

Hull Natural History Society

Bulletin

Series 5: Number 1
March 2021



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Cover photo

Gorse on the Westwood, February 2021 © Valerie Fairhurst

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Revision 2

Editorial

Richard Middleton and Andrew Chadwick

This publication will be the first part of Series 5 of the Society's Bulletins. There is no intention to distribute it other than as a pdf document so it has been designed primarily for screen reading. However it can still be printed for anyone requiring a hard copy. By making it available as a free download from our website it should reach a much wider audience than our previous publications.

The intention is that it will be used for recording the activities of the Society, for example by field trip reports, and of its individual members. We are hoping that members will submit original items about their observations or topics that interest them. These could be items that are perhaps too long for the website's 'News' page. Electronic publication will also mean that colour illustrations will be particularly welcome, something that restricted the content of the previous volumes of the Bulletin.

We have taken the opportunity to raid the archives and reprint four articles from our past publications. Eva Crackles' item on three rare plants found at Paul in 1965 provides ample information on where it may be profitable to look again, along with an excellent identification guide. Brian Pashby's contribution, again from the early 1960s, provides a detailed baseline for anyone wishing to repeat his bird survey of the Northern Cemetery. (Are the Redpolls still there?) Alfred Rider's reminiscences of the fish and mammals of Dunswell in the late 1940s, along with a useful map, invites a re-examination. It would also be useful to hear how the current status of the Brimstone butterfly in Yorkshire, compares with that outlined by Colin Mills in 1977.

Hull Natural History Society

President	Helen Kitson
Secretary	Andrew Chadwick
Treasurer	Rohan Lewis

The Society was founded in 1880 as the Hull Field Club later to become the Hull Scientific and Field Naturalists' Club. Over the last 140 years the members of the Society have continued to observe and record the plants and animals of Hull and the surrounding areas.

We have a regular monthly programme of outdoor field meetings and, during the summer, weekly evening meetings to more local sites of interest. During the winter months we also arrange a few indoor talks by members or visiting speakers.

If you are interested in any aspect of natural history at whatever level, beginner or expert, then do consider coming along to one of our meetings. Full details can be found on our website at www.hullnats.org.uk or email the Secretary at info@hullnats.org.uk.

Holly Leaf Miner

Richard Shillaker

Until 2018, a leaf mine on a Holly *Ilex* sp. growing in the UK would have been considered to have been caused by the larva of just one species, the Holly Leaf Miner *Phytomyza ilicis*, a tiny Agromyzid fly. No further criteria would have been required to establish the species.

© Barry Warrington (with permission)



A: Typical blotch mine of *Phytomyza ilicis*

The situation changed when the larva of a related species, *P. jucunda* (native to Japan), was found in Holly leaves in Belgium and the Netherlands. This raised the possibility that both species might be present in the UK, and that a more detailed investigation would be

necessary to identify the species causing a mine in a Holly leaf.

To make things easier for the non-specialist, Barry Warrington (organiser of the National Agromyzidae Recording Scheme) has recently established criteria to identify the species causing a mine in a Holly leaf, based on features of the mine and puparium (Warrington, 2021). A blotch-like mine, often with a red centre where frass has been deposited, is the typical mine caused by the larva of *P. ilicis* (Photo A).

However, *P. ilicis* can also produce an atypical mine (Photo B) that closely resembles (or is identical to) a mine formed by *P. jucunda*. The larva of *P. jucunda* excavates a long gallery mine which widens strongly, often creating a secondary blotch; frass is present as an almost continuous dark line, aligned slightly off-centre, along the gallery.

If you can find a puparium in the mine, and have access to a microscope, it is possible to determine the species from the size and shape of the anterior spiracles (these stick through the leaf surface). They are short and nearly parallel in *P. ilicis*, as compared with relatively

long and strikingly bifid in *P. jucunda*; more details are given in Warrington (2021).

© Adam Parker (with permission)



B: Atypical gallery mine of *Phytomyza ilicis*

Barry, who verifies records submitted to iRecord, asks that all submitted records of Holly leaf mines are accompanied by a photograph. *P. jucunda* has not yet been identified in the UK and so if you find a long gallery mine in a Holly leaf please email Barry at agromyzidaeRS@gmail.com because he may wish to examine the mine.

Reference

Warrington, B. (2021) Clarification of the European status of *Phytomyza ilicis* Curtis (Diptera, Agromyzidae). *Dipterists Digest* 28 (1), 89–93

At Pulfin Bend, River Hull, July 7th, 1900

Edward Lamplough

From Transactions of the Hull Scientific and Field Naturalists' Society 1(3), 156.

Our early publications often contained reports of our field meetings. This one from 'the powerful pen' of the sometime president, Edward Lamplough (1845–1919), records a rather breezy excursion in the Hull valley.

Blue sky above, white clouds, and Summer rays
That gleam on meadows stretching wide and green
To Beverley's grey pile, resting serene
In solemn state—Time's relic of lost days:
A strong wind o'er the river's surface plays
Where darkening ripples dull its Summer sheen;
Low in the blast reed-plumes and sedges lean,
Where pink Valerian tosses in a maze
Of yellow Iris, panicles of grass.
And perfumed Meadow-sweet; in lowly state
Blue-eyed Forget-me-nots and Orchids pale
From rushy nests peep forth; where Marsh-peas mass
Their trailing stems and blossoms fair—elate
O'er marsh and river sweeps the Summer gale

Edward Lamplough

Contributions

Contributions to the Bulletin are always welcome. These can be on any subject connected with natural history—records of species, observations, reports on visits—or something more subjective—opinions or feelings about nature, maybe even expressed as a poem! You may have a good photograph which would be suitable for the front cover.

Please send your contributions to editor@hullnats.org.uk or via the Secretary at info@hullnats.org.uk

The next issue of the Bulletin will be published when we have amassed sufficient material, so there is no specific deadline.

Ideally your contribution should be in the form of a Windows compatible text or word-processor file or an email containing the text of the article. Any photographs should be sent as separate files, even if they have been inserted in the article. They should be clearly identified and be referenced from the text where necessary. You should have obtained permission to use any photographs or material that is not your own. However, don't let that put you off. We can cope with most things, even a hand-written article!

Although we are grateful for all contributions, the editors reserve the right to edit or abridge them. Any extensive revision will be discussed with the contributor. In extreme cases, the article may be declined as unsuitable, but this will only be done after consultation with all current Officers.

Willerby Carr Dyke an aqua green

Richard Shillaker

Hull aqua greens are typically dual purpose amenities providing both flood prevention capacity (usually temporary surface water storage) and a public recreation area. Willerby Carr Dyke is slightly different because it was designed to improve existing drainage as well as providing a community greenspace and better habitat for wildlife.

© Paul Collinson (with permission)



A: Flooding of Setting Dyke Community Greenspace. January 2021

Willerby Carr Dyke was created in 2016 by opening up (daylighting) over 300 m of a culvert that had become blocked with tree roots and debris, and was hindering drainage

from the Priory Road catchment. The opportunity was taken to make the surrounding land (now known as Setting Dyke Community Greenspace) more attractive to

© Adele Larkin (with permission)



B: Flood water entering Willerby Carr Dyke. January 2021

visitors and wildlife by giving the dyke a slightly meandering course, planting an orchard and installing paths and bridges.

Excavated material was used to raise the ground to the east of the dyke to prevent flooding of neighbouring houses.

One of the other benefits of the dyke has been

to help improve drainage from the extensive flat grassland to the west of the dyke, both through surface run-off and via pre-existing land drains. Photo A shows extensive flooding of the Community Greenspace following a period of rain in early January this year. In Photo B, water can be seen flowing off the grassland and into the north end of the dyke. Photo C, from the previous summer, shows the same area of the dyke with abundant and varied aquatic vegetation, demonstrating the biodiversity importance of this aqua green.



C: Willerby Carr Dyke, north end. June 2020

Willerby Carr Dyke drains via a culvert into Setting Dyke which in turn drains into the Yorkshire Water Northern Trunk Sewer. Water from the Willerby and Derringham flood alleviation scheme (Great Gutter Valley and Willerby Carrs Sections) is also passed

forward, at a controlled rate at 15 l/sec, into Setting Dyke upstream of Willerby Carr Dyke and then flows into the Northern Trunk Sewer. Because of the flat nature of the land, Setting Dyke is slow to drain and its water level can rise significantly after heavy rain. Trash screens protecting culverts under roads are

therefore cleaned regularly to keep water flowing freely. In the future, it is hoped that some natural flood management measures (with associated benefit to wildlife) can be installed to slow the flow from the upper catchment and thus reduce water build up in Setting Dyke.

Acknowledgements

Thanks are due to Adam Jordan, Senior Flood Risk Engineer at Hull City Council, for help in preparing this note, and to Paul Collinson and Adele Larkin for use of their photographs.

Notes on the Brimstone Butterfly

Colin Mills

*This article first appeared in Bulletin 4.1
(October 1977)*

Britain is not rich in butterfly species. There are approximately 380 species indigenous to Europe and of these only 58—including three immigrants—breed in this country. A number of species are at the limit of their range and although generally distributed on the continent of Europe, their existence in the United Kingdom is of a tenuous nature.

Butterfly populations fluctuate over the years with periods of comparative abundance and scarcity alternating. These fluctuations do not affect all species at the same time. They are not necessarily local and can occur synchronously throughout the country. The reasons for this are obscure, but climate and species–parasite relationships seem to be the most likely factors involved.

In general terms, the number of species and overall population levels decrease from south-west to north-east. Species on the edge of their range arouse particular interest and indeed Yorkshire represents an area in which a

number of species are of special significance. Neither the Small Skipper (*Thymelicus sylvestris*), the Grizzled Skipper (*Pyrgus malvae*) nor the White-letter Hairstreak (*Satyrrium w-album*) is currently recorded any further northwards. The isolated and local colonies of the Duke of Burgundy Fritillary (*Hamearis lucina*) in the North Riding apparently represent its northern limit and the isolated colonies of Marbled White (*Melanargia galathea*) on the Wolds are of outstanding importance. The Gatekeeper (*Pyronia tithonus*)—although well established in Lincolnshire—is less common in Yorkshire than formerly, but a few colonies in the south of the county seem to be maintaining a precarious foothold.

One species of particular interest is the Brimstone (*Gonepteryx rhamni*). This species does occur further north, notably in the Lake District, but southern Yorkshire now seems to be the limit of its established range on the eastern side of Britain. George T. Porritt, in his 'List of Yorkshire Lepidoptera' 1883, writes of the Brimstone 'Of general occurrence—except in the coal districts of the West Riding where it is rare—but scarcely so common as the last' (referring to the Orange-tip (*Anthocharis cardamines*)). In his supplement dated 1903 he

writes 'Widely distributed but apparently not nearly so common as my former record would lead one to believe'.

It is occasionally sighted at Spurn Head where it is classified as a vagrant i.e. occasional, non-breeding and non-migratory. The Yorkshire Naturalists' Trust reserve at Askham Bog used to hold a good colony but there are apparently no recent records. Official sightings in the county, certainly those over the past thirty years, have been most irregular and the current status of the species in Yorkshire is officially described as 'Thinly distributed and mainly in the south and east of the county'.

It was with some excitement, therefore, that I discovered a female Brimstone hibernating in a greenhouse in Cottingham on the 15th September 1974. It usually selects evergreens for its winter retreat, chiefly Ivy (*Hedera helix*) and Holly (*Ilex aquifolium*), clinging to the underside of a leaf.

The Brimstone is one of the few British species to hibernate as an adult butterfly, the only one in fact outside the family Nymphalidae. It emerges from the chrysalis in July and August and some specimens hibernate almost at once, though others may be seen flying as late as October. A single Brimstone female was

sighted at Hornsea Mere on the 8th August 1975 and I have subsequently had two sightings in August 1975 and three in August 1976. All these were males, flying strongly in a westerly direction on the northern outskirts of Cottingham and it is interesting to speculate on these appearances.

As a breeding species, the distribution of the Brimstone is regulated by that of the larval foodplants, Buckthorn (*Rhamnus cathartica*) and Alder Buckthorn (*Frangula alnus*). As far as North Humberside is concerned, limited numbers of *R. cathartica* still grow in a number of suitable localities, but *F. alnus* is very scarce. Gone are the days of 'F. alnus is not uncommon in the hedgerows near Cottingham' (Stainforth, 1919). The eggs of the Brimstone are laid singly, generally on the underside of the leaves of these plant spp. and on no others and where they are common, the Brimstone is likewise abundant. It is a strong flying species, however, and at times the butterfly is met with in places some miles distant from the breeding areas in which the larval foodplants exist.

Mass movements of the so called 'non-migratory' species are sometimes detected inland in this country and a number of specimens of the Brimstone have been seen

migrating near Tavistock in Devon. Specimens of many species occasionally wander far from their normal haunts and there is indeed abundant evidence of such exceptional behaviour in those which are not normally regarded as migratory.

The underlying factors responsible for an extension in the range of some butterflies are not fully understood, although it seems almost certain that they are at least partly dependent upon climatic effects. It is quite possible that the balanced relationships between some butterflies and their environment may be upset when their numbers increase beyond a certain limit, even though their actual density in the areas concerned is quite small. Such a situation may stimulate limited migrations and extensions of range though the factors leading to the initial effect may be very difficult to detect. They may merely depend upon the occurrence of a few consecutive years of greater sunlight, warmth, or other favourable conditions at some critical stage in the life cycle of the species.

The life cycles of all our indigenous species of butterflies have been very well documented over the years but our knowledge of their ecology and precise habitat requirements is surprisingly very limited. It is for this reason

that both the Amateur Entomologists' Ass. and the British Butterfly Conservation Society regard this particular area for study as being of prime importance and it could well be that as a result of subsequent enlightened 'habitat management' the Brimstone may be able to extend its range and re-establish itself once again as a breeding species in areas long since vacated.

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Yorkshire Naturalists' Union *Entomological Reports* 1950–1973.

Addendum

I regret having omitted the fact that a small colony of Brimstones exists on the Yorkshire Naturalists' Trust Reserve at Potteric Carr.

Creating wildlife images with a desk-top CCD scanner

*Richard Middleton and
Andrew Chadwick*

Introduction

Imaging has always been an important part of natural history. Although organisms can be described in words, and indeed a published description is still considered mandatory before a valid name can be assigned, there is no doubt that a good image can provide much information that would be difficult otherwise to convey. Even the earliest printed texts used wood-cut illustrations and older naturalists still appreciate how advances in colour printing revolutionised the style of field guides.

Photography, first developed in the mid-19th century, soon became an important tool for the naturalist, although the expense and bulk of the equipment meant that producing images was only accessible to the more prosperous few. By the 1960s the introduction of relatively cheap 35mm film cameras made them a standard part of naturalists' equipment, although close-up photography was still considered a specialist area. With the advent of digital photography, the quality and

low cost of cameras, coupled with a freedom from inconvenience and expense of film, brought photography, and even macro-photography, firmly into the domain of most naturalists.

Coupled with the changes introduced by development in camera technology was a shift in the way the images were displayed and utilised. Photographic prints were only convenient for personal use and very few of these could be expected to find their way to the pages of natural history journals and newsletters. The advent of colour slides brought a new dimension to the meetings of natural history societies and the formal 'lantern slide' lectures morphed into gatherings where members could share their experiences and discoveries. For the YNU the routine use of colour had to wait until 2004 (Bulletin 42 supplement) and it was as recently as 2011 that the re-vamped Naturalist's notice to contributors first proclaimed 'Good quality, high resolution images are very welcome ...' (Naturalist 1076). This contrasted sharply with previous edition's statement that 'photographic illustrations, normally black and white, will be considered for inclusion' (Naturalist 1075).

The internet is now so well integrated into modern life that it is easy to forget that two decades ago it was considered a novel way of distributing natural history information. For many naturalists it now represents a primary channel of information and search engines can provide almost instant access to a vast library



Figure 1: A typical desk-top CCD scanner

of images and data. From a taxonomic standpoint it is useful, and sometimes comforting, to browse through hundreds of photographs of a tentatively identified

species. This is a clear demonstration that many more wildlife images are now being published in an electronic, rather than physical, format.

As with many other technologies, the physical form of equipment used for generating images has followed a steady evolutionary path with new cameras generally resembling their predecessors. It is only recently that it has been accepted that many mobile phones can produce good images; many suppliers are now producing clip-on macro, and even micro-lenses to facilitate close-up pictures. Desk-top scanners can also provide a convenient method of producing excellent close-up images of certain classes of natural history objects with the added advantage of a built-in illumination system. Their close association with computers and good general integration into operating systems and software renders them a convenient way of producing images tailored for internet publication. The following article offers some of our thoughts on the generation of scanned images of natural objects. We have tried to avoid anything specific to any particular brand of scanner or computer.

Hardware considerations

It is usual to consider the desk-top scanner as a device somewhat akin to the ubiquitous photo-copier but where the copied image can be stored and manipulated on a computer. It generally comes in two sizes, the common one designed for scanning A4 documents and the other, usually more costly, for A3. Although all scanners may look superficially similar, they are built using one of two very different technologies which may not be made very clear in their specifications.

Charge coupled device (CCD) scanners:

- Usually more bulky in appearance
- More expensive to buy
- Usually mains powered

Contact image sensor (CIS) scanners:

- Often light and slim, may be hand-held
- Cheaper to buy
- May form part of a fax/printer/scanner device
- May be powered from a USB port

The CCD scanner is essentially a high-resolution line-scan camera and consists of a mechanism for driving a relatively bulky optical assembly of illuminator, mirrors, lenses and a CCD line sensor under the glass scanner bed.

In the CIS version, the illuminator/detector unit takes the form of a light-weight bar which is also driven under the scanner bed but in this case the detectors are extremely close to the object to be imaged.

Although both varieties make a good job of digitising a flat sheet in close contact with the glass bed, CSI devices have a very restricted depth of field and even creasing of the page will produce a degraded image. On the other hand a CCD scanner has a much greater (although usually unspecified) depth of field and has been designed to accommodate creased originals, books, etc. Although rarely alluded to in the instruction manuals, a CCD scanner is generally also capable of imaging certain types of solid objects. All of the following remarks and discussion relate to CCD scanners only.

Imaging objects with a CCD scanner

In comparison to a standard camera for close-up imaging, the scanner offers both advantages and disadvantages. The balance of these will determine whether the subject is suitable for scanning.



Figure 2: A scanned herbarium sheet

Advantages offered by scanner

- Anything close to the A4(+) scanner bed will be in focus
- The image will be evenly illuminated
- Potential resolution is very high
- The scale of magnification is known accurately

Disadvantages of a scanner

- Object must be less than A4 (A3)
- Object must not move during the scan (dead)
- Object should be relatively flat

Herbarium sheets (Figure 2) are probably the simplest and most obvious class of natural history object to be suitable for imaging with a flat-bed scanner. There is a relatively long history of the use of scanners for this purpose and good results can often be obtained, particularly with a larger A3 model which is close to the size of the usual herbarium sheet. The very even lighting of a scanner makes it ideal for the purpose but care is needed when inverting the sheet to avoid damaging the specimen. There have been reports of the use of systems involving an inverted scanner but it should not be assumed that a standard scanner can work safely when turned upside down!

While digitising plants in the Hull University Herbarium it was noticed that colour prints made from scanned sheets contained visual cues which could deceive the eye into believing that the specimens were embossed on the paper. The scanning process had produced a slight shadowing effect, an artefact not originally anticipated.

Although the details of the scanning process will vary depending on the scanner model, the computer and software used, the principles are generally the same. The object is placed on the scanner bed and you select the resolution with which to scan it. Most scanners will offer a wide range of resolutions varying from less than 100 dots per inch (dpi) to perhaps 64000 dpi; the greater the dpi the more detail will be present in the image. Although it would seem sensible to always scan at the maximum available resolution this is not a good idea. High resolution scans take longer and need much more storage space on your computer. It is also likely that the highest resolutions offered are only achieved by electronic manipulation of the image and may not actually show any more detail than a more modest setting. A setting of 400 dpi will show detail of around 0.1 mm which may well be adequate for plant specimen 15 cm long. If

higher resolutions are used it is advisable to restrict the area scanned before increasing the resolution too far. Figure 3 shows how images of a plant at different resolution may be later combined to form a single image.

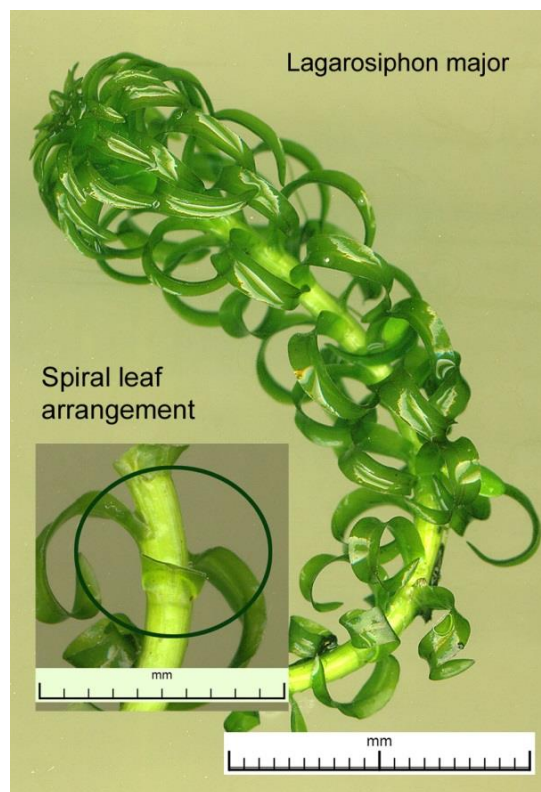


Figure 3: A composite image

One of the great advantages of a scanned image is that there is no necessity to include a graduated scale with the object when it is scanned, the scale can be added later. This is

possible because the process of scanning is always performed at a specified resolution and simple mathematics can convert this figure into the number of image pixels which represent a mm ($\text{dpi} \times 0.0304$). If the image is loaded into an image processing application (e.g. Photoshop, Gimp) it is relatively easy, although a little time consuming, to construct an accurate and suitably placed scale bar. Fortunately the process can be greatly accelerated by having a series of suitable pre-prepared scale bar images that can be pasted into scans. We have created a simple web app at www.natstand.org.uk/scale which will generate customised scale bars suitable for copying into scanned images.

Although our tests have shown that the resolution selected for scanning was extremely accurate, if any critical measurements are to be taken from the resulting image it is always advisable to check the scanner resolution by imaging a good quality ruler both along and across the scanner bed. The true scanner resolution can then be computed by loading the scan into an image manipulation program, zooming in and measuring the number of pixels over a known distance.

Scanning solid objects

Almost since desk top scanners became available they have been used to create images from 3D objects, a process usually termed scanography. Usually the aims of scanography have been to produce an aesthetically pleasing image rather than a technical representation of the objects themselves and little literature is readily available on technical aspects of the process.



Figure 4: Scanned seeds

Since desk-top scanners are primarily intended for digitisation of printed pages, printed images and film, it is not unexpected that their technical specifications contain little about their ability to digitise 3D objects.

Unlike a camera, a scanner has a fixed focus

and the sharpest parts of any image will always be at the points where the object touches the glass bed. Fortunately our experiments have shown that the depth of field is often sufficient to generate reasonably sharp images of many three-dimensional objects. The overall quality of the image will depend largely on the depth of the object relative to its height and width. Small objects are particularly suited to the technique (see Figure 4).

Scanning of solid objects is, of necessity, done with the scanner lid raised (or even removed). To prevent the operator becoming part of the background it is usually advisable to improvise a backdrop to the image. This can usually be achieved by supporting a white or coloured card above the object. One of the great conveniences of scanning is that an even illumination of the specimen is more-or-less guaranteed, the disadvantage being that it cannot be controlled. The very 'flat' illumination can sometimes create a somewhat unnatural look but has the great advantage that there are few shadows to hide useful detail. Since the illumination source is extremely close to the specimen it is not particularly bright and consequently the level of illumination decreases quite rapidly with

distance from the scanner bed. This needs to be considered when positioning the background as even a bright white card rapidly becomes grey with increasing distance, and may have lost half its brightness after 5 cm. On some scanners a slight colour cast may also develop although this can be compensated for by selection of a tinted card. This is an aspect of the process where creative experimentation and improvisation can add greatly to the image produced

The third dimension

Almost since the commercialisation of photography it has been known that two images of an object each taken from a slightly different position and presented one to each eye can produce an impression of depth to the picture. In the simplest case achieved by printing the two images side-by-side and viewing with a stereoscope or even just crossing one's eyes. Although perhaps somewhat counter-intuitive, it is a simple matter to produce a pair of images on a scanner which will produce this same illusion. The optics of a scanner are such that the necessary parallax displacement is introduced from left to right in the image although not in the up and down direction as would be the case with a conventional camera.

Figure 5 shows two scanned images of a small Speeton Clay ammonite, the first being scanned 30 mm to the left of the scanner's centre line and the second 30 mm to the right. By relaxing the eyes and allowing the two images to fuse it is possible, with a little practice, to produce the illusion of viewing the solid object.

Conclusions

A desk-top CCD scanner can provide a convenient alternative to a normal camera for the imaging of certain natural history specimens. Although scanning cannot usually compete for quality with conventional photographic techniques it provides a viable simple, cheap and convenient imaging method for many classes of object and can, with care, produce results which are more than adequate for their intended purpose.



Figure 5: A stereo pair of an ammonite

In search of Umbellifers

Eva Crackles

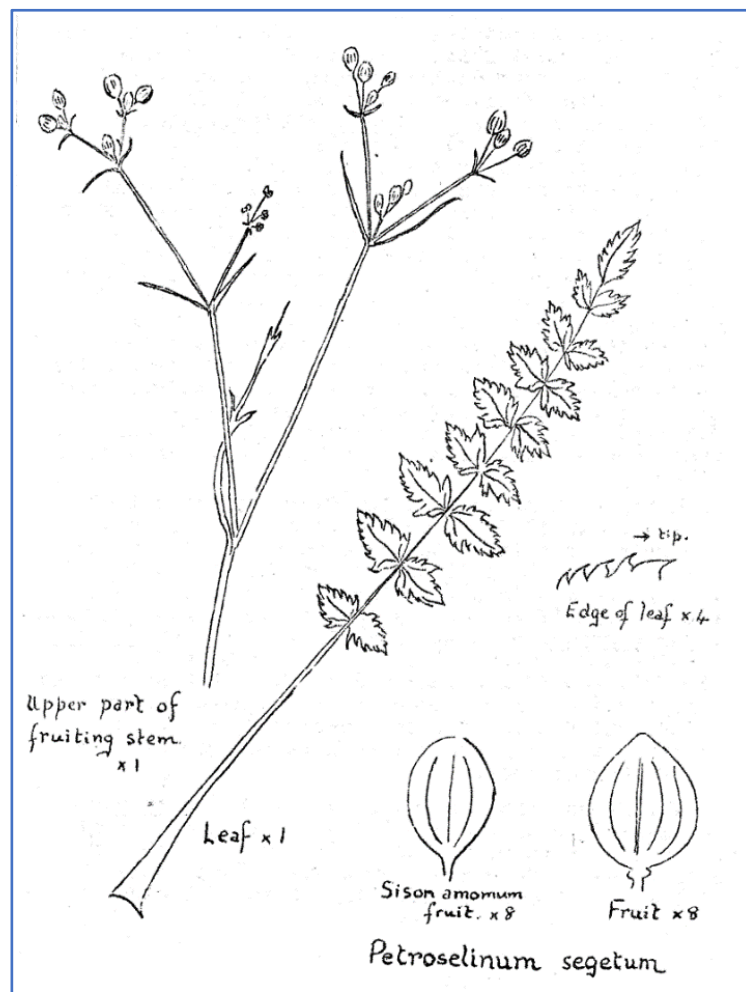
This article first appeared in Bulletin 2.10 (December 1965)

The Rev. P. M. Garnett of Fairburn, W. Yorks. visited Paull in August, 1963 expressly to search for *Petroselinum segetum* (Corn Caraway). The recent publication of the Atlas of the British Flora had aroused his interest in species on the edge of their range in the British Isles. Mr. Garnett had seen Corn Caraway near Chichester Harbour and an examination of maps of the Yorkshire coast suggested to him that conditions similar to the ones in which he had seen the plant existed at Paull.

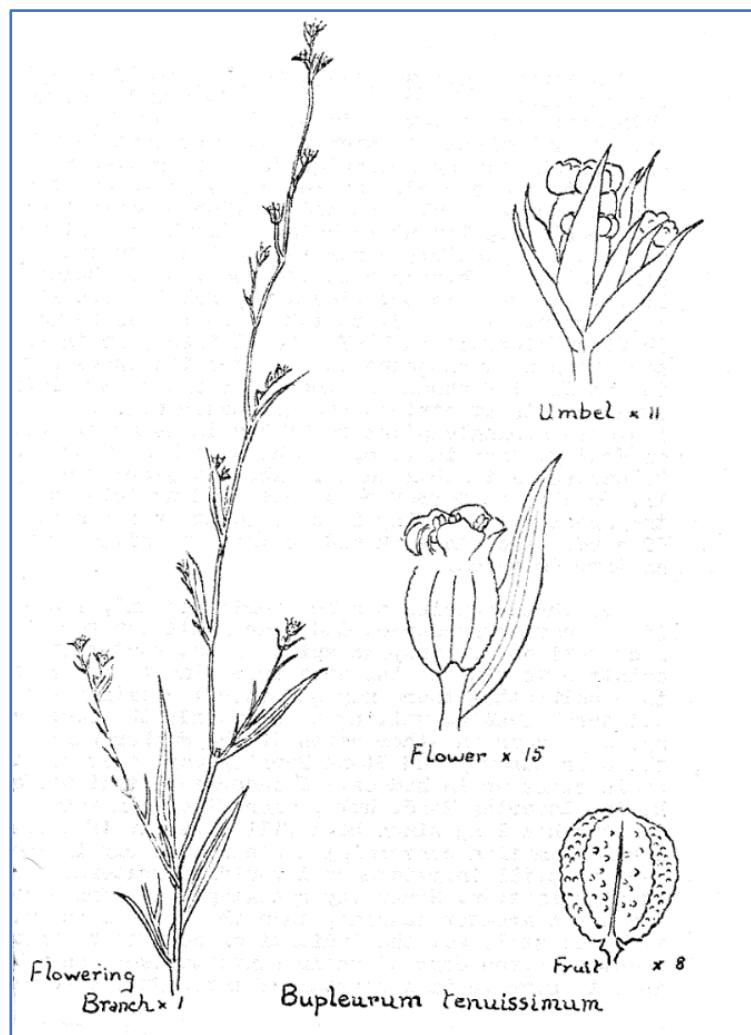
The visit confirmed the feeling that a suitable environment for the species existed, but nevertheless the mission failed in its objective. However, in a quite unexpected way Mr. Garnett's day 'in the field' was highly successful, as he discovered on two separate stretches of drain bank *Sison amomum* (Stone Parsley) an Umbellifer which there was every reason to believe was extinct in East Yorkshire. Mr. Garnett did not realise that this was a new record for the area, as there is a dot in the 'Atlas' in the ten km square containing Paull: this **dot in fact refers to a Lincolnshire** locality for the species which occurs near Goxhill Haven.

The visiting botanist also realised that a suitable habitat occurred near Paull for *Bupleurum tenuissimum* (Slender Hare's Ear) and within a few days this was found growing on the saltmarsh side of the sea wall by myself, thus confirming a first Yorkshire record for the species; it being found there by Mr. T. Petch, B.A., B.Sc. in 1900. In August, 1964, I revisited the area with Mr. Chicken, both species were photographed. Mr. Chicken paid a return visit to the area in September of this year and making a mistake concerning the stretch of drain on which the Stone

Parsley grows, found the species the Corn Caraway (*Petroselinum segetum*), the search for which began this story. So ends a quite remarkable story of the discovery of three species of Umbelliferae, all on the northern edge of their range and growing within a few hundred yards of each other.



Henry Baines, writing in 'Flora of Yorkshire' published in 1840, described Stone Parsley as occurring 'in moist situations near Hull.' In his 'Flora of the East Riding of Yorkshire', published in 1902, James Fraser Robinson referring to this record says 'I suspect there has been a mistake with



Carum segetum, so similar a plant.' (*Carum segetum* was the name in use at that time for Corn Caraway). The only record for the species which Robinson found acceptable was for Howden and there have been no subsequent records for the species in the Vice County: the only other Yorkshire records are for the Doncaster area

Mr. Petch, who first discovered the *Bupleurum tenuissimum* near Paull made an outstanding contribution to our knowledge of the natural history of Holderness. He was not primarily a botanist; he published a comprehensive list of the Mollusca of Holderness, but perhaps his most important work was the study of the marine fauna of the Humber Estuary. However, *Bupleurum tenuissimum* was a notable addition to the Yorkshire Flora and Mr. Petch naturally took a special interest in the species, its habitat requirements and its distribution. In 1901 he found the species at Saltend Common and by 1905 he was able to write 'it may he found all the way from Saltend to Welwick, 2 ft. high when growing among long grass on the Hedon Haven bank but barely 6 ins. in more exposed positions.'

This statement was made in a most interesting and informed article entitled 'Notes on the Reclaimed Land of the Humber District', published in the 'Transactions' of this Club (Vol. 3, page 221) and written just before he left to take up an appointment in Ceylon. Had it not been that the Hull Scientific and Field Naturalists' Club was active in the publications of transactions at this period in its history, we would know little about Mr. Petch and his activities.

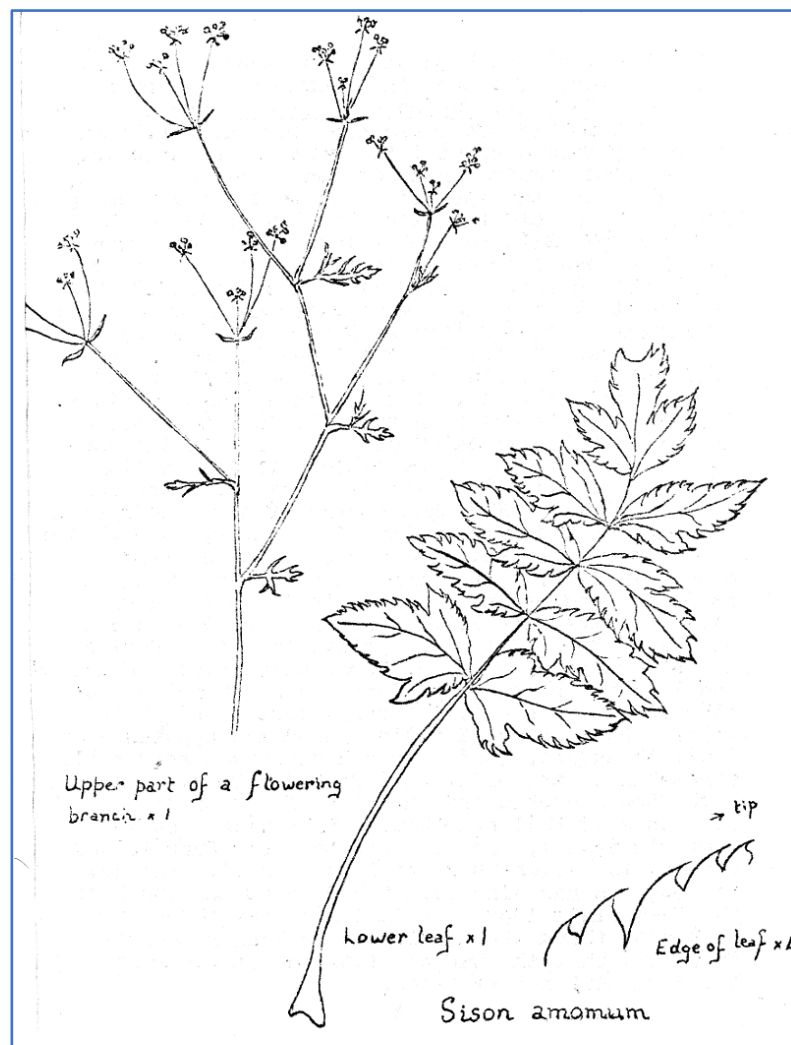
For what period of time the species remained as widespread along the estuary as Mr. Petch found it we know not. It was still at Saltend Common in 1916, a specimen collected by Mr. Boulton is in my possession. We know that Mr. Petch was able to attend the Y.N.U. Excursion held at Hedon in

July, 1938 and that he pointed out the species to the assembled company, apparently between Hedon and Saltend, presumably along Hedon Haven 'persisting in its only native Yorkshire station' (Nat. 1938, p288). Since I rediscovered the species near Paull in August, 1963, Hedon Haven and considerable stretches of the tidal wall from Paull eastwards have been searched and the plant found on two stretches of wall near Paull, both with a south-easterly aspect, and on a stretch near Sunk Island, (access to Saltend has not been gained). In fact the species has also been recorded at the mouth of the Tees since 1930 (see 'Atlas'), but there is reason to think the species is no longer present there and that the Humber stations are the most northerly British stations.

Concerning *Petroselinum segetum* (Corn Caraway) I would like to know the origin of an undated, un-authenticated statement in the 'Flora of the East Riding of Yorkshire' which reads 'frequent in Holderness, chiefly by drainsides'. One assumes this is a very old record. There is a very interesting record 'between Hull and Hedon, 1853—Babington' in Baker's Supplement to Baines' 'Yorkshire Flora' which could possibly refer to the locality under discussion. Robinson knew the species by 'Skidby Drain, adjacent to Beverley Road, Hull' where it was common, also at Burstwick where it was found by Charles Waterfall in 1897. Until this year there have been no subsequent records for the species for the whole of Yorkshire, except for one or two individual plants of obvious casual occurrence, for instance a single plant was found in an arable field at Fridaythorpe in 1956, on the occasion of the Y. N. U. excursion to Thixendale. The discovery made by Mr. Chicken is therefore of outstanding interest: the species is growing in some quantity for some 50 yards of drain bank and is then occasional for another 50 yards.

All three species can be overlooked and, I believe, have gone unrecorded near Paull for very long periods of time, in spite of the fact that botanists

have visited the area from time to time. It is possible that there may be other localities for all three species waiting to be found: the *Bupleurum* sp. may occur on other parts of the Humber bank: the Corn Caraway and Stone Parsley may occur on other drain sides or in hedges. I understand



that Skidby Drain, Beverley Road, Hull, where Robinson knew Corn Caraway has long since been filled in but if anyone has information concerning it, particularly if any part is still in existence I would be grateful for the information. Generally speaking, the Corn Caraway has a greater tendency than the Stone Parsley to be coastal, but the indications seem to be that species on the edge of their range may well only be able to survive in a coastal climate. It may be worth describing some of the salient features of all species.

The Slender Hare's Ear is not obviously an Umbellifer: It has simple, entire leaves and each umbel has only two or three very small flowers. The plant has slender, wiry stems and small, rounded wax-like fruits. The petals are minute and the plant 'in flower' looks very much like it does 'in fruit': if what are taken to be fruits are orange-tinged, then the plant is in full bloom! It grows, often trails, amongst the grass and other vegetation, where this is not too dense, and is far from easy to see, particularly when unfamiliar to the eye.

In the Paull locality, it is frequently in very close association with *Torilis nodosa* (Knotted Hedge Parsley) with its clusters of sessile, spiny fruits. It is in the same zone as *Artemisia maritima* (Sea Wormwood) with its striking silver-grey foliage and it is a waste of time searching for it in the dense patches of *Agropyron pungens*.

The Stone Parsley will be recognised as an Umbellifer. The plant, in flower, stands proudly erect: the slender flowering stems resembling, perhaps, those of the Common Water Plantain; the flowers of the very small, inconspicuous umbels suggesting at first sight those of a bedstraw.

The leaves are light green and the lower ones with their broad segments are very noticeable, whilst the upper leaves have fine linear segments. By means of a hand lens it can be seen that the teeth on the edges of the leaves have spine-like points. The leaves and stems when crushed have a strong characteristic smell: one Flora describing this as 'somewhat resembling that of nutmeg mixed with petrol.' This species could possibly be passed by as 'just an umbellifer' by many with botanical interests who find it difficult to be interested in this family of plants with tiny, mostly white flowers, and think mistakenly that identification presents great difficulty.

Corn Caraway resembles the Hare's Ear (*B. tenuissimum*) in its slender, wiry stems. Before and during flowering, it must be very difficult to see as it grows among thick vegetation: the minute flowers grow three to five to a partial umbel. Both Mr. Garnett and I must have missed spotting the species on more than one occasion and Mr. Chicken owes his success in part to the fact that his 1965 visit was paid a month later than visits made in previous years. The species is, nevertheless, quite distinctive, primarily on account of its pinnate leaves with small leaflets. The crushed leaves smell of Parsley. In fruit, particularly where the plants grow close together to form patches of a yard or more in extent, the species is conspicuous. Knotted Hedge Parsley was found growing in among the Corn Caraway and Upright Hedge Parsley (*Torilis japonica*) grows on the same bank, as does another Umbellifer—Wild Celery (*Apium graveolens*).

Publication history of the Hull Natural History Society

Richard Middleton

Over the 140 years of our Society's existence there have been several series of publications. Between 1898 and 1919 we published the 'Transactions'—substantial type-set parts which were intended to be bound as books. After a hiatus of a couple of decades the 'Bulletin' was begun, although details of the early issues are sketchy. Between 1961 and 1965 ten 'cyclostyled' editions of Bulletin Volume 2 were distributed to members. Bulletin 3 first appeared in 1969 followed a year later by a Supplement—Derek Cutts' *Bird of prey enquiries '64 & '67*. The final part of this series, Bulletin 3 Number 4 was published in 1973. A lone Bulletin 4 Number 1 was printed in October of 1977. In the 1990s the Newsletter series was established, the first three issues being printed sheets distributed to members but issues 4–11, with two supplements, were produced in booklet form. The last part of the Newsletter (12) appeared as part of our website in 2007.

During the last decade we have found that publication via our website has been a quick, convenient and highly effective way of communicating ideas and keeping members in touch. There is, however, a downside to this; there is always a nagging doubt that material posted may prove to be somewhat ephemeral and unavailable future generations. With this in mind it has been decided to re-instate a somewhat more formal means of publication which can be used for items that we consider significant.

The following is presented as a reasonably complete record of the Society's publications from its founding to the present day.

Publications of the Hull Scientific and Field Naturalists' Club 1880–1970

Transactions Volume I—edited by Thomas Sheppard and J R Boyle

<https://www.biodiversitylibrary.org/page/12608840>

Part I 1898 p1–28

Part II 1899 p29–70

Part III 1900 p71–156

Transactions Volume I cont.—edited by Thomas Sheppard

Part IV 1901 p156

Transactions Volume II—edited by Thomas Sheppard

<https://www.biodiversitylibrary.org/page/12521371>

1902 Other than a list of officers and members, the whole volume devoted to Robinson, J. F. 1902, *The flora of the East Riding of Yorkshire*.

Transactions Volume III—edited by Thomas Sheppard

<https://www.biodiversitylibrary.org/page/12578688>

Part I 1903 p1–120

Part II 1904 p121–188

(pages 121–172 were also reprinted as Petch, T. 1904.

The published records of the land and fresh water Mollusca of the East Riding, with Additions.)

Part III 1905 p189–246

Part IV 1906 p247–313

Transactions Volume IV—edited by Thomas Sheppard

- Part I** 1908 p1–53
- Part II** 1909 p55–114
- Part III** 1911 p115–186
- Part IV** 1912 p187–230
- Part V** 1913 p231–280
- Part VI** 1919 p281–348

Bulletin 1—the editor in 1950 was Robert Lewis

- 1.1** 1947 October
- 1.2** 1948 January
- 1.3** 1948 April
- 1.4** 1948 October
- 1.5** 1949 January
- 1.6** 1949 September
- 1.7** 1950 January

Bulletin 2—edited by Frank de Boer (1914–1969)

- 2.1** 1961 April 27pp
- 2.2** 1961 October 32pp
- 2.3** 1962 April 28pp + map (Fair Isle)
- 2.4** 1962 October 32pp
- 2.5** 1963 April 32pp+map (Spurn)
- 2.6** 1963 October 28pp+map (Welton, North pond)
- 2.7** 1964 April 32pp
- 2.8** 1964 October 33pp
- 2.9** 1965 April 29pp
- 2.10** 1965 December 34pp

Bulletin 3—edited by Brenda E Moon

- 3.1** 1969 December 28pp

Supplement 1 Cutts, D. B. Birds of prey enquiries '64 & '67
1970 December 48pp

**Other publications with which the Hull Scientific
and Field Naturalists' Club was involved**

Wilson, A. K. 1938. The adventive flora of the East Riding of Yorkshire.
Occasional papers of the Hull Scientific and Field Naturalists' Club, No. 1.
28pp.

Stainforth, T. 1948. *Rambles around Hull*. Hull Scientific and Field
Naturalists' Club. Hull.
(A memorial re-print of items which had appeared in the Hull Daily Mail.)

Boylan, P. J. 1967 (ed). *Birds in Hull*. Hull Museums Publication. Hull. 16pp.
(The Club was closely involved with the collection and collation of the
data presented in the checklist.)

East Yorkshire Field Studies—editors John W Neale, Brenda E Moon &
Lynden H Emery
(With the Hull Geological Society and Field Studies Association)

Volume 1 1968, 34pp

Volume 2 1969, 45pp

Publications of the Hull Natural History Society 1970 on

Bulletin 3 cont.—edited by Brian S Pashby

- 3.2** 1971 January 28pp
- 3.3** 1972 June 28pp
- 3.4** 1973 June 28pp

Bulletin 4—editors Colin Mills, Brenda E Moon & Brian S Pashby

- 4.1** 1977 October 30pp

‘Newsletter’—editor Richard Middleton, distributed as stapled pages titled ‘Information Sheet’.

- 1** 1993 March, 5pp
- 2** 1993 September, 6pp
- 3** 1993 November, 6pp

Newsletter—editors Richard Middleton & Barry Kirk

- 4** 1994 March 16pp
- 5** 1994 December 20pp
- 6** 1995 July 16pp
- 7** 1996 February 20pp
- 8** 1996 December 19pp

Supplement 1 Kirk, B. and Middleton, R. *A provisional atlas of the distribution of the smaller species of freshwater fish in East Yorkshire*. 1996 December 12pp

- 9** 1997 December 37pp

Newsletter—editor Richard Middleton

- 10** 1999 May 21pp

Supplement 2 Middleton, R. *The plants of Hull, a millennium atlas*. 2001 April 36pp

- 11** 2002 November 25pp

<http://www.hullnats.org.uk/Newsletters/Newsletter11.htm>

Newsletter—editor Richard Middleton

(produced on-line only, no hard copy)

- 12** 2007 March

<http://www.hullnats.org.uk/Newsletters/Newsletter12.htm>

Other publications with which the Hull Natural History Society was involved

East Yorkshire Field Studies—editors John W Neale, Brenda E Moon & Lynden H Emery
(With the Hull Geological Society and Field Studies Association)

Volume 3 1970 43pp

Dolling, B., Jarvis, G., Kitson, H. & Middleton, R. 2019, *A brief look at the flora of Beverley*. 107pp

Revised 15/3/2021

Birds of a suburban cemetery

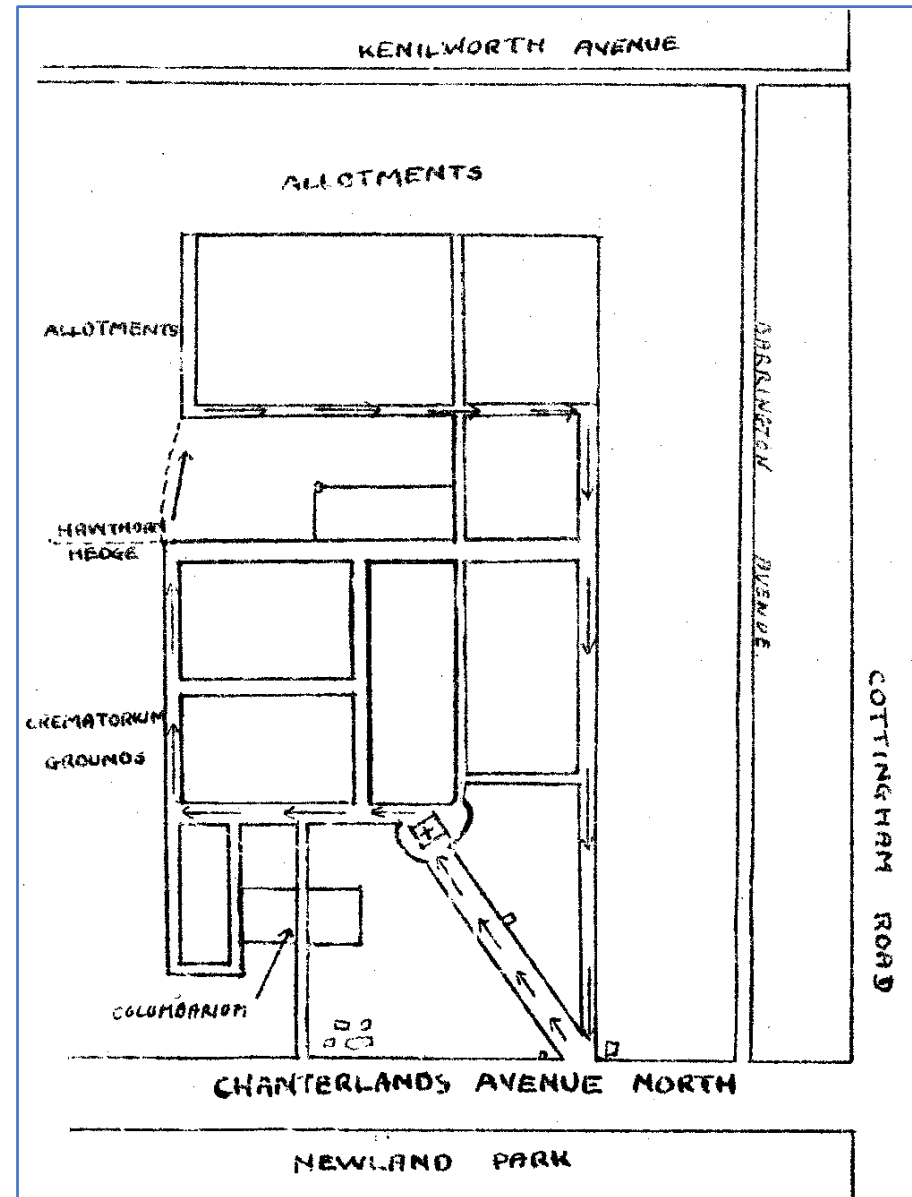
Brian S Pashby

This article first appeared in Bulletin 2.10 (December 1965)

The Northern Cemetery, twenty-five acres, forms part of the large arc of semi-park land which stretches from Anlaby Road (West Park) to Cottingham Road (Newland High School &c.), and which includes an area of open waste land to the west of Chanterlands Avenue known locally of the 'woolsheds'.

At first sight it would appear that such an area as this cemetery has little variety to offer to the birds of the City, but this is not so, as a careful watch over the past three years has shown. The best way to appreciate the slightly differing habitats is to walk round the perimeter roads of the cemetery, ignoring the intersecting ones. From the entrance gates the main drive runs for about 200 yards to the Church. This road, about 30ft wide, is flanked by silver birches, which in Autumn provide a very colourful picture, and which are the headquarters of Hull's only colony of Redpolls.

Four or five pairs of these delightful little finches nest here, not necessarily in the birches, although I have actually seen a nest there. It is the seed of the birch which is the attraction and there is plenty of it in the neighbourhood. Chanterlands Avenue North is lined with birches, and there are more in Newland Park and the College of Education grounds, all fairly close to the cemetery, but it is here where they are most numerous. Being a bird of the tree canopy, the Redpoll is not easy to watch while in the trees (excepting in winter), and one must usually be satisfied with seeing the bird as it performs its striking song flight just above the tree tops. Occasionally however, a few can be seen feeding on the grass under



the birches, or snatching a drink of water from the nearby water tank. Way over to the left of this drive are the greenhouses, potting sheds and tool sheds of the gardening staff.

Two thick hedges are near here, and close by, a second entrance into the Cemetery which leads through the columbarium, and which is bordered with ornamental shrubs, growing upon open soil. There is very little lawn here, and the bare soil is very suitable for the Hedge Sparrow, of which there are two pairs, and Robin, of which there is one pair. In this small area there are two oaks and a beech used as song posts by the male of a pair of Greenfinches which nest here.

Our road turns left at the Church and the scene changes abruptly to one of open ground planted here and there with a few almond, crab apple, oak, beech and sycamore trees, the whole area being dominated by three beautiful weeping willows. To the right the ground is used extensively for graves which are laid out in the traditional fashion, each having its raised mound, or ornamental kerbstone and headstone. It is not easy to keep the grass mown here, and it grows very thick and tall, providing excellent foraging ground for the Blackbird, and is obviously an attractive site for male Willow Warblers which

pass through during spring, and of which one usually remains for some time, in the hope that a female will turn up and approve the site. This has not happened during the past three years but I am sure it will do eventually.

To the left of our road, the graves are laid out in the modern manner, in which economy of space and general tidiness are the probable factors. All the graves are flat, and usually have a simple headstone and a rose bush for decoration, the whole area being bordered by a small thick hedge growing in a 3 foot strip of soil. Within this area, the rose bushes form long lines of miniature hedgerows, and it is here where the Turdida are seen in greatest numbers, especially in winter, when adequate food can be had for Blackbirds and Song Thrushes on the short turf, and for Redwings on the loose soil, and at the same time is sheltered from the inclement weather by the rose bushes.

Also on our left are the brick walls of the Columbarium, favourite displaying perches for rival male Blackbirds, and a little further along, a large rectangle of lawn which is the communal grave of 327 air raid victims of the last war, another favourite feeding ground for the Blackbird and Mistle Thrush.

At the end of this road is the boundary of the Crematorium grounds, which is marked with a line of young Horse Chestnuts, we turn right and walk parallel with these trees, which come to an end at some of the Kenilworth Avenue allotments. The trees are now replaced by a hawthorn hedge, and the previously dominating Blackbirds by the Song Thrush, of which there are at least three pairs, plus a pair of Linnets. In this south west corner of the cemetery there are always two pairs of Skylarks, both the males frequently singing, but although one pair definitely nests here, I think the second uses the allotments.

Leaving the road and continuing along the hedges we reach the outer road again and walk northwards. On our left is the (as yet unused) grassland where Mistle Thrushes bring their young to feed and the only place where I have seen the Fieldfare. Several gulls feed here and occasional Rooks as they pass over to, and from, other feeding areas.

At the new north east corner we turn right and follow a long drive about 20 feet wide, bordered with alternate birch and either sycamore or elm. It is impossible to get out of earshot of Great and Blue Tits along this drive. One pair of Great and possibly four pairs of Blue use holes in the elms or the odd lime

nearby. A pair of Carrion Crows nest in the elms bordering Barrington Avenue, where the trees have a little undergrowth and provide sufficient cover for a pair of Wrens.

This long northern strip of the cemetery is noteworthy for two things; in the summer it is a favourite hawking ground for House Martins which flash in and out of the trees bordering the drive, completely ignoring human intruders. In winter it is the early morning gathering ground of Blackbirds on flight from the Inglemire Lane roost, and a walk down this drive puts up lurking Blackbirds from here, there and everywhere. I have often estimated about 150 of them here.

Back near the entrance gates we are close to a Chaffinch nesting site (in an elm) and we can now see another nesting site which was out of sight when we entered. A small shed half hidden by bushes and the fence bordering Chanterlands Avenue is the home of the only pair of Swallows.

Cut flowers are the most common form of grave decoration, although much is done by a minority who plant flowers and small shrubs, stonecrops and various cresses being the most popular, the seeds of both being taken by finches. A cotoneaster has as far as I know yet to attract a Waxwing, and the only conifer stands in the Superintendent's garden, a few more of which judiciously placed might be very interesting!

We leave the gates, no doubt as we entered, with the chatter of Redpolls in our ears, surely the number one passerine of Hull's breeding birds?

Checklist of Birds seen in the Northern Cemetery

Sparrow Hawk	Very rare. One spent two weeks there in October 1963.
Kestrel	Regularly seen during autumn and winter.
Lesser Black-backed Gull	Occasionally single birds on autumn passage.
Greater Black-backed Gull	Occasional single birds in winter.
Common Gull	Always present from July to April.
Black-headed Gull	Winter visitor mainly in wet conditions.
Wood Pigeon	Occasional in winter.
Collared Dove	Frequently sings from the Chanterlands Avenue end but never venture far from houses. Cottingham birds fly over en route for B.O.C.M., Wilmington ('The Naturalist' 1966, in press.)
Cuckoo	Spring passage migrant, usually being chased by about a dozen Redpolls.
Tawny Owl	Sometimes seen roosting in the Barrington Avenue elms.
Swift	Sometimes seen hawking for insects.

Skylark	Two breeding pairs, small wintering party.
Swallow	One breeding pair.
Rook	Occasional single birds during winter.
House Martin	Feeds regularly under and around the birches and elms, most probably from the North Hull Estate breeding sites.
Carriion Crow	One breeding pair.
Jackdaw	Newland Park breeding birds occasionally fly over, in family parties.
Jay	Very rare. A party of four seen in 1960.
Great Tit	At least one breeding pair.
Blue Tit	About five breeding pairs.
Coal Tit	Occasionally heard in January–February, and is no doubt the Newland Park resident.
Wren	One breeding pair.
Mistle Thrush	Two breeding pairs. Families move out in late summer and autumn, replaced in winter by winter visitors?
Fieldfare	Occasional autumn and winter visitor.

Song Thrush	Four breeding pairs. Autumn passage migrant, sometimes in fairly large numbers (30–50).
Redwing	Autumn passage migrant and winter visitor, small parties in late winter and early spring, when song is sometimes heard.
Blackbird	Abundant as a breeding bird, passage migrant and winter visitor.
Robin	Two breeding pairs.
Whitethroat	Young birds on autumn passage. Song in spring sometimes heard from the Kenilworth Avenue allotments.
Willow Warbler	Spring and autumn passage migrant. Occasionally a non-breeding bird summers.
Chiffchaff	Scarce spring and autumn passage migrant.
Goldcrest	Scarce autumn passage migrant and winter visitor.
Spotted Flycatcher	Only once seen, in autumn.
Hedgesparrow	Five breeding pairs.
Meadow Pipit	Winter visitor and passage migrant. Possibly breeding birds from the ‘woolsheds’ occur.

Pied Wagtail	Autumn and winter usually seen feeding on the road between the gates and the church.
Starling	One or two breeding pairs. Large numbers gather on pre-roosting flights to Inglemire Lane roost.
Greenfinch	One breeding pair, absent during autumn.
Goldfinch	Occasionally in twos and threes.
Linnet	One breeding pair. Winter visitor.

Redpoll	Four to six breeding pairs.
Chaffinch	One breeding pair.
Brambling	Very scarce winter visitor. Four during the 1962/3 winter for a few days.
House Sparrow	A few breeding pairs. Seen pulling straw from Christmas wreaths, for nesting material.
Tree Sparrow	Occasional in winter, possibly from Snuff Mill Lane breeding sites.

Some animal life at Dunswell

Alfred Rider

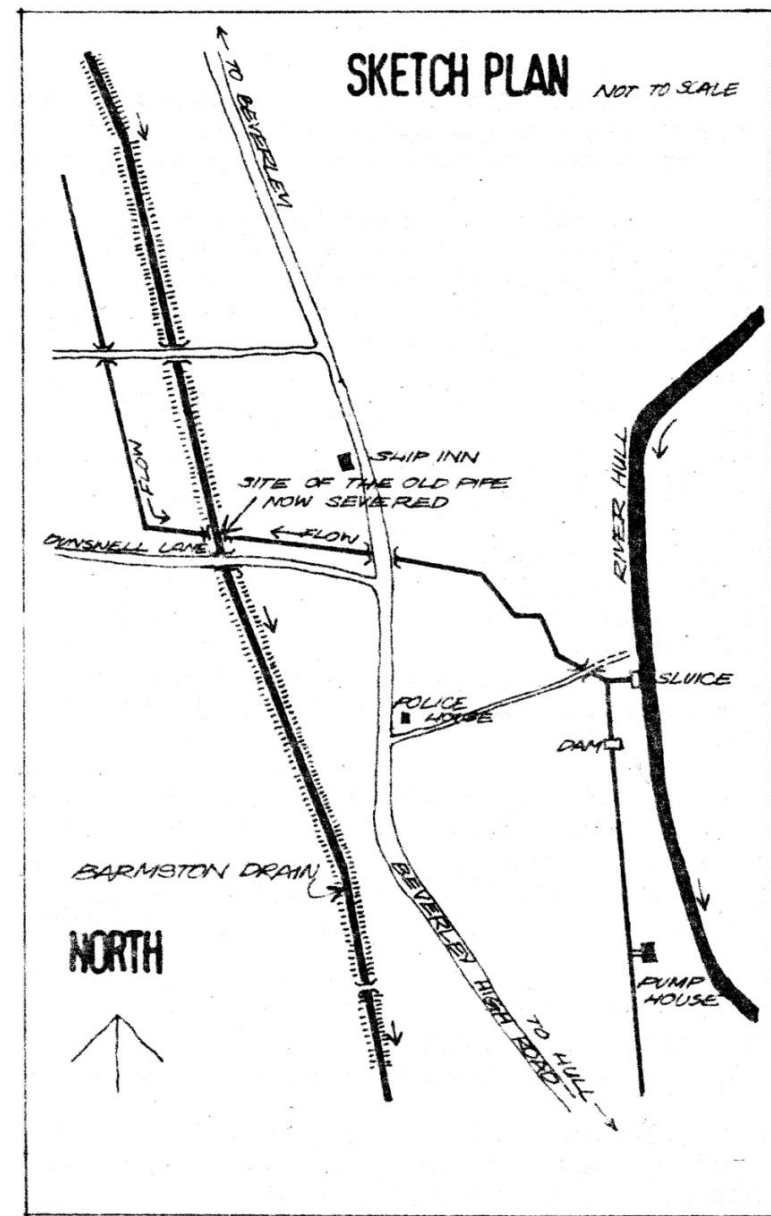
This article first appeared in Bulletin 3.1 (December 1969)

Because of changes in land usage and improved drainage which have resulted in altered habitats and lowered water table, the flora and fauna of the countryside change more rapidly than they would by natural succession of evolution.

A village that is keeping abreast of 'progress' is Dunswell, four miles north of Hull. The area referred to is on the west bank of the River Hull and within one mile radius of the Ship Inn. During the period 1945–1950 no records were made by anyone other than myself in this area and even then they were few and far between. Therefore it may be of interest if some record be given of the fauna of the area at this time.

The area is flat agricultural land through which two major features run; the first is the River Hull itself with its raised banks which at spring tides contain the water the level of which may approach twenty feet above the surrounding fields; the second is the Barmston Drain, also with raised banks, but here the water level cannot exceed that of the flooded fields surrounding it, which it drains.

Prior to this period a second drainage system ran into the area from the north-west, this being piped under the Barmston Drain close to Dunswell Lane Bridge. It continued towards the River Hull and then within a few yards of it turned sharply southwards, passing a derelict water pumping station, and on into Hull. This system was drastically altered by opening the pipe, and making a sluice leading from the River Hull into the drain at the point where it was nearest the river, and placing a dam across the stream immediately south of the bend. Sluice gates leading from the river



allowed water to be fed into this drain and to flow into the Barmston Drain. This allowed many thousands of tons of river water into the Barmston Drain. This water had some salt in it and was quite cold and very muddy.

The effect of the water must have been dramatic the first time that it flowed at about eight mph down the half mile or so of the course to Barmston Drain, flushing out all manner of organisms that were not adapted to suit swift-flowing water.

This water flowed down the Barmston Drain towards Hull, but a small proportion of it pushed upstream as far as two miles towards Woodmansey, and a clear line of demarcation could be seen where it held back the Drain's normal flow.

A further cause of dramatic upheaval was the occasional accidental poisoning that occurred perhaps once a year, resulting in mass deaths of fish, particularly pike, eels and roach fry.

The fields in this area had drainage ditches on their sides or running through them, and in the early period, 1945–1947 when the water table was at such a level that they contained water throughout the year, they carried quite a remarkable number of breeding sticklebacks, mostly the ten-spined species, as they seemed

to frequent the smaller ditches in the system. Some roach fry also lived in them, to be flushed out next winter and be replaced by younger ones.

However, during the summer of 1948 it was found that these smaller habitats were becoming very shallow and dry in places. Examination showed that molluscs, unable to stand the conditions, were dying, and the fish, mostly the ten-spined sticklebacks, were surviving in the damp algal mass above the mud until this dried out. From 1948 fewer and fewer places remained suitable for fish to survive during the summer, and the ditches filled with grass, only the larger ones now being able to hold fish permanently.

It was found during one of the periodic poisonings that bullhead were present in the area. The river water was the source of elvers and also of three new species to the area: flounders from the size of a sixpence up to nine inches long were found in the ditches affected by the influx of water from the river, and lampreys about a foot long were a regular feature during their spawning period, and one brown trout was recovered. This specimen was about ten inches long. It was the only trout found in the area, and as it had a recent scar on its side, it may have been too ill to

avoid being drawn out of the River Hull.

In the spring, shoals of roach and minnow swam up from Barmston Drain towards the shallow water below the sluice to spawn, and each time the water was released, which was at high tide for about two hours, the fish and spawn would be swept downstream. Some of these minnow were the largest I have ever seen, and I particularly remember three swimming together at the surface, moving upstream. They were in their breeding colours, all over five inches long, the largest over six inches. I naturally dashed home for my fishing net, but I didn't see them again. On that particular day huge numbers of minnow were moving up the shallows below the dam that prevented backflow from the southerly portion of the original stream.

Three-spined sticklebacks seemed comparatively unmoved by the periodic torrent and many nests were found in the algal covering of the sluice itself, which survived to produce a good stock of fish. These sheltered in any available slack water, following the rule that the smaller the member of a species of fish, the nearer the surface it will be found, the exceptions being bottom-dwellers which are not found in these 'towers' of fish.

In an alcove behind the bridge down Dunswell Lane, where the water may be five feet deep, the three-year-old roach would be found near the bottom only when the current was particularly swift, such as in summer when the sluice gates were open. Above these would be the two-year-olds, and then the yearlings, and on the surface the fry, pop-eyed and gasping as usual.

In February and March the pike could be found spawning, their dorsal fins awash, the big females with as many as five or six males close by. A great disparity was evident in the size of the male pike, the largest being perhaps as big as the female, but one male was no larger than the head of the female he was escorting along with five other males which were cruising in and out of the shallows with her. A ten-pound pike was a good catch then but the female just mentioned must have been nearer twenty five pounds.

On Christmas Eve one year, 1948 I believe, after a dry spell the Drain was weed-free and crystal clear, and I first saw the shadow and then the grey shape of a huge pike. I have yet to see a larger one either alive or preserved. It was about four feet long and was cruising steadily upstream looking for all the world like a submarine.

In June and July the tiny pike fry could be seen swimming on the surface looking just like a tiny piece of brown plant debris, except that under calm conditions slight vibration on the surface could be seen from their fin movement. Their tails at this time were similar to those of the shark with an extension of the body into the upper lobe, but by the time they were a few weeks old this had disappeared. Their food was daphnia and other small creatures, and their stomachs were lumpy with them until they were about an inch long and could manage small fish. By the end of the year they had grown to be able to consume a fish two or three inches long.

In summer, dace in small numbers could be seen on the surface, their pale bluish backs and amber pectoral fins giving them a paler look than that of roach. They also joined in the spring trek towards the sluice to spawn.

One May morning around sunrise, three bream swam below me as I stood on one of the bridges over the Barmston Drain. This was the only time that I ever saw this species alive in the area. Perch too were only occasional visitors at this time, and I only saw two during this five year period.

As for bottom dwellers, gudgeon were the

most common, but always small, and to be found on the weed-free mud. Stone loach were distributed in hollows under stones and in the weed on the sides of bridges, flounders on or in the mud, and eels anywhere where they might reasonably find a meal.

Before leaving the water dwellers, there is one crustacean which must be mentioned because as far as I know it has become extinct in the area, with the decay of the dam holding back the water from the disused drain. It was a freshwater shrimp, which looked like a slim sea-shrimp, colourless except for its eyes and gut, and grew to be about two inches long. To me they were 'invisible shrimps' but their exact species was unknown to me. They lived in profusion in the disused southward-running stream which ran past the end of Orchard Park Road (now Hall Road) and on into Hull.

The common frog was always scarce, and spawned usually in the ditches on both sides of the Beverley High Road, about a hundred yards south of the police house, where smooth newt spawn could also be found. These two species also spawned along with common toads in the warm water that had cooled the diesel motors driving the pumps in the waterworks. This water ran into an open ditch at the back of the houses on the

waterworks estate. Common toads were distributed throughout the area, and their strings of spawn could be seen in any of the main drains. In late July their black tadpoles fringed suitable areas and the paler and gold-spotted frog tadpoles could be easily distinguished amongst them.

The grass snake was not common, but might have been found anywhere in the area. Its eggs were frequently dug up in the compost heaps on the waterworks estate. The largest specimen that I caught was a mere two feet long.

Finally, I must mention some mammals which occurred in addition to the common ones: the water shrew which was occasionally seen, and the otter which also occurred occasionally. An old male otter was found dead in a field. It was in poor condition and weighed two stones. I subsequently skinned it.

Of the bat family, I was able to identify the pipistrelle and noctule bats through examination in the hand, but could only suspect that another species of the 'water bats' might have been Daubenton's. This ends my notes on the area, and I will close with the hope that sometime in the future there may be another survey of the area.

List of species seen

Fish	Roach, Minnow, Dace, Perch, Pike, Eel, Gudgeon, Stone Loach, Bullhead, Brown Trout, Lamprey, Three-spined and Ten-spined Stickleback, Bream, Flounder.
Amphibia and reptiles	Frog, Toad, Smooth Newt, Grass Snake.
Mammals	Water, Short-tailed and Bank Voles, Common, Pygmy and Water Shrews, Brown Rat, Stoat, Weasel, Otter, Hare, Rabbit, Mole, Fox, Pipistrelle and Noctule Bats, and another species of bat.
Crustacea	Shrimp sp.