

THE MOTHS AND BUTTERFLIES OF NORTHUMBERLAND AND DURHAM

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Part 1 MACROLEPIDOPTERA
THE VASCULUM - SUPPLEMENT NO. 2

Published by
THE NORTHERN NATURALISTS' UNION

The Vasculum (Supplement No. 2)

1986

ISSN 0049-5891

FOREWORD

Moths and butterflies are fascinating creatures. They have complicated life-cycles; each of the stages egg, larva, pupa and adult is adapted to live under a particular set of environmental conditions and lead to the survival of the greatest number of the next stage. Because of their colour and movement we tend to be attracted to the adults, but often the factor that limits the occurrence or abundance of the species is acting on one of the earlier stages of the life cycle.

Willingly or unwillingly we provide in our gardens, homes and food for many of them; the adults on our flowers, the eggs and larvae on or in our fruit and vegetables. They are found from the high tops of our hills down to the coast; many make long migrations and when I spent time on research ships on the North Sea I would sometimes see them, many miles from land, resting on the mast or deckhouse before flying on, or being drawn to the ship's lights at night.

Whether they fly by day or night the adults rely on a very good sense of smell to help them find food and mates. They appear to be able to react to single molecules of some scents! The retractile proboscis by which they feed is one of the most intricately constructed organs to be found in the entire animal kingdom.

In Northumberland and Durham the landscape has changed dramatically over the centuries and is still changing. The populations of our moths and butterflies have changed as a result. Apart from these long-term changes an abnormal season, especially if it brings warmth and strong southerly winds, will carry stray species to us, such as the Swallowtail, and a sighting can be a memorable experience.

We have awaited this book with keen anticipation. The authors have earned our thanks and congratulations for their monumental work.

The Northern Naturalists Union takes great pride in its publication.

PROFESSOR F. G. T. HOLLIDAY,
Vice-Chancellor and Warden
University of Durham.

INTRODUCTION

During the period 1899—1913 J. E. Robson published the first, and up to the present time the only comprehensive survey of the lepidoptera of Northumberland and Durham. The time-lapse since the appearance of his Catalogue would be sufficient reason in itself to justify a revision of his work, but there are several other factors that suggest that a fresh review of the distribution and relative abundance of our local lepidoptera is now in order.

In the first place, changes in systematics have resulted in a new classification, and we now use that of Bradley and Fletcher (1979) based on the check-list of Kloet and Hincks published in 1972. Additionally, advances in taxonomy have resulted in the discovery of new species—in some cases rendering earlier records invalid (such instances are noted in the main text). Improvements in transport have increased access to the more remote areas of both counties, though the Cheviot massif, some stretches of moorland and more particularly the Border Forests remain under recorded. Coverage of lowland areas and in particular the coastline is now quite widespread however, thanks in no small measure to conservation work being undertaken on the initiative of the Nature Conservancy Council and the county Wildlife Trusts, which bodies have been most generous in granting rights of access to us for the purpose of compiling local check-lists. In addition a network of traps set up by the Rothamsted Experimental Station continuously monitor the lepidopterous fauna of a variety of habitats in both counties.

Though the trapping techniques of Robson's time are still used, the large Robinson MV trap run from the mains or a generator has greatly increased our knowledge of, in particular, some of the less common species, while the advent of the six watt Heath trap run from a twelve-volt battery has allowed investigation of hitherto inaccessible areas. A particular advantage of these traps over the older 'sugaring' techniques and collecting at street lamps is that they give a much clearer idea of the relative abundance of many species. Additional stimulus to recording has arisen through the formation of regional groups acting under the auspices of the Biological Records Centre at Monk's Wood, while the task of the amateur lepidopterist has been greatly eased by the publication of increasingly accurate and well illustrated identification guides by South (1961), Bradley, Tremewen and Smith (1973 & 1979), Skinner (1984), Goater (1985), *et al.* Correspondence with authors of the various volumes of 'The Moths and Butterflies of Great Britain and Ireland' (hereafter referred to as MBGBI) has further attempted to focus attention on the distribution of various critical species and groups.

Perhaps the most pressing reason for a new check-list is to attempt to chronicle the changes that appear to have taken place since Robson's day, and to correlate these changes where possible with changes in both local conditions and national distribution. Attempts to 'account for' distributional changes in terms of factors that may or may not be relevant is always a risky undertaking. It is our purpose here merely to draw the reader's attention to some points that we feel should be borne in mind when assessing such changes.

The most obvious factors requiring consideration concern changes in land utilisation, and here we would first mention the extensive planting of mainly coniferous forest, principally in upland areas, that has accelerated since the 1920's, resulting in the disappearance of large areas of open moorland. Further inroads were made into this habitat during the 1939-46 war as a result of increasing agricultural requirements, and about this time also huge stretches of hedgerow began to disappear, to be replaced by environmentally sterile fencing. A less obvious but possibly even more drastic change was that of double and occasionally triple-cropping of hay meadows introduced from the late 1940's to satisfy the requirements of advances in silage production, a change that may have had dire consequences on the life-cycle of several species of moths and one or two butterflies. In view of these comments, it should come as no surprise that we have numerous changes to chronicle for the second half of the present century (though it should be noted that the recent pleasing development of restricting the mowing of roadside verges in some areas may be going some way towards improving the overall situation).

Changes due to climatic variation are somewhat more difficult to correlate in any meaningful way. Locally adverse conditions may cause a drastic drop in numbers in some species, but insect populations tend to be surprisingly resilient, and long-term effects are difficult to predict. There is one point that we feel worth drawing attention to, however, and that is that in the middle of our area, at the latitude of the Solway/Tyne gap, mainland Britain is at its narrowest east/west extension, and as a consequence the 'environmental gradient' between western (Oceanic) and eastern (verging on

the Continental) climates (as shown for example by the rainfall gradient across the region) is quite steep. It seems possible, therefore, that slight climatic changes affecting our region could produce a critical situation for species already 'at risk', and that responses to such changes might more readily be observed in our area than elsewhere. Examination of the distribution maps in MBGBI Vols. 9 and 10 reveal at least 60 species, the distribution of which either reaches a limit or thins out critically in our region (possibly, as in the case of *Acronicta megacephala* (2278) leaving a disjunct population in north-central Scotland). By contrast, there is only one species, *Photodes captiuncula* (2344), that appears actually to *prefer* our region to others.

At present we would make no more of this situation than to suggest that changes in distribution that might be capable of correlation with climatic variation might be more readily evident in our areas than elsewhere. In case this should be correct, we have given as much detail as possible for those species whose numbers seem to be showing notable increases/decreases or which seem to be fluctuating markedly, so that the records for such species shall be as complete as possible. In view of the limitations of space, we have generally included maps only for those species where it would appear to us that there is evidence for some marked environmental limitation on distribution: species so rare that they can be adequately covered in the text have in general not been mapped, and neither have immigrant species unless in some cases the accumulation of records clearly indicates a preferred direction of immigration.

Looking back over the 70—80 years that have passed since the publication of Robson's Catalogue, there are suggestions for several species that a marked and widespread northward extension of range took place during the period 1910—1930, that may have been connected with climatic variation. For many species, this was not adequately documented, but an example for which the record is fairly comprehensive has been quoted in some detail, namely *Smerinthus ocellata* (1980), as it shows how rapidly colonisation can occur under apparently favourable conditions. A comparable 'explosion' in population may at present be occurring in the case of *Rhyacia simulans* (2105), the progress of which should be closely followed.

Assessing relative increases/decreases in population really necessitates a continuous record, which for our region did not become possible until the advent of the Rothamsted traps, the first of which was set up at Kielder in 1959. The continuous records from this and other traps provide a wealth of information on dates of emergence and how they vary with weather, altitude, etc., relative abundance, number of cycles/year, possible correlations with environmental changes and other features. We have only referred to such information where it appears to be particularly significant, or differs appreciably from quoted data elsewhere.

In addition to the vast amount of information made available to us by the Rothamsted Experimental Station, and for which we now express our grateful thanks, we must acknowledge the great debt that we owe to other workers who have freely provided records, or whose check-lists we have drawn on. In particular we would mention the extensive records of George Bolam (1925), mainly from North Northumberland (vc 68), supported by W. G. Watson and R. Craigs working mainly in the North Tyne and Redesdale areas respectively in the first half of the century, when J. R. Johnson was active in the South Tyne/Derwent area, and J. P. Robson worked generally in the Barnard Castle district: but most of all, working throughout both counties (not to mention the farthest corners of the Scottish Isles as well) was without doubt J. W. (later Professor) Heslop Harrison—notable most particularly in our present context for his pioneering work on the critical identification and distribution of the genus *Epirrita* (*Oporina*).

F. W. Gardner obtained many valuable records using a Robinson trap in the mid-Tyne valley in the 1960's and was followed into the next decade by Drs. B. and I. D. Wallace and then Dr. D. A. Sheppard and M. Eyre all of whom worked extensively in both counties. More recently, contributors become too numerous to mention, but we hope that acknowledgement of their records in the text will serve to indicate the debt that we owe them.

Finally, we must acknowledge the sterling work by Dr. A. G. Long, ex-Deputy Director of the Hancock Museum who initiated the extensive set of record cards at the museum to which we have been allowed access, and to his successor, P. Davies for continuing co-operation and the provision of the distribution map blanks—and last but by no means least our thanks go to D. Hall and his students at Sunderland Polytechnic who designed the cover for this book.

T.C.Dunn & J. D. Parrack

PREFACE

In this work, families are named and numbered as they appear in Kloet and Hincks (1972), and these authors have been followed for species synonyms with appropriate modifications due to more recent work. Species numbers follow those in Bradley and Fletcher (1979), the number in brackets following the Bradley and Fletcher number is a cross-reference to Robson's Catalogue. Unfortunately Robson's numbering system began afresh for each family instead of running consecutively, so that the reader must consult the latter work if he wishes to compare Robson's notes with our own. We have made every effort, however, to summarise the main points of Robson's case, in situations where his evidence or interpretations differ markedly from our own, so that our work can be regarded as complete in its own right.

We have split the list of species into two parts and dealt with the Macrolepidoptera in this Part 1, which is essentially the second part of the system of classification, as there are some problems associated with the Microlepidoptera not yet resolved. This group, forming Part 2, will contain some families, namely *Hepialidae*, *Zygaenidae*, and *Sesiidae*, which traditionally (because of the size of the insects and irrespective of their position within the system of classification) have been described in other works on the Macrolepidoptera.

Watsonian vice county numbers are used frequently in the text. Thus vc 66 is Durham County (including that part of Tyne and Wear south of the Tyne and that part of Cleveland north of the Tees), vc 67 is South Northumberland (from the vc 66 border to the River Coquet and including that part of Tyne and Wear north of the Tyne) and vc 68 is North Northumberland (between the Coquet and the Scottish Border).

On the distribution maps vice county boundaries are shown. Each small division represents a tetrad or 2km. square. In them are dots, noughts and/or crosses representing the records. Dots signify records made before the year 1900, noughts between 1900 and 1950, and crosses from 1950 to present.

The abbreviations TCD and JDP used throughout the text refer to the authors, and MBGBI refers to the various volumes of 'The Moths and Butterflies of Great Britain and Ireland' (1979 and 1983). Each author has been responsible for assembling his own county records (i.e. TCD for Durham and JDP for Northumberland). Thereafter TCD has written the notes on species 1525—1970 and JDP those on species 1971-2405, with appropriate further consultation.

40. HESPERIIDAE

1526 (-) THYMELICUS SYLVESTRIS Poda, 1761

Small Skipper

[*flava* Brun., 1763; *thaumas* Hufn., 1766; *linea* Mull., 1766]

Though not mentioned in Robson's time, which is surprising as it was probably more widespread in Yorkshire at the turn of the century than it is now, odd specimens turn up near the southern border of Durham County from time to time. J. P. War-brook found one in a park at Stockton-on-Tees on 10 July 1984, but previously in July 1979 several were seen in Fulwell Quarry, Sunderland, and a few taken by M. Finney (then a junior member of the NNU) were later confirmed by TCD. Despite being looked for specifically every year, it has not been seen since, suggesting that they may have been bred specimens—though we have no evidence for this. Then in August 1985 two flourishing groups, obviously breeding happily, were found and photographed by R. L. Quigley at Witton-le-Wear Nature Reserve. (The photographs have been seen and confirmed by TCD). These colonies seem to be well established and may have been on the reserve for some time.

It is on the wing in late July and August, when it should be looked for in grassy, flowery wasteland, meadows, and along hedgerows and woodland verges.

1531 (34) OCHLODES VENATA Br. & Grey, 1852, ssp. *faunus* Tur., 1905

Large Skipper

Though never seen in Northumberland and 'seldom met with' in Durham in Robson's time, it has spread so rapidly in Durham in recent years that there are too many sites to mention individually.

In Northumberland it spread during the 1960's to the Riding Mill area, where F. W. Gardner found it 'Distributed, but usually taken only singly', but did not begin to break out of this area until about a decade later, when B. & I. D. Wallace saw it at Peth Foot on the Devil's Water, and O. L. Gilbert at Apperley Dene, both in 1974." By 1977 it was at Thorngraston Common and Whitley Mill (Sheppard & Eyre) and at Walltown (C. C. Douglas), and the following year at Rothley and High House, Morpeth (C. C. Douglas). During the next 5—6 years it rapidly colonised other areas in south and mid-Northumberland, though the Walltown record (NY67.66) remains the furthest west occurrence for the county. By 1985, it had reached Holystone Burn (JDP), Harwood Forest (B. N. Rossiter) and Longhorsley Moor (N. Cook).

It can be expected to fly from early June to the first week in August, in open grassy, flowery places.

1532(35) ERYNNIS TAGES Linn., 1758

Dingy Skipper

Another butterfly that is widespread in vc 66, but only recently beginning to reappear in Northumberland. In 1857 Wailes had it as 'Common in most parts of the counties', but by Robson's time, it was becoming scarcer in Durham and was virtually unknown in Northumberland apart from Bolam recording it 'In several places amongst the young woods' at Swinhoe, Broomford (9 June 1898). It was taken in Dipton Woods in 1906 (G. T. Nicholson) and again several times in the 1920's, expanding to Corbridge, Devil's Water and Hexham during 1930-34 (J. W. H. Harrison *et al.*) Thereafter its range seems to have contracted again somewhat and there are no further

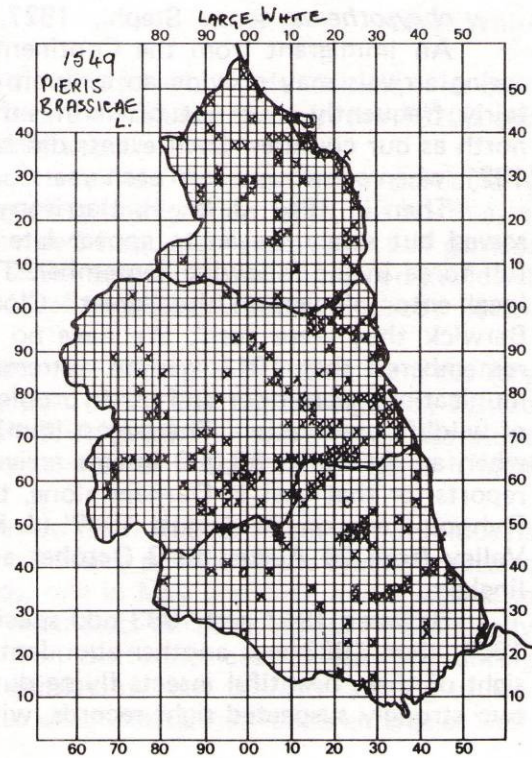
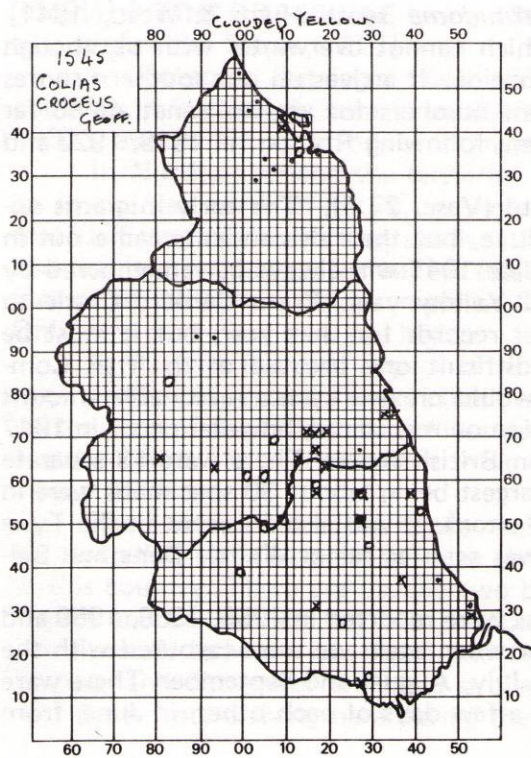
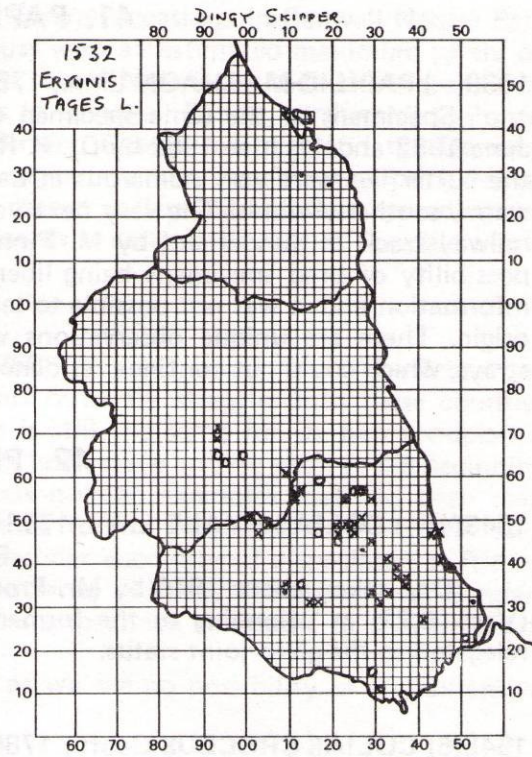
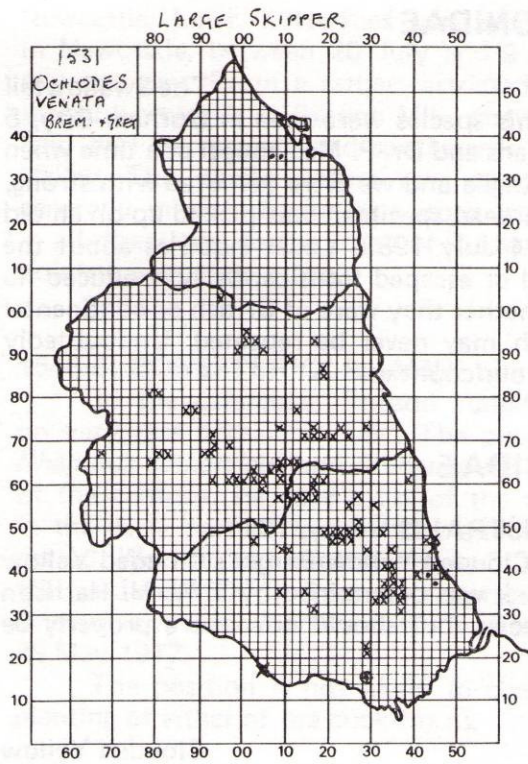
records until J. W. H. Harrison had it again at the Sneap, just on the vc 67 side of the Derwent near Muggleswick in 1960, since when it has often been seen there on NNU Field Meetings. Early in that decade, F. W. Gardner had it in the Riding Mill area, but rarely. Recent records are more encouraging, as Sheppard & Eyre had it in Hyons Wood, 16 August 1976, and M. E. Braithwaite found a large colony at Brunton Quarries on 28 May 1978. In June 1985 N. Cook had a small and a large colony on lime spoil heaps at Prudhoe; all of which suggests that the butterfly is at present attempting to push further north.

Lime provides a favoured substrate for Birdsfoot Trefoil (*Lotus corniculatus*— the preferred foodplant of this species) which is well distributed on the magnesian limestone of east Durham. Consequently this area provides a stronghold for the butterfly, which particularly favours the old abandoned limestone quarries. It is well distributed throughout vc 66 however, as the foodplant readily colonises open habitats, and particularly favoured sites for both plant and butterfly are railway bank-sides and the many recently abandoned railway tracks. Its presence is more often recorded nowadays than in Robson's time and it is evidently more plentiful than it was then, the expansion having taken place throughout the last 50 years, with little sign of the critical period that occurred in Northumberland about the middle of the century. Its distribution is now so good as to render listing of sites unnecessary.

The butterfly is on the wing in May and June, sometimes reaching into July after a late spring. In the south of England, a second brood in August is not uncommon, but Sheppard & Eyre's record from Hyons Wood on 16 August 1976, referred to above, is noteworthy as the only example of this event that we have for the north-east (1976 was an abnormally long hot summer).

1534(-) PYRGUS MALVAE Linn., 1758. **Grizzled Skipper**
[*lavaterae* Fab. 1787; *fritillum* sensu Fab., 1787; *alveolus* Hub., 1803]

Claimed by G. Bolam from a site near Chathill Station, where it was flying with other skippers on 9 June 1898, and seen by him to have been taken by J. S. T. Walton near Stocksfield in May 1918, when numbers were on the wing. Bolam's records stimulated J. W. H. Harrison to reveal that he had known the insect on the old quarry at Birtley (vc 66) in May 1900, but had never seen it there subsequently. None of these records have ever been repeated. More recently during the 1970's, a strong report of the species at Witton-le-Wear Nature Reserve resulted in a thorough search by TCD and Dr. R. L. H. Dennis, without success. Dingy Skippers were very plentiful at the time. We mention these unusual sightings, because we see no real reason for the absence of the species from our two northern counties, though at the limit of its northerly range.



41. PAPI LIONIDAE

1539(-) PAPILIO MACHAON Linn., 1758

The Swallowtail

Specimens or the same specimen of this species were seen in Durham City, 5 June 1982 and 11 June 1982 by Dr. P. R. Evans and Dr. P. MacDougall at a time when the butterflies were very numerous in East Anglia and we were favoured with strong, warm, southerly winds. The very next year a dead specimen was picked up on an old railway track in Sunderland by M. Finney, 1 July 1983. Local inquiries about the possibility of bred specimens being liberated or escaped from captivity produced no information and it was not possible to tell whether they were of British or continental origin. These are unique observations which may never be repeated. Undoubtedly strays, which could not continue residence in our counties.

42. PIERIDAE

1543/4(-) COLIAS HYALE Linn., 1758/ **AUSTRALIS** Verity, 1911

Pale Clouded Yellow/Berger's Clouded Yellow

One taken about 1919 by Mr. Proudlock was determined by J. W. H. Harrison (Vase. 6:27) as belonging to the former species, but should now more properly be relegated to the given joint status.

1545(5) COLIAS CROCEUS Geoff., 1785

Clouded Yellow

[*edusa* Fab., 1787 nee Fab., 1777; *elecfra* sensu Lewin, 1795;
chrysotheme sensu Steph., 1827, *myrmidome* sensu Hum. & West, 1841]

An immigrant from the Continent, which cannot overwinter with us, though spring arrivals may provide an autumn generation. It arrives on our southern shores fairly frequently, but not often in sufficient numbers for any to penetrate so far north as our counties. Such events did happen, following Robson, in 1919, 1920 and 1921, when a few were seen each year.

Then in 1941, J. W. H. Harrison wrote (Vase. 27:5), 'The early migrants observed but rarely, began to appear late in June, but their descendants came out in full force in the following September. The year 1941 will always be remembered by local entomologists as the "great" Clouded Yellow year. From Barnard Castle to Berwick they were seen'. We have no other records for that year, but it must be remembered that 1941 was an extremely difficult one because of the war. Communications were poor and other problems would prevent even a reasonable amount of wildlife observation. The largest immigration on record did, however occur in 1947 when an estimated 30,000 insects arrived on British shores. There were 13 separate reports for that year in Durham alone, the largest being 'about 30 specimens were in Ryhope Dene on 26 August 1947' (J. K. Morton). It was also frequent in the Tyne Valley from 20 August to 3 October and was seen as far as Whittle Dene and Bellingham.

Between 1947 and 1983 odd specimens were reported in 1956, 1958, 1959 and 1964, then 1983 was another abundant year when again we were favoured with the sight of these beautiful insects flying during July, August and September. There were two strongly suspected sight records, within a few days of each other, in June, from Newcastle. Later, butterflies were seen

on several occasions in Benwell Nature Park in Newcastle, between 20 July and 9 August with an estimated maximum of six on any one day. From a rather restricted area round Newcastle, individuals seemed to spread westwards to Bardon Mill, eastwards to Holywell Ponds, northwards to Ponteland and Darras Hall and southwards to Birtley, Chester-le-Street and the Derwent Valley. This whole picture very strongly suggests a very small scale spring arrival generally missed, producing a stock locally reared at Benwell and then spreading out in all directions. In the south of Durham records as early as 16 July in Teesdale would point to a separate origin.

1546(6) GONEPTERYX RHAMNI Linn., 1758

The Brimstone

In the catalogue, Robson stated 'This butterfly straggles into these counties on very rare occasions only'. The position is still the same for its two foodplants, *Rhamnus catharticus* and *Frangula alnus*, are just as rare as they were at the beginning of the century. He gave a list of the various isolated examples that had been seen in the early part of last century and was able to add only two more from his own period. We can add another three; F. W. Gardner encountered a specimen at Riding Mill in June 1950, I. Boundry reported a butterfly in Peepy Plantation near Sunderland in early June 1976 and JDP came across a specimen at Cupola Bridge, Staward, 28 May 1977.

The position is not likely to change as we see no possibility of any extensive planting of either of the buckthorns.

1549(1) PIERIS BRASSICAE Linn., 1758
[*chariclea* Steph., 1827]

Large White

In Robson's Catalogue very widely distributed and fairly common in both counties, it is certainly seen in smaller numbers than it used to be in the 1920's and 1930's, except during periods of intensive immigration.

In Northumberland the butterfly is most common in coastal areas, particularly so in the far north of vc 68, strongly suggesting immigration from the north-east, that is, Scandinavia. Further south it is recorded frequently from suburban gardens and arable areas, along river valleys to about 250m and is not uncommon on the lower moorlands in autumn as for example at Ford Moss and Muckle Moss to about 200m. Only very rarely is it seen any higher.

In Durham it would appear to be much more widespread judging from the very large number of records from virtually every part of the county, having been sighted on the tops of the fells such as Pikestone Fell, Widdybank Fell and even on Burnhope Seat at 746m, the highest point in vc 66, where B. & I. D. Wallace found it on 4 August 1976.

There is no doubt that regular immigration from the continent not only boosts our dwindling native stocks but also gives a confusing picture of the breeding pattern in this country. There are usually two broods, one in May and June and a second in August and September, but it is possible to see insects on the wing during practically every month between late April and November. Butterflies seen in July and during October and November are most probably immigrants, but there is nothing to prevent them from arriving here during the times when native individuals emerge as well.

From time to time, immigration flights have been seen along our coasts. On 1 July 1937, W. Wannop reported such an event, 'Hundreds just landing north of Bamburgh Castle on a frontage of about 200 yards', (F. C. Garrett per W. Wannop, Vase. 24:19) and during a family picnic on the top of Marsden Cliffs in August 1949, TCD watched *P. brassicae* flying in from the sea for about two hours. They flew overhead and straight inland, but even so there were never less than four butterflies in view the whole time.

The caterpillars are seen in greater numbers than the imagines, because of their attacks on *Brassicas* and garden *Nasturtiums*. With such easy access to insecticides nowadays, the gardener eliminates large numbers in the early stages. This and the large scale spraying in market gardens probably accounts for much of the reduction in native breeding stocks. The parasite *Apanteles glomerata* destroys many of the rest.

1550(2) PIERIS RAPAE Linn., 1758

Small White

[*napaeae* Esp., 1805; *metra* Steph., 1827]

Nowadays this species is probably a little more widespread and common than the previous one. It is slightly less prominent along the coastline of North Northumberland, though still well represented, which suggests less immigration from Scandinavia, in keeping with its distribution there.

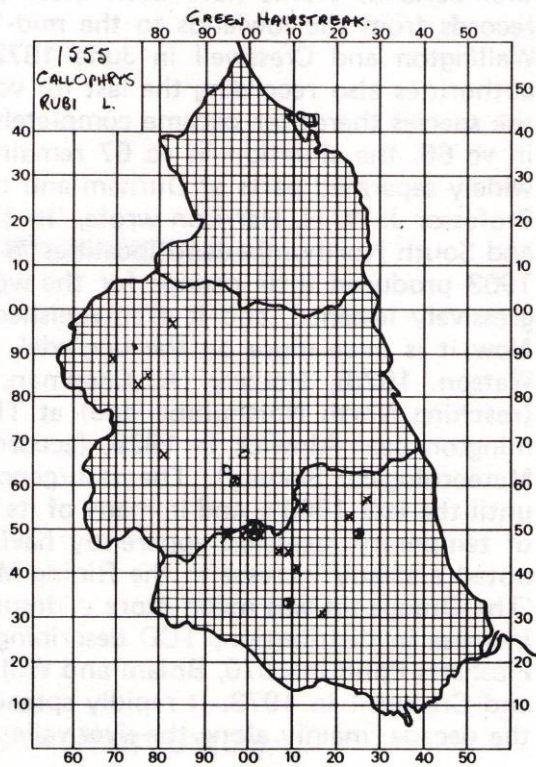
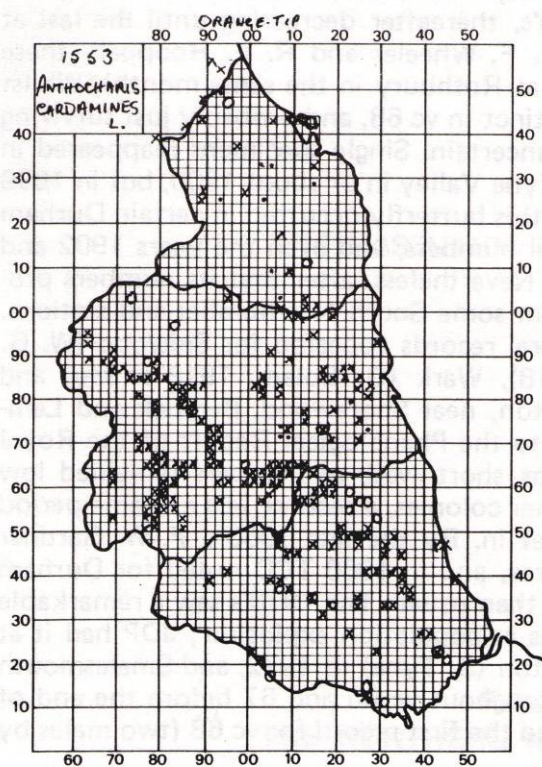
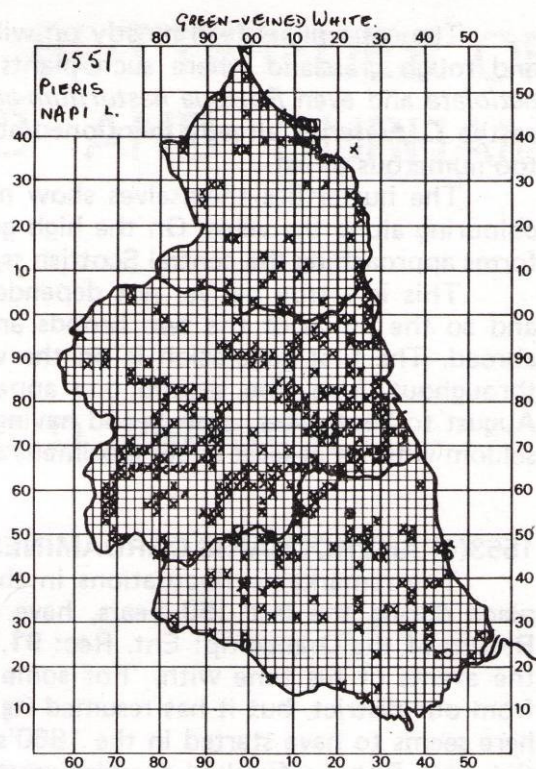
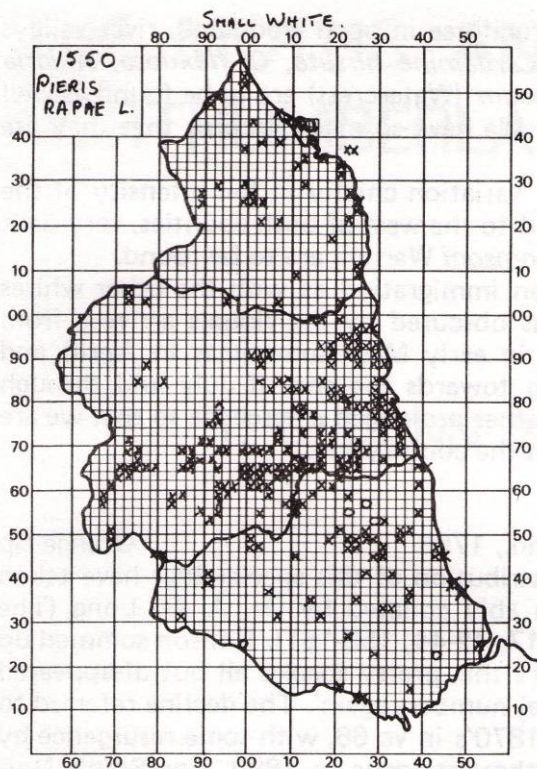
In vc 67 it is noticeably scarcer in the afforested area of the north-west corner, but reaches to higher elevations up the river valleys and is more plentiful on lowland suburban and arable sites. It is not uncommon on the open sedge moors in the west as is also the case in Durham where it is seen fairly frequently. In lowland Durham it appears virtually everywhere with the largest concentration in the east along the coast and on the grassland of the magnesian limestone plateau.

It feeds on *Brassicas* and *Nasturtium* as does *P. brassicae* but its food is somewhat more general being found sometimes on wild *Cruciferae* and the two mignonettes. It is possible that its slightly better success is due to the habits of the caterpillars, which feed within the heart of the cabbage or cauliflower where they are less vulnerable to insecticide sprays. They are just as susceptible to the natural hazards of predation and parasitic attack by *Apanteles* as *brassicae* and these deterrents are sufficient to make it dependent upon immigration for continued survival in this country as with its larger relative. There are usually two broods, the first one being in April and May and the other in July and August. In exceptionally favourable summers a third brood may be seen. Thus it is usually the first white butterfly to be seen on the wing and may be the last to disappear in the autumn.

1551(3) PIERIS NAPI Linn., 1758

Green-veined White

The Green-veined White is probably the most widespread of the three whites notably in the Border Forest area of North Northumberland and at altitude where *Cardamine pratensis* takes over as the principal foodplant on the higher more acidic soils. Every drainage ditch that holds this plant on its verges can support a colony even above 350m as along the East and West Aliens, high in Weardale and on Widdy-bank Fell in Upper Teesdale. The only area where it is not particularly common is on the andesite slopes of the Cheviots.



The caterpillars feed mostly on wild Cruciferae in open woodland, river valleys and rough grassland where such plants as *Cardamine hirsute*, *C. flexuosa*, *Alliaria petiolata* and even *Rorippa nasturtium-aquaticum* (Watercress) are to be found as well as the *C. pratensis* already mentioned above. We have so many records that they are too numerous to list.

The butterflies themselves show much variation chiefly in the intensity of the colouring along the veins. On the high ground to the west of both counties, very dark forms approaching the central Scottish ssp. *thomsoni* Warren, are to be found.

This is a true native, not dependent on immigration as with the other whites and so the limits of the two broods are less obscured by individuals arriving from abroad. The first generation is on the wing in early May (sometimes in April) and throughout June, the second one appearing towards the end of July and through August to September, each brood having a rather prolonged emergence so that we are seldom without at least a few specimens about the countryside.

1553(4) ANTHOCHARIS CARDAMINES Linn., 1758

Orange-tip

The remarkable fluctuations in the distribution of this species that have taken place during the last 150 years, have been ably collated by Dr. A. G. Long (The Return of the Orange-tip: Ent. Rec: 91, 16-17; 42-44; 158-161). Robson summed up the events of his time with, 'For some years this pretty species all but disappeared from our district, but it has resumed its usual numbers again'. The decline referred to here seems to have started in the 1860's or 1870's in vc 66, with some resurgence by the time Robson finished the first part of the Catalogue in 1899. For South Northumberland, events have been more precisely chronicled, with a few widespread records from the lowlands to the mid-1860's, thereafter decreasing until the last at Wellington and Cresswell in June 1872 (R. F. Wheeler and R. E. Hooppell-these authorities also recording the last for vc 68 at Rothbury in the same month). Whilst the species thereafter became completely extinct in vc 68, and probably just surviving in vc 66, the situation in vc 67 remained uncertain. Single specimens reappeared in widely separated parts of Durham and the Tyne Valley in or about 1900, but in 1939 Professor J. W. H. Harrison wrote, 'In 1900 this butterfly occurred in certain Durham and South Northumberland localities in small numbers, and even the years 1902 and 1903 produced little change for the worse. Nevertheless, after that its numbers progressively lessened, and it even vanished from some South Northumberland stations. Now it is once more on the upgrade'. Several records appeared for Sidwood (W. G. Watson, 1920), Houxty (A. Chapman, 1918), Wark (G. Bolam, 1918 *et seq*) and (reaching North Northumberland) at Thornton, near Shorewood, Berwick and Lemmington near Alnwick in 1929, (according to the Phenological Report of the Royal Meteorological Society). The resurgence was short-lived, as numbers remained low until the late 1960's, and in many of its former colonies, a second, less extreme period of temporary recession apparently having set in. By the late 1960's, F. W. Gardner noted a steady increase in the Riding Mill area, and in 1960 TCD noted for Durham 'The Orange-tip was much more widespread than usual'. The 1970's saw a remarkable increase in distribution, TCD describing it as a 'population explosion', JDP had it at Plashetts Pond in 1970, Bolam and Williamston (S. Tyne) in 1972, and Smalesmouth and Cresswell in 1973. It rapidly spread throughout vc 66 and 67 before the end of the decade, mainly along the river valleys, and the first record for vc 68 (two

males by the Lough on Holy Island, JDP) was made on 22 May 1976, with two more on the old railway line at Powburn on 12 June (P. Summers). By 25 May 1978, males were at Lennel Brass on the north bank of the Tweed, having crossed the border (A. G. Long).

Now the species is widely distributed in suitable habitats throughout vc 66 and 67, and fairly widespread in vc 68, though there are a few apparently suitable areas there still to be colonised.

It is perhaps worth noting that though using the same foodplants as *P. napi*, competition between the two is minimal, that species feeding on the leaves, whereas *A. cardamines* devours the seedpods. The two often co-exist happily in lowland colonies.

43. LYCAENIDAE

1555(-) CALLOPHRYS RUBI Linn., 1758

Green Hairstreak

Unknown to the early collectors, and unlisted by Robson, this species was not disclosed as new to the north-east until 1924 by Professor J. W. H. Harrison and J. R. Johnson (Vase. 10:107), though as they quoted breeding data, they must have been aware of the occurrence of the species at least one year previously. The site was Walldridge Fell, which remains the strongest site in the two counties. Two years later, the same authors published the occurrence of the species in Dipton Woods, though disclosing in 1936 that the colony had actually been in existence since its discovery by J. French towards the end of the previous century. This colony also flourishes giving over 300 individuals in a good year (T. Melling, 1981), and a number of small offshoots exist in the Devil's Water/Dipton Mill general area.

Other records for Northumberland include the Belling Burn (A. M. Tynan, 1972-3), Tod Law (nr. Rochester, Redesdale, M. Smith, 1977, c. 20 T. Melling, 1982), Chirdon Burn (A. M. Tynan, 1980), Muckle Moss (M. Eyre, 1980), Whinnetley Moss (T-junction NY 81.66, Lt.Col. H. R. Nicholl, 1980-83, 'A few each year': JDP 1985 c 20).

In Durham a small colony was found on Bilberry growing along a roadside wall (exactly as at Whinnetley) by E. D. Sibson in 1927 in the Shull/Dryderdale area, but it has not been re-discovered in recent years. In 1947 it was located on the heath by the side of the Edmundbyers/Blanchland road, and it is also now known to the east of Edmundbyers on Muggleswick Common. With Professor J. W. H. Harrison TCD saw it along the Beldon Burn near Hunstanworth in 1954, and on Beamish Fell in 1960. The latter site was later planted up with conifers and is now a dense forest without the necessary foodplants to support the butterfly. We never saw it there again. More recently a rather thinly spread colony has been found on an extensive stretch of Bilberry and Heather known as Stuartfield Plantations near West Butsfield, just off the A68 in Durham. Nearby, in 1985, G. Simpson found a small colony along a woodland edge near Tow Law.

1557(7) QUERCUSIA QUERCUS Linn., 1758

Purple Hairstreak

Robson could quote only a few old records for this species in and around Gibside, which at that time was a very productive deciduous wood. He mentions Wailes as writing 'Pretty abundant towards the middle of August near Gibside, flying about the summit of oaks'. Wailes thought

that it would eventually be found to be generally distributed over our oak woods, but this hope has never been realised. The only other record was from Dunston, not far away, where Hedworth saw it in 1872. He also told Robson that John Hancock had captured it . . . 'at the end of Derwent Bridge, Gibside'. In Northumberland Bolam had it for Parkend, N. Tyne (August 1896) and Monk Wood, Whitfield, (11 July 1921).

Then in Durham, J. W. H. Harrison recorded it for Birtley and Ravensworth in 1916 and 1917 respectively and it was seen again at Gibside by F. C. Garrett in 1933. There were no more records from these woods because they were soon to become clear-felled, planted with conifers and taken over by the Forestry Commission. J. W. H. Harrison recorded it again but this time with J. R. Johnson from the Devil's Water in 1933, and Sir A. Aitchison noted it in Kyloe Woods in July 1949. On the advice of the late Professor J. W. H. Harrison, TCD searched the Derwent Valley woods for the insect without success until August 1956 when a single butterfly flew down to a wet patch on the Swalwell to Consett railway bankside, between Rowlands Gill and Lintz Green stations. No more were seen and the episode was never reported because of the obvious scarcity of the insect. H. T. Eales informed TCD that the butterfly was still in that area a few years later. Since then we have looked for the species without success until last season (1985) when J. Durkin, recently appointed as warden on the now disused railway track public walkway, saw two butterflies flying around the tops of oaks near Low Friarside, again in the same area.

This appears to be the only surviving colony in both counties and so tenuous as to be bordering on extinction.

1558(-) STRYMONIDIA W-ALBUM Knoch, 1782 White Letter Hairstreak

This species has only recently been found in Durham, where it is at its northern limit in Great Britain. In 1978, D. Horsfield reported it from Kilton Woods in N.E. Yorkshire where it had not been seen for a very long time and we guessed that the species was on the move. This has proved to be the correct interpretation. Many more sites in N. Yorkshire have become known in recent years. The most remarkable discovery, however, was in 1982 when J. C. Binge reported to TCD that he had found it near Thorpe Thewles in the south of vc 66. This was just across the Tees from other colonies in N. Yorkshire and we thought that this must be its limit in northward movement. It was an even greater surprise when it was found, in 1984, near Spennymoor in Central Durham, and some 12 miles north-west of the previous site. It is tempting to speculate that the incidence of Dutch Elm Disease in the south of the country has created such a shortage of food (elm is the foodplant of the White Letter Hairstreak), that the insect has been driven northwards in search of pastures new. It is certainly true that it was never seen across the Tees before 1982, but because its presence was totally unexpected and because of its high-flying habits and sparse distribution, it is possible that it may have been in the county for a number of years before being seen. We will be most interested to follow its future progress.

It should be looked for in late July and August, where Wych elms grow, although Common elm will also be accepted.

1561(8) LYCAENA PHLAEAS Linn., 1761 Small Copper

This butterfly is fairly generally distributed over the whole of the region. In Northumberland it is mainly concentrated along the coastline and

along the main river valleys, but thereafter records are sparse in both vc 68 and 67 (if anything more plentiful in the former) though reaching to altitude in the Cheviots (College Valley, JDP, 1981) on Fell Sandstone (Holystone NR, JDP 1982; Hareshaw Linn, B. N. Rossiter, 1983) and on Millstone Grit (Dodd Reservoir, Allenheads, B. N. Rossiter, 1983 at 430m), all sites over 200m. In Durham records are both more plentiful and more widespread. Coastal sites and localities on the eastern limestone plateau are particularly well represented, as also are the river valleys. We even have records from high on the Weardale side of Stanhope Common, from Bollihope Common on the south side of Weardale and from the Hisehope Valley on Muggleswick Common. The only areas not noted are the high moorland ridges between Teesdale and Weardale and between Weardale and the upper part of the Derwent Valley, where the shortage of recorders rather than butterflies is possibly the reason for this omission.

The preferred foodplant is *Rumex acetosella* although it can also be found on *Rumex acetosa* and other species of dock. The Sheep's Sorrel is a regular coloniser of small open spaces and on the high fells where soil slips have occurred along the little streams there is no shortage of foodplant.

There are usually two broods, the first in May and the second in August. In lowland sites such as the River Banks at Chester-le-Street, TCD often finds a third brood in October, especially during good seasons.

1569(12) CUPIDO MINIMUS Fuess., 1775
fa/susD, &S., 1775]

Small Blue

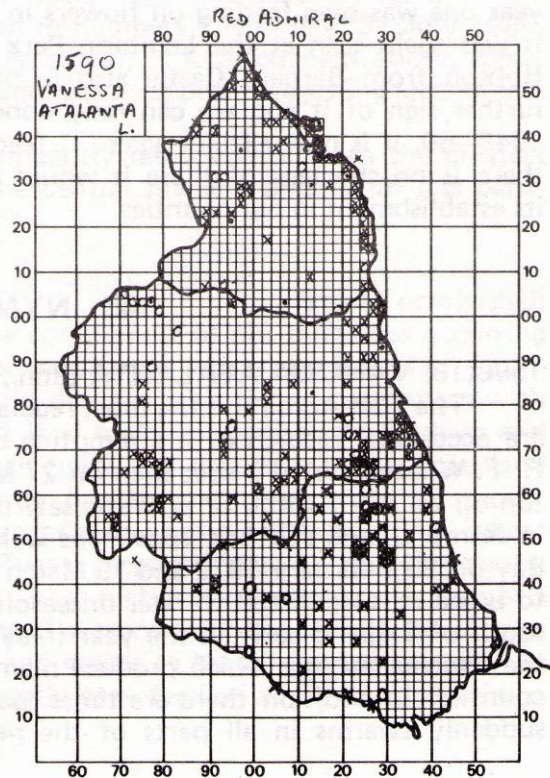
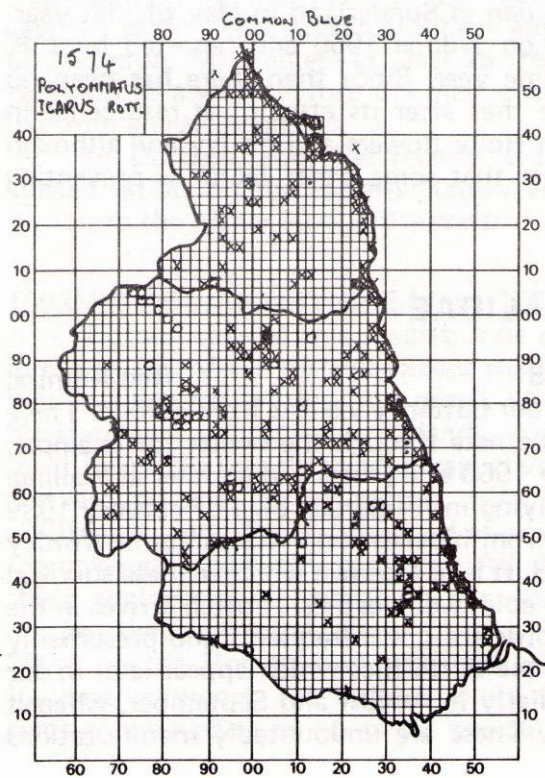
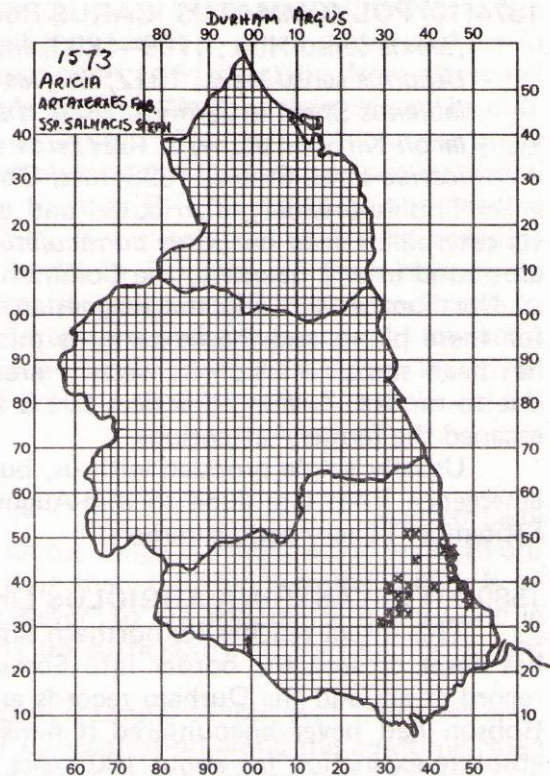
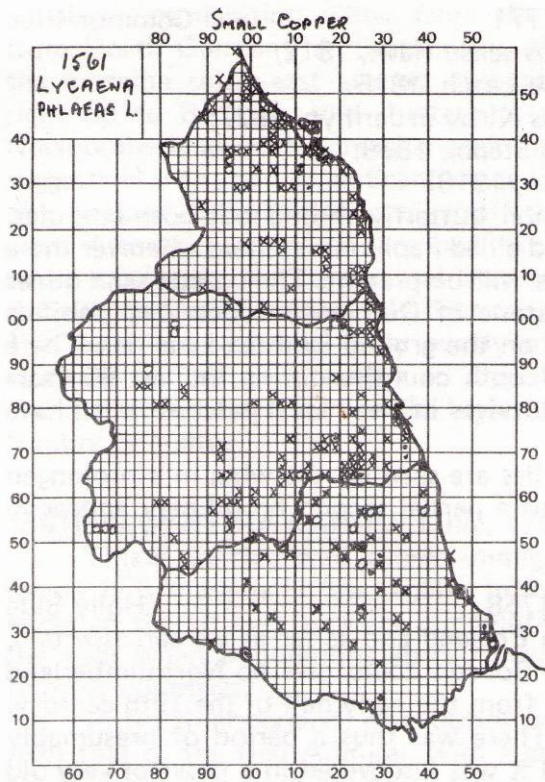
This elusive insect has had rather a disjointed history because of its unusual habits. It can appear as if from nowhere and just as quickly disappear again. The only evidence that Robson had of its presence in Northumberland was that it was mentioned in the introduction to Selby's Twizell List although it did not appear in the list itself. However, there was a single specimen in the Twizell Collection. In Durham, Robson knew it in several places and was of the opinion that it could be found almost anywhere where *Anthyllis vulneraria* grew freely. Wailes listed it for Marsden, Witton-le-Wear, Castle Eden Dene, an old coal heap opposite Wylam and Shut!. Ornsby's Durham provided another locality at Ragpath near Flass which is within the boundaries of Durham City. Robson himself collected it at Blackball Rocks from whence it suddenly disappeared to turn up once more a few miles further north along the coast. In more recent times it was reported from Davidson's Lynn at the head of the Usway Burn in the Cheviots by de L. Aitchison on 24 July 1948. TCD heard from Professor J. W. H. Harrison that it had been found just south of Berwick during the 1939-45 war period but its exact position was never divulged and the information was lost. TCD's impression was that it would be somewhere near what is now the Cocklawburn N. R., but JDP has looked at both the Cocklawburn Dunes and Goswick areas at appropriate times without success. There are equally good if not better sites on the old railway line along the south bank of the Tweed, notably around Norham and Tillmouth, with *Anthyllis* well developed on the banksides; an area which has barely been worked at all. This northern part of Northumberland seems to be the most likely place to find it as it is well known just over the Scottish border.

1573(9) ARICIA ARTAXERXES Fab., 1973,ssp. **SALMACIS** Steph., 1831
Castle Eden or Durham Argus

There has probably been more written about the taxonomic puzzles of this butterfly, sometimes called the Durham Argus, than any other British species. Wailes was the first person to set speculation and argument in motion and in Robson's day there were even more suggestions and counter-suggestions. Into this century the controversy continued and no-one hit on the exact truth until it was settled in 1968 after a number of years of concentrated breeding and experimentation by F. V. L Jarvis in this country, in collaboration with Hoegh-Guldberg in Denmark. The story is too long and technical to go into here, but the final conclusions were quite clear. There are two distinct species of *Aricia* in this country. *Aricia agestis*, the Brown Argus lives in the south of England, its northern limit being roughly from the Humber across to the Mersey with a little southward bulge in the middle so that the Peak District remains to the north of the distribution line. *Aricia artaxerxes*, the Northern Brown Argus inhabits northern England and Scotland up to Cromarty. The Northern Brown Argus appears as two distinct races or subspecies, *Aricia artaxerxes salmacis* in northern England, and *Aricia artaxerxes artaxerxes* in Scotland. The taxonomic puzzle that baffled all the early collectors was the incidence of both sub-species of *Aricia artaxerxes* along the Durham coast between Hart Warren Dunes and Seaham Harbour (it used to go right up to Marsden). The puzzle was almost solved by Professor J. W. H. Harrison who maintained that the coastal colonies represented a mixed population of hybrids of *A. agestis* and *A. artaxerxes*. The north east littoral was an overlap area where *agestis* from the south mixed with *artaxerxes* from the north to give what the geneticist refers to as hybrid swarms. The fact that *agestis* and *artaxerxes* were two different species was not then recognised. It was only when breeding experiments showed that hybrids between the two were not viable that the facts became known. The coastal colonies are certainly hybrid groups but the parents are the two sub-species of *artaxerxes*, that is offspring produced by *A.a.salmacis* X *A.a. artaxerxes*.

We have already indicated that the littoral carries a mixture of the two subspecies. The insects are nurtured by their foodplant *Helianthemum chamaecistus*, Common Rock Rose, which is only found on limestone grassland or grassland with a basic substrate like that produced by the outcropping Whin Sill. As little as a mile away from the coast pure *A.a.salmacis* is found in all the inland colonies right across the north of England. In Durham old magnesian limestone quarries have become ideal habitats and practically all of them have the butterfly. The little patches of ancient limestone grassland, not much of which is now left, are also supporters of the insect. Such places are Cassop Vale, Sherburn Hill, Kelloe Banks and Thrislington Plantation. The last mentioned has become famous in recent times because of the continuing experiments in transplanting the turf to safeguard the butterfly and the special limestone flora, whilst the underlying limestone is quarried.

The sub-species *salmacis* used also to live on one or two Whin Sill outcrops in Northumberland and Bolam has Wickhope, Houxty, Coquetdale, Wooler, Belford, Bamburgh, Kyloe and Scremerston although we think these are not very likely sites. Acting on the advice of Professor J. W. H. Harrison, TCD has searched these during the last 50 years without success. It appears to be extinct, but for anyone interested who could spend some time in the field it is still worth trying to find it. The Whin Sill ridge just inland to the east of Dunstanburgh Castle would be a good place to start.



[*alexis* sensu Hub., 1799-1800; *amandus* sensu Haw., 1812;
tithonus sensu Haw., 1812; *dorylas* sensu Leach, 1815;
labienus Shep. in Jermyn, 1824; *thestyis* Kirby in Jermyn, 1827;
lacon Kirby in Jermyn, 1827; *eros* sensu Steph., 1828;
icarius sensu Steph., 1828; *tutti* Oberthur, 1910]

This is a widely distributed and common butterfly throughout both counties. Its caterpillars feed on *Lotus corniculatus* and allied Papilionaceae and wherever these are found in any quantity, the Common Blue will be present. The coastal sand dunes of Northumberland and the magnesian limestone of Durham produce ideal habitats for these plants and the butterfly is thickest on the ground in these localities. There has been some recession in western areas of both counties during the last 50 years due to modern farming practices but it still survives in small local patches which have escaped the farmers' attentions.

Usually single brooded with us, butterflies are seen on the wing in a prolonged emergence from late June to mid-August, but a partial second brood may appear in September in very good summers.

1580(11) CELASTRINA ARGIOLUS Linn., 1758

Holly Blue

This insect reaches its northern limit in England and as far as we can ascertain, has never crossed the border into Scotland. Robson could give no Northumberland record at all, and the Durham records are all from the early half of the 19th century. Robson had never encountered it himself. There was thus a period of presumably absolute extinction for about 100 years until it was discovered in a grove of very old hollies in Lambton Park, Chester-le-Street by J. W. H. Harrison in 1948. In the same year one was seen feeding on flowers in a garden in Sunderland in May of that year. It was again seen at the Lambton Park site on 1 June 1950 and reported by J. P. Robson from Barnard Castle also in the same year. Since then there has been no further sign of it and we can only conclude that after its attempt at resurgence in 1948—50, it is now extinct again. It feeds on Holly flowers and on Ivy and although there is no shortage of these it would appear that some other factor is preventing its establishment in our counties.

45. NYMPHALIDAE

1590(18) VANESSA ATALANTA Linn., 1758

Red Admiral

The Red Admiral is the most regular of our butterfly visitors from abroad. There are occasional records of it attempting to hibernate through the winter for example, R. F. Wheeler noted a specimen on 27 March 1968 at Byrness and another at Wallington on 20 April 1869. S. E. Watts saw one flying in his garden on 11 February 1939 in Jesmond, and JDP saw specimens waking from hibernation in his garage at Whitley Bay on 23 February 1972 and 15 March 1973. It is not known whether these survived to breed or succumbed to later unseasonable cold, wet weather. It often arrives in the south of England early in the year (May records are not infrequent) and presumably the females lay eggs which produce many of the butterflies which appear later in our counties. In addition there are times, particularly in August and September, when it suddenly swarms in all parts of the region. These are undoubtedly manifestations of direct immigration, either from the south

or more likely across the North Sea from North Germany or Scandinavia. Most of the records in Northumberland are in the extreme south-east around Newcastle, and then again coastally from Cresswell right up to Berwick, with hinterland records around Wooler, then scarce in mid-Northumberland, and increasing again in the south-west. The general picture strongly suggests immigration from Scandinavia in most seasons and this is borne out by several observations of butterflies coming off the sea from an E—ENE direction and heading west. Also they are often 'trapped' accidentally in Heligoland traps at the coastline when operating for continental immigrant birds. In Durham we have nothing so definite, in fact there are only four coastal records as against 83 from inland stations. The latter are scattered fairly evenly over the eastern plateau and central lowlands, reaching up the river valleys to Upper Teesdale and Cowshill in Upper Weardale, and it has even been seen on the high ridge at Crook's Altar between Weardale and the Rookhope Valley.

1591(19) CYNTHIA CARDUI Linn., 1758

Painted Lady

This is another well known immigrant whose range is almost world wide. In our region it is marginally less regular in its arrivals than the Red Admiral. There is no evidence that it ever survives our winter, however, so we seldom see it until late in the year when populations abroad have built up sufficiently to warrant movement to other countries.

In Northumberland, distribution of records is similar to, but even more extreme, than that of the Red Admiral, with a greater concentration along the coastline, then again in the Wooler hinterland, a few in central Northumberland and another concentration along the Tyne Valley. This distribution again suggests arrival from the east. In some years, specimens have appeared in numbers inland (e.g. 31 July 1980, Cramlington, M. Walker—at least 25 freshly emerged), in local concentrations, sometimes up to a week before the main coastal immigrants appear, suggesting local breeding from an earlier arrival.

In Durham, too, the records are significantly more coastal with the greatest concentration on the eastern plateau and the central lowland areas with less penetration to the higher land in the west.

1593(15) AGLAIS URTICAE Linn., 1758

Small Tortoiseshell

Robson says of this species, 'one of the commonest of our butterflies occurring in every part of the district except the higher moorlands, where the foodplant (common stinging nettle) does not grow'. We would disagree with this in connection with his statement about the moorlands. We find it virtually everywhere in Durham and south west Northumberland irrespective of altitude, and particularly over moorland and around the border mosses, being slightly less frequently recorded at middle altitudes in intensively cultivated areas and reappearing again at the coastline, where the coverage is virtually complete. All the refuges, shepherds' cabins, shooting boxes, sheep enclosures, etc. on the high moorlands have high soil nitrogen which supports nettles; they will also have larval nests in 'good' seasons. JDP has seen larvae at over 300m on the Roman Wall, well over 300m and higher in Upper Coquetdale, etc. As for heather moors, the butterflies are frequently seen feeding at heather blossom at some of the highest points in the two counties.

Robson goes on to say that we find larvae in June or July only which produce imagines which hibernate. In this he is not entirely accurate either. In good years, particularly those with an early spring, the butterflies leave their hibernating quarters in March so that caterpillars are found in May and early June. These produce a brood of imagines which mate and tend to disappear towards the end of July, their caterpillars feeding up to give a second brood in September, which then hibernate. This has been the pattern during several years in the 1970's and 1980's. If, however, the spring is late and the summer cold and wet as in 1985, the summer brood may be missed out entirely so that the summer emergence is held back until late July and August and these are the winter hibernaters. This flexibility of life history is a most interesting one, which would repay careful investigation. What, for example, are the exact factors which trigger off the change from double-broodedness to single-broodedness and vice versa? It is probably true that this flexibility has great survival value and may be one of the reasons for the butterfly's success.

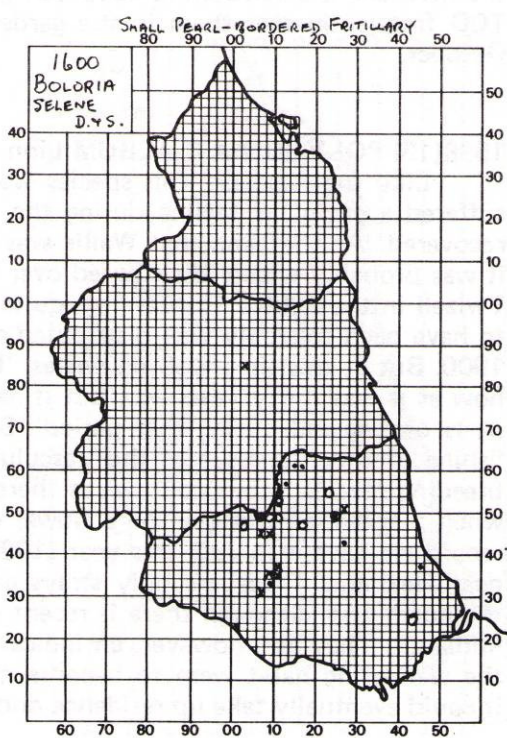
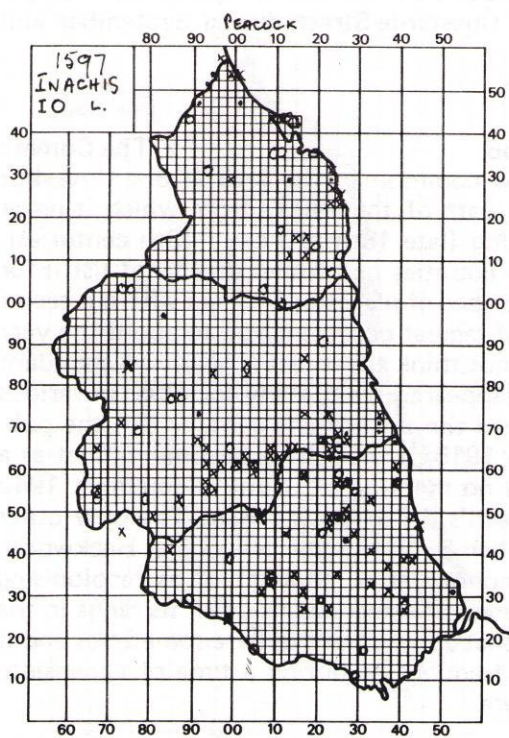
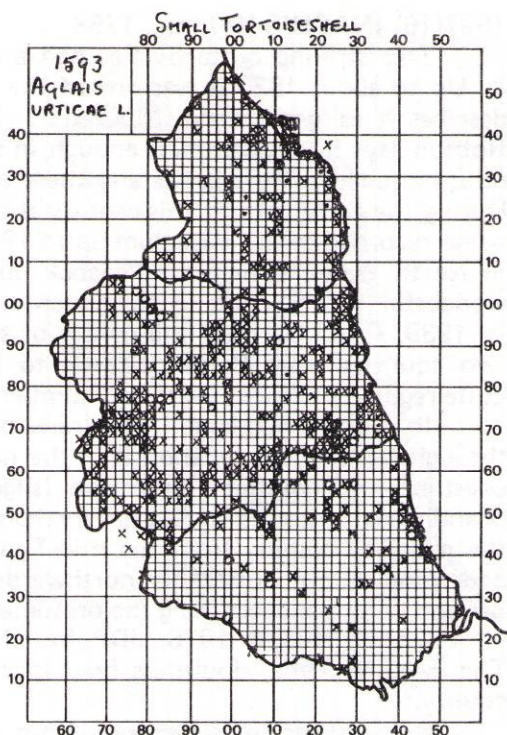
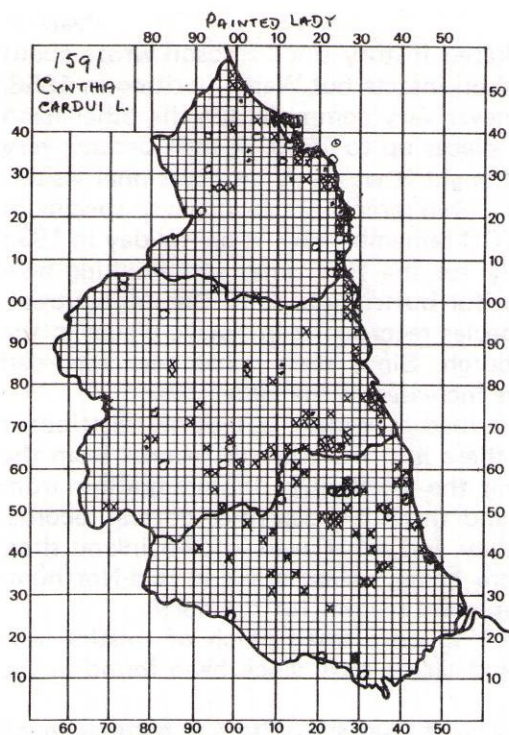
1594(14) NYMPHALIS POLYCHLOROS Linn., 1758 **Large Tortoiseshell**

This species is only included here because of Robson's records. These were rare even in his time, the peak period being when Wallis recorded it in the late 18th century. By the time Wallis was constructing his lists it had already virtually disappeared, the only records being a few (two or three) strays seen here and there under circumstances which did not point to their being residents of the region. The last of these appears to have been at Cullercoats on 12 September 1877, when Wasserman found one sitting on the palings in his garden.

There is a record, which crept into the literature, of one seen in the distance in Wynyard Park in the 1950's but this was undoubtedly a mistake in identity. The specimen could only have been *A. urticae* as by this time it was already almost extinct in the British Isles.

1596(17) NYMPHALIS ANTIOPA Linn., 1758 **Camberwell Beauty**

This is another of those immigrant butterflies like *V. atalanta* and *C. cardui* which arrive on our shores at irregular intervals, only this one is much less frequent in its visits. Over the years odd specimens are seen here and there and then one year they will suddenly arrive in much larger numbers. Such a year, 1820, is described by Robson from the notes of William Backhouse who found specimens in vast numbers on the sands at Seaton Carew being washed up by the tide. Again in 1872 about 20 were captured and as many more seen on the wing within the two counties, most between 20—31 August (T. J. Bold, Ent. Mon. Mag. 9: 245-6). 1935 was another good year although not quite so productive as some, when six specimens were recorded, one each at Birtley, Hexham, Acklington and three around Newcastle. Apart from these special years odd singles were seen in 1915, 1917, 1925, 1944, 1945, 1948, 1972 and 1975. Then in 1976 we had another year when several were seen in our counties and many more noticed over the country as a whole. There were ten separate sightings, from Grass Hill, Harwood in Upper Teesdale, Gainford, Barnard Castle (two specimens), Sunderland, Haltwhistle, Whitley Bay, Newcastle, Stagshaw House in Corbridge and Brownslaw near Wooler. Since then there has been one other probable sighting from Durham City in 1979.



1597(16) INACHIS IO Linn., 1758**Peacock**

This striking butterfly has had a checkered history since Robson wrote about it. Up to about 1820 it was one of the common insects but Wailes, writing in 1858, describes it as 'generally distributed ... but never very common'. On the other hand Robson says it was common enough in most places up to 1860. It then became very rare; he failed to find larvae anywhere and thought it was only an occasional visitor. During the early part of this century it became even rarer, only six or seven specimens being recorded in the *Vasculum* up to 1939. TCD remembers being on holiday in 1933 in North Wales, seeing the Peacock butterfly for the first time, and thinking how wonderful it would be to have such a beautiful butterfly around Chester-le-Street. In 1939, F. C. Garrett, in a review of the species recorded it in twelve places in the two counties from Barnard Castle to Bamburgh. Since then it has been recorded quite regularly in most years and numbers have increased at the same time.

In Northumberland it can now be described as widely but thinly distributed throughout the county, though in the north there is a bias towards records from the coastline and coastline hinterland (suggesting the possibility of immigration from Scandinavia) whereas in South Northumberland there is a dearth of coastal records, the majority coming from the mid-Tyne Valley and other well known inland sites, and thinning out noticeably northwards, there being a clear break in mid-Northumberland before encountering the presumed immigrant records further north.

On 17 August 1976, JDP found about 30 on a small patch of thistles near The Eals, N. Tyne, doubtless bred locally, and larvae have since been found in the county.

By contrast, it is recorded from all parts of Durham, where it appears in all the lists, and is often seen in suburban gardens as well as the countryside, for example TCD frequently sees them in the garden at Chester-le-Street during September and October.

1598(13) POLYGONIA C-ALBUM Linn., 1758**The Comma**

Like the Peacock, this species was also common in the area at one time, but suffered a crippling decline during the later part of the 1800's from which it never recovered. At the time that Wallis was writing (late 18th and early 19th centuries), it was probably widely distributed over both counties but Wailes could not list it for Twizell in the 1850's. Robson lists quite a number of places in Durham where it seems to have been tolerably well distributed and of regular occurrence up to about the year 1900. But at this time Robson writes, 'I do not think the insect is nearly so abundant now as it was thirty years ago, but it has disappeared from many localities in various parts of England during that period'. Between the turn of the century and the publishing of the first issue of the *Vasculum* in 1915, it must have become extinct as a breeding species in our counties as there was no mention of it until September 1942 when a specimen was seen on a flower of Devil's Bit in Cockle Park. The only other record we have is in July this year (1985) when B. N. Rossiter saw one at Hackwood, near Hexham. These are only strays and cannot yet be thought of as recolonising the north-east, although there is recent evidence of some expansion of its range in the Midlands. They are, however, an indication that they do arrive here sometimes and if the wandering habit were to become more frequent as during a time of expansion, it could eventually take up residence once more.

1600(23) BOLORIA SELENE D. & S., 1775 Small Pearl-bordered Fritillary
[*thalia* Hub., 1790, nee Linn., 1758; *euphrasia* Lewin, 1795]

In Robson's Catalogue, this butterfly is recorded as widely distributed over both counties although Meldon Park and Hexham were the only Northumberland sites to be mentioned by name. It was more frequently seen in Durham where the Derwent Valley seemed to be the stronghold. Nowadays it is no longer seen in Derwentside, the last record being in 1946 when it was observed in the Sneap area during a field meeting of the N.N.U. F. W. Gardner had it in the west Tyne valley in 1962 but present day workers have been unable to find it again despite a thorough search. The only Northumberland locality for it now is near Wellington where a specimen was seen on 30 June 1985 by Mrs. Etherington and JDP has seen her excellent photographs.

It is still about in Durham where we know of at least seven good colonies mostly bordering the A68 between Tow Law and Consett and in and around Hamsterley Forest. Even so, this represents a recession on its former status and careful monitoring of the species must occur if we are to retain it as a resident species.

Although the books give its foodplant as *Viola canina*, TCD has never found it on this plant. (Indeed the plant is so rare in Durham and Northumberland that neither this or the following species could survive if they were dependent on it); he has never found caterpillars on anything other than *Viola palustris* and this is, without doubt, its preferred foodplant in these counties. This is why South's 'British Butterflies' and other butterfly books mention the habitat of the two species of *Boioria* as being 'damp, swampy patches in woodland rides, along streamsides and in valley woodlands'. These are just the places to find *Viola palustris*, but never *Viola canina*!

1601(22) BOLORIA EUPHROSYNE Linn., 1758 Pearl-bordered Fritillary
[*varianna* Verity, 1932]

This species, which was once well known in both counties seems to have suffered a complete eclipse in recent years. Robson says 'This certainly was the commonest of the fritillaries in our counties, and though it is no longer abundant as formerly, it has not entirely disappeared'. Although he had only a single record from Northumberland—from Jesmond—he was certain it must occur elsewhere. It did, but the number of places were not many. An N.N.U. Field Meeting saw it at The Sneap in 1929 and another similar outing met with it at Dilston in 1931 and again to the south of Riding Mill in 1946. It was recorded at Blanchland by M. Fisher in 1951 and F. W. Gardner reported it as found sparingly in the west Tyne area in 1962. There the records end in Northumberland.

In Durham the story follows a similar path. It was known in Teesdale and in Cat Mill Wood near Darlington in 1921 and 1922 and recorded in the Derwent Valley, Lanchester and the upper Browney Valley in the 1930's. C. J. Gent saw it in Stuart-field Lodge Plantation in 1947 and J. W. H. Harrison along the Hisehope Burn in 1956. In that same year it was in Chopwell Woods (J. E. Hull). The Browney Valley seems to have been quite a stronghold for TCD remembers seeing it in the fields alongside that river bordering on the large birch wood (the Black Wood) where the road between Lanchester and Satley crosses the river. It was flying in 1964 but sometime in the next few years the fields were ploughed out and reseeded to 'improve' the pasture for cattle. As always happens, the violets were ploughed

out, did not survive and the butterfly disappeared. That was probably its last stronghold in the two counties. It has not been found during the 1980's when an intensified search was carried out. We must conclude that it is now extinct, unless someone can prove otherwise.

1607(21) ARGYNNIS AGLAJA Linn., 1758 **Dark Green Fritillary**
[*charlotta* Haw., 1803; *caroletta* Germ., 1827; *emilocuples* Verity, 1919]

Robson in his Catalogue said of this species, ' . . . another beautiful species which, I fear, is disappearing from our district'. His fears have not been realised, fortunately. It is, if anything, a little more plentiful now than it was then. We find it widely distributed but never in very large numbers except in one or two places, such as Holy Island and Hamsterley Forest where the conditions seem to suit it admirably. For breeding purposes it prefers somewhat sheltered places like sand dune hollows or open spaces in woodland where various kinds of violet, but chiefly *Viola riviniana*, grow. Another habitat which is favoured is the *Viola riviniana* plants growing in the ground flora under heather. This accounts for the frequent sighting of individuals on heather moorland, where they are often seen careering round at high speed in the sunshine in late June, July and August.

This fritillary is an inveterate wanderer and very strong on the wing so that places where it is seen have little meaning. As an example, one was seen on the University Campus at Newcastle on 26 August 1976 and sightings from places like this are not rare. However, the number of records, especially for Durham, is so very large that it has to be called a widespread species here. In Northumberland there have been fewer sightings and the vast majority are situated on the sand dunes between Bamburgh and Berwick (vc 68), with a smaller concentration in the mid-Tyne valley (vc 67). There are also a number of records from the Blanchland area on both sides of the river.

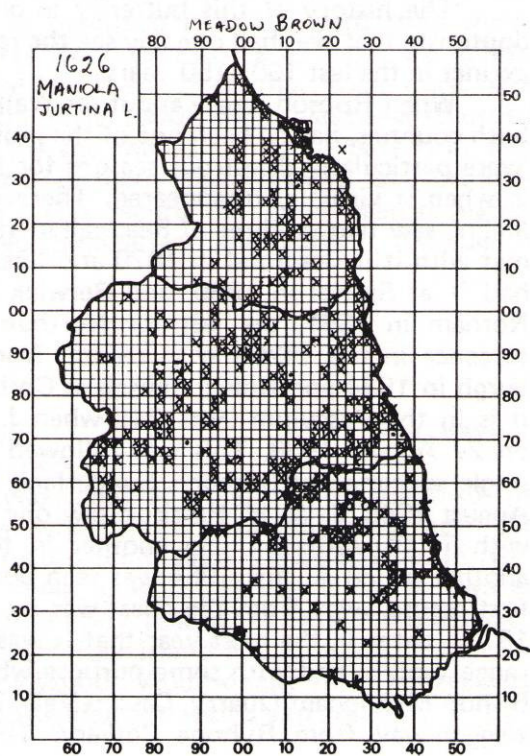
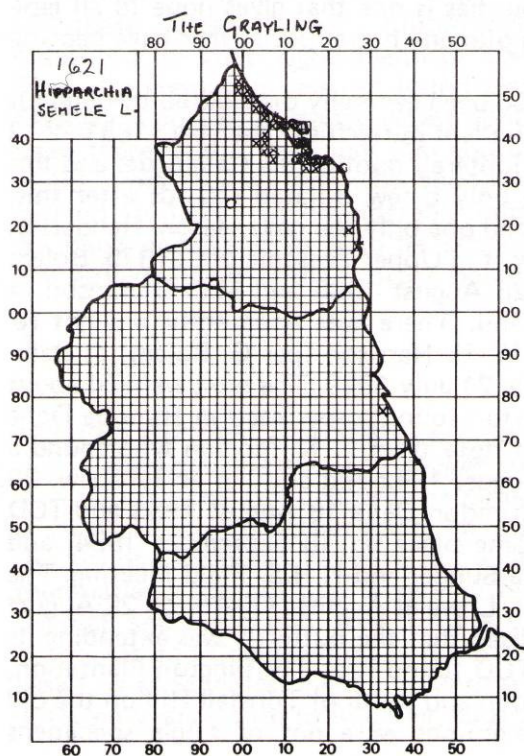
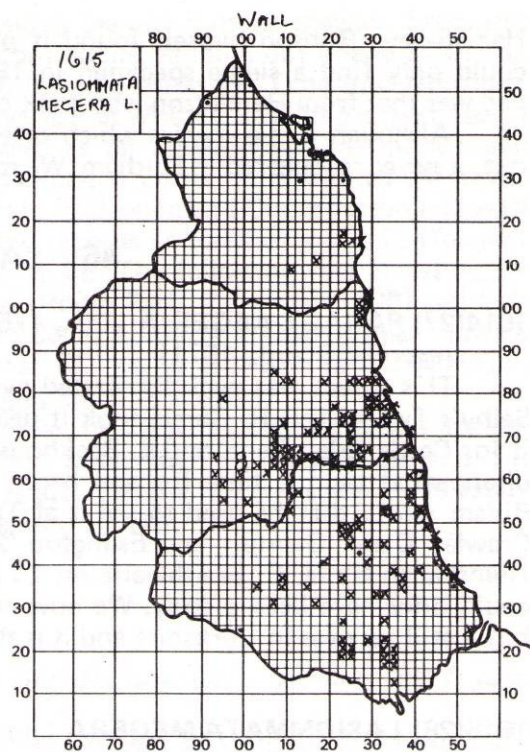
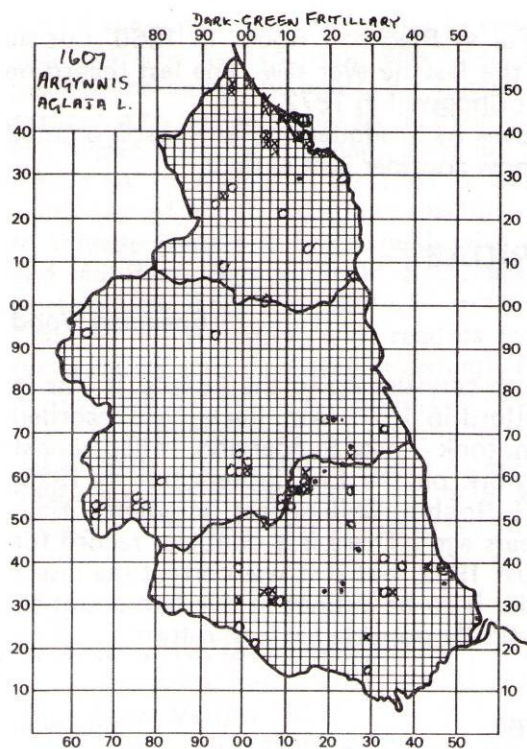
1608(20) ARGYNNIS PAPHIA Linn., 1758 **Silver-washed Fritillary**

We include this butterfly only because it is mentioned as having occurred in our area in the 1850's. Robson also mentions Wailes as listing it for Gibside and Dilston, but no dates are given as is also the case with Mr. Henderson and his capture at Jesmond. The two dated records are from John Sang, Hartford, 21 August 1853 and specimens in his own (Robson's) collection labelled 'Castle Eden Dene, 1855'.

We have no records and consider it to be extinct in the two counties at present, although a resurgence is always possible.

1610(24) EUPHYDRYAS AURINIA Rott., 1775 **Marsh Fritillary**
[*artemis* D. & S., 1775; *scotia* Robson, 1880; *signifera* Kane, 1893; *anglicana* Fruh., 1917; *acedia* Fruh., 1917; *scotia* Gaede, 1930]

This species, like the last, is also included here only because it is in the Catalogue. Wailes listed it for Durham City in the Flass locality as does Ornsby's Durham together with Castle Eden Dene. It is mentioned in the Tyneside Naturalists' Transactions Vol. V, as having been seen at High Force in Teesdale in 1860. Hedworth also found it about the same time in the Derwent Valley, and W.



Dinning had it at Hamsterley. Robson himself found it plentiful at Blackhall Rocks in 1860, but he could only find a single specimen in 1861, the last he ever saw. The last record he had was that from Henderson who took one at Chopwell in 1872.

Although it is a species which often moves its headquarters, as Robson pointed out, it never reappeared in Durham. We must now consider it as extinct.

46. SATYRIDAE

1614(27) PARAGE AEGERIA Linn., 1758
[*egerides* Staud., 1871]

Speckled Wood

This insect was well distributed over both counties up to the 1840's. It was in Selby's Twizell list, R. Currie took it near Belford in 1826, Wm. Backhouse recorded it for Castle Eden Dene, and E. Backhouse Jun. took it near Sunderland. It had almost disappeared by the time Robson began his work on the Lepidoptera but in 1925, Bolam wrote that he used to see it at Twizell, Belshill, Chillingham, Middleton Hall, Crawley Dene, Glanton, and Eslington '20 years ago'. There is a doubtful record for Humshaugh by M. E. Braithwaite on 29 August 1982, but if it was correct the insect could only have been a stray. We now consider it to be extinct in our two counties, but it still survives in Yorkshire and it is theoretically possible for it to return.

1615(28) LASIOMMATA MEGERA Linn., 1767
[*megaera* misspelling; *maera* sensu auct; *caledonia* Verity, 1911]

The Wall

The history of this butterfly in our counties is one that gives hope to all lepidopterists that we shall one day see the return of many more species that have become extinct in the last 100-150 years.

When Robson wrote about the Wall it had been generally distributed throughout both counties, having been one of the most abundant butterflies. The years 1861-2-3 'were particularly disastrous seasons for Lepidoptera', quoting the Catalogue, and this is when it virtually disappeared. There were only a few isolated records after this. Maling saw two or three at Beadnell in 1870 and one only the next season. Henderson met with it in Jesmond in 1870 and Lees saw it in Upper Teesdale until 1875. Bolam had it at Spittal in 1880, and Berwick on 26 August 1886 and Miss Dickinson at Norham in 1891, the last for Northumberland. There was apparently a slight resurgence in the 1920's with records from J. W. H. Harrison (per G. Bolam) at Bamburgh in 1924 and Bolam himself at Corbridge, 21 July 1929. The next we read about it is in the Vasculum (Vol. 24), when J. Newton found a specimen in Ryhope Dene on 27 August 1938. This was followed by a note from J. K. Morton who found a single specimen at Seaburn, Sunderland in August 1942 and another at Penshaw, 30 August 1945. J. W. H. Harrison saw one in Crimdon Dene 18 August 1953 and TCD with T. W. Jefferson saw another in the same place on 18 September 1954, and another on 28 August 1964 was seen during a Sunderland N.H.S. Field Meeting. The first record away from the coast was by R. H. Lowe at Aycliffe Quarry on 28 August 1971. It was in the next year that it was realised that the butterfly was extending its range rapidly and with some purpose when TCD found it at Thrislington Plantation, Bishop Middleham Quarry, Cassop Vale, Dawdon and south of Tunstall Hill on the old waggon-way from Ryhope Colliery. These sightings were not of single specimens but of

some numbers, increasing to swarms along the old Ryhope railway. From this year onwards its expansion was rapid and continuous, fanning out inland as well as northwards along the coast. By August 1976 it had crossed the Tyne into Northumberland where it was seen by T. Swinburn and JDP at Whitley Bay. In the next year it had penetrated the Durham dales in the west as far as Middleton-in-Teesdale and Frosterley in Weardale. By 1982 it was expanding from its initial stronghold in the south-east of Northumberland reaching north to Wideopen and Choppington and west to Whittle Dene and Stocksfield, with isolated records at Ratcheugh (C. C. Douglas) and Mill Burn, Bamburgh (M. S. Hodgson) in vc 68. The following year it was northwest to Low Angerton (JDP c.6) and west to Broom Park, Tynemeet (JDP) and Colt Crag (B. N. Rossiter), with records from vc 68 at Little Mill Quarry near Howick (whereabouts it is probably breeding), Boulmer (B. Harle) and on the old Alnwick/ Wooler railway line (P. Corkhill) and near Rugley (Mrs. A. Nisbet).

It is now one of the commonest butterflies in Durham, a spring brood appearing in May and a second brood in August and September. In Northumberland it is now abundant in the south east as far west as just into the NY grid square, and established in the south-east of North Northumberland (vc 68).

1618(25) EREBIA AETHIOPS Esp., 1777

Scotch Argus

[*blandina* Fab., 1787; *media* Hub., 1799; *alcyone* sensu Stewart, 1817; *caledonia* Verity, 1911]

This is a northern species of butterfly which used to have an outlier in Castle Eden Dene in the last century. It was first recorded there by W. Backhouse and it was still there during Robson's lifetime where he described it as abundant from Dene-mouth on the coast right inland to Edderacres Wood (a distance of about 3½ miles). Strangely enough it was not found anywhere else in either county. There must have been some sort of butterfly catastrophe in the early 1900's for it was never recorded from there in the *Vasculum* (1st edition 1915) and the only note we have is in Vol. 12;80, from Hilda Finch who found it in the Northern Hills (Elsdon) of Northumberland in 1925, 'in considerable numbers'. This record has never been repeated. We must now consider it to be extinct in Northumberland and Durham, although it still survives just over the Scottish border.

1621(26) HIPPARCHIA SEMELE Linn., 1758

The Grayling

[*anglorum* Verity 1924; *angliae* Verity, 1924]

During the last century the Grayling was common along the full length of the Durham Coast from Hartlepool to Marsden where Robson himself knew both the fly and its caterpillar. We have not a single record for it since the Catalogue. In Northumberland the position is very different. Even in Robson's day it was known at Berwick and Bamburgh. It is still there and flies every year in the sand dunes between Seahouses and Cocklawburn N.R., as well as on Holy Island and on some sites on the basalt as at Spindleston and inland to Kyloe Woods. Additionally there are records, in recent years, south to Boulmer, suggesting a tendency towards expansion.

1625(30) PYRONIA TITHONUS Linn., 1771
[*pilosellae* Fab., 1775]

The Gatekeeper

This species was widely distributed throughout both counties in Robson's time but he did admit that it was not so plentiful in 1899 as it had been twenty or thirty years before that. Evidently it was already in recession which must have quickened in the early 1900's as did *E. aethiops* for there were no further records except for odd specimens at Houxty in 1918 (Abel Chapman) and Hesleyside in 1925 (G. Bolam).

This is another species which, sadly, has become extinct although TCD has heard rumours, but only rumours, that odd specimens are occasionally seen at Tees-mouth which 'look like' *P. tithonus*.

1626(29) MANIOLA JURTINA Linn., 1758
[*janira* Linn., 1758]

Meadow Brown

This species has always been common and evenly distributed throughout the two counties, except that it is slightly but noticeably thinner in the Border Forests of North Northumberland (where it is less well distributed than, for example, the Green-veined White). Robson had it in all his lists and so do we apart from the exception noted above. Wherever a little rough grass occurs, *jurtina* will be found. In Cassop Vale there is a race of abnormally large, brightly coloured butterflies approaching the Scottish form *splendida* White, 1872.

1627(33) COENONYMPHA PAMPHILUS Linn., 1758
[*scota* Verity, 1911; *londonii* Verity, 1926]

Small Heath

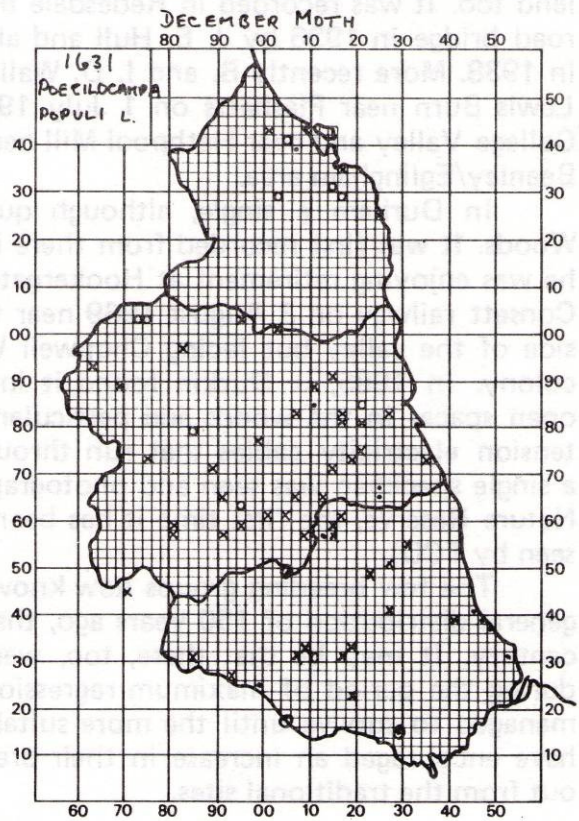
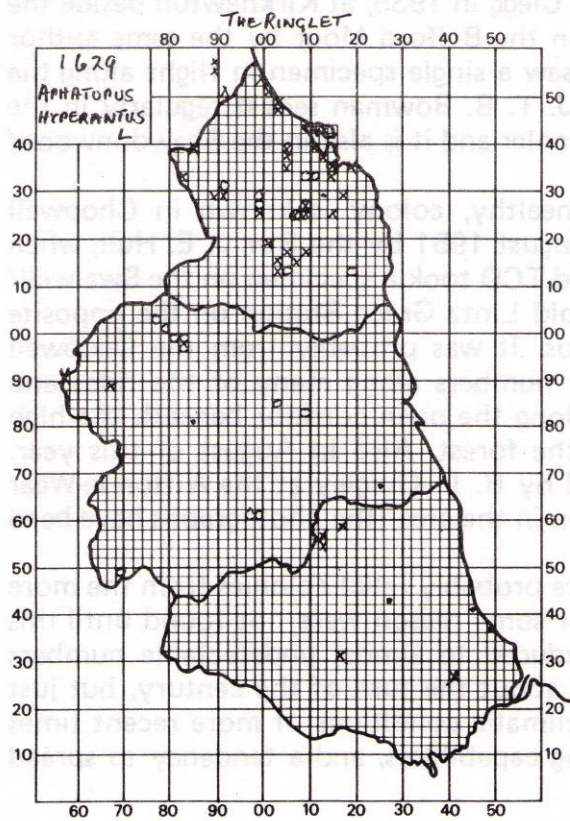
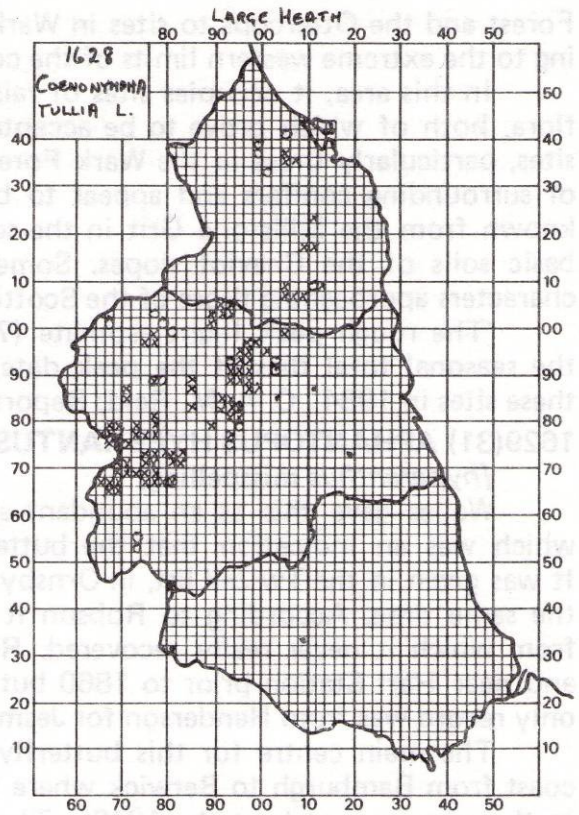
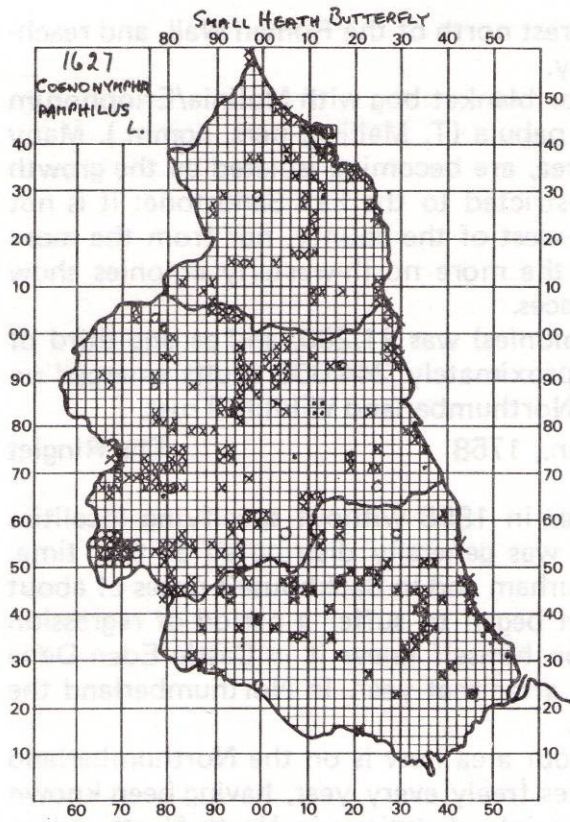
This species is fairly common in both counties where it occurs, but its distribution is rather patchy. In Northumberland records are concentrated along the mature dune stands and then noticeably following the Fell Sandstone south-west and across to the Millstone Grit. There are very few records in the coastal hinterland and it is not at all well recorded in the Tyne Valley. A somewhat comparable pattern is seen in Durham, where the eastern limestone plateau is well represented, the central river valleys less well recorded except for rough grassy wasteland patches, and the higher moorland of the west showing a fairly continuous covering although here it is much less plentiful. There has been some recession in recent years, numbers being well down on those of the immediate post-war years. In both counties the distribution pattern clearly indicates a strong dislike of cultivation.

1628(32) COENONYMPHA TULLIA Mull., 1764

Large Heath

[*tiphon* Rott. 1775; *typhon* misspelling; *davus* Fab., 1777;
philoxenus Esp., 1780; *hero* sensu Lewin, 1795; *rothliebi* Staud., 1861]

The old collectors knew this species in both counties for, as well as Muckle Moss and the mosses along the Roman Wall, it was also recorded for areas around Shull and Upper Teesdale; '... it was taken in great plenty at the head of the "Wheel" above Cauldron Snout by the members of the Tyneside Club in July 1880.' The Durham colonies have been completely lost, but the insect is still plentiful in its special habitats in Northumberland. These form a quadrant of 40 or more sites following the Fell Sandstone from Kyloe Woods in the north-east through the Simonsides, Harwood



Forest and the Ottercops to sites in Wark forest north of the Roman wall, and reaching to the extreme western limits of the county.

In this area, it occupies sites of raised or blanket bog with *Molinia/Eriophorum* flora, both of which prove to be acceptable *pabula* (T. Welling, pers. comm.). Many sites, particularly those in the Wark Forest area, are becoming isolated by the growth of surrounding conifers and appear to be restricted to the Fell Sandstone: it is not known from the Millstone Grit in the south-west of the county, nor from the more basic soils of the Cheviot slopes. Some of the more north-westerly colonies show characters approaching those of the Scottish races.

'The rough peak flight estimate (74 colonies) was 81,200, and as one third of the seasonal total flies at the peak date, approximately 244,000 adults emerged on these sites in 1984', C. A. M. Reid; Report to Northumberland Wildlife Trust.

1629(31) APHANTOPUS HYPERANTUS Linn., 1758
[*hyperanthus* misspelling]

The Ringlet

Wailes gave this as an abundant species in 1858 without specifying localities which was an indication that the butterfly was generally distributed at that time. It was given in the Twizell list, in Ornsby's Durham and in Backhouse's notes of about the same time. According to Robson it then began to suffer a period of regression from which it never really recovered. Robson himself knew it in Castle Eden Dene and near Hart Station prior to 1860 but not after that year. In Northumberland the only record was from Henderson for Jesmond.

The main centre for this butterfly in our area now is on the Northumberland coast from Bamburgh to Berwick where it flies freely every year, having been known in the area from at least the 1940's. There are inland stations in North Northumberland too. It was recorded in Redesdale by F. Clegg in 1935, at Kirknewton beside the road bridge in 1936 by J. E. Hull and also on the Belford Moor by the same author in 1938. More recently B. and I. D. Wallace saw a single specimen in flight along the Lewis Burn near Plashetts on 1 July 1973, J. T. B. Bowman sees it regularly in the College Valley and near Hethpool Mill near Wooler and it is also in the Shawdonwood/Beanley/Eglington area.

In Durham a single, although quite healthy, colony is known in Chopwell Woods. It was first recorded from there in August 1951 by the Rev. J. E. Hull, when he was enjoying retirement at Hookergate and TCD took a specimen on the Swalwell/Consett railway on 3 August 1969 near the old Lintz Green Station on the opposite side of the valley but facing Chopwell Woods. It was probably from the Chopwell colony. In 1985, J. Durkin found it in fair numbers along many of the rides and open spaces in the woods and particularly along the open corridor beneath the high tension electricity cables that run through the forest. Also in August of this year, a single specimen was seen and photographed by R. L. Quigley at the Witton-le-Wear Nature Reserve, the first time it has been seen in the area (the photographs have been seen by TCD).

The few breeding groups now known are probably relict colonies from the more general distribution of 150 years ago, that for some reason were not found until this century. It may be that these, too, were reduced to almost undetectable numbers during the period of maximum regression at about the turn of the century, but just managed to survive until the more suitable climatic conditions of more recent times have encouraged an increase in their breeding capabilities, and a tendency to spread out from the traditional sites.

47. DANAIDAE

1630(-) DANAUS PLEXIPPUS Linn., 1758
[*erippus* Cramer, 1775; *archippus* Fab., 1793]

The Milkweed

Only two specimens of this very rare immigrant from North America have been notified from our counties. When they do manage to traverse the Atlantic they usually make a landfall on our southern and western coasts and these are where most of the sightings occur. One was caught near Darlington in September 1926 by F. O. D. Sibson and another by J. W. H. Harrison in Hawthorn Dene in September 1933.