			1					1		1		
			0									
Bullfinch		0	0		1				1			
		1	1		0							
Total	35	48	49		60	61	48	55	39	64	51	68
territories	46	56	49		41							
Total species	13	15	18		21	22	17	14	14	22	15	12
	16	18	16		12							

"No observations in 1985

%§Percentages of bird community over 11 year period. Values of <1% are omitted.

TABLE 3: ROWARDENNAN: SALLOCHY WOOD (SPRUCE)

Species (%)§	82	83	84	85	86	87	88	89	90	91	92	93
Buzzard				*						1		
Wood Pigeon	1, 0		1, 0			1	1			1		
Cuckoo 1%	1, 1	1, 0			1, 0	1	1	1		1		
Great-spotted Woodpecker						1					1	
Tree Pipit (2%)	1, 1	1, 2	2, 2		2, 1	1		1	1	1	1	
Wren (14%)	0, 3	3, 3	2, 2		2, 2	6	8	11	11	10	12	14
Robin (16%)	8, 5	7, 9	5, 9		10 5	13	7	9	5	11	8	10
Redstart (3%)		2, 3	3, 4			2	2	3	1	1	1	
Blackbird (2%)	1, 1	1, 2	1, 1		1, 0	1	2		2	2	1	2
Song Thrush (2%)	2, 2		2, 0			1	1		1	1	2	2
Mistle Thrush					1, 0	1			1	1	1	
Garden Warbler			1, 0		2, 2			1		1		
Blackcap (2%)		1, 2	0, 1		1, 0	2	3			2		1
Wood Warbler (8%)	1, 1	3, 6	5, 4		6, 5	5	3	8	4	3	5	5
Willow Warbler (11%)	10 13	13 11	10 7		12 9	3	2	5	2	2	3	6
Goldcrest		1, 1			1, 0	1						
Sl?Jotted lycatcher		0, 1	0, 1		1, 1	1	1				1	
Pied Flycatcher (6%)	0, 1	0, 1	1, 2		1, 2	3	2	3	3	10	2	6
Long-tailed Tit	0, 1	0, 1	1, 0		1, 0							
Coal Tit (3%)	1, 3	3, 0	3, 2		3, 0	2	1	2				2
Blue Tit (5%)	0, 2	2, 3	1, 2		2, 2	2	3	1	2	2	2	8
Great Tit (4%)	1, 1	2, 2	3, 1		1, 3	2	3		2	2	4	2
Treecreeper			1, 2		1, 0	1	1					
Jay	1, 1	0, 1								1		
Carrion Crow (1%)	1, 1	1, 1			1, 1	1		1		1		
Chaffinch (14%)	6, 9	7, 6	6, 8		9, 8	10	7	8	3	8	7	10
Siskin			1, 0					1		1		
Bullfinch		0, 1	0, 1		1, 0				1			
Total territories	35 46	48 56	49 49		60 41	61	48	55	39	64	51	68
Total species	13 16	15 18	18 16		21 12	22	17	14	14	22	15	12

"No observations in 1985

%§Percentages of bird community over 11 year period. Values of <1% are omitted.

APPENDIX 1: ROWARDENNAN FOREST

Species recorded at time of surveys, percentage § composition of bird communities in Ross Wood (oak) and Sallochy Wood (spruce) during 1982-93.

Species list	Ross Wood		Sallochy Wood
Sparrow hawk *Accipiter* nisus			
Buzzard *Buteo buteo*	<1		<1
Kestrel *Falco tinnunculus*			
Capercaillie *Tetrao urogallus*			
Pheasant *Phasianus coJchicus*			
Woodcock *Scolopax rusticola*			
Wood Pigeon *Columba palumbus*	<1		2
Cuckoo *Cuculus canorus*		1	<1
Tawny Owl *Strix aluco*	*		
Swift *Apus apus*			
Great-sp. Woodpecker *Dendrocopos major*	<1		<1
Swallow *Hirundo rustica*			
House Martin *DeJichon urbica*			
Tree Pipit *Anthus triviaJis*		2	3
Wren *Troglodytes troglodytes*	14		12
Dunnock *Prunella modularis*	*		<1
Robin *Erithacus rubecula*	16		15
Redstart *Phoenicurus phoenicurus*		3	<1
Blackbird *Turdus merula*		2	2
Song Thrush *Turdus philomelos*		2	4
Mistle Thrush *Turdus viscivorus*	<1		<1
Garden Warbler *Sylvia borin*	<1		<1
Blackcap *Sylvia atricapilla*		2	<1
Wood Warbler *Phylloscopus sibilatrix*		8	2
Chiffchaff *Phylloscopus collybita*	*		<1
Willow Warbler *Phylloscopus trochilus*	11		8
Goldcrest *Regulus regulus*	<1		10
Spotted Flycatcher *Muscicapa striata*	<1		
Pied Flycatcher *Ficedula hypoleuca*		6	<1
Long-tailed Tit *Aegithalos caudatus*	<1		<1
Coal Tit *Patus ater*		3	6
Blue Tit *Parus caeruleus*		5	<1
Great Tit *Parus major*		4	<1
Treecreeper *Certhia familiaris*	<1		
Jay *Garrulus glandarius*	<1		<1
Carrion/Hooded Crow *Corvus corone*		1	1
Chaffinch *Fringilla coelebs*	14		22
Greenfinch *Carduelis chloris*			
Siskin *Carduelis spinus*	<1		6
Redpoll *Carduelis flammea*			
Crossbill Loxia *curvirostra*			<1
Bullfinch *Pyrrhula pyrrhula*	<1		<1

* Indicates that a species was recorded at the site in the week of the census work, but not during point counts.

§ See Tables 2 and 3 for data from which percentages were calculated.

BOOK REVIEW

FROM CHURCH TO STATE. The Significance of the Education Act of 1861 in East Central Scotland. Andrew Bain. 145pp. Andrew Bain, 22 Clarendon Road, Linlithgow. 1993. £6.50 (plus p & p).

The Education Act of 1861 provides an important setting for Dr Bain's continuing exploration of the teacher and Authority. His earlier work on this theme, *Patterns of Error,* considered an extensive history of relationships between the teacher and Church, illuminated by case studies of teachers who fell into theological and moral error. This study adopts broadly the same method, this time with a general consideration of the 1861 Act and its extension of powers of lay authorities for dealing with failings in the behaviour and competence of teachers, with some consequences for the post-Disruption Churches and local members: a thorough and well-documented set of studies of the workings of the Act with erring or inefficient teachers in east central Scotland; and then important general sections on factors probably affecting local experiences of the application of the Act and on the emergence of the concept of classroom efficiency.

Thus, whilst Dr Bain draws upon local experience of the Act, he places this in the wider context of Church, State and Community in a changing and less certain Scottish society, and the newer influences upon the professionalism of teachers coming from teacher selection, training and inspection. In so doing, his study is not solely concerned with an understanding of the 1861 Act and its workings in relation to the errors and failings of individual teachers in one part of Scotland, but also a scholarly contribution to the study of changing policies, attitudes and practices about teachers and teaching.

In addition to its intrinsic worth to all who are interested in the life and times of the Scottish schoolmaster, the inclusion within this attractively presented book of extensive references and indexes of schools and teachers will be of considerable value to historians of Scottish education and to family and local historians who are interested in their schoolmaster forebears and the communities and times in which they lived.

Arnold Morrison

TWENTY FIVE YEARS ON: THE IMPACT OF THE UNIVERSITY

James Trainer

University of Stirling

This was a presentation at the F N & H 18th Man and the Landscape symposium 'Stirling Environment - 25 years of change' - a University Jubilee event.

When first approached to speak about the University's impact upon the environment in the first twenty-five years of its existence, it was difficult to know exactly where to begin. Rummaging through my memorabilia raised some surprising items: a professional German architectural journal discussing the design for the campus buildings; yellowing indignant newspaper leaders from the *annus horribilis* on the students' inconsiderate treatment of Her Majesty and demanding severe discipline; even more indignant leaders on the University's inconsiderate treatment of the same students for disciplining them; a publicity brochure for the University's East Greenland Expedition of 1975; the presentation of the mace; the first graduation ceremonies; crises from the late completion of student residences; the opening night of the MacRobert Centre with the *Rake's Progress*, the visit from Nobel laureate Heinrich Boll; the untimely deaths of the first Secretary and the first Principal. How distant much of it seems in the context of the silver jubilee.

Twenty five years is hopefully a short time in the life of a University, yet in many ways the impact of a new University on its immediate environment is presumably most strongly felt in the early years, particularly when as in our case, we have the first greenfield University created in Scotland for centuries.

You can see the process at work if you remind yourself that we now have a generation of local 25 year old adults (and for all practical purposes you can extend this to all under about 35) who have grown up accepting the fact that Stirling is a University town, something their parents and previous generations did not grow up with.

In the first place it may be worth reminding ourselves that in our early years we have at least avoided some of the worst excesses which surrounded the foundation of some of our ancient universities.

Thirteenth century Oxford, with about 3000 students, was the scene of intense hostility between town and gown, with frequent riots and bloodshed. A penance for one such disturbance which took place in 1354 resulted in the loss of 50 lives, and was commemorated until 1825; in later centuries during the religious troubles of Henry VIII the student number declined to about 1000; and in 1546 only 13 degrees were conferred. Cambridge fared little better; in 1381 townsmen stormed the colleges and destroyed most of their charters in the hope that this would put an end to their legitimacy and therefore their existence.

Nearer to us in time and place, when St Andrews University sold off the site of the old St Leonard's College to make way for what was to become St

Leonard's School for Girls in 1877, it had a total student enrolment of only 130 students and its continued existence was occasionally called into question.

If we put our first quarter century into some kind of perspective therefore, while we may be disappointed that our growth pattern has been much slower than that which was foreseen by our first planners, we may feel a certain satisfaction that its progress has taken place in a relatively harmonious and measured manner. Perhaps it is just as well that King James VI's stated intention in 1617 of founding a free college in the burgh was not to be realised for a further 350 years.

There is a sense in which the University's impact upon the community is so self-evident that it scarcely needs to be pointed out at all, but let me try and indicate some of the effects upon the district, the region and the nation under three headings - Economy, Education and Culture.

ECONOMY: Universities are by their very name institutions which serve a constantly self-renewing constituency of young people and cover a multitude of activities which affect the community in a way quite different from the establishment of a new supermarket or industrial complex. Here on a campus which on our arrival housed no more than forty or so newly born babies in Airthrey Castle, and which in a more historical context had been primarily a family home, we now have over 2000 young adults in residence and a total of more than 4000 undergraduates and postgraduates from 80 countries of the world engaged in study. This is more than the total male adult population of Stirling at the time when Airthrey Castle was built at the end of the 18th century.

In other words a new, self-contained community has been implanted into the locality; a village with a somewhat skewed age distribution but complete with its own bank, library, post office, health centre, supermarket, chemist, theatre, golf course, swimming pool and sports facilities; largely responsible for its own maintenance but also invigorating the wider community in terms of job opportunities and housing development while heightening the national and international profile of the Royal Burgh in the process.

Whereas we know that there had been a traditional net migration of the 18-30 year old indigenous population from these parts prior to the 1960's, that drain has been stemmed largely by the influx of a young student culture which has indirectly contributed significantly to the development of Central Scotland as a desirable residential and commuter base.

To provide for these students the University employs a payroll staff of 1600 in all the various categories of teaching, administration, support services, portering, cleaning, catering, gardening and so forth, making it a major employer in its own right, taking no account of the 22 different companies operating in the Innovation Park, attracted there in part at least by the proximity of the University with its academic and research interests.

It has been estimated that in the session 1990-91 some £16m of the University's

general budget of £21m was spent locally, while the average student spend of around *£3000* per head put another £12m into lodgings, domestic services,l ocal shops and service industries, quite apart from sundry hostelries and watering- places. It has been further calculated that the staff and students jointly maintain some 2000 additional jobs among suppliers and service industries. It would, for example, have come as a considerable surprise to the early 18th century residents of the estate that the Midland Scottish Bus Company alone runs 10,000 buses on to the campus every year. Impressive as some of these figures are, it is also a fact that we are now on a rather faster growth curve which is likely to see those figures increase considerably towards the end of the century with the consequent multiplier effects upon the local economy. Really this is a subject which deserves a more detailed and specialist analysis, a successor to Mark Brownrigg's 1971 thesis on the impact of the University's first five years (published by Scottish Academic Press in 1974).

EDUCATION: The economic impact of a new University is of course a secondary, if highly desirable factor, especially for the non-University community, but the University's foundation was in furtherance of Higher Education in Scotland, and it remains the sole institution of Higher Education within the Central Region. The motto chosen for the silver jubilee celebrations has been '25 years of innovation; and rightly so. The creation of what was at that time a new eighth Scottish University at Stirling was the result of a long process of social and educational analysis which included the Robbins Report and a detailed analysis of the likely development of the Higher Education scene in the years ahead. Unlike the other three new Universities created around that time, Dundee, Heriot-Watt and Strathclyde, and the four new Universities about to be established, Paisley, Robert Cordon, Napier and Glasgow Caledonian, Stirling was as we know the only foundation *ab initio.* The First Report of the Academic Planning Board, which met under Lord Murray's chairmanship and was published in January 1966, recommended that the new University should seek to do a few things well rather than range too widely, that it should develop the three areas of Arts, Social Sciences and Natural Sciences in tandem, and that it should seek new methods of teaching as appropriate. The Iounding members of the University acted upon these recommendations in consciously offering some new approaches and alternatives to what was available in the existing seven institutions, four of which shared a common mediaeval tradition. The result was a University structure that was unique in a number of respects, some of which at the time seemed to some of our friends elsewhere to be rather curious, if not wilfully eccentric.

Four of these **major departures** may be worth listing –

1) A major commitment was made to the introduction of two new **innovatory subjects**. The concurrent study of an academic subject along with a professional teaching qualification was not on offer elsewhere in

Scotland, and has proved a resounding success in the eyes both of student-teachers and their employers. Technological economics was an interesting attempt to combine the study of science with the study of economics with a view to producing graduates whose skills on that account would be particularly welcomed by industry. It was a development which underwent a number of transformations in the light of experience and has provided the foundation for the University's strength in the area of Management. Such innovations ensured that the University would be involved in the affairs of the community, that vocational studies would be seen to be given high status, and that the University's attractive, semi-rural campus would not land us in the danger of being seen merely as a pretty face on the educational scene. Over the years our ventures into subjects such as Japanese Studies, Film and Media, and Aquaculture have maintained a modern innovative approach to the curriculum. We have after all no classics, no archaeology, no professional schools of medicine, law or engineering, and it is right that our cutting edge should be in areas demanded by the society of the present and increasingly of the future - computing, information technology, languages, business, to name but a few.

2) Breadth of study, itself a traditional Scottish feature, was encouraged by the design of a two-part degree, in which a structured Part One of three semesters ensures study of a range of subjects before later specialisation in Part Two. The practice of admitting students to the University as a whole and not to Departments or Faculties which might constrain them within a given discipline, has widened the educational experience of many a scientist who has been introduced to a language or to philosophy, and many a humanist or social scientist who has been similarly exposed to scientific thought. And the proof of the desirability of this flexibility is best demonstrated by the increasing numbers of students who take advantage of it.

3) However the world began, it ends in academic terms for most students in the big bang of the final examination. At Stirling it was felt that abandonment of the concept of the big bang final examination would encourage more systematic and sustained study over a lengthy period by the introduction of periodic assessment, which is not to be confused with continuous assessment. By today this principle is quite widely accepted throughout the University system, even if the school of thought which saw Finals as a qualifying examination for life itself, found it hard to accept, but in the 1960's that was far from the case.

4) Most important of all, perhaps, was the decision to introduce a semester system by dividing the academic year into two IS-week semesters, thereby effectively creating a modular structure before such a concept had become fashionable. It was the innovation which caused the greatest stir and the greatest problems - the timing of semesters, being out of step with the rest of the system, the suspicion of pro-American activities,

the charge of being gimmicky.

All of these innovations have served us well, even if not all have survived in their original form. And as the University moves now into a new phase of growth it is certain that we shall have to adapt some of our practices to cope with the stresses of change.

On the other hand it is gratifying to see how the expansion of the national system to make provision for credit transfer and access for non-traditional entrants is turning to modularisation as a means of facilitation. Suddenly it appears that our bold innovation of semesters is the envy of many who are finding the transition to modularisation a painful experience. In November 1991 the University hosted a national seminar on the semester system attended by virtually all UK universities anxious to find means of adapting their own systems, and the old story of everyone being out of step except ourselves seemed strangely true as the others began to shuffle to get in step.

In a country with four ancient universities we would not wish to make excessive claims, but the boldness of our first founders has certainly ensured that the Scottish educational scene has felt the impact of our presence in ways which have stimulated innovative thinking within the sector as a whole.

CULTURE: I take culture in its widest sense to embrace all of those activities which provide us with the stimulation and relaxation of both mind and body in many diverse ways. Clearly it flourished in many ways before the arrival of the University and continues to do so quite independently. The Smith Institute after all dates from 1874 and the Municipal Library was established at its present site in 1902. I recall some outstanding evenings as a member of the Bridge of Allan Music Club in the 1960's when it met in the now sadly dilapidated Museum Hall. But the opening of the MacRobert Centre, and its situation at the very heart of the University where it was hoped that it would be the magnet to attract the non-University right into our midst, was surely one of the most imaginative acts of the first principal Tom Cottrell. A glance through the programmes of the Centre's activities over the years since the opening performance by Scottish Opera on 27 September 1971, must convince anyone of the major asset it represents in sponsoring music, theatre, film and dance of the highest order. But simply because it is so obvious, it perhaps overshadows many of the other cultural features which a university brings in its train. Consider the array of distinguished scholars, statesmen and public figures who have come into our community through series such as the Robbins, Drummond Hope and Williamson lectures; or the visiting scientists, authors, and poets; the facilities for evening study, summer study, the attractions of a major library; art exhibitions, national and international conferences; all of which enrich the quality of our public life. In the last twenty five years the Airthrey Estate has become a familiar terrain to thousands more than ever experienced it in all its previous existence.

And it is right that it should be so, for the development of the University has been from the start an enterprise of mutual support. Without the endeavours of the local community and the campaign which it waged in the 1960's, the new University might not have come here at all. Our corporate plan for the future includes among its general aims the desire "to relate to the local community, taking account of community wants and needs." The increasing provision of access courses, distance learning, liberal adult education, credit transfer and part-time study will open up the University to ever-increasing members of the local community who for the first time perhaps will become involved in Higher Education. That is a challenge and commitment which we look forward to in the next 25 years.

Airthrey Loch before the University. The footbridge is where the bridge to the residences is now.

SPORT AND RECREATION: 25 YEARS ON

Ian Thomson
University of Stirling

A presentation to the 18th Man and the Landscape Symposium, 'Stirling Environment: 25 years of Change' by FN & H - A University Jubilee event.

Recently when driving round Edinburgh with a schooldays friend, visiting the site of the former Portobello outdoor swimming pool aroused vivid memories of long hot summers spent there. What memories of sport and recreation do peole have looking back across the past twenty-five years? What kind of changes have occurred in this space of time?

For many the first introduction to particular sports occurs through physical education at school. Starting in 1975, Central Region has made giant steps in developing sports facilities in schools, and consequently the range of activities has increased dramatically. Most of the 19 secondary schools now have large modern sports halls and half of them have swimming pools. It is not uncommon for physical education to include more than twenty sports in addition to gymnastics, dance and swimming. In addition since 1985 most primary 6 and primary 7 school pupils have been able to take part in an outdoor education project - which is unique in Scotland. It includes instruction in ski-ing at the artificial ski slope at Tillicoultry, canoeing, hillwalking and orienteering. Every pupil, irrespective of family background, receives a firm grounding in sport and recreation. That is a significant difference from the experience of those of us who attended schools in the 1950s and 60s.

For many people the University will figure prominently in their memories of sport. Over 400,000 visits to the sports centre are recorded annually. When I was appointed as Director of Physical Recreation in 1969, the facilities consisted of an air-hall, an inflatable vinyl structure covering a porous concrete tennis court, and the playing fields. We added the swimming pool in 1974, a sports hall in 1980, a 9-hole golf course in 1982 and the tennis centre in 1992. From the outset the University has been committed to opening its sport facilities to the local community. Every child in primary 5 from local schools attends the pool for swimming lessons and each summer about 1000 youngsters receive canoeing instruction on Airthrey Loch. Adults, young and old, take advantage of the various kinds of fitness classes in the sports hall, and we record an astounding 25,000 rounds of golf each summer. As a child and even as a teenager I found the buildings of Edinburgh University imposing and I would not have dreamed of entering them. Now over the past twenty-five years we have broken down the idea of the university as catering for an intellectual elite. Across the whole year community use of the sports facilities actually exceeds student usage. Architecturally the sports centre is functional, and given that it has been added to from time to time it has the appearance of lacking an overall design concept. It does however include the Gannochy

Pavilion, designed by Alan Reiach and considered to *be* one of the best examples of sports architecture in the country.

We tend to take it for granted that local authorities provide facilities for sport and recreation, but prior to 1975 their contribution was restricted to managing public baths and parks. Between 1975 and 1982 District Council revenue expenditure in the region increased to £6.2 m annually and this figure more than doubled to £13.5 m in 1990-91. In the current year leisure and recreation expenditure accounted for more than 40% of Council budgets. In addition there has been substantial investment in capital projects. Throughout the past twenty years local politicians have taken the view that sport and recreation should be heavily subsidised from the rates or community charges. This makes certain activities available to sections of the community who could not otherwise afford them. e.g. every visit to a swimming pool is subsidised by up to £1.50.

From the mid-1960's the planning powers and responsibilities of local authorities have increased steadily and they are legally required to ensure that there is adequate provision for recreational and sporting activities, and they must protect open spaces with recreational value from development. A function of the planning system is to prepare development plans, in which land and water resources are allocated, both for organised sport and for informal recreation. In doing so authorities must conserve the natural and built heritage of the area. This has been a contentious aspect of the planning process. There are many examples of open spaces throughout the region which have been taken over for housing or industrial development and arguments turn upon whether these areas have recreational value. Examples would be the land around Westerton House in Bridge of Allan and the Paton and Baldwin's recreation ground in Alloa, both of which have largely been converted to private housing estates.

One of the guiding principles in determining whether planning permission should be given for building on open spaces is that people should have access to open space close to where they live. This is particularly important for children and the elderly. Most local authority housing schemes include play areas, but private developers are not required to provide recreational facilities. The Argyle estate in Dunblane is a conspicuous example of what can happen. Central Regional Council sought powers to enforce this principle in the new structure plan, *Central 2000,* but the Secretary of State rejected this.

Generally speaking local authorities in the region have maintained a balance between regeneration of urban areas, expansion of the private housing sector and provision of recreation facilities. In Alloa the local authority has shown imagination in converting the old Baths into a national standard centre for gymnastics while at the same time acquiring the Leisure Bowl facilities a few hundred yards away, and converting a former bus garage into a small sports centre. In Stirling the land alongside the railway in the centre of the town now houses the Rainbow Slides swimming pool on one side and a 10-pin bowling centre and an indoor bowls hall at the other. Falkirk District Council has amassed sports facilities at Camelon including the £2.5 m Mariner

Centre, an indoor bowls hall, a 10-pin bowling centre and extensive up-graded playing fields close to Falkirk Golf Course. All these facilities in the region have been built since 1975, are readily accessible by public transport, and enhance tourism potential.

The provision of indoor sport facilities and outdoor synthetic surfaces capable of intensive use helps to meet public demand without using up large areas of land. Stirling District demonstrated the value of this approach by laying an artificial turf pitch at the Stirling Albion ground purchased when the club was in financial difficulties. There has been massive public use of the ground which is conveniently sited near to the centre of the town. However, in order to ensure maximum usage in the evenings such grounds require floodlighting pylons which tend to be unpopular with local house-owners, and are not an attractive element of townscapes.

During the past twenty five-years violence surrounding professional football matches has become a serious problem, and the Government has insisted that all-seated accommodation should be introduced at football league grounds for reasons of safety, public order and spectator comfort. Football stadia built in the first half of the century are normally located in the heart of towns and cities, so clubs need to redevelop existing grounds or transfer to new locations; this offers opportunities to shift potential violence from town centres to urban fringes where it can more easily be controlled. Stirling District Council has sold the Stirling Albion ground to a property developer and a new stadium is being constructed at Borrowmeadow, close to the new traffic distributor road. A floodlit all-weather area for community use is being provided alongside the stadium. One of the justifications for the investment of substantial amounts of public money in such sports facilities is that these are beyond the resources of voluntary sports clubs. The new indoor equestrian centre by Clackmannan District Council is an example of a local authority making provision for a minority interest.

Fitness centres attached to hotels which are available on an annual membership basis, and snooker clubs run as commercial ventures supplement the efforts of local authorities. However, conflicts of interest do arise between community and commercial values. The Park of Keir controversial proposals for a hotel, private housing, an interpretation centre and an 18-hole golf course have led to a prolonged public inquiry.

Submissions to this inquiry included our following ideas about the value to a small community of local sports clubs -

a) they provide opportunities for youngsters to acquire skills and values which prepare them for citizenship
b) they offer a safe environment for women to participate in sport and recreation
c) they encourage local people to occupy leadership roles in community life
d) they bond communities by bringing together individuals from different occupations and social classes
e) as non-profit making organisation they supply recreation and sport at affordable prices

f) they operate democratically with all decisions being made by members.

This is what I understand as our cultural heritage and it can be seen at work in bowling, golf, rugby and tennis clubs, to name but a few sports. Premises-owning clubs have made substantial improvements to facilities and grounds over the past quarter century aided by local authority grants. One problem which has not been overcome is that major sports such as football and hockey are not included in this group and a large number of teams are competing for a relatively small number of publicly owned pitches.

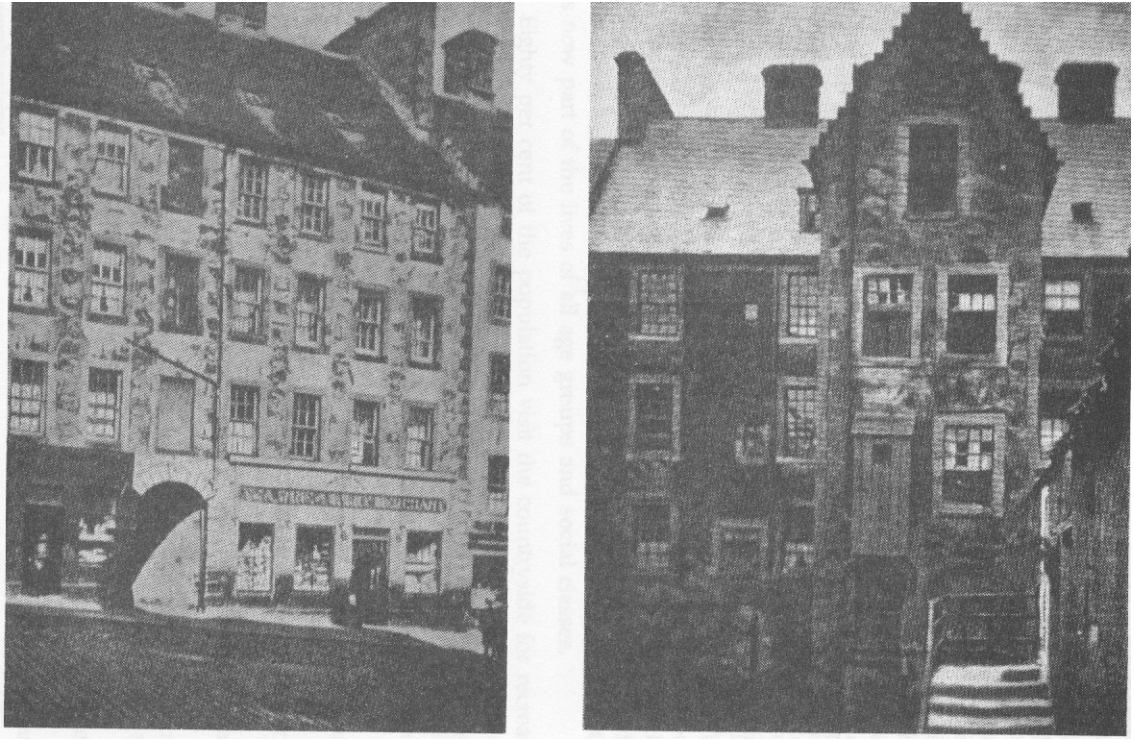
In reviewing the past twenty-years it is tempting to concentrate on provision of facilities but the most profound changes have been concerned with what might loosely be called the democratisation of sport and leisure. Activities which were the preserve of middle class groups in 1970 have been opened up to the whole community. Golf, curling, equestrianism, ski-ing and sailing are examples of this trend. Equally important has been the identification of groups which were under-represented in population statistics. Women, the elderly and disabled people have been actively encouraged to take part in sport. In sports such as rugby which have traditionally been dominated by men, it is now commonplace to see hundreds of boys and girls out on Sunday mornings, and substantial numbers of women spectating at club matches. In some sports such as gymnastics, increases in participation have resulted in the growth of new clubs. In others, like golf, existing clubs have increased in size. Stirling Golf Club now has over 1,000 members and an annual turnover of £275,000. Sport is now part of the lives of all age groups and social classes.

Eighty per cent of the population visit the countryside for recreational or sporting purposes at least once a year, often to sites specifically managed for sport and recreation. Countryside rangers offer attractive regular programmes of supervised walks and activities, and cycle paths and long distance footpaths have been established. The explanation of this increase in recreational activity is widening car ownership and rising standards of living.

* To summarise, the following are the main features of the development of sport and recreation over the past 25 years -
* Facilities in schools and in the University have improved dramatically, and are widely available for community use.
* Local authority expenditure on sport and recreation has increased substantially.
* There is a greater awareness of the impact of sport and recreation on the built and natural environment and there is an increasing emphasis in structure plans on protecting the environment.
* There is potential conflict between commercial development of open spaces and conservation of our cultural heritage.
* Community sports clubs have improved their facilities and increased their memberships.
* Sport has been democratised and groups which were previously under-represented are increasingly active.

This is an encouraging picture but there are some clouds on the horizon. School sport has been decimated by the prolonged dispute between teachers and government in 1985-6 over pay and conditions of service. As over the whole country, teachers in Central Region withdrew completely from voluntary extra-curricular activities, including school sports. Registered schoolboy footballers fell from 45,000 to 5,000 in the space of one year in Scotland, and there were similar reductions in other sports. Intra-school sport has still not recovered and as yet there are few signs that it is likely to change. Further in 1992-93 for the first time District Council expenditure on sport and recreation fell. The introduction of compulsory competitive tendering for the management of sport and leisure facilities has acted as a disincentive for local authorities to build new facilities. Stirling District Council has called for a 25% reduction in various aspects of leisure and recreation.

We seem to be moving away from the concept of a local authority as the direct provider of services, and local clubs may face significantly higher charges for the use of sports facilities. It is hoped that the fabric of sport will not be irretrievably damaged by these developments. Sport is part of our cultural heritage and we must be active in preserving it.



The Town's New House, later known as Provost Foreman's House and Shop, stood on the North side of Broad Street, and was demolished in 1925. These front and reart views are from Drysdale's *Auld Biggins*. The original buildings used over 100 chalders of lime, costing around £700 Scots; it was used fro rendering, for fashionable plaster ceilings and walls, as well as for mortar.

LIME SUPPLY IN THE STIRLING AREA FROM THE 14th TO THE 18th CENTURIES

John G. Harrison

INTRODUCTION

Ken Mackay has described the 18th and 19th century exploitation of the lime deposits of the Bannock Burn and Cambusbarron areas of St Ninians parish, including the geology and industrial archeology of the sites (1). This paper takes the story of lime supply in Stirling back to the late 14th century and looks at some alternative sources of lime. Mackay was mainly concerned with agricultural use; this paper, based on documentary sources, is more concerned with lime for building.

CEMENTSTONES AND CORNSTONES

The St Ninians industry exploited the Carboniferous limestones but cementstones within the calciferous sandstone measures and cornstones in the upper old red sandstone were also worked in many parishes between Gargunnock and Dumbarton. In 1707, for example, the Baron Court of Balgair recorded damage caused by strangers bringing their horses to the 'limb craig'. The Old Statistical Accounts for Kippen and Balfron record lime workings in their parishes and local newspapers record the mid-19th century re-activation of the Balgair works (situated at Balafark, between Fintry and Arnprior) after a long suspension. (2)

Cornstones are also recorded in Strathallan (3) and in 1766 tenants gave evidence of 'winning lime' on the Sheriffmuir; 'white muck holes' and lyme kilns' are marked on a contemporary map (4) at a site where pits and spoil heaps can still be seen; another kiln survives beside a ruined steading in Glentye (NN8402).

Prior to the attempts at fully industrial exploitation at Balafark in the 1860s, all these workings seem to have been small, probably burning the lime with peat. Given the scale and the high residual sand content of the deposits, production can only have been of local importance and there is no documentary evidence of lime from any of these sites being brought to Stirling in the 17th or 18th centuries. Some tenants had common rights to dig and burn lime at the Sheriffmuir whilst others here, and probably at the other sites, could pay to quarry and burn lime for their own use.

BOAT LIME

All traceable lime supplies to Stirling from the 14th to the mid 18th century came either by river or from the Bannock Burn area. As early as 1383, 99

chalders* (Note 1) of lime was bought at Kinghorn, shipped up river and carried to the castle at a total cost of £2213s 4d (Note 2). In 1463, three chalders bought for the castle cost 15 shillings and in 1496 George Tennent was paid £5 for lime; he was later paid for shipping timber to Stirling and doubtless he had also shipped the lime. The following year a payment of £3 16s to 'the lyme man of Strutting for lyme' implies a regular dealer. In 1543 lime was brought 'fra the boit to the castle' (5)

On 18th April 1608, the town council of Stirling fixed the prices chargeable for carriage of goods from the shore to the town, naming the town's main waterborn imports, which included timber, stones, wine, dyestuffs, victual and lime, for which the carriage was not to exceed 8 pence. In 1617 the Master of Works Accounts show that three shiploads of lime of 27 chalders each, were brought up in a 'bark' called 'The Pantoun Soill' by Mr James Dundas's servants and cost £216. In the same year the price of a chalder delivered to the castle is given as £4 10s. In 1628 one load of lime was shipped by a man from Crail called McKenzie whilst in the same year Daniel Cleghorn from Queensferry delivered several boatloads to the Shore which were then carried to the castle. One delivery of nine chalders two bolls involved 97 loads from Shore to castle, costing Is 4d each, adding some 15% to the cost of lime at the Shore (6).

Cleghorn also supplied the town and its hospitals. For example on 3rd May 1638 he delivered 4 chalders of lime for building Cowane's Hospital.

Cowane's Hospital, now usually called The Guildhall - was begun in 1637, and used huge amounts of lime, mostly boat lime. (Whyler)

It cost £6 the chalder at the Shore, transport adding a further £1 to the total cost. In 1648 the Masters of Cowane's Hospital bought lime from John Whytt in Aberdour and had it brought to Stirling by boat; in the same year they paid 'the laird of Manor's boatman' for 'boit lime'. In February 1696 Logic Kirk Session paid a man for bringing five bolls and a firlot of lime from Manor for building work at Logic Kirk and Mackay records lime being landed at Manor Pow later in the 18th century (7). The source of 'boat lime' is often unspecified but most must have come from workings at Aberdour, Burntisland, Kinghorn and the eponymous Limekilns, beside Dunfermline (OSA).

LIME FOR AGRICULTURE

Lime had been used on the land in central Scotland since at least the early 17th century but the earliest local records so far found are two tacks, both from the 1690s; they probably involve the use of boat lime. The 1692 tack (lease/agreement) by Erskine of Alva for Hood of Cambuskenneth (a farm enclosed in a loop of the river) allowed the tenant 50 merks to burn lime to put on the land and mentions the possibility that he might build further kilns. In a 1697 tack of lands in Quarrell in Larbert parish, the landlord agreed to supply coal for the tenant to burn lime for use on the land whilst the tenant's obligation to provide a horse to lead coal to Quarrell shore is itself evidence of riverine trade and underscores the intimate connection between coal, lime and transport.

In 1710-1711 Cowane's Hospital allowed William Kidstone tenant of Craigton in Logie parish £30 to lay lime on his land; Craigton is close to Sheriffmuirlands where boat lime was landed later in the 18th century. Each of these tenants had a long lease (one of 15 years, two of 19), all had substantial holdings and, by this time, Cowane's tenants were required to grow legumes on 1/3 of their arable land. So liming was part of a programme of 'improvement', more usually associated with the late 18th century. Nor did all the initiative come from the landlords for in 1710 the Masters of Cowane's Hospital recorded that a tenant called Norie would lease land at Torbrex 'provided they will allow him a boat of lime at £12 Scots' to which they agreed (8).

MARL (9)

In spite of the availability of lime, marl was used in farming and building. In 1647-1648 Spittall's Hospital paid William Murray in Cambusbarron 'for liberty of marl' (ie for liberty to dig it on his ground) and then for carriage of 52 loads of it, probably for building. In January 1711 Stirling town council allowed John Fleetwood to take marl from Whytehill for beamfilling his house and in 1716 the Perambulation Court found that the sandmen, Brember and Donaldson, had dug marl near Torbrex (which is very close to Whitehill) causing danger of flooding. Marl had been superceded by lime for agricultural use in St Ninians parish by the end of the 18th century (OSA, St Ninians).

LIME FROM THE BANNOCK BURN AREA (10)

The earliest direct evidence of the use of Bannock Burn lime in agriculture is Ramsay's comment that it was carried to Ochtertyre (Kincardine in Menteith parish) from 1702 (quoted by Mackay). By the end of the 18th century the writer of the OSA for St Ninians regarded Bannock Burn lime as principally important for agriculture. But most early records refer to its use in building. In 1576 the town of Stirling bought lime from 'the near kill' and 'the far kill' from Robert Johnesone, using it for rebuilding work at the Tolbooth; the Johnstone family of the Cultenhove/Craigend area later supplied lime to both the town and the castle and surely supplied this. It cost 20s per chalder at the kiln, transport from the near kiln adding 16s per chalder and from the far kiln adding 20s per chalder.

In 1625 John Paterson in Goldinhuisse (an alternative name for Cultenhove) supplied just over 42 bolls of lime to the castle and William Johnstone (from the same area) supplied 11 leads (cart loads) at 12s the lead, his man being given 8s drink money (11). The regular runs of accounts for the town and its charities bring a rush of information, maintained through the 17th and into the 18th centuries with varying detail. Beside boat lime, single sacks of lime could be bought in Stirling, presumably from dealers. But the commonest named source is the general area of the middle Bannock Burn. North Third, Berrihill, Greathill, Wallstale and Shielbrae are all mentioned as sources, as are various parts of Cultenhove; Craigend (where the main work was situated in the 1790s) is first mentioned in 1648. Cauldhame and Boddom (or Bottom) of Sauchie do not appear on any maps but were clearly somewhere close, whilst Haltoun (perhaps a variation of Hiltoun of Cultenhove) is marked on Roy's and Ross's maps on the eastern side of Sauchie Craigs. One vendor was located in Auchenbowie, which borders Cultenhove. These locations are generally where the supplier lives and not necessarily the exact source of the lime; some place names such as Cultenhove had a wider connotation than today.

Quantities supplied usually ranged from a few bags to a little over five chalders. Perhaps the building of Cowane's Hospital stretched the limits of the local supply for it involved the purchase of repeated modest lots of both local and boat lime. But in 1720-1721 George Liddell in North Third supplied lime costing £72 for the out-houses of the Toun's New House and Robert Davie in Caldhame supplied 12 chalders and 4 bags, for £81 8s or roughly £6.60 per chalder; these are larger than earlier lots from Bannock Burn and may imply an expansion of the industry's capacity.

The names of the main 17th and early 18th century suppliers, the Johnstones, Thomsons and Patersons all appear as tenants in the area in the Index of Testaments and other sources. Positive evidence is lacking but it seems that these people owned or rented kilns and sold lime as a regular occupation; but nobody described as a lime burner is found in the Index of Testaments or other lists of inhabitants and lime working was probably subsidiary to farming. Some of the lesser suppliers (those in Berrihill and Shielbrae, for example) were

surely farmers who burnt lime primarily for their own use and sold the excess. It was seasonal work.

Testamentary inventories from the area indicate that several of the substantial tenants and feuars who farmed this area owned the equipment for lime-working. James Buchanan of North Third died in 1735 or 1736 and owned 'a pick, gavelock and hammer for a lime craig', Robert Johnstone in Touchgorm had 'lime craig worklooms', Andrew Stivensons elder and younger had 'two axes, ane hammer and timmer for casting lime'. But the only testament located which refers to a farmer selling lime is that of John Thomson in Bottom of Sauchie, who died in 1737, who was owed £40 by John Marjoriebanks in Wards of Goodie and James Marjoriebanks of Boquhapple for lime, a sum dwarfed by the value of his agricultural and other assets.

The relationship between suppliers and the actual workers is unclear. John Paterson and William Johnstone both supplied lime to the castle in 1625 but it was delivered by their servants; did the servants also quarry and burn the lime? Robert Buchanan purchased the rights of 'winning of limestone' when he purchased the lands of Graithill of Touchadam from the Laird of Sauchie in the opening years of the 18th century but the very substantial plenishings listed in his inventory, including 12 Russia Leather chairs, make it very unlikely that he quarried and burned the stone personally (12).

DISCUSSION

Lime was so important, both for building and for agriculture, that when overland transport was difficult and expensive even poor quality supplies were exploited to satisfy local needs. Riverine transport, however, allowed more distant deposits to be utilised at least by the 14th century. For several centuries boat lime was probably the only source for large quantities of lime. By the late 16th century, and perhaps long before, modest quantities of lime were also available from the Bannock Burn area at a comparable price. Exploitation of these deposits was made more attractive by the closeness of coal which could be used for burning the lime. A network of tracks, servicing the workings, survives today as a reminder of the incidental effects of heavy industry in a rural area.

The OSA of the 1790s shows that in Fife and Kinross, whence the boat lime came, lime workings included big, capitalist enterprises, small farmers burning lime for their own use and perhaps selling a little and individual self employed limeburners, who survived only 'through an application of more time and strength than can be long continued' as the Portmoak contributor graphically put it. The fragmentary evidence presented here implies that the farmers controlled the industry in St Ninians till the mid 18th century or so, perhaps using some waged labour; obviously by the time of the OSA it was predominantly of the intensively capitalist type. It is particularly interesting that waged workers in the lime industry escaped the serfdom characteristic of workers in the closely related coal industry.

By about 1640 the price of lime, delivered to any site in or about Stirling, whether boat lime or from the Bannock Burn, settled to about £6 Scots per chalder, rising to only £6 6s in 1720. This compared with £2 per chalder in 1575-1576. This apparently steep rise is less than the rise in prices generally, which rose four or five-fold in the late 16th century and continued a slow but erratic rise thereafter (13). Was this achieved by capitalising the industry, by specialisation or by more efficient transport? Does the 'fall' in price indicate that this industry was now supplying large quantities of lime for local fields, requiring more efficient technologies and allowing economies of scale?

Cheap and available lime must have encouraged its use in both construction and in agriculture. The fragments of evidence for agricultural use presented here may imply fairly widespread use of lime in the Stirling area by 1700, at least close to the river; they add more support to Whyte's thesis that 17th century Scottish agriculture was more advanced than has traditionally been thought (14). Whilst the use of lime would stimulate agricultural production, demand for it would stimulate riverine trade and road building and encourage capitalisation of exploitation and greater efficiency.

Finally, only with a readily available and affordable supply of lime could Stirling have become the stone built town which Frank observed in the mid 17th century. From the mid 17th century onward, the town of Stirling and its charities regularly used large quantities of lime in the construction of cottages and even of barns. Over 100 chalders of lime were used for the Town's New House of 1719-1721; it was used not just as mortar for the masonry and for rendering of the outer walls but for the extensive plastering of walls and ceilings which made this an excitingly modern, fashionable and comfortable development (15). In building, as in agriculture, extensive use of lime is an indicator of a new age.

NOTES

1. BOLLS AND CHALDERS
   Like many other commodities, lime was sold in bulk rather than by weight and the precise volume of the boll and the chalder, the units in which bulk was measured, varied according to the commodity being sold as well as from district to district. For most commodities there were 16 bolls to the chalder but this did not always apply to lime; the Concise Scots Dictionary says that the chalder of lime could vary from 20 to 64 imperial bushels. Ken Mackay suggests 152 Kg per boll and that 1500 chalders were equivalent to 1350 tons. On that basis, 1 chalder weighed 1.09 (metric) tonnes.
2. Sums of money in this paper are in £s Scots. From the mid 16th century the £ Scots fell rapidly against Sterling and from about 1600 onward was worth only 1/12 of Sterling. One £ = 20 shillings (s); one shilling = 12 pence (d),.

REFERENCES

1. MACKAY K.J.H. 1977 Limestone working: a forgotten Stirlingshire industry. *Forth Naturalist and Historian* 2, 81-105. The present paper amplifies and supercedes
2. HARRISON J.G. 1988. Lime supply in seventeenth century Stirling; a note. Unpublished paper.
3. Court Minutes of Balgair, 1706-1736 Scottish Record Society, 1957: Old Statistical Accounts, Stirlingshire (hereafter OSA) Balfron, p!81; Kippen, p520: *Stirling Journal* 15th August 1862 p5 col. b.
4. FRANCIS E.H. and READ W.A. et al 1970. The Geology of the Stirling District. HMSO, (Edinburgh. Scottish Record Office (SRO) CS22/586, Division of the Commonty of Sheriffmuir: SRO RHP 1042.
5. Exchequer Rolls III, p667; ibid VII, p!89: Lord High Treasurer's Accounts I, pp275, 279 and 359: Accounts of the Masters of Works I, 1529-1615 p293.
6. RENWICK R. Editor Extracts from the records of the Royal Burgh of Stirling I, 1519-1666. Glasgow, 1887, pl!9. Accounts of the Masters of Works II, 1616-1649 passim*.
7. Central Regional Archives (CRA) SB5/3/2 Cowane's Hospital Accounts, Discharge 1637-1638 and passim*: CRA Logie Session Minutes CH2/1001/1, Accounts, 9th Feb 1696.
8. SRO SC67/49/3 No 82: SRO SC67/49/3 No 139: CRA Cowane's Accounts, 1710-1711: Cowane's Minutes SB1/1 9th Jan 1710 and 24th May 1710: MACKAY, op cit.*
9. CRA SB6/3/1 and SB6/3/la Spittal's Accounts; CRA Council Record B66/20/7: CRA Perambulation Court SB2/5/2.
10. CRA Accounts of Cowane's Hospital SB5/3/1, 2 and 3. CRA Accounts of Spittal's Hospital SB6/3/ Series; SRO Account of building the Tolbooth 1575-6 E82/55/9. SRO Common Good Accounts 1660-1682 E82/55/5. CRA Burgh Treasurers' Accounts B66/23/1 and B66/23/2.
11. Master of Works Accounts II, ob cit.*
12. SRO CC21/6/26 Testament John Buchanan of Graithill, registered 18th Aug 1736; CC21/6/30 Testament James Buchanan of North Third, registered 5th Oct 1736; CC21/5/13 Testament Robert Johnstone in Touchgorm of Sauchie, registered 1st March 1728; CC21/6/9 Testament of Andrew Stivensons, elder and younger in Berrihill of Sauchie, registered 2nd February 1715: CC21/6/33, Testament of John Thomson in Bottom of Sauchie, registered 29th December 1738.
13. LYTHE S.G.E. 1960. The economy of Scotland in its European setting 1550-1625, Edinburgh, pllO: WORMALD J. 1981. Court, kirk and community; Scotland 1470-1625, London, p!67.
14. WHYTE I. 1979. Agriculture and society in seventeenth-century Scotland. John Donald, Edinburgh.
15. HARRISON J.G. 1988. Fisher Row: An investigation of a seventeenth-century building project from accounts. *Vernacular Building* 12, 26-32

*passim - here and there, in a number of places ob cit - previously quoted

BOOK REVIEW

Mists and Scree: Poetry of the Scottish Hills. Rennie McOwan. Clackmannan District Libraries 1992. 38pp. £2.50.

Poet, hill-walker, broadcaster, journalist, polemicist - Rennie McOwan has many arrows in his quiver. Here he fires more than one - sometimes simultaneously - and frequently hits the bull. Titles with place-names like Kilchoan, Lismore, Tiree, Tuarach, Glen Doll, Glen Etive - speak of his passion for all Scottish hills, but it began with the Ochils - McOwan cut his climbing teeth on Dumyat - and this booklet ends with them, beautifully -

> But the Ochils are
> green, of every shade,
> moss and emerald, lime
> and jade, lichen and ferns,
> grasses and rock, birch
> and rowan, hazel and oak. ('Colours')

That is a fair sample of his style. An unkind critic might call it 'chopped-up prose', but he would have missed the subtle pattern of breathless pauses and internal rhymes or half-rhymes; also the profound sensitivity to colour. When McOwan takes to the hills, indeed, all his senses are magically alive, as is his mind - aware of their history, character and meaning as well as of their wonder and beauty. He waxes lyrical, but over a deep substratum of awareness of all our earth could, should and does signify to humanity. He has a grim vision of all the loss of that awareness could mean -

> I saw a world with wildness
> tamed, where scents were
> cleansed and loss was gain,
> where man-made walls stopped
> all winds and see-through
> roofing stopped all rain, where
> no birds sang and moors were gone,
> where no snow fell and no sun shone. ('Dreams and Nightmares')

Between the lyricism and the philosophy run other veins - the tough hill-man's humour of 'Mountaineering Bus', powerful religious feeling ('Two Worlds, December', 'Christmas in Scotland'), equally powerful patriotism ('Scotland'), and delighted recognition of these true natives of the hills -

> There's a bond with the hillman,
> We both have the key.
> Their mountains are beckoning to
> You and to me. ('The Deer')

McOwan has a Wordsworthian sense of the purity and cleansing quality of nature, especially in the wilds. His feeling is - and clearly he is conscious of it along his own pulses - that the simplicity, starkness, innocence, splendour and (sometimes) softness of the hill scene elicits the very best of these qualities in the human self -Touch me with the white wand of elation . . . .

> Take me to
> Winter hills whose iron strengths re-charge our
> stunted city wills.

This 'slim volume' (there are fine photographs too) speaks volumes - sings volumes - about the intimate and urgent relationship between Man and his Landscape.

David Angus

BRIDGE OF ALLAN. 'QUEEN OF SCOTTISH SPAS' ITS NINETEENTH CENTURY DEVELOPMENT AS A HEALTH RESORT

Alastair J. Durie
University of Glasgow

This paper is based on the Welsh Trust annual lecture to the Bridge of Allan Local History Group on 6th April, 1993

The nineteenth century saw the rise to popularity of many Scottish resorts and districts. Some were coastal, others inland; some rather select, others more popular. Amongst those firmly on the tourist map was Bridge of Allan, praised highly in the widely-read Guidebooks - Murray's *Handbook for Scotland* (1894 edition) calls it "a watering-place, very popular, especially in spring on account of its sheltered situation and its saline waters"; Baddley's *Through Guide to Scotland* (1903) - in similar vein, "one of the favourite inland watering places of Scotland . . those who wish to devote some time to this borderline of the Highlands may find it more enjoyable headquarters than Stirling"; Black's *Picturesque Tourist* (1873) - enthusiastic, "this beautiful watering place". Locally published handbooks were not to be outdone - Miller's *Handbook of Central Scotland* (1883) claimed it was the "Queen of Scottish spas, which is yearly becoming more and more a fashionable watering-place with its genial and unvarying atmosphere."

The development of Bridge of Allan as a health and tourist resort is, therefore, a significant one in the history of tourism in Scotland. The analysis that follows looks firstly at the discovery of the mineral springs which brought a hitherto obscure village to wider attention, then at the development of the resort and its facilities, and finally at the signs in the late nineteenth century of a decline in its popularity.

The transformation of Bridge of Allan needs to be set firmly in the context of the rise of tourism in the early nineteenth century. If there is a starting date for the emergence of tourism in Scotland as something to be enjoyed by large numbers of people rather than the travelling of the intrepid few, it is 1810 when the publication of *The Lady of the Lake* set off a flood of visitors to Loch Katrine and the Trossachs. Sir John Sinclair congratulated Walter Scott on his having increased the number of visitors in that vicinity "beyond measure" (1), and tried to persuade him to write a sequel *The Lady of the Sea* to be set in Caithness in the hope that it would inspire a similar tourist boom there! In fact, though there is no doubt that a high proportion of visitors from 1810 onwards did travel through Scotland with Scott in hand, interest had already begun to grow prior to then, particularly while the prospects for travel on the Continent were blighted by the Revolutionary and Napoleonic Wars . Some had been drawn north by scenery and the search for the picturesque, others for sport - fishing and shooting -, and while most had been the top drawer of society, the flow was beginning both to increase in scale and to broaden in terms of social composition.

What accelerated the growth of tourism were, of course, the major changes in transport which made Scotland so much more accessible. The coming of the steamboat opened up the West Coast; when a German traveller, Karl Schinkel, visited Scotland in 1826, his imagination fired by Scott and Ossian, he set off from Glasgow to Staff a by way of Oban. "At six o'clock in the morning", he recorded in his diary, "we boarded the steamer for our journey into the Highlands in a large company of English, French and Italians" and further noted that no less than 60 boats were engaged in this kind of work; "these vessels are always full of people" (2). The East Coast also benefitted, if not perhaps quite to the same extent, and many of the visitors from Edinburgh to the Stirling area came by steamer from Leith up the Forth.

What the steam boats began for tourism, the railways carried to greater heights. The possibility of tourism traffic came to play a key part in the flotation of railway companies in some parts of Scotland. The prospectus for the Dingwall and Skye Railway stressed that "in addition to the local traffic which the line will command (it will have) a large tourist traffic throughout its entire length during the summer and autumn months" (3). The Scottish Central Railway, which opened in June 1848, brought many a visitor to Bridge of Allan to be met there by the Hotel vehicles. Indeed, the favourable treatment given by the Railway Company was a source of grievance to Dunblane; "Bridge of Allan revels in the indulgence of cheap fares and return tickets while, Dunblane, one of the best paying stations on the line is virtually ignored and forgotten" (4).

Ease of travel could work both ways, and not necessarily always in favour of Bridge of Allan. In September 1851, the *Scottish Railway Gazette* reported that the Stirling and Dunfermline Railway was doing remarkably well from summer passenger traffic; "We confess that we did not anticipate this season a very large addition to the revenue from this source in the face of the overwhelming attractions of the Great Exhibition in London . And it is not to be concealed, we fear, that not only in the matter of excursionists but as regards periodical and casual visitors, the pleasant districts of Dollar, Bridge of Allan and other rustic resorts have somewhat flagged during the past two months".

To sum up, the growth of tourism was very rapid in the first half of the nineteenth century, thanks to changes in taste and transport, and also the activities of such promoters as Thomas Cook of Leicester who brought some 40,000 visitors to Scotland on his Tartan Tours between 1846 and 1861. Cook and others like him made it possible for the person with limited means and time to travel, and the Trossachs was a favourite calling point on his itinerary. And while many were drawn by Scotland's scenery, culture, history and countryside, there was an increasing movement of professional and upper-middle class people looking for health and recreation away from the cities. Many resorts were to cater for this group, including Bridge of Allan as a spa and watering-place, easily accesible to visitors from the Central belt or further afield in a way that competing Strathpeffer was not.

The taking of mineral waters for health - drinking the water was said to cure rheumatism, gout and biliousness, and the bathing to be good for skin complaints - and the associated regime has a long pedigree. The eighteenth century saw a marked expansion in the number of spas, both in England and on the Continent. Amongst the more famous of the seventy or so south of the Border were Harrogate, Matlock and Cheltenham and across the Channel, Aachen and Baden-Baden. But few were to be found in Scotland. There was Moffat, where a Mineral Well had been discovered in the early seventeenth century, and which was patronised by Scottish gentry such as Sir John Clerk of Penicuik who complained in 1748 that "as the well is quite open day and night there is a number of diseased, scrophulus, leperous people lying about it who seem to be waiting for an opportunity to wash their sores unseen by the two keepers" (5). Things were tightened up, better accomodation was built, the facilities enlarged and Moffat was well-patronised. Its success in Scotland, prompted others to see what their locality might have to offer, and the medical profession were quick to confirm their belief in the curative value of mineral water. The water cure became all the rage, a confidence well caught in a poem by a convalescent patient, Prof. J. S. Blackie, while under treatment at Dunoon in May 1849 (6) -

> WATER IS BEST; the pure cold draught
> Frets with no feverish flood.
> But richly feeds, when freely quaffed,
> The healthfull-flowing blood.
> Health dwells with water and with air,
> Each well-braced member plying
> Its function duly in the spring
> Forbids to think of dying.

How fortunate it was, therefore, that the Airthey copper mines were by now worked out. In 1820 according to Charles Rogers, Sir Robert Abercrombie, "the liberal and enterprising proprietor of Airthey, moved *by the success of mineral springs elsewhere,* (my italics), had the mine reopened, the rubbish removed" and the springs analysed by Dr Thomson, Professor of Chemistry at Glasgow. The results were promising for the treatment of illness, and the Well House was opened the next year. Bridge of Allan was launched as a health resort. It needs to be underlined, however, that Abercrombie's initiative was no act of altruism; what he had in view was the creation of a prosperous spa to challenge the established English centres or at least Moffat, which itself was forced to respond to this new competition with a programme of expansion in 1825.

As we move now to the central phase of Bridge of Allan's history it is one of the frustrations of the record that so little seems to have come to the surface about its progress in the 1820's and 1830's. It may be significant that the Rev W. M. Wade's *Delineations of the Watering and Sea-Bathing Places in Scotland,* which was published in 1822 has only the briefest reference to Bridge of Allan as a pretty village, consisting of but a few houses while waxing lyrical about the

attractions of the Cromlix and Pitcaithly waters. There is an interesting description of the village in *Tait's Edinburgh Magazine* ("Tours and Detours in Scotland in the Summer of 1836") as "a small watering place; a delightful summer weekend retreat, and attracts many visitors from Edinburgh and Glasgow". By the time of the *New Statistical Account*, the place had already acquired a considerable reputation and drawing power. "I am told", said the Minister of Logic, "that during the present season, nearly 500 persons have drunk of the waters in one day; and numerous families are every year obliged to return home for want of accomodation even of the meanest kind," and continued that the "pump-room was small and mean" but that "a very neat building has lately been erected by Lord Abercromby, and conveniently fitted up with hot, cold, and shower baths" (7). A footnote added that since the above had been written, a considerable number of very comfortable lodging houses had been erected.

What is clear is that by the 1840's Bridge of Allan was no longer an obscure village but one which attracted a considerable number of visitors, who as a rule commented very favourably on the place. For example, there was J.G. Kohl who toured Scotland in 1844 and found, as so many others have done, the weather to be a trial - "it is a great pity that so beautiful a country as Scotland should not possess a more favourable climate" wrote that "I wandered on to Allanbridge, "a cheerful village on the Forth" (8). Another visitor was Henry Pease, a Quaker industrialist from Durham, who on a visit to Scotland in 1847 took a steamer to Alloa and then came by omnibus, as he reported to his son, "to this place which is pleasantly situated upon a rapid stream - a number of lodging houses have been built for visitors . . . the air is thought very invigorating . . . this is a most comfortable little Inn" (9). His letter also records that he was waiting for a friend to come in from fishing before the two of them went out to visit Stirling Castle.

What was important to Bridge of Allan was the increasing notice of it and its facilities being taken in the newspapers. There was an encouraging piece in the *Scotsman*, on June 13th 1846, entitled 'A few days at Bridge Of Allan' -

"The Bridge of Allan like other fashions has its seasons. Just now it is chiefly filled with visitors from the west - the belles of Glasgow and the beaux of Greenock. In a month after it will be gay with all the glitter that Fife can bestow, and in August the folk of Edinburgh will taste of its waters. The hour of assembly is about 7 am, the Hygeian goddess holding levee between that hour and 9 ... after the morning scene at the wells, friends form themselves into parties for walks, drives or angling during the day".

The *Edinburgh Advertiser* in the same year was also complimentary - "the Pump room looks quite continental. The inns are exceeding good and the lodging houses clean and comfortable ... trade will be wonderfully increased once the Scottish Central is opened." The local press regularly featured life at the spa, e.g. the *Stirling Observer* of 12 June 1846 - "The slightest shower sends the gentlemen to the Reading room and the ladies to its circulating Library. The fame of Bridge of Allan is now a matter of history. The Bowling green but

newly sown is not ready for play yet."

The same paper printed a letter from one BT on the 15th of June 1849 -"I am a constant reader of your paper and an annual visitor at Bridge of Allan and Airthey Wells. ... it is not so well known that this charming retreat within these last two or three years has been so beautified with handsome and appropriate houses, each having its tasteful little flower-plot in front... jets d'eau are in process of being erected, footpaths in all directions have been made. Bridge of Allan can boast of a first-rate billiard Table, a spacious Bowling Green and enclosed Quoiting ground. Who did this - Major Henderson of Westerton."

Such newspaper reports should not be undervalued in they both reflected existing interest and helped to promote the image of the place. Bridge of Allan, however, was to be further boosted by one of the great publicists of the nineteenth century, Charles Rogers. He was not universally loved; a very sharp leader in the *Stirling Journal* in 1864 noted he was now operating at Bath; "a gaberlunzie man levying his own peculiar kind of blackmail on the inhabitants of that historically famous watering place." Rogers, as has been described (10), was commisioned by Major Henderson to write a promotional guide. Entitled *A Week at Bridge of Allan,* the first edition appeared in 1851 and several more were to appear over the next decade. It is a first-rate piece of pleading which pitches the various elements of appeal in a very shrewd way. After describing the Springs and the regime there - four pint tumblers of water each day early in the morning - he praises the local climate - "Bridge of Allan though not laying claim to the high temperature of some of the English spas, claims an equability of temperature certainly equal to any and superior to most of them, entitling it to be regarded as the Scottish Montpelier". The local facilities were excellent, including as they did a reading hall well supplied with the more popular and useful periodicals and newspapers, and a library which was well selected and yearly receiving additions. The district had plenty to see, and he described a series of excursions, to Stirling ("the Windsor of Old Scotland"), Dunblane, Doune, Bannockburn and Sheriffmuir. There was plenty to entertain and amuse the visitor, whether as sightseer or scientist; "ample scope for the researches of the geologist and botanist" (11). Rogers never understated his case, and there are places where his praises are obviously over the top; the village, he insists, "unites the rural character of Harrogate with the town convenience and elegance of Cheltenham". But the guide is a clever piece of advertising, well targetted on the kind of clientele that Bridge of Allan wanted to attract. Rogers was also active, through a committee which he ran, in raising funds to advertise the spa in the English provincial journals and the more widely circulated railway guides.

Promotion helps, but there has to be a worthwhile product to promote; good accomodation, facilities for good and bad weather, amusements for all ages, outings and excursions. The physical appearance of the village altered as new housing, some of it very large, was built; "Fifty years ago", said one authority in 1883,"a narrow hump-backed bridge, and old-fashioned mill

and kiln, a wayside inn, a smithy, with a few hovel-looking huts constituted the sum and substance of the place" (12). It was the increasing fame of the mineral waters and the rising demand for lodging accomodation that prompted the construction of the first of a "noble congregation of villas which now adorn the vicinity" and "within the last twenty years, on an average eight villas of large size have been added during the year". It must have been good business for the local builders, house-furnishers and the like.

By 1868, according to Duncan & Jamieson's Directory, there were no less than 109 lodging houses in Bridge of Allan, and the profession of lodging house keeper or landlady was a well-established one. From time to time they were invited to contribute to the cost of local facilities and attractions but their response was not always enthusiastic as in 1864 when the collectors for the Strathallan Games called on them for subscriptions (July 2 1864); "Some objected that they had been keeping lodgers for a matter of from 20 to 30 years and have never heard this great grumbling against the ennui of the village."

Some visitors seem to have travelled to Bridge of Allan without making any prior arrangements and to have hoped to take advantage of vacancies. The newly founded Bridge *of Allan Journal and Spa Directory* urged on the 17th of August 1853 that keepers of lodgings should remove their boards "to let" when their houses are fully occupied in order to save parties in search of lodgings the trouble of making enquiries at every house. It added that there were times when the place was so full that sofas as beds were in constant requisition. A register of lodgings to let was kept at the new Medical Hall. Local businesses began to take an interest; James Cowbrough and Co, Family Grocers and Wine merchants, advertised in 1872 that they would give information on furnished houses and apartments on application and three years later, the chemist and local figure Gilbert Farie whose Medical Hall premises were (and are) in Henderson Street, and about whom much could and should be said, was calling himself the sole licenced house agent in the district with over 40 houses and villas to let furnished for various periods. Some proprietors bypassed him by advertising directly in the national press as did Mrs Fenton who offered in the *Scotsman* of July 3rd 1872 "Thornfield house to let for one or more months." In addition to houses and lodgings, there were also ,of course, the hotels. Bridge of Allan came to have some large and substantial hotels e.g. the Queen's, the Royal and the Westerton. They were continuously upgraded and enlarged. The Queen's, for example, advertised in 1853 that under the new ownership of John Anderson, of the Cafe Royal Edinburgh, that he had made great improvements -

"The Public Room which can accomodate 100 people at dinner has been handsomely decorated and the whole establishment has been newly furnished in the most superb style of elegance and comfort. The additions ... include a number of spacious and lofty Bedrooms, and a magnificent Drawing room containing a Select Library and a Pianoforte for the use of parties residing in the hotal. Vehicles of every description got ready for drives on the shortest notice" (13).

A problem that did raise its head was what outings and facilities the hotels should provide on Sundays for tourists. The question of Sunday observance was a vexed one. Bridge of Allan did acquire a remarkable range of churches, something related in part to the number of visitors and their taste, but many did want some relaxation during the day. But that provoked a broadside from Peter Drummond (14) about Sabbath desecration; he specifically referred to the hiring out of vehicles to pleasure seekers, "houses trafficing in intoxicating liquor; great numbers of domestics ... detained from public ordinances and their souls comparatively neglected".

Another facility of great significance was the Hydropathic which was opened in 1864 and extended several times thereafter, additions which were in part financed by an expansion in the shares issued. Shareholders in 1867 numbered only 30 holding in all 407 shares of which thirty were held by Dr Archibald Hunter, of Ochil Park, who described himself as Hydropathic Practitioner. Other principals included William Archibald and J.P. Groundwater of HM Register House, Edinburgh. By 1889 there were twice as many involved; 70 shareholders holding a total of 1000 shares of £10 fully called. Their number included some employees; the Bathman, Joseph Maclare, and a housemaid, Helen Bennet (15).

The Hydropathic claimed to offer every comfort and convenience; an Elegant suite of Baths, including Turkish, Russian, Vapour Spray etc. What sort of people came there and how ill were they? Robert Louis Stevenson, himself no stranger to Bridge of Allan- "I shall never forget some of the days at Bridge of Allan. They were one golden dream" - has left a vivid description of the clientele at Strathpeffer in 1880 (16) -

> On some ghastly companions at a spa..ogres every one
> Each issuing from his secret bower
> I marked them in the morning hour
> By limp and totter, list and droup
> I singled each one from the group.

Certainly some were ill, and seriously so, but others came just for a break or a tonic. A good assessment of the clientele was given by Dr Luke, physican-in-charge at Peebles Hydropathic in 1919; they are "usually over middle-age. Some are retired persons with money who go to minister to a real or trifling ailment; others are ill or people who do good work but need a complete change and rest if they are to keep going" (17).

The restorative effects of a stay at Bridge of Allan had long been a key element in its appeal. To give but one example, in 1852 R. F. Gourlay, a tireless campaigner against any building on the Mound in Edinburgh , after preparing yet another pamphlet broadside on the subject, sent it to the printers and then "having seen all secure, I went to Bridge of Allan for health" (18).

Other facilities of importance were the shops, walks and recreational facilities, all of which helped persuade visitors to come and to stay on. The village seems to have satisfied most people though there was a complaint from an English visitor carried in the Spa newspaper on 6th July 1853 that the accommodation

at the well house was "so much inferior to everything else connected with the Spa. You have admirable hotels, excellent lodging houses, promenades laid out in a first-rate style, a spacious and well-adorned reading hall, a gallery of casts and paintings, a capital bowling green and cricket ground".

Charles Rogers and another of his committees did add in 1853 one of the considered essentials of spa life, namely a band which could be enjoyed or criticised "according to the humour of those who spoke" (19). On occasion a regimental band had been borrowed from Stirling Castle but on the 20th of July 1853 it was announced that the Committee had sucessfully engaged the services of a German band for the Montpelier of Scotland. They were paid £4 a week for morning and evening promenades . There was also a piper who played "lively tunes on the bagpipes every morning at six o clock through the village, then on the violin at the Wells between seven and nine, and again on the bagpipes in the village during the evenings."

It is clear that by the early 1850's Bridge of Allan was a resort on the up, and beginning to attract attention outside the Lowlands of Scotland. In May of 1853 the exotically entitled periodical *Bouquet from Marleybone Gardens,* carried an article on the village. It began by modestly designating Bridge Of Allan as the Scottish Eden, and continued in similarly enthusiastic vein. Whereas it was "simply the resort of a few agricultural peasantry, it is now a rapidly rising city of villas annually visited by thirty thousand persons from every district of the kingdom and affording certain indications of becoming one of the sweetest and loveliest scene of human habitations north of the Tweed. . .here enfeebled health has frequently been revigorated and restored; and no one who has come hither in health, it is proverbial, has left as an invalid".

Despite any suspicions which one might harbour to the contrary, *The Bouquet* was a genuine London Journal, not a Charles Rogers' shell, edited by an editorial board of three ladies under the pseudonyms of Blue bell, Kingcups, and Mignionette.

We know about some of the famous people who visited Bridge of Allan such as Dickens "The quiet of this litle place is sure to do me good" (19 Feb 1867); Lord Kelvin; and Thackerey in 1857; "this place is like paradise after smokey Glasgow". There is in fact an anthology to be compiled from the diaries, journals and letters of the many who have left a written record of their visit. The German traveller, Theodore Fontane, is one such. In his book (20) he records that after leaving Stirling -

> "the first place that we reached was Bridge of Allan, a small village like Charlottenburg, in which the ubiquitous "Accomodation to let" sign left us in no doubt about the little place's source of income and indeed the very purprose of its existence. It is a privileged summer resort for Edinburgh people who, whether from inclination or on grounds of health like to exchange the misty air of the east coast for the purer air of the Highlands."

The Reverend Jabez Marrat of the Wesleyan Conference Office, came twenty years later (20) -

"in addition to the old houses near the bridge there are now long lines of villas which are frequented by invalids for the sake of the mild air and the mineral springs, and by pleasure seekers for the sake of the many delightful rambles which the neighbourhood affords."

Another source of great value to an understanding of the history of the village are the local newspapers, both those at Stirling and Bridge of Allan. Charles Rogers' *Spa Directory* did not survive for more than a few seasons but a successor did emerge after not too long an interval, the *Bridge of Allan Reporter* which claimed in 1864 to have a circulation of between 400-600 weekly. It took care to quarry other Scottish newspapers for promotional material and extracted from the *Ayr Advertiser* of the 30th April 1864, a report from someone who had spent a few days at -

"this Scotch spa with its tasteful new buildings. The southern exposure and sheltered situation, as well as the mineral waters, attract visitors to this convenient resort, particularly in the spring months, as in the hot summer weather, Moffat stands to be preferred. At present Bridge of Allan is so crowded that apartments have to be engaged for weeks previous to occupation, and several parties who arrived last week without that precaution had to return to Stirling."

The *Reporter* seems to have done well, and quickly to have increased its circulation up to 600-700 weekly, and "this not amongst a stationary but an everchanging population." It carried, as one might expect, heavy advertising of cures for gout, skin diseases and "the silent friend on marriage", whatever that was.

In the analysis of tourism at Bridge of Allan, it would be highly desirable to find out how many visitors came, where they came from, how many came back year after year, and how the picture changed over time. A source of some service is that of the decennial census. It was taken generally during the first weekend of April and is therefore of no value for the coastal resorts. But it is of some use in Bridge of Allan where the season started earlier and quite appreciable numbers were in residence by the spring months.

The category of significance is that of the "temporarily resident" which included construction workers and vagrants as well as visitors (22). In 1871 there were 1,129 temporarily resident in Bridge of Allan, the great bulk of whom were visitors. 83 of them were staying at the Hydro and by cross-checking with the list of visitors, of which more anon, one can flesh out the profile of those in residence. For example, the Steel family from Glasgow who were staying at Aboukir Villa turn out in the detail of the enumerator's schedule to be five in number; sons aged 13, 11 and 3 to a Lanarkshire Wine merchant. It is not possible, unfortunately, to determine whether Mr Steel commuted back to Glasgow during the week, a pattern common to many heads of families during the summer months.

In 1881 the census enumerators specifically noted that most of the tempor.irv residents were "visitors at the Hydropathic Establishment";

"visitors here for the sake of Health" or "Here for a change of air" and counted no less than 553 of which 221 were male and 332 were female. In 1891 however, the number of visitors temporarily present listed is a mere 43; the enumerators having decided, or been instructed to include in this category only those who were on overnight stay. Visitors for a longer period seem to have been classified under the heading of boarder. At the Hydro there were 150 boarders, including the Spanish consul and his family.

What is interesting is to note the number of those residents and visitors living on private means. Several owners listed their profession or occupation as that of 'Letting apartments', as in the case of Eliza Dickie, a Stirling lady who owned Bombay House (West). She had one domestic servant, and staying with her as boarders were several families; a grain merchant from Renfrew and the Lows of Lanarkshire - he a shipbroker with wife and five children; their entourage included a nurse. They leave their trace in the record, but most families would have brought a servant or two with them to further swell the numbers.

The Census returns are of interest, therefore, especially when married to another source of great value. 'Lists of Visitors in Residence' became a standard feature of newspapers in the more fashionable resorts (23). English spas like Harrogate pioneered this innovation but as far as I know, while all the major upper class resorts in Scotland (Crieff, Elie, North Berwick, Nairn, Dunoon, Campbeltown etc) were to follow suit from the 1860's onwards, it was Bridge of Allan that was first in the field. Rogers' *Journal and Spa Directory* carried its first 'list' on the 14th of May 1853.

Much work needs to be done on these, and there are problems as to what numerical weight one gives to entries such as 'and family' or 'and party' but an indication of what they can be made to yield can be seen from **Table 1,** an analysis of the visitors on the 18th of April, 1856. It shows, inter alia, that far from Bridge of Allan merely being a suburb of Edinburgh, there was as strong a representation from Glasgow - **Table** 2 looks at the the picture over the period 1865 to 1905, and it shows clearly that in the later nineteenth century there was a sharp fall in the numbers of visitors coming in the summer months. The numbers in May 1905 were, for example only one-third of what they had been thirty years earlier. It is bad practice to shape long term trends from the experience of what may have been atypical years, and yet the picture does seem consistent with other evidence, that decline had set in.

Concern was certainly being expressed in the early 1880's. A correspondent to the *Callander Advertiser* in 1884 argued that "a new generation has sprung up which knows relatively little of Bridge of Allan." Rogers' Guide was obsolete; "Nobody thinks nowadays in the way he proposes. This is the age of Bicyclists and tourist tickets. Many of my friends coming here have complained of the want of amusements in wet weather".

Yet not all reports were as pessimistic. The *Bridge of Allan Gazette* on June 20th 1885 carried a description of the burgh drawn from the *Montreal Daily Herald* which spoke warmly of its -

"excellent hotels, a well conducted hydropathic institute and commodious .ipartments of all sorts. There are good shops, schools and last (though not least) churches of all Scottish denominations and Church of England. Its sheltered position and and much prized spa have attracted invalids from many parts of the United Kingdom. We made one or two short trips into the Highlands but tried as much as possible to return to our snug hotel in the evening. If the next day proved wet, we strolled down to the library and reading room, read the newspapers and new magazines...."

But there was real anxiety over whether the tone of the neighbourhood was deteriorating. A disturbing report of the 1891 Strathallan Highland Games was carried in the *Strathearn Herald* on August the 8th. While the attendance was large -

"Very few of the aristocracy of the district or the better class of visitors were present; in fact, these games in this respect were a complete failure. And little wonder, for the scene in the park was a very noisy and repulsive one in many respects. There were no end of travelling shows, organ grinders, shooting saloons, hobby horses, and the noises, shouting and whistling, together with many drunk people in the park, made up what was little less than a pandemonium."

Worry about the attraction and retention of visitors was regularly expressed in the columns of the newspapers. "Nowadays more than mere beauty is required at a holiday resort. ... We require the Bridge is made bright, and if that be done prosperity will follow." An editorial in the *Spa Advertiser* on the 18th of May 1895 commented on the opening of the tennis courts and urged more be done; "the village is in danger of falling behind ... other resorts cater lavishly for the visitor". The Bridge Mineral Wells Company directors did erect a number of advertising boards throughout the district and in other ways brought the wells to the notice of the public ; their work may have been to some effect as the amount drawn at the wells did double . The tennis courts were popular, and so also was the golf course laid out by Tom Morris in 1895.

The Hydropathic continued to attract good numbers but the hotels and the lodging houses did much less well. In 1905 the January report on the Hydro said that there were at present between 130 and 140 residents in the hydro, enjoying concerts, fancy dress ball, and dancing till 2am. In April the Dundee Courier's correspondent found that the "hall literally bristles with golf clubs of all shapes and sizes." The Town Council was criticised that Bridge Of Allan had not advanced with the times and that they had left too much to private enterprise; their reply was that "this is becoming more and more a residential place", a reply which had substance. Increasing numbers of retired people and annuitants settled in the place to fill the vacuum left by the decline in visitor numbers, and the hotels took in an increasing number of permanent residents. Bridge of Allan was not alone in its worries. There was concern elsewhere about fewer visitors. Numbers visiting the Wallace Monument seem In h.ive fallen. The tenant Middleton wrote to the Custodiers Committee on the 28th of November 1906 (23) to draw attention to his

predicament as "each year less and less people are coming to Stirling". He blamed the cost of railway fares and "another special fact is that all the specially conducted trips brought by Cook,

Lindsay, Mackay, the London Polytechnic Coy are leaving out a visit to the Monument. They are taken to the Castle, the Churches, a few to the Borestone and then off by train to Aberfoyle or Callander ... before there was more time given and they were brought up to the Monument but this is all gone now."

To conclude, by 1900 Bridge of Allan was not in the front rank of Scottish resorts as it had once been. There was of course far more competition, particularly from coastal resorts. But it was not entirely out of the game. The *Glasgow Herald* noted in July 1913 that there had been a large influx of visitors many being from Perth and conveyances plying between Stirling and the Bridge being well patronised during the afternoon and evening. The excellent facilites offered for bowling, golf and tennis continue to be taken advantage of, even the tropical weather of last week failing to affect the enthusiasm of the tennis devotees. In August the same source, the column of news from the resorts entitled 'Land and Sea', said that there were many visitors of whom a large proportion were English, while on the Saturday there was a great influx of excursionists.

What the Bridge of Allan experience underlines is that the tourist business is subject to growth and decline like any other. Other spas were experiencing similar problems, and despite efforts they generally failed to reestablish themselves after the First World War, which was also the case with Bridge of Allan. Perhaps the proper perspective is to admire how much success was achieved for so long from such modest beginnings.

NOTES **AND REFERENCES**

1. The Letters of Sir Walter Scott, 1808-1811. Edited by H.J.C. Grierson, London, 1932, p.419
2. Karl Friedrich Schinkel, Travels in England, Scotland and Wales, 1826; Exhibition Catalogue, Edinburgh 1992. My thanks to Mrs. Chantal Hamill, editor of Scottish Local History for this reference.
3. National Railway Museum Library, *Railway News and Joint Stock Journal,* volume 2, 1864, p.78
4. *Stirling Journal,* June 8th, 1855.
5. Cited in Jane I Boyd, Moffat.l7th to 20th Century, Moffat, 1987 p.9
6. National Library of Scotland, Miscellaneous Pamphlets; Prof J.S.Blackie: Convalescence. Written by a Hydropathic Patient while under treatment, Dunoon, 29 May 1849.
7. New Statistical Account, Stirlingshire, 1841, p. 218
8. Glasgow University Library, Murray Collection, MU 56-e 16; p3. and p.76
9. Durham Record Office, D/Pe/ 11/62, 9 August 1847. Ms Rosalyn Rennie drew my attention to this and other related material, for which I am very grateful.
10. *The Forth Naturalist and Historian,* volume 13, Who was Charles Rogers? J. Malcolm Allan, pp. 97-107

11. Charles Rogers, FSA Scot., LLD A Week at Bridge of Allan, Comprising an Account of Airthey Spa, A history of Stirling, and a Description of the District of the National Wallace Monument, 8th edition, 1858, p.35
12. Miller's Handbook of Central Scotland, Fifth edition enlarged, Stirling and Bridge of Allan, 1883; p.32
13. *Bridge of Allan Journal and Spa Directory,* (400 copies printed), Dunfermline Public Library.
14. *Stirling Journal* June 28th, 1850.
15. Scottish Record Office, BT 2/220; Bridge of Allan Hydropathic Company.
16. R.L.S's Letters to Charles Baxter; Edited by Delancey Ferguson and Marshall Waingrove, New York, 1873, pp. 80-81
17. T.D.Luke, The Spas and Health Resorts of the British Isles, London, 1919, pp.25-26
18. Glasgow University Library, Murray Pamphlets, Mu 56, e.16
19. Catherine Sinclair, Modern Flirtations, Or A Month at Harrogate, 1841, volume 3, p.54
20. Theodore Fontane, Across the Tweed; Notes on Travel in Scotland, 1858, London, 1965; pp. 103-104
21. Rev. Jabez Marrat, Land of the Mountain and the Flood, Sheffield, 1879, p. 104
22. These schedules are held in Perth Public Library.
23. See A.J.Durie, "The Better-off Tourist in Victorian Scotland; the value of visitors' lists; *Scottish Local Historian,* 1992, pp. 17-18
24. 23 Central Regional Archives, Custodiers' Committee Minutes, SB 10 1/1.

Table 1 Visitors at Bridge of Allan on April 18th 1856

Lodgings 318 (including 26 families); Hotels 86; TOTAL 404

123 from Edinburgh; 121 from Glasgow; 15 from England.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1965	150	150	200	500	800	650	500	500	650	550	250	250
1875	350	450	550	800	900	600	550	600	680	660	450	350
1885	250	400	500	700	800	550	400	700	600	450	330	300
1895	250	350	300	680	550	380	350	380	370	350	200	190
1905	275	150	230	300	310	250	250	200	250	250	200	190

BOOK NOTES

Some literature of interest received or noted

British Social Services: the Scottish dimension. John Murphy. Scottish Academic Press. 1992. 190 pp. £15 - developments from Poor Law days, the present, future trends - ideology and legislation. (Local author)

The Killin Branch Railway. Colin Hogarth. Stirling District Libraries. 64pp. £3.25

Another well presented and produced local history contribution by Stirling Libraries and Cardfall of Glasgow - as are the next two below —

Killin in Old Photographs. Kay Riddell. 64pp. SDL. £3.

Jeely Pieces and Clootie Dumpling - Stirling childhoods in the 20s and 30s. Jayne Stephenson. SDL. 32pp. £1.60. A handsome production at this price - to revive memories of home, school and play.

Robert Allason and Greenbank. Stuart Nisbet and Thomas Welsh. Eastwood District Libraries. 64pp. £2.50.

The recently researched background of this house and estate whose garden is a much admired and enjoyed attraction of the National Trust of Scotland's central Scotland properties.

The Scottish Coronation Journey of King Charles I. Robert and Lindsay Bryden Sporting Partnership. Kirkcaldy. 50pp. £3.50. The June 1633 itinery included Edinburgh, Linlithgow, Stirling, Dunfermline, Falkland, Berwick.

Bygone Days in Cambusbarron. P. T. Paterson. Stirling Libraries 1993. 63pp. £3.25. Reprint of this 1980 book, much sought after in its recent out of print

THE VOTERS OF CLACKMANNAN IN 1832

J. I. Brash
University of Western Australia

The *Register of Voters in the County of Clackmannan 1832-3-4* is a slim booklet bound in faded blue paper (1). It was printed in Alloa by James Lothian, the later founder of the *Alloa Advertiser* (2), probably in December 1834 during the period of intense political excitement between William IV s unexpected dismissal of Lord Melbourne's whig government and the general election held in January 1835, scarcely more than two years after the reformers landslide victory in 1832. The register was almost certainly brought out at short notice probably for use in the canvass of electors prior to the renewed contest and shows signs of having been prepared in haste: with two pages reversed and several errors and misprints. The electors are listed by parish m roughly alphabetical order, with their occupations and places of residence, first those who had enrolled in 1832 under the provisions of the Scottish Reform Act, and then those enrolled at the 1833 and 1834 registrations. In addition my copy, the only one of which I know, has handwritten entries, presumably added by a local political agent, recording the names of 117 electors registered in 1! Against the names of most of the 1832 electors there is an A or a B to indicate whether they had voted in December 1832 for the successful whig candidate Admiral Charles Adam, or his conservative opponent, Robert Bruce of Kennet; the names of those who did not vote are left unmarked. Consequently, although the register was published just before the 1835 election it is most valuable as a source for the study of the electorate created by the 1832 Reform Act and of how the electors voted at the first general election held after the passing ol reform.

Sources like this are comparatively rare. In 1832 and for thirty years after there was no provision for the official publication of the rolls of Scotbsh county electors. Occasionally one of the contesting parties in a county would arrange to have a copy of the sheriffs manuscript register printed for use m the canvass. I have found examples from the 1832 election for eight and a half of the thirty counties, several from later in the 1830s but very few after that until 1862-6 when regular official publication began (3). Still more rare in Scotland is a printec register or pollbook that records how county electors voted under the system of open polling that existed before the introduction of secret ballot in 1872. Two were published immediately after the election in 1832, one in Ayrshire, the other in Renfrewshire; Clackmannan makes a third and the only other example known so far, apart from some fragments, compares the votes given at elections in Dumfriesshire in 1868 and 1869 (4).

The list printed by James Lothian is not a complete record of the electors and their votes in 1832. The compiler of the list omitted 36 men who he believed, with justification, were no longer qualified to vote even though their names were still on the sheriff's register. They included a group of seven who had been enrolled in 1832 as joint-proprietors of the Alloa Glassworks. The compiler would have known that the partners had sold the glassworks during 1834 (5). Fortunately the original manuscript register of electors in Clackmannan for 1832 (SC64/63/27) and the original manuscript pollbooks for the 1832 election (SC64/63/37-38) have been deposited in the Scottish Record Office so it has been possible to recover the names of the missing 36 electors and how they voted, and in places to correct or amplify the printed list.

The Reform Act created a joint-constituency from the small adjoining counties of Clackmannan and Kinross which had previously taken turns to be represented in alternate parliaments. The printed register contains the Clackmannan portion of the new constituency, or more precisely the electors in the parishes and parts of parishes that were amalgamated in 1832 to form the county of Clackmannan for the purpose of representation: Alloa, Clackmannan, Dollar and Tillicoultry; the Clackmannan and Perthshire parts of Logie (a third part was in the county of Stirling); Culross and Tulliallan which were then detached parishes of Perthshire; and Alva a detached parish of Stirlingshire. Tory members of parliament, Sir William Rae and Sir George Murray, claimed that the object of the merger of the two counties and adjacent parishes was to increase the electoral influence of the whig Adam and Abercromby families (6), but it can also be seen as a rational re-ordering of some very untidy parish geography to create a more viable constituency in which the probable electorate would be about 900. In the enlarged county of Clackmannan 491 electors were enrolled in 1832 and another 391 in Kinross, altogether twenty-four times as many voters as there had been in the two counties before reform: sixteen in Clackmannan and twenty-one in Kinross (7).

As these figures show it is the limited franchise in Scottish counties before 1832 that makes feasible the study of the post-reform constituency in Clackmannan. In an English county it would be virtually impossible because one could not distinguish so clearly between the old and the new electors. English county electorates before reform were enormous compared to those in Scotland, and the Reform Act did not alter their size or occupational composition to anything like the extent that occurred north of the border (8). In Clackmannan all but fifteen of the 491 electors on the 1832 register had qualified for the first time under the provisions of the Scottish Act. It is therefore possible and of some interest to ask what kinds of men obtained the vote in the county of Clackmannan in 1832 in so far as that can be guaged from their listed occupations. And we have the further advantage of being able to study how they cast their votes at the first election.

Both candidates belonged to prominent local families and had previously ivpri-.si'nli'd one or other of the counties. Admiral Charles Adam (1780-1853)

willi influential family and political connections had made a successful career in the navy. He was the second son of the distinguished lawyer and political associate of Charles James Fox, William Adam of Blairadam in Kinross-shire. George Keith Elphinstone, Admiral Viscount Keith, who died in 1823, was his uncle and patron. He had entered the navy when he was ten, obtained a captaincy before he was nineteen, served in various stations during the French Revolutionary and Napoleonic Wars, and afterwards for several years commanded the royal yacht (9). His political position in December 1832 was strong. He had been elected to the house of commons as member for Kinross-shire in May 1831, so he could claim some credit for the passing of the reform legislation. His family was politically the most influential in Kinross-shire; he was supported by the Abercrombies, cousins of the conservative candidate, but the leading Whig family in the county of Clackmannan; and the trustees of his late uncle, Viscount Keith, held the estate of Tulliallan and were the superiors of the town of Kincardine (10), whose inclusion in the county was an undoubted gain to the whig cause.

Robert Bruce of Kennet (1795-1864) was the most important resident landed proprietor and colliery owner in the parish of Clackmannan. During the French wars he had served in the Grenadier Guards, as an ensign in the Peninsula and as a captain at Waterloo where he was wounded. He remained in the army for almost ten years after the war, then sold out in 1824. From 1820-24 he represented Clackmannan in parliament but he gave up politics at about the same time he left the army, apparently to settle down, marry, and manage his estate (11).

Nomination of the candidates took place on 20 December at Dollar where several processions of Adam supporters converged with bands playing and flags and banners flying. A line of carriages conveyed more supporters; one carriage from Alloa even had a boat slung on it; and an immense flag was brought from Kincardine. The enthusiastic Adam supporters milled around the hustings, many with placards inscribed Adam and Reform' in their hats. Bruce arrived with one band and a small party of conservative friends to be met with groans and hisses. Almost the entire crowd was for Adam though twenty to thirty of Bruce's colliers had been brought along to give him support and to interrupt the admiral (12). The poll was held over the next two days at Alloa and Kinross, resulting in an overwhelming victory for Adam. On 24 December the processions of exhuberant reformers returned to Dollar for the formal declaration of the result and to chair the new member (13).

Who were the electors for the county of Clackmannan in December 1832? A few, referred to as 'old freeholders', had been qualified to vote under the restricted and complex franchise that existed before the passing of the Reform Act. They were allowed to retain their votes for their own lifetimes, but many never exercised the right. On the Clackmannan roll in 1832 there were 15 'old freeholders', of whom seven did not vote. The majority of electors had been enrolled for the first time under the franchise provisions of the new legislation at the registration court convened by the sheriff at Alloa in the autumn of 1832. The new electors qualified mostly as proprietors or

tenants. Proprietors of subjects with an annual value of £10 which could be land, houses, business premises, and other forms of property such as feu-duties, were entitled to vote. They included landowners with hundreds of acres and small village proprietors who qualified on a house and garden valued close to the minimum requirement and who consequently were often referred to with disdain as the 'ten-pounders'. Most who qualified as tenants were farmers; on a long lease of 57 years or more they could qualify on holdings with an annual value of £10; on a shorter lease of at least 19 years the required annual value was £50; in addition a tenant with no lease but who had been in actual personal occupancy of the land for twelve months and paid a rent of £50 also qualified for a vote. Some men described as 'farmers' on the roll were proprietors cultivating their own land; and some 'proprietors' were actually owner-occupying farmers. Ministers of the Church of Scotland generally qualified as liferent proprietors or occupants of the manse and glebe, and parish schoolmasters on a similar basis. There was uncertainty at the first registration courts over whether ministers of dissenting congregations enjoyed the same right to the franchise as their counterparts in the established church; in 1832 the Reverend William Fraser, minister of the Second Associate Congregation in Alloa, had his claim rejected initially but was admitted by the court of appeal (14).

The 491 electors were a tiny minority among the total population of almost 21,000 in the eight parishes; there was probably one elector for every nine or ten adult males (15). Nevertheless they were a diverse body, and the variety of occupations in the register conveys some impression of the surprising range of economic activities found in such a small area. Clackmannan had some of the best arable farming in the country, on the carseland along the shores of the Forth and in the valley of the Devon; and sheep were raised on the hill pastures of the Ochils. Yet Clackmannan had the least agricultural electorate of all the counties for which early registers have been found. Only 114 of the 491 electors described themselves as farmers (23%) and in half the parishes they were less than 15% of the registered voters. Even if farmers are grouped with the 'old freeholders, landed proprietors and military and naval officers, only a third of the constituency (164) is accounted for. Of the remaining two-thirds the majority, to a greater extent than in most counties, were employed in activities other than farming, though not necessarily unconnected with the land: coal and iron mining, the manufacture of woollen textiles, pig-iron, glassware, bricks and tiles, ale, whisky and leather, the bleaching of linen and the milling of grains; and still of considerable importance there were the mercantile, shipping and shipbuilding interests of Alloa and Kincardine, the main centres of trade and population in the county.

Many of the non-agricultural electors were in occupations common to most counties. There was a small group of 'professionals': eight ministers of religion, three physicians, four surgeons, three writers, two advocates and seven schoolmasters or teachers. Over one in ten of the electors was in retail trade: twelve grocers and a spirit dealer, seven innkeepers, five bakers, seven fleshers, five tailors, twelve shoemakers, two booksellers and a linen draper. Another one in ten approximately was an artisanal worker, often in the building trades:

fourteen masons, twelve wrights (including two millwrights and a cartwright), two slaters and two builders (one of them in Glasgow); twelve smiths and a coppersmith, three cabinetmakers, three coopers, two saddlers and a printer (James Lothian himself). There were also 32 merchants and dealers, six of whom qualified in Alloa were actually in business in Leith or Edinburgh. Road transport was represented by nine carters, four carriers, a road surveyor and a tollkeeper. And there were three gardeners and six labourers. Finally in this group there were 34 feuars, that is generally small proprietors of ground on which they paid feu-duties to a superior. Mostly they were part of the town and village population with the same occupations as other 'ten-pounders', though these are often not stated in the registers.

Other electors represented the business interests that gave the county its particular identity. The manufacture of woollen blankets, tartans and shawls in the hillfoot villages of Alva, Menstrie and Tillicoultry, and in Alloa was represented by twelve manufacturers (including members of well-known firms such as the Archibalds and Patons) and ten weavers. The brewing of ale at Alloa and Cam bus and the distilling of whisky at Carsebridge. Cambus and Kilbagie were represented by six brewers, six distillers, five maltsters and two maltmen; and the milling of grains by William Henderson the tacksman of Cambus mills and two 'multurers', the tenants of mills at Alva and Newmill. Glassmaking was represented by seven of the proprietors of the Alloa Glassworks, all it seems resident in Edinburgh and none of them actually glass-manufacturers (16). The bleaching of linen was an important source of employment in Dollar where William and Robert Haig of Dollarfield operated a large bleachfield. But 8% of the entire electorate was connected with the shipping interests of Alloa and Kincardine. There were 30 shipowners (seven in Alloa, 23 in Kincardine), five shipmasters and two shipbuilders, as well as a boatman and a blockmaker. David Mason, whose designation was 'tacksman of boat-house', was master of the Alloa ferry.; and John Martin, was the 'agent', for the Marine Insurance Association **(17).** Only a small number of the new voters were engaged in the mining and iron industries; the best known being the mining engineer Robert Bald (18). Two described themselves as coal managers (including John Craich of the Alloa Coal Company), another as a coal grieve. A fourth was overseer at Carronshore part of the famous ironworks on the other side of the Forth; and Alexander Espie was a moulder at the Devon ironworks. The brick and tile works left no apparent mark in the register, but Alexander Bald, younger brother of Robert, is known to have been not simply a 'merchant' in Alloa as stated in the list of electors but a timber merchant and manufacturer of bricks **(19).** Some activities had solitary representatives, such as Alexander Paterson of the tannery at Tullibody. The presence of William Inglis a forester from Culross is a reminder of the extensive plantations of woodland in the county, that of James Coutts in Kincardine as the only salter suggests an industry in decline. Other electors included an auctioneer, a factor, a sheriff's officer and a messenger at arms, a potter from Dunmore across the Forth and Thomas Galloway a musician from Edinburgh.

A summary of the Clackmannan electors' occupations, about 65 in all, does convey a sense of the county's distinctively mixed economy. In none of the other counties for which registers have survived from the 1830s did farmers constitute such a small proportion of the electorate; and in few was there such a range of other economic activities represented on the roll. Nevertheless, the 491 electors were not representative of the whole population of the county; they were a minority among adult males and no women were enfranchised. Even in most of the occupations listed in the register those who qualified for a vote were the exceptions, as one can see from the census of 1841 which for the first time tabulated occupations (20). Despite a decade's growth in population, and the limitation that the table for Clackmannan does not include the attached parishes, the evidence is adequate for a general assessment. The majority of farmers, manufacturers, merchants, shipowners, distillers and physicians appear to have been enrolled, but among artisans, retail traders, carriers and carters the proportion enfranchised was much smaller. Adult males in the narrowly defined county in 1841 included 33 bakers, 38 grocers, 81 tailors, 145 boot and shoemakers, 168 carpenters, joiners and wrights, 106 masons, 102 smiths, and 64 carriers and carters, many more in each case than the number on the register from all eight parishes in 1832. Moreover, there were large bodies of workers who were scarcely represented if at all. In 1841 there were 1,013 general and agricultural labourers and 461 coal miners in the county. Among the 1832 electors there were six labourers and no coalminers.

What was significant about the labourers was not their occupation but their personal circumstances. It is impossible to say how each one of them acquired his qualifying property, by inheritance, purchase or marriage. The crucial point was that out of several hundred labourers in the county they were proprietors of sufficient property to qualify as electors. The franchise provisions were restrictive but they had the effect that any man who possessed the necessary property qualification could be enrolled irrespective of his occupation, and in a county like Clackmannan with its diverse economy that meant that men from a wide variety of occupations became electors, though the small numbers enrolled in many trades suggest that those who did qualify were more likely to be employers than employees. Possession of the minimum qualification was the lowest common denominator among the electors; beyond that they were a small but assorted collection of individuals. Consequently a study of the register enables us to form an idea of who was enfranchised in one particular county in 1832 and provides a corrective to generalisations about the county electorate created by the Reform Act.

At the election in December 1832 Adam received more than two-thirds of the votes cast in Clackmannan and four-fifths of those in Kinross, which gave him a comfortable victory by *527* to 196 (21). From the register one can examine the bases of support in Clackmannan for the two candidates, and even identify a number of apparent patterns in the voting, but it must be stated at the outset that explaining these patterns is largely a matter of speculation. Adam and Bruce shared the votes of old freeholders, proprietors and farmers fairly

evenly, while the shipping interest, merchants, manufacturers, village feuars, retail traders, artisans, carters, carriers and labourers were overwhelmingly for Adam (see Appendix for details). On closer examination more specific differences can be seen. Adam had the backing of most shipowners — 22 voted for him, only two for Bruce - but his support was concentrated in Kincardine; of the seven shipowners in Alloa only three gave Adam their votes, one opposed him and three did not vote. The textile manufacturers voted unanimously for Adam; and there was a clear majority for him among merchants in spite of some opposition in Alloa. Artisans and craftsmen including shoemakers, weavers and coopers were among Adam's strongest supporters, voting for him by 59-11, with no more than three neutral, but grocers, bakers and fleshers voted only 15-8 in his favour. The drink producers were split; three brewers and three maltsters in Alloa parish voted for Bruce while five distillers, the other three Alloa brewers and a maltster in Tulliallan supported Adam. The number of individuals in each professional occupation was small but the patterns in their voting are interesting. The three physicians supported Bruce, but the two surgeons who voted preferred Adam. Of five lawyers only one, a writer from Dunblane, voted for the admiral, though schoolteachers polled five to two in his favour. None of the parish clergy of the established church supported Adam. Two voted for Bruce (the Reverend Dr Andrew Mylne, the minister of Dollar and principal of the Dollar Institution, and the Rev. James Smith, Alva), three like many of their colleagues in other counties chose not to vote (the Rev. Peter Brotherstone, Alloa, the Rev. Henry Anderson, Tillicoultry, and the Rev. John Balfour, Culross), and the four others were not enrolled. Adam's only clerical supporters were two dissenting ministers (the Rev. William Anderson, minister of the Relief Church in Blairlogie, and the Rev. William Fraser, minister of the Second Associate Congregation in Alloa); a third, the Rev. Patrick Comrie from Penicuik in Midlothian, did not go to the poll. Adam did however receive the vote of a retired preacher named Thomas Bell.

The following table shows the breakdown of Adam's and Bruce's votes according to the parish in which the electors were qualified, including the number who did not vote.

Table 1 Voters by parishes

	Adam	Bruce	DNV	Total
Alloa	102	36	35	173
Clackmannan	19	35	6	60
Dollar	21	8	7	36
Logie	25	18	8	51
Tillicoultry	17	7	3	27
Alva	13	11	3	27
Culross	11	15	7	33
Tulliallan	76	3	5	84
Total	284	133	74	491

Adam received most of the votes in six parishes, but Tulliallan contributed almost half his majority in the county so decided was the support of

electors, both in the town of Kincardine and among the farmers of the parish. He also obtained many votes in Alloa, but there is evidence there of a determined conservative minority (including as has been seen a number of brewers, maltsters and merchants) and a surprisingly large number of electors did not vote at all; in fact almost half of all non-voters were in Alloa, which may indicate the effect of pressures on electors in the town and in the landward areas of the parish. Adam polled well too in Dollar and Tillicoultry, but in Alva, and Logic where 15 of Bruce's 18 supporters were farmers, the contest was closer. Bruce had a majority in Clackmannan where his own estate was situated, and in Culross where, because the town electors were separately represented in the Stirling district of burghs, the electorate was composed chiefly of landowners and farmers.

The unusual character of the county is again shown by the fact that voters in the towns and larger villages outnumbered other voters by 270 to 221. If places with ten or more electors are extracted from the parishes, as in Table 2, three points emerge: that Adam was dominant in the towns and villages with the exception of Clackmannan; that Bruce obtained a majority of his votes in the rural areas, where the contest was more even; and that in several places support for one or other of the candidates was unanimous or or very close to it.

Table 2 Towns and larger villages voters

	Adam	Bruce	DNV	Total
Alloa	72	23	19	114
Tullibody	8	0	2	10
C1ackmannan	0	12	0	12
Sauchie	11	2	0	131
TilIicoultry	13	2	1	16
Dollar	12	4	1	17
Alva	13	5	3	21
Kincardine	60	2	5	67
Total	189	50	31	270
Elsewhere	95	83	43	221

The probable explanation of the patterns of voting revealed in the table lies in the inter-play of the social, economic, individual and community pressures that figured so prominently in the local politics of this period: not merely the supposed influence of wealthy landowners on those townspeople who sought to gain or retain their custom, but also the influence on electors of opinion (including religious opinion) within the community, of relatives, friends, workmates and customers, most of them not qualified to vote but capable of exerting considerable pressure within a small village or town. Only two men from Kincardine were prepared publically to declare their support for Bruce at the poll, an act which must have taken both political conviction and fortitude. There is evidence of the strength of political feeling in Kincardine, where the electors were proud of their solidarity compared with Alloa. At a public meeting shortly before the election the Kincardine electors, it was reported, declared

their determination to resist "the little knot of Conservatives in Alloa" who had threatened voters that they would suffer in their pockets if they supported Adam and reform. The meeting declared they would refuse to buy 'anti-whisky', 'anti-ale' and 'anti-bread' produced by their opponents in Alloa (22). The solidarity of Kincardine was felt throughout the parish, even the farmers voted 10-1 for Adam.

The most obvious contrast in voting is that between Clackmannan town and Sauchie, the two main centres of population in the parish. It is probably not surprising that in Clackmannan, and Kennet village where he was the resident proprietor, Bruce received the votes of men in occupations which elsewhere were almost unanimous for Adam: a wright, a mason and a blacksmith, two grocers, a baker and a tailor and the only one of twelve shoemakers to vote for Bruce. The electors' occupations by themselves cannot explain the differences in voting behaviour but it seems likely that where the electors lived and worked did affect how they voted. The two places were not so very different and only two miles apart; both were inhabited principally by colliers and their families; and the main estates around them were owned by conservative proprietors. The difference would seem to be that Bruce was the most important conservative proprietor generally in residence, which often enabled a landowner to develop an influential relationship with local people through his economic and personal involvement with the community as employer, customer and patron. Regrettably for Bruce his influence did not extend far beyond Kennet village and the town of Clackmannan, and landowners were not the only people to exercise influence, which took many forms ranging from the non-electors' withdrawal of custom from a shopkeeper or publican to what one contemporary described as the 'clamour of neighbours' (23). And in spite of whig claims in 1832 the deployment of various kinds of pressure on the voters was not confined to any one party. At the nomination in Dollar Adam denied allegations that the Abercromby and Adam families were out to dominate the electors (24). He asserted, "The Abercromby and Adam cause is powerful because it is the cause of Reform", which after the months of political excitement that accompanied the passage of the reform bills was undeniable, and that very enthusiasm for parliamentary reform as the good cause created conditions in which it was extremely difficult to hold opposing views openly in a town such as Kincardine, or even in villages like Sauchie or Tullibody.

Without denying the significance of the reform and associated issues one can acknowledge the existence and interplay of those pressures and influences which may help us to understand the patterns of voting discernible in different parts of the county. They may also explain the surprisingly large number of electors in Clackmannan and other counties who did not vote in 1832; 15% in Clackmannan, 21% in Kinross. Virtually all the electors were newly enfranchised; only a few months earlier they had gone through an elaborate process to establish their claims to be enrolled. Yet in almost every county contested at the first general election from one in eight to one in five of the registered electors did not vote. Some had died before the election, others were

unavoidably kept from the polls, but others decided to remain neutral, or were persuaded that it was in their best interests to do so. 74 of the 491 electors in Clackmannan did not vote; among them four of the eight ministers, three out of seven shipowners in Alloa, and nearly one in five farmers.

It was the farmers who, many contemporaries believed, were particularly exposed to pressure and influence, and there is evidence to suggest that many voted for the candidate favoured by their landlord, or remained neutral. It is not easy to demonstrate this conclusively and impossible to explain the voting behaviour of any particular individual. The farmers voted as shown in **Table** 3. The final column shows the percentage of farmers among the parish electors.

Table 3 Voting of farmers

	Adam	Bruce	DNV	Total	% in Parish
Alloa	8	2	7	17	9.8
Clackmannan	4	13	5	22	36.7
Logie	9	15	3	27	53.0
Dollar	3	0	2	5	14.7
Tillicoultry	2	4	2	8	29.6
Alva	1	3	0	4	14.8
Culross	9	9	2	20	64.5
Tulliallan	10	1	0	11	13.1
Total	46	47	21	114	23,2

Because the numbers are small and the evidence circumstantial where it exists at all one can only speculate about tenants' voting and how it actually related to the political inclinations of their landlords. Many tenants will have held their own views for or against the reform issue or concerning the alleged threat posed to agricultural protection by the whig government. Some will have been religious dissenters. One cannot say that these views were unimportant or had no bearing on how tenants voted, or in some instances did not vote.

In some parishes the voting of tenant farmers closely matched the known political preferences of the principal landowners (25). For example, in Alva James johnstone was the only major proprietor; the four enrolled farmers may all have been his tenants; three voted with Johnstone in support of Bruce, while the fourth, who voted for Adam, may have enjoyed some independence being qualified as the proprietor of two houses (26). The influence of Bruce and other tory proprietors appears to be reflected in the 13-4 vote in his favour in the parish of Clackmannan though five farmers did not vote. Farmers identifiable as tenants on the estates of Sauchie (Earl of Mansfield), Forest (Earl of Mar) and Kennet voted 9-1 for Bruce. On the other hand two who held their land from the whig Lord Dundas voted for Adam. In Tillicoultry where two principal landowners were Bruce supporters, Johnstone of Alva again and Robert Wardlaw-Ramsay, all one

can say is that the farmers' vote of 4-2 for Bruce with two neutral may reflect their influence in the parish.

The whigs too had parishes where they obtained strong support from the tenants. In Tulliallan the leading proprietors were the trustees for Viscount Keith, Adam's uncle. When allowance is made for some influence from the town of Kincardine and its politics on the landward areas of the parish it is not surprising that the farmers voted 10-1 for Adam. In Dollar, where the only three farmers to vote polled for Adam, it seems reform principles were well represented among the landowners. John McArthur Moir of Hillfoot and Robert Haig of Dollarfield voted for Adam and attended a dinner in his honour at Dollar in January 1833 (27). William Clark of Dollarbeg, who was an 'old freeholder' and sheriff-substitute for the county, did not vote at the 1832 election but he was present at a dinner for Adam held at Alloa in December 1833 on the anniversary of his election; and James Erskine of Aberdona, another landowner in the parish though not enrolled at the first election, also attended the Alloa dinner (28). None of these was the largest landowner in the parish; that was the Globe Insurance Company, holding what had been the property of Craufurd Tait of Harviestoun but no evidence has emerged regarding its political influence if any (29).

Sometimes the evidence points to probable cross-currents of influence. In the parish of Alloa the small group of farmers was divided. Those who polled voted 8-2 for Adam, but seven others did not vote at all. Lord Abercromby was the leading whig landowner with a mansion house at Tullibody. His influence was no doubt enhanced by its being deployed in the popular cause of reform; but rival interests in the town of Alloa may have sent conflicting messages out to the farms; and the largest estate in the parish was that of the Earl of Mar whose family had been closely associated with the development of Alloa and who does not appear to have been a friend of reform.

It is unfortunately in Logie and Culross where most of the voters were farmers that it is most difficult to identify significant landlord-tenant connections. In spite of Lord Abercromby being the principal landowner in Logie farmers voted 15-9 for Robert Bruce. Of the fifteen who voted for Bruce three were tenants of James Johnstone of Alva, five farmed at Blackgrange (Patrick Stirling of Blackgrange was enrolled in 1834) and three at Gogar, which may indicate the source of some influence. In Culross, where nine farmers voted for each candidate with only two abstentions, the chief tory influence would have come from Valleyfield House, seat of Sir Robert Preston, one-time associate of Pitt; certainly William Hogg, the factor at Valleyfield, voted for Bruce. One tory proprietor on the register was Robert Bruce Dundas of Blair House; he and two of his tenants voted for Bruce, whereas Robert Clark of Comrie and his tenant who farmed the Mains of Comrie voted for Adam, but as in other districts of the county without more precise information linking tenants and landlords it is difficult to draw conclusions beyond the general perception that for whatever reason tenants did tend to vote with their landlords and may have abstained rather than oppose them. Because of the county's distinctive character landlord influence over their tenants had ultimately little effect on the outcome of the 1832 election in Clackmannan; farmers made up less than a quarter of the electorate and their votes were evenly shared by the two candidates. It was the

electors of Alloa, Kincardine and the hillfoot villages, with their diverse range of occupations, who were most numerous and who voted overwhelmingly for Adam. However, in Kinross-shire, Adam's own territorial base, the electorate was much more agricultural than in Clackmannan: 43% of the 391 electors were farmers (30), and as Adam obtained 243 votes to Bruce's 63 he must have received a considerable share of the farmers' votes, in addition to those of electors in the towns of Kinross and Milnathort. The combination of support in the two counties guaranteed Adam's success in 1832 and provided a strong base for the liberal party there for several decades. Adam defeated Bruce again at the 1835 election, though by a reduced margin 447-285 (31). That was the last occasion on which a conservative challenged the liberals' control of Clackmannan and Kinross until 1874 when J.R. Haig opposed the sitting member William Patrick Adam, the admiral's son, who at the age of nine had accompanied his father to the declaration of the poll in Dollar in 1832 and himself represented the counties from 1859 to 1880.

Appendix

	Adam	Bruce	DNV	Total
Old Freeholder	3	5	7	15
Proprietor	14	11	6	31
Officer Mill Naval	2	2		4
Farmer	46	47	21	114
Feuar	22	8	4	34
Minister (Ch of Se)		2	3	5
Minister (Dissent)	2		1	3
Preacher	1			1
Physician		3		3
Surgeon	2		2	4
Writer	1	2		3
Advocate		1	1	2
Schoolmaster	5	2		7
Innkeeper	4	2	1	7
Spirit Dealer		1		1
Grocer	8	3	1	12
Baker	3	2		5
Flesher	4	3		7
Tailor	4	1		5
Shoemaker	11	1		12
Bookseller	1		1	2
Linendraper	1			1
Mason	10	3	1	14
Wright	7	2		9
Millwright	2			2
Cartwright	1			1
Slater	2			2
Builder	1	1		2
Smith	9	2	1	12

Coppersmith	1			1
Cabinet maker	3			3
Manufacturer	13			13
Weaver	9	1		10
BJeacher	1		1	2
Distiller	5		1	6
Brewer	3	3		6
Maltster	1	3	1	5
Maltman	1		1	2
Cooper	1	1	1	3
Merchant	19	5	4	28
Corn Merchant/Dealer	1	1		2
Wood Merchant	1			1
Cattle Dealer	1			1
Carter	7	1	1	9
Carrier	4			4
Gardener	1		2	3
Labourer	5	1		6
Shipowner (Alloa)	3	1	3	7
Shipowner (Kincardine)	19	1	3	23
Shipmaster	2	1	2	5
Shipbuilder	1		1	2
Master of Ferry	1			1
Boatman	1			1
Blockmaker	1			1
Coal Manager	2			2
Mining Engineer	1			1
Coal Grieve	1			1
Overseer	1			1
Other*	9	9	3	21
T0TAL	284	133	74	491

"Other Occupations—

Adam — an agent, a potter, a printer, a road contractor, a tollkeeper, a saddler, a salter, a sawyer and a tanner.

Bruce- an auctioneer, a factor, a messenger at arms, a sheriff's officer, a moulder, a multurer, a forester, a musician and the manager at Kennetpans.

Did Not Vote - a saddler, a multurer and the tacksman Cambus Mills

NOTES AND REFERENCES

1. The author's copy. A reprint of the register has been published, May 1993, Clackmannann District Library, Alloa, 24pp.
2. J. Lothian, Alloa and Its Environs 2nd edition, Alloa, 1861, p.12.
3. The eight counties are Aberdeen, Fife, Forfar, Kincardine, Perth, Midlothian, Roxburgh and Stirling; the half is Orkney. The Sheriff's Manuscript Registers from 1832 have been found for Clackmannan, Inverness, Kinross, Kirkcudbright, Peebles, Ross and Cromarty, the Hawick district of Roxburgh, Selkirk, Stirling and Wigtown. It was the County *Voters Registration (Scotland) Act* of 1861 that first provided for the publication of the registers of county electors. The British Library holds runs of printed registers for several Scottish counties from 1863.
4. The Ayrshire pollbook does not contain the names of electors who did not vote; the famous *Red and Black List* for Renfrewshire includes all electors and could therefore be added to the list in note (3).

5. John L. Carvel, The Alloa Glass Work. An Account of Its Development Since 1750. (published privately, 1953) p. 17. It is an indication of how poorly the Sheriff's Register for Clackmannan was maintained that the seven were still on the register on their original qualifications in 1851, 17 years after they had ceased to own the glass works. See SC64/63/31. In fact 30 of the 36 electors omitted from the printed list had still not been expunged in 1851, including Sir Robert Preston of Valleyfield who had died in May 1834 at the age of 94.
6. Hansard, third series, vol.3, c.322, 9 March 1831, and vol.12, cc.1206-7, 21 May 1832. A reply to Murray appeared in the whig *Scotsman*, 2 June 1832, p.3 c.4. See also Michael Dyer, " 'Mere detail and Machinery', The Great Reform Act and the effects of redistribution on Scottish representation, 1832-1868", *The Scottish Historical Review* LXII, 1983, pp. 21-3
7. The Manuscript Register for Kinross-shire (CC2/1/6/3) is held in the Perth and Kinross District Archives at the Sandeman Library, Perth. The numbers of 'old freeholders' are taken from Henry Cockburn's anonymous article in the *Edinburgh Review* LII, 1830, p. 210.
8. Estimates for the increase in the English county electorate range from only 50% to 80%.
9. See The Dictionary of National Biography Vol. I, p.85 for his later career.
10. New Statistical Account of Scotland, 1845, X, Perthshire, pp. 868, 871.
11. M.F Conolly, Biographical Dictionary of Eminent Men of Fife, Cupar, 1866, pp.88-90.
12. Scotsman, *22* Dec. 1832, p.3 c.5-6.
13. Scotsman, *26* Dec. 1832, p.3 c.2.
14. Recorded in the Sheriff's Register, SC64/63(MM)/27.
15. Calculated from parish details in the 1831 Census, *Parliamentary Papers* 1831 (348) xviii, pp.377, 398-9, 404.
16. They were some of the partners who owned the glassworks from 1825 until 1834. Archibald Anderson and Robert Thomson were merchants, Peter Brown a linendraper, James Campbell a major in the Army, John Cunningham an advocate, John Fletcher McFarlane a surgeon, and James McDonald a manufacturer.
17. Dunfermline *Almanac* 1835, pp.55, 51.
18. Robert Bald (1776-1861), author of A General View of the Coal Trade in Scotland (Edinburgh, 1812).
19. His literary interests and associations earned him an entry in the Dictionary of National Biography, Vol. I, p.948.
20. 1841 Census, Occupation Abstract, part II Scotland, Parliamentary Papers, 1844 (588) xxvii 385, pp. 15-17.
21. F.W.S. Craig, British Parliamentary Election Results 1832-1885 (London, 1977), p.579.
22. *Scotsman*, 19 Dec. 1832 p.2 c.4.
23. Donald Home WS to Duke of Buccleuch 15 Nov. 1839, Scottish Record Office, GD224/582/7.
24. *Scotsman, 26* Dec. 1832 p.3 c.2.
25. Sources for this section, in addition to the register, include the New Statistical Account: the 1802 Valuation Roll for Clackmannan, Scottish Record Office E901/9/4, which was of limited value; and the 1835 Valuation Roll for Perthshire, E901/26/4.
26. James Johnstone of Alva (1801-88) later changed his politics; from 1851 to 1857 he was liberal M.P. for the counties.
27. *Scotsman*, 19 Jan. 1833 p.3 c.l.
28. *Scotsman*, 28 Dec. 1833 p.3 c.3.
29. New Statistical Account VIII, Clackmannan, pp.101, 111. Calculated from the Register of Electors for Kinross-shire; note (7)
30. Craig, ibid 21 above pp.579-80.

PEOPLE OF THE FORTH (7)

ALLAN MAIR - THE LAST PERSON TO BE EXECUTED IN STIRLING

Craig Mair

October 4th 1993 marks the 150th anniversary of the last execution in Stirling, when an old man called Allan Mair was publicly hanged in Broad Street for murder. Nowadays Mair's story has become part of Stirling's tourist industry — its summer 'ghost walks' have revived an interest in this, and may have pointed some local historians towards a 1987 Community Heritage booklet called *'Worthies — Curious Characters of Old Stirling'*, which contains a section on Mair. Unfortunately both the booklet and the ghost walk script derive in turn from William Drysdale's book *'Old Faces, Old Places and Old Stories of Stirling'* (1898), and before that from local press accounts of the trial and execution, neither wholly accurate. Both the *Stirling Observer* and the *Stirling Journal and Advertiser* carried brief biographies of Mair with the reports of his execution, but these depended too much on unsubstantiated recollections of Mair's neighbours and memories of Mair himself (then 83 or 84 years old and almost certainly senile) - but who *really* was he? And why was he the *last* person to be hanged locally?

Little is known of Allan Mair before his death in 1843. Apart from the court records of his arrest and trial, there are references to him in the Muiravonside parish records for 1792 (when he was accused of fathering an illegitimate child) and for 1816 (when he was listed as a heritor in the parish). A petition survives in the *Court of Session Records* from 1808 when he applied for poor relief, and in the records of Services *of Heirs* for 1808 he inherited some of his uncle's money. He is known to have been a frequent resorter to the courts but no definite records have survived. As an indweller in the County of Stirling, his first legal steps would probably have been taken at Falkirk. Unfortunately the *Falkirk Sheriff Court Records* go back only to 1834, but there are no records of any *Allan* Mair in, for example, the *Act Books, Minute Books, Register of Decrees, Register of Arrestments* or Small Debt Court Books from 1834 onwards. If he pursued cases further he would have gone to Edinburgh, where surviving Court *of Session Records* date back to well before Mair's lifetime. However, there are again no positive records of this particular Mair. Two cases which, from the indexes of pursuers, sound the most promising, have both been borrowed by legal clerks in the past and never returned - one concerns a case in 1798 and another is dated 1838. They now either lie lost in dusty legal boxes somewhere in Edinburgh, or more probably have been cleared out long ago. So there are few definite reference points in the story to help pinpoint the landmarks in Allan Mair's life.

We do know from the papers of 1808 that he was the son of William Mair of Hardhill, near Bathgate - perhaps where Harthill is today. He also had at least two uncles - John Mair, an innkeeper at Bathgate, and Thomas Mair of Pottishaw, *a* Bathgate merchant and banker. They were

perhaps also related to Patrick Mair, a smith at Stonehill near Bathgate, who died in 1759. According to the Stirling press of 1843, Allan Mair was probably born in 1759 at Blackstone farm in the parish of Muiravonside, at the extreme eastern end of Stirlingshire. However no mention exists in Muiravonside, Trophichen or Bathgate parish records of his baptism. His father is said to have died five weeks before the birth, but there is no record of any burial in these local parish mortcloth accounts or records of burials, although some are missing for this period. His mother (whose name is not known) is later supposed to have remarried locally but evidence for this is also weak - one possibility is a Sarah Miar (a registrar's misprint?) who married William Callander at Muiravonside in 1770. The records of marriages for Bathgate and Torphichen parishes are missing before 1808 and so are of no help.

Allan Mair evidently did not like his step-father, for at a young age (one newspaper account of his trial says nine, another twelve) he ran away from home to England. According to newspapers he worked for 25 years as a drover until, around 1793, he was hired to convey 160 sheep to Lord Selkirk's Red River colony in Canada - already a problem of accuracy arises, for this colony was not founded until 1811! From there he is supposed to have drifted to New York where he was employed by a shipping agent called Lloyd as a grain-buyer, then as a cargo supervisor on shipping from New York to Kingston, Jamaica. Heresay has it that he was also involved in piracy, but that may only be rumour - there would have been plenty of that after his death.

The parish records reveal another story, however. In March 1792 a local girl called Jean Black announced that she was pregnant by Allan Mair - probably the same Jean Black christened at Muiravonside in August 1774, and who would therefore have been seventeen. Black and Mair were summoned to the Kirk Session, where Mair strenuously denied the accusation. Each rejected the other's story so vehemently that the matter was referred to Linlithgow Presbytery. Here they both continued to hold to their respective stories and in April the case was sent back to Muiravonside Kirk Session. In May 1792 Jean Black gave birth to a girl who was subsequently christened Mary in July. Thereafter the young mother was again summoned to the Session, but in spite of all the pressure put on her she continued to claim that Allan Mair was the baby's father. The girl does not emerge blameless from the story, however. When cross-examined she admitted travelling on one occasion with Mair and a female friend to Edinburgh, where they all shared a room in the Grassmarket. She claimed Allan tried to molest her that night, but he denied it and threatened to call witnesses who would testify that she was the one with loose morals. In the end the case seems to have *fizzled* out with both parties firmly sticking to their stories. Does it reveal Allan Mair as the same compulsive, convincing liar he was later, when charged with murder? Or was he innocent? Local folk are said to have claimed later that Jean Black's illegitimate daughter grew up with a remarkable likeness to Allan Mair, and that 'he never did weel after that' - doubtless interpreted as divine retribution for his sins. It may also explain why Mair is supposed to have left for Canada in 1793.

Around 1800 he returned to Scotland, a tall, burly man with money in his pockets and striking long hair which he wore like a sailor in a pony-tail. With his elderly mother he rented the small farm of Heatherstacks, near the present village of Standburn and within sight of his birthplace at Blackstone. The house (confusedly close to another called Heathersfone) is barely even a pile of rubble now, but it stood on a high, windswept, rain-lashed moorland ridge and can never have been easy or very profitable to work. For a time, while he still had savings earned in America, local folk knew him as a larger-than-life character at the Linlithgow and Falkirk markets. However he was meanwhile losing a protracted law-suit for inheritance of his step-father's farm. When this failed he seems to have turned against the world to become a sour, cantankerous man "like an ogre in his castle", as the *Stirling Observer* put it.

In 1808, while in the process of contesting the will of his uncle, he applied to the Court of Session to be placed on the Poor Roll - a request supported by the Muiravonside parish minister and two elders, who certified that "the bearer Allan Mair, lawful heir of Mr Thomas Mair in Bathgate, resides in this Parish. He is in such indigent circumstances as to render him incapable of prosecuting his rights to the money and effects of his uncle." Later that year the Court of Session found in Allan Mair's favour and his circumstances presumably improved. In 1816, for example, he was listed as a heritor in Muiravonside (Allan Mair of Blacksten), with a seat in the second pew of the south-west gallery of the church. He may only have been a sub-tenant, however, for Cornelius Bryce, also of 'Blacksten', had five seats in a pew much closer to the pulpit.

At about this time, when he was in his fifties, Allan Mair seems to have begun cohabiting (there is no surviving record of a marriage) with a widow called Mary Fletcher, who was one year older than Mair. She joined him at the farm and seems to have lived with him until he killed her in 1843. Even at the beginning of this relationship he cannot have been an easy man to live with. He seems often to have been involved in law suits, most of which he evidently lost, and which increasingly made him more violent, embittered and unpopular than ever. One account says: "His temper became such that those who trespassed upon his farm at once ran if they saw the auld deil and his dug . . . ". Sometimes he did a bit of carting, taking peats into Falkirk or to the distillery at Linlithgow, but this became harder as he aged. Then as more law-suits failed (at least one because, it was said, he fraudulently invented witnesses who were subsequently proved to have been long dead), the couple descended into poverty. Neighbours said they often heard him beating his wife, blaming her for his misfortunes. One account says that this went on, almost daily and behind locked doors, for years.

In May 1842 (by which time Mair must have been 83 years old, and his wife 84) the couple were evicted from Heatherstacks by their landlord Alexander Nimmo. He testified later that he did so because Mair "cohabited with his step daughter who was a thief (and) I found great fault with him". In any case, though Mair still kept a horse for carting work, he could clearly no longer work the

farm at this age. Mary Fletcher was also infirm, "old and much bent in her figure" as a neighbour later said. In spite of his being a detested figure in the parish - an irritable, foul-mouthed, bullying old man whom nobody liked -the local kirk-session provided the aged couple with a small allowance of oatmeal (two pecks weekly) and offered easier accommodation in a church-owned two-roomed cottage called Candie-end or Curshort, very close to Heatherstacks farm. In addition, Miss Wilson of Greenknowe sent her manservant almost daily with tea, sago and other provisions and paid a local woman called Mary Inglis to call daily at the house to help Mary Fletcher out of bed and to help dress and clean her. Clearly there was a lot of local sympathy for the old woman who lived with Allan Mair.

Although now 'on the parish' Mair still squandered what money he had on litigation. In 1842 he is said to have stumped off to the Sheriff Court in Falkirk, and from there to the Court of Session in Edinburgh where (according to the press) he lost again. After his arrest, the police found legal documents lying everywhere in Mair's cottage. Like a gambler, he always seemed to hope that the next throw would take him out of the poverty of his old age. Sadly his common-law wife took the brunt of his anger. Neighbours often overheard him beating her, but those who tried to intervene were chased off with wild threats of violence and legal action. They knew he also kept the key to the meal-chest, and would only feed his wife when she became light-headed with hunger. Neighbours regularly fed the old woman with broth or tea when Mair was out, and many a time they saw the bruises and cuts she suffered. Once, for example, Mair attacked her with a spade, knocking her from her chair and continuing to beat her while she cried for help and neighbours came running.

In April 1843 Mary Fletcher's frailty worsened to the point where she was unable to get out of her box bed. Mary Inglis had sometimes to ask Allan Mair to help lift the old woman, so that she could be cleaned and the bed tidied. Mair obviously resented this deterioration and his violence grew. Later at the trial neighbour Helen Nimmo testified that he

> "always behaved very harshly to his wife and particularly so for the last three weeks, when she was unable to get out of bed. I have heard him swear he would throw her out at the door - that he would take her to the minister and leave her with him and that he would not be any longer plagued with her. I have heard him say that she had been four and twenty weeks a torment to him and he would be d~d if he would pass another week with her. At other times I have heard him d—n her to rise, and work her work like another woman . . . (etc)"

Neighbour Thomas Letham, who lived next door to Mair in the same building, added in his trial precognition that -

> "the disturbances in Mair's house continued from the day he came to Curshort (ie Candie End) to the day of his wife's death. He had her at bitter ill will. I have seen him frequently tread upon her designedly, and when she screamed out with pain he would d—n her to hold out of his road and pretend that he did not see her. He begrudged much

> in being obliged to go for a piece of coal or to bring in water, and it was on these occasions that he tried to stumble upon his wife, under the pretence of blindness . . .".

Eventually, Mair went too far and killed her. On the night of Sunday 14th May 1843 neighbours again heard the sounds of violence coming from within the cottage. They could hear female cries for mercy and the thud of heavy blows "like beating a carpet" as one said. Folk gathered outside the house, vainly trying to see through darkened windows. They heard the old woman cry out "Let me lie and die in peace, and don't strike me any more". Neighbour Helen Nimmo shouted through a window, urging Mair to "leave the poor creature alone". Thomas Letham plucked up courage to hammer on the door but later testified that Mair threatened to fire a gun at the door "and blow his brains out" if he didn't go away - several neighbours said that Mair did own a pistol, and some had even seen it. Helen Nimmo, still at the window and frightened that Mair would shoot at her, disguised her voice as a man and called out that she was the minister, to which the old man shouted back that "he did not care whether all the ministers and elders in the parish were there . . . .". Eventually, however, the blows and the cries subsided and the nervous neighbours went home.

In the morning anxious people called again at the house and this time they were admitted by the old man, now seemingly calm. They also found Mrs Man-lying in her box-bed, alive but terribly battered about the legs, unable to move one arm and with great gashes on her arms. The old woman's nightclothes were torn and bloody and there was blood on the walls of the box bed. They called for the local minister, but when he failed to appear someone sent to Polmont for Stirlingshire rural police constable William Gillespie, who arrived at about eight o'clock that evening. Even by flickering candle-light he was appalled at the severity of the injuries. When Gillespie asked who had done this, the old woman, unable to speak, simply pointed at her husband sitting by the fire.

Mair strongly denied the accusation. He claimed that neighbour Alexander Nimmo (who had previously evicted him from Heatherstacks farm and bore him a grudge) had climbed in by a ^bole' or small window to beat the old woman. He himself had run off in fright to hide on the moors all night. The constable found the bole to measure only 8V2 inches across and decided that a big burly man like Nimmo, who was in his fifties, could not have climbed in, to which Mair retorted that even an old, stiff man like himself could have done so. Mair was arrested and taken six miles to Falkirk Sheriff Court where he was charged with assault by Inspector William Rew. As he left the house, he did not even speak to or look back at his wife. That night several neighbouring women sat up with Mary Fletcher. In the middle of the night she pointed to the bed-end, where they found a blood-stained stick, still with fragments of skin congealed on it. Half an hour later at four in the morning she died, and at Falkirk the Procurator Fiscal's charge became one of murder. Mair was therefore moved to the county prison at Stirling - the building which is now the Tolbooth Restaurant - to await the autumn

Circuit Court on Wednesday 13th September at ten o'clock, Allan Mair, a grey-haired, tall but stooped old man, was brought into the Tolbooth courtroom for trial. He pleaded not guilty to the charge of murder and his agent Mr Logan lodged a defence of temporary insanity. A jury was duly balloted and an assortment of county tradesmen, merchants and landowners, some from as far afield as Denny, Alva and Kinross but none from around Muiravonside, was sworn in.

Other than the possibility of the accused's defence of insanity, it was as clear a murder case as Lord Moncrieff could ever have had to judge. A procession of neighbours recalled how Mair had regularly starved and beaten his wife, and how this had become worse in the three weeks before she died — although when they had seen the old woman that morning she was healthy and well. Constantly interrupted by denials, accusations and curses from Mair standing in the dock, they then recounted the events of that terrible night, and how they had found Mary Hetcher lying badly beaten when they called the next morning. Three doctors testified that she had died from being beaten with a blunt instrument. The bloodstained stick, a bloody nightshirt, bed cover, short gown and blood-saturated night-cap were produced as evidence and duly identified by witnesses. Not one person had anything good to say about Allan Mair. What of Mair's defence? The argument that Nimmo had broken in through a bole from the adjoining stable collapsed when both Constable Gillespie and Inspector Rew confirmed that the window was too small. Was Mair perhaps drunk, or insane, then? Neighbours testified that he had no history of drinking and was not drunk on the fateful night. The Procurator Fiscal stated that, when brought to Falkirk, Mair had been clear, even wily, when explaining about Nimmo entering by a window, and that in his opinion the accused was not insane and had not even been temporarily insane that night. A neighbouring servant girl said that Mair had never been unkind to her - the only witness to say anything in his defence (unless you count the police inspector who agreed that, although he had found powder, buckshot and a broken shotgun, he had not found any pistol in Mair's house). The hearing of evidence took almost twelve hours. The *Stirling Journal* reported that "during the whole of the trial (Mair) exhibited the greatest firmness, interrupting the witnesses more than once with interrogations, and appearing rather ill-natured when they contradicted him", but the case was clear - in the end the jury took only twenty minutes to find Allan Mair unanimously guilty of murder.

Placing the dreaded black cap on his head, Lord Moncrieff announced the sentence:

"to be taken from the bar to the prison of Stirling, there to be fed on bread and water only till Wednesday the 4th of October next, and upon that day, between the hours eight and ten o'clock in the morning, to be taken to the common place of execution in Stirling, there to be hanged by the neck upon a gibbet till you be dead; and thereafter your body to be buried within the precincts of the said prison. And may God Almighty, in his grace and goodness, have mercy on your immortal soul."

Unmoved, and with no sign of emotion, the old man was led from the court.

For three weeks Mair waited in a Tolbooth cell for his execution. In deference to his age the authorities did not use the condemned cell, with its thick iron bar to which prisoners awaiting execution were normally chained, but gave him the use of a larger room, which he shared with a constant guard (two men, who took it in turns night and day). He received visitors, including a step-daughter (who seemed to be drunk) and a step-grand-daughter (whose visit terribly upset him, prompting him to tears of anger against those witnesses who had spoken against him). The prison chaplain Reverend Stark, and several other local churchmen, visited almost daily to offer comfort or instruction from the scriptures but, though he sometimes listened attentively, their efforts according to the *Stirling Journal*

> "left but a slight impression on his mind, and he would eagerly turn from such topics to talk with all the garrulity of age concerning his former life, his trial, and the testimony of the witnesses. On these occasions he would generally give way to passionate bursts of grief, almost invariably succeeded by denunciations of the wrath of God on the heads of those who gave evidence at his trial; and rising up in bed, from which he seldom rose, he would clench his hand and vehemently declare that he was innocent of the murder of man, woman or child'.

Six days before his execution the death warrant was confirmed by post from Edinburgh to the Chief Magistrate of the burgh. On Monday October 2nd a large body of special constables (one account estimates as many as 100) was sworn in to help maintain public order during the execution. Still Mair protested his innocence and cursed those who had spoken against him. Indeed, as the *Stirling Observer* reported, his repeated condemnations of witnesses, judge and jury, and constantly repeated assertions of his innocence, began to persuade some visiting churchmen, not that he was innocent of the crime, but that he was "labouring under some mental hallucination, which induces him to believe that the murder was committed in some unaccountable manner, but not, at all events, by him; while others have come to the conclusion that he is so far gone in dotage, as not to be accountable for his actions". On his last night, attended by the Reverends Stark and Watson who stayed with him until 10 o'clock, he seemed quiet and resigned and yet every so often still made outbursts against the trial witnesses. Eventually he fell into a sleep, only to be woken at 2 am by the sound of night-workmen erecting the scaffold nearby in Broad Street. "O aye," he said, "they're putting up the gibbet. What a horrible thing to be hanged like a dog!" Then he fell back into a disturbed sleep, woken every hour by the chiming of the Tolbooth bell until roused by the guard at five o'clock. Just before six o'clock the Reverend Stark arrived with news that there was no last-minute reprieve in the morning post. He read some consoling bible passages, but Mair told him vehemently to "gang awa wi his tracts. He didna want to hear them." By then his mind must have been in a terrible turmoil of fear and anger, revenge and incomprehension.

At first he insisted on dressing for death in his own clothes, and was only with difficulty persuaded to put on prison uniform. Then he refused food, but accepted a glass of wine. He collected himself enough to bid farewell to Mr Campbell, the prison governor, and to thank him for the kindness with which he had been treated, but as the moment of truth approached he began to weep bitterly. At 8.12 am he was brought into the Court House, but by then he had become so feeble that the grey-haired old man, bent almost double, tears streaming down his cheeks, bony fingers clutching at his face, had to be carried between the guard and the Reverend Stark. The *Stirling Observer* described it thus -

> "At this moment the spectacle was most humilating - a hoary old man in his 83rd or 84th year, bent together with age and mental suffering, and oppressed with five months' imprisonment, his whole appearance indicating the utmost degree of human frailty, borne down with the intense idea of grief, struggling to bear up against what he considered the greatest injustice

The Reverend Leitch, himself clearly upset by these events, sang the 51st Psalm, and read from Matthew chapter 11, and 1st Timothy, but throughout this Mair seemed preoccupied with his fate, wringing his hands and sobbing convulsively. He was offered more wine, perhaps to fortify him, but he refused, saying "I'll no go into the presence of God Almighty drunk!"

Then the executioner, dressed (as the *Stirling Journal* described) — "in a light jacket and trousers, seamed with red and black, and a huge black crepe mask, entered the room, on seeing whom Mair started back, and every limb appeared to quiver with the intensity of his excitement. The executioner then advanced to pinion him but Mair shrunk away, evidently alarmed at his approach. On the rope being passed round his arms, he complained that it was hurting him. 'O! Dinna hurt me. I'm auld — 111 mak nae resistance. An' O! When I gang to the gibbet, dinna keep me lang - just fling me aff at once!' The executioner (a Glasgow man called Murdoch, who was himself 76 years old) offered the prisoner gloves, but they were refused."

Finally, at 8.27 am, weak with emotion and escorted by two law officers, he was carried between his guard and a churchman out of the Court House into Broad Street, where the scaffold stood.

In spite of some drizzle a great crowd, including many country folk (perhaps from Muiravonside), had gathered to watch the hanging. Strengthened, perhaps, by the feel of fresh air, or the sight of such a crowd, Mair said he wanted to speak. Being too feeble to stand unsupported, a chair was brought and placed upon the scaffold trapdoor. There on the platform Allan Mair launched into his last tirade against the world - with growing strength and a steady eye he harrangued the people of Muiravonside, even the minister, for perjury, "hurling fire and brimstone, death and damnation, both temporal and eternal, upon all. ..." as the *Stirling Observer* reported. He cursed the arresting constable, the fiscal and sheriff at Falkirk and all those who had prevented him from producing evidence in his own support. Then he damned the Nimmos, by whose lies he was now to be condemned as a murderer . . . And so it went on in a

torrent of abuse, without a word of thanks to anyone. Pausing at one point, the executioner asked if the prisoner was finished. "No sir! I am not done!" he retorted, striking a clenched fist upon his knee. And so he went on, pouring curses and plagues upon all his enemies until the crowd itself became restless with irritation. Even to those at the back of the multitude who could not hear, it was obvious that Mair's last words were of vengence and anger, not repentance.

Eventually the Reverend Leitch stepped forward and offered a prayer. Handing Mair a handkerchief to drop as a signal of readiness, the executioner then pulled a white hood over the old man's grey-haired, pigtailed head and placed the noose around his neck. Even now he was still muttering curses from inside the hood. He was asked to stand so that the chair could be removed, but weeping loudly he replied that he could not, and the chair was left in place. At seventeen minutes to nine, according to the *Stirling Journal*, "while in the act of exclaiming 'May God be -' the fatal bolt was withdrawn, and the wretched old man, uttering a heavy groan, was launched into eternity. For a moment he raised one of his hands, which had not been properly pinioned, to the back of his neck - seized the rope convulsively - and endeavoured to save himself - but his grasp instantly relaxed, and after struggling violently for some time he ceased to exist. After hanging for the usual time, the body was lowered into a coffin, and removed to a cell, where a cast was taken of the head by Nicolas Savoli of this town. The body was then buried in the passage leading into the Court-yard."

What can we make of Allan Mair's case? Was he insane? A fatherless childhood, perhaps a compulsive liar, a string of failed legal cases, little to show for a fruitless lifetime's toil, senility in old age and a feeling that life was turning against him might all have left him contankerous, violent, even unbalanced, in his dotage. Summing up at the end of the trial, however, the council for the prosecution argued that murder was murder, no matter how old, frail or senile the attacker was; it also did not matter that the victim was already 84 and presumably had not long to live in any case. Neighbours, doctors and prison officials had all testified that Mair was old but not insane, so the only verdict had to be guilty, for which the punishment was death. The judge clearly agreed.

The *Stirling Journal* took a similarly strict view and supported the execution. Throughout its reporting of the case, it took an unsympathetic line against Mair, describing his last-minute address to the crowd, for example, as "revolting and appalling". The *Stirling Observer*, on the other hand, took a much more sympathetic view, arguing that Mair was clearly senile and that, for all his undoubted cruelty and guilt, he did not deserve to be hanged.

"We cannot think or say that Allan Mair was a sane man . . . As a living despised wretch, poor Mair would have more lastingly impressed the vulgar mind, than by his corpse hanging, as it has done, 'for the usual time'." Public feeling must also have tended that way, for the sight of a frail old man going to his death on a chair in a public street, ensured that there were no more executions in Stirling.

* * * * *

What of Mair's place in Stirling's tourist ghost walks, which portray him haunting the Tolbooth? Historians should, of course, be very cautious when dealing with ghosts. However, I should report several incidents.

One day when chatting with a waitress at the Tolbooth Restaurant, she told me that part of the building, which she strongly did not like to go near, appeared to be haunted by an old man - but only on Wednesdays. This girl had never heard of Allan Mair, but the fact is that Mair was hanged on a Wednesday, and the area she showed me was the very corridor where Mair lies buried in an unmarked grave under the paving slabs.

Until recently part of the Tolbooth housed Stirling's tourist development department. In 19911 visited the staff in their office, mainly to ask permission to see the condemned cell where Allan Mair waited for his execution. From the office, a door led into the passage where Mair was interred. While I was there, the girl who sat at the desk nearest this door (and thus to Mair's resting place) told me that she had sometimes sensed the presence of a man watching her, but only when she was alone. She said this presence only seemed to appear when new employees began work, as it to check them out. Others in the office, who had not felt anything themselves, told me that they nevertheless took her reports seriously. None of the staff had any idea that Mair's body lay just through the door from their workplace.

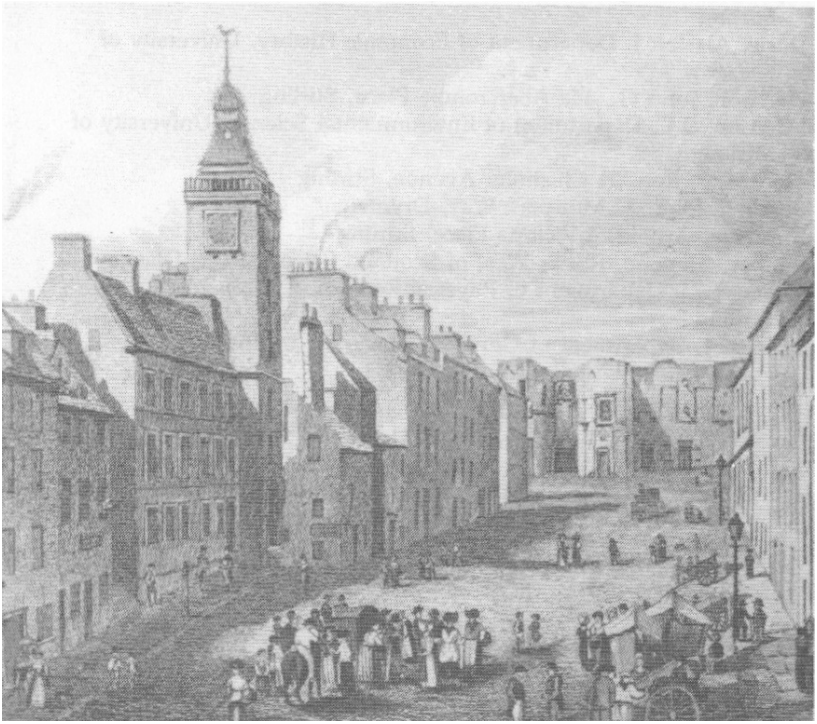
The original court-room is now a small theatre in which cameos of Stirling's history are acted out during summer months. I was told by the tourist office staff that several actors rehearsing in the disused cells above the adjacent restaurant had reported uneasy feelings or unaccountable chills or even apparitions of an old man watching them. This evidently became such a strong feeling that some years ago a team of para-psychologists was called in to see what they could trace. I was told that they eventually concluded that the ghost, or spirit, or presence, of an old man *did* inhabit the building - along with FOUR others, including a woman. But that's another story . . . .

SOURCES AND FURTHER READING

William Drysdale, 1898: *Old Faces, Old Places and Old Stories of Stirling*
G. Craig Robertson, 1987: *Worthies: Curious Characters of Stirling* (Community Heritage Booklet no 3)
James Bland, 1984: *The Common Hangman* (chapter 19)
Craig Mair, 1990: *Stirling the Royal Burgh*
The Stirling Journal and Advertiser, Friday September 15th 1843
The Stirling Journal and Advertiser, Friday October 6th 1843
The Stirling Observer, Thursday September 14th 1843
The Stirling Observer, Thursday October 5th 1843
Muiravonside Parish Records: some held on microfilm at Falkirk public library, but also SRO CH2/712/1 (up to 1805) and CH2/712/2 (1805-1905)
Muiravonside census returns, 1841 Bathgate Parish Records: (held at Bathgate public library annexe) but register of deaths is missing 1753-1769
Torphichen Parish Records: (held at Bathgate) but registers of marriages and

of burials only begin in 1808
Falkirk Sheriff Court records (SRO): Act Books SC66/1/1, Minute Books SC66/2/1 (covers 1835-37), SC66/2/2 (covers 1837-43), Register of Decrees SC66/6/1A (covers 1835-41), SC66/6/2 (covers 1841-46), Register of Arrestments SC66/11/1 (covers 1834-37), Small Debt Court Books SC66/17/1 (covers 1834-37), SC66/17/2 (1837-40), SC66/17/3 (1840-44)
Court of Session papers: SRO Index of Pursuers 2nd and 3rd Series, especially CS233 (Mair's Poor Roll petition 1808) but perhaps also CS229, ISK M51/5 and IPM 14/11
Index of Testaments and Services of Heirs, both at West Register House
Precognition for Mair's trial: SRO AD/4/43/292 box 594 (very *useful)*
High Court of Justiciary records of Mair's trial: SRO JC13/85
John Grasson's map of Stirling County, 1817 (Central Regional Archives)

Thanks also to the present occupiers of Candie End cottage who provided details and photographs of the house as it was before it was demolished and rebuilt in 1989.



Broad Street as it was at Allan Mair's time. The mercat cross was removed in 1792 and not replaced till 1891. *Photo: Stirling District Libraries*

Corrigenda - to volume 15 Forth *Naturalist & Historian* - with apologies.
To second paragraph on p 54, after Fintry, add **The photo is by Olivia Lassiere, the researcher of the above lochs and ponds survey.**

The scale on p 66 figure should be 100m. Figure 8B p 69 is wrong way up as is Figure 12 on p 73.

p 78 line 4 Edmund should read **Edward.**

Authors'/Reviewers Addresses

Brash, J.I. Department of Economic History, University of Western Australia.
Bryant, D.M. Department of Biological Sciences, University of Stirling
Durie, Alastair J. Department of Economic History, University of Glasgow
Harrison, John G., 14a Abercromby Place, Stirling Harrison, S.J., Department of Environmental Science, University of Stirling
McAllister, Ron. 21 Chisholm Avenue, Stirling
Mitchell, John, 22 Muirpark Way, Drymen
Morrison, Arnold, 4 Victoria Place, Stirling
Sankey, Stephen, RSPB, West of Scotland Science Park, Glasgow
Thomson, I. Department of Physical Recreation, University of Stirling
Trainer, J. Department of German, University of Stirling