CLEVELAND NATURALISTS' FIELD CLUB

FIRST PORTFOLIO

ISSUED: DECEMBER 1948

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ACKNOWLEDGEMENTS

This Portfolio, the first the Club has produced, has been made possible by the help of many persons.

Members of the Club will wish to thank the Editor (Miss M. McCrombie), the contributors and the typists for devoting so much time to its production. We also wish to acknowledge the help received from the editors of the portfolios compiled by the Merseyside and Fylde branches of the British Empire Naturalists' Association. Both Miss Linaker and Mr. Hanson sent valuable suggestions and the latter has kindly sent an illustrated article.

Our President, Mr. Hill, has given advice on any problem at any time.

J. K. T.

EDITORIAL NOTES

The Proceedings of our Field Club used to be published regularly. On reading these one gets the impression that once there was a Golden Age of our Club, and that in those days there were giants of erudition. Should those records humiliate some of us, they ought also to prove an incentive to younger members to excel, as did those others, in one or in several departments of knowledge. There are extant copies of these Proceedings – some I believe in the Public Library – and I venture to commend their perusal to new and especially to young members. Of course, one or two generations ago, our town was comparatively small, and the rural hinterland before this mechanised age must have been a very happy hunting-ground for the naturalist. Even as it is, the migratory birds follow in crowds their old hereditary route at the Teesmouth; but what must it have been when the transporter was not, and the internal combustion engine had not, for better or for worse, come into its own; it is then, in an attempt to whet our enthusiasm and encourage our researches, that this Portfolio makes its bow, hoping to bridge over the period until once again we may venture on the annual publication of our activities.

Reference might fitly be made here to the deaths of some prominent members, which have left our Club much the poorer. Dr. Frank Elgee, a former Secretary and President, died in 1944, a scholar, whose reputation as an archaeologist was European as well as local. Younger members who did not know the man are recommended to his “The Moorlands of North Eastern Yorkshire” and “Early Man in North East Yorkshire” as indications of his industry and imaginative genius. The Dorman Museum of which he was for many years the curator, is, in a way, his memorial.

Mr. Thomas Lofthouse, also a past secretary and president, died in 1944, the son of Mr. Roger Lofthouse who did so much for our Club, he must have grown up in an atmosphere of biological interest. His knowledge of birds, insects, plants, appeared encyclopaedic. It is perhaps specially as a gardener and botanist that we remember him, and some of us still have in our gardens the specimens he generously distributed when the Club made his rock-garden one of its outings on a summer evening. His explorations were not confined to Britain. Particularly in his travels in the Pyrenees he became knows as a botanist to a wider circle. One of his

finds bears the name of “Lofthousii”. He was a Fellow of the Linnaean Society and of the Royal Horticultural Society.

Another past President, Mr. J. R. Punch, is remembered for his varied interests and his profound knowledge of a variety of subjects, which he could expound with skill and lucidity to our Club and other Societies.

The war took its toll of two of our members. Dr. Robinson, a past President, perished in the disastrous air raid in Redcar. Many of us remember his genial welcome to the Club members, and his interesting collection of cacti.

Mr. C. W. Hall, who was a member of our Committee, was a victim of the two wars, for he lost his leg in the earlier one and perished in 1940 in an explosion caused by enemy action while he was on duty in a ship in the estuary. He was a man of wide interests and varied experiences. He made a detailed study of the history and archaeology of Stokesley, where he lived.

A few months ago we heard with regret of the premature death of Mr. A. Bastiman. On the transference of our late Secretary, Mr. Davison, to Sheffield, Mr. Bastiman offered to take over the duty of Secretary, but had shortly to resign owing to bad health.

Reference might be made to a piece of war work undertaken by the club. Our late Secretary, Mr. Davison, organised the collection of rosehips in the district, and our President, Mr. Hill, helped by making the Dorman Museum the receiving depot for these. Messrs. Scott & Turner of Newcastle periodically called for the sacks. I was pleased during the last two autumns to be able to pick up by car the hips gathered at various points in the neighbourhood, mostly by school-children.

Members may like to hear about another interesting and pleasant experience of mine. A request was made to our secretary by the Headmistress of the village school at Kirby-in-Cleveland that one of our members should go to hand out certificates and medals won by her pupils in the Bird and tree Competition which is conducted by the royal society for the Protection of Birds. The pupils of the school, all boys, were young enthusiasts in bird-watching, and the two essays that won medals, read aloud by their authors, showed careful and intelligent observations. One felt there would be no indiscriminate destruction of nests in that locality.

In conclusion, your Editor would like to say that she is very conscious of her limitations as a mere amateur in scientific knowledge. She cannot, therefore, take responsibility for any inaccuracy, which may inadvertently occur. A blank page is placed after the contributions on which readers are invited to make any corrections or remarks relevant to the articles.

M. McCombie
1947.

PHOTOGRAPHY OF INSECTS

by - N. W. HARWOOD

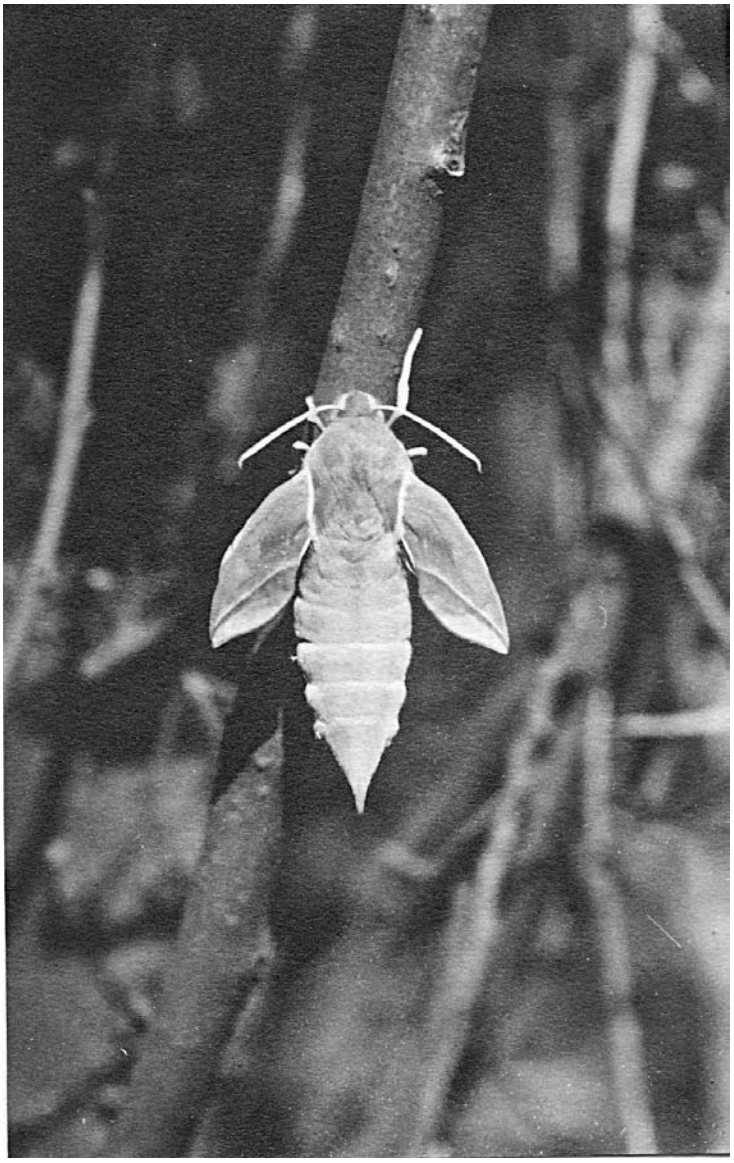
In making pictorial records of insects which we often come across in our wanderings in the country, it is essential that we should use a camera which will portray our subjects as true to life as possible. My own camera is an Ensign Klito ¼ plate (double extension) f 4.5 lens. In most cases I use Ilford HP_3 or Kodak 0800 plates.

Our choice of subjects is very large. During the spring and summer months, insects abound in large numbers. Moths and butterflies take up most of my spare time and the photography of these alone would take a lifetime. Moths during the daytime can be found resting on tree trunks, fences, walls, etc., and butterflies can generally be found feasting at flowers or flying in the warm sunshine. The experienced collector can, of course, rear these insects from the egg and photograph each stage of growth. Some photographers prefer to stalk their victims in natural surroundings and they generally have to make a number of exposures before they manage to obtain a photograph, which is perfect. I nearly always bring my captures home and make the exposure in a spare room, using the cream coloured wall as a background, and one photo-flood bulb and the sun as lighting effects. With butterflies, it is best to keep them for a day or two in a dark place and then bring some sweet scented or sweet tasting flower from out of the garden and place it in front of your camera which should be ready for instant use. Then place your captive insect on the flower and, if the sun is shining, it will immediately start to feed; await your opportunity, press your shutter release, and hope for the best. If you manage to obtain four good results out of a dozen plates, you can safely slap yourself on the back and feel well satisfied.

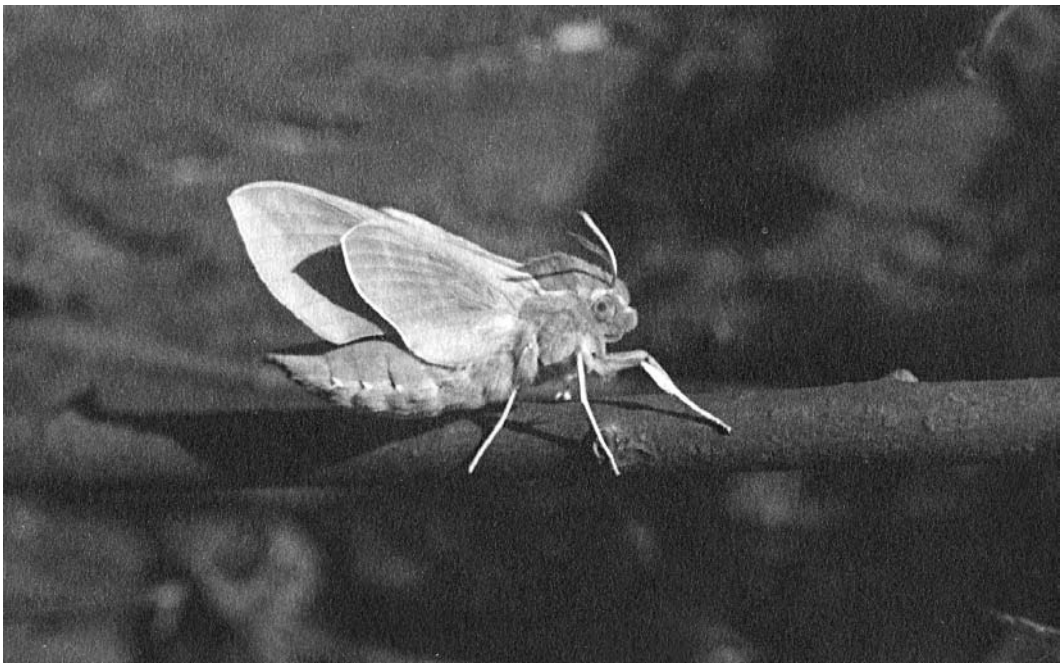
Moths, of course, will generally remain perfectly still, and your troubles will be very few, provided that you take care not to press your shutter-release too hard, or catch the tripod with your feet.

These are just a very few of the methods of photographing insects. Space is very limited, and I wish to say a few words on the enclosed photographs.

Elephant Hawk Moth Larva feeding on its food plant Rosebay Willowherb.
Fairly common in August and September

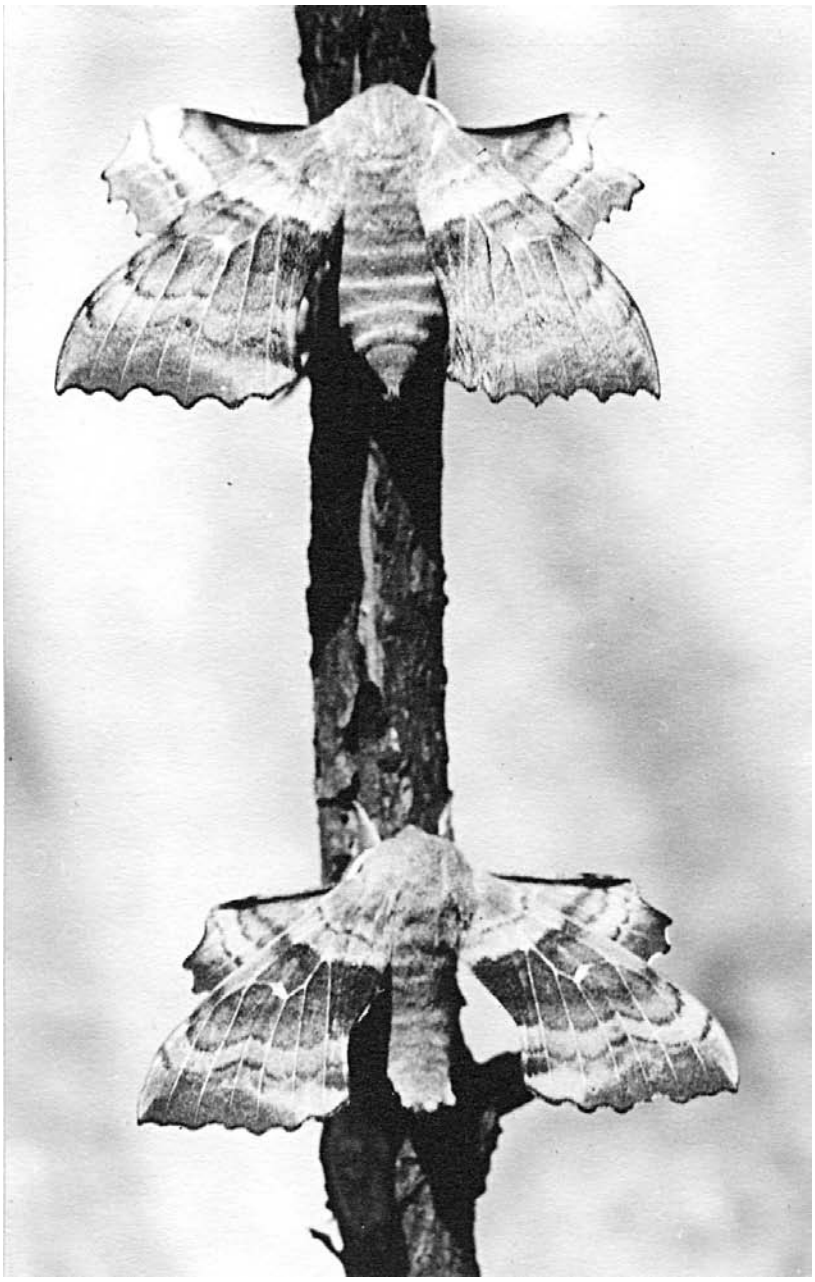


Elephant Hawk Moth newly emerged from pupae with wings undeveloped at 10.30a.m.



Same moth again, with wings fully developed but wings limp and damp
11.00a.m

Elephant Hawk Moth in characteristic position of rest. 11.45 a.m.



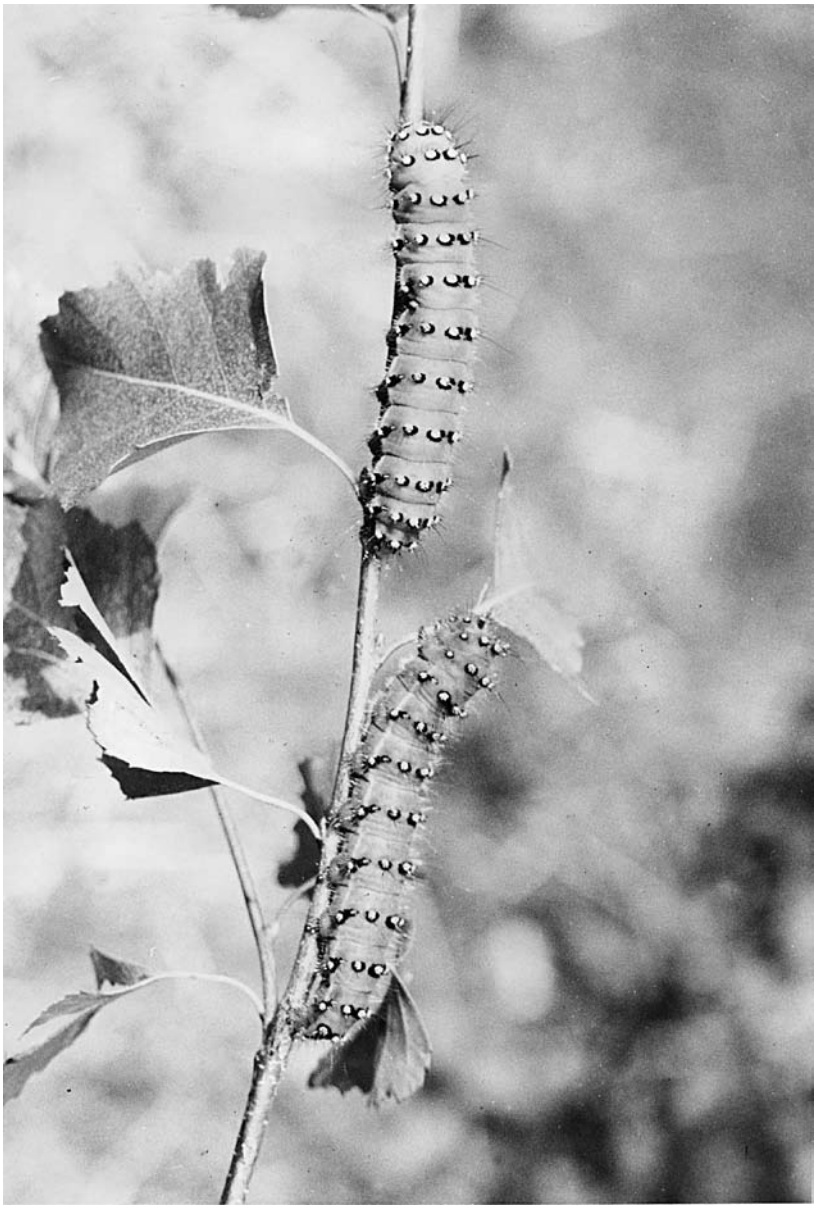
Poplar Hawk Moths (male below and female above)
One of our commonest Hawk Moths, and found almost everywhere where poplar trees grow. The moths can be found in May, June and July, and the fully fed larvae in August, September and October

Privet Hawk Moth *(Sphinx ligustri).* Chiefly a southern species, but sometimes reported from Yorkshire. Attains a length of 3.5 inches and

feeds on the leaves of privet. Moths can be found in June and July, larvae in August and September

Eyed Hawk Moth Larvae *(Smerinthus ocellatus)* Not quite so common as the Poplar Hawk, and more local. It likes sallow bushes in marshy places, and can be found in August and September. It can be taken every year on Eston Hills

Lappet Hawk Moth *(Gastropacha quercifolia)* This species can be found in South and West Yorkshire, but not yet reported from North Yorkshire. Its food plant is chiefly blackthorn, but it will eat the foliage of most fruit trees. The larvae can be found from August to June. The moth flies in July.



Emperor Moth Larvae *(Saturnia pavonia)* Common on Eston Hills during July, August and September. Food plant chiefly heather. You will notice that the larvae shown in the photograph are feeding on Silver Birch, a new food plant for this species.

Red Admiral Butterfly *(Vanessa atalanta).* Common some years, rare others. Food plant stinging nettle. This last season I bred over two hundred hoping to obtain some rare varieties. I was unsuccessful.

Peacock Butterfly *(Vanessa io)*
Turns up in ones and twos most years, but never very plentiful. Very common in Southern England. Food plant stinging nettles

All of the photographs were taken in 1946; some in the place where I found the subjects and others at home in my room. I could have written a great deal more on these insects, but I don't with to take up too much room, so I have cut the descriptions as short as possible.

SOME NOTES ON THE SANDWICH TERN

by – W. A. HANSON, B.E.N.A
with photographs from life by the Author

(The following observations may not – in fact do not – coincide with those of other students, but it is assumed that the differences are due to the differing localities studied, bearing in mind the obvious fact that with birds it is never safe to generalise)

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Sterna cantiaca is the largest of the delightful family of "Sea-swallows" to breed with us, and requires the most careful protection if it is to increase its numbers.

It has but a limited number of breeding stations, the largest being on the Farnes, in Cumberland and Norfolk. It has been reported as breeding in other districts, but only in small numbers, and never continuously.

A large bird, some 16 inches in length, it shows the typical build and colouration of the terns, with black legs and bill, this latter being tipped with horn-colour. We thought it a less graceful bird than its congeners, both a-wing and on terra-firma, having a certain heaviness of body in relation to wing-power. The data here presented was obtained in Cumberland, where under stringent protection it has bred for many years. The nests are rudimentary, mere scrapes made by the bird kicking and rotating in the sand. They are placed on the slopes of a sand-dune, sparsely covered by the wiry marram grass, which is bent down by the body of the bird, and no other lining is provided. The nests are in groups, with a space of about two feet separating them, and on differing levels. The Cumberland birds lay from one to two eggs, very large and handsome, with a ground colour varying from yellowish-white to buff and stone, liberally blotched with chestnut and rich dark brown. *Sterna cantiaca* has the somewhat unusual habit of voiding the excreta without leaving the nest, resulting in the outlining of each with a broad white ring, á la moat. The young differ in several ways from those of other terns, notably in the down on the back, which is distinctly spinous. Their colouration falls into two types, light and dark, both having a darker

patterning on the back. After hatching, they usually leave the nest and look for shelter under some nearby tuft, where a shallow trench is made into which they crouch, emerging only at feeding time. They receive the same food as the adults, mainly herring fry and sand-eels, and these are presented whole to the chicks who have some mighty struggles before swallowing them. The food of the adults is, of course, obtained by diving, and the Sandwich tern in particular makes no half-hearted job of it. The water spurts several feet in height, and the noise of impact can be heard a considerable distance away. A breeding station in June is a wonderful sight, with birds going and coming, and an incessant undercurrent of growling and squabbling from the sitting birds.

A very peevish species this, suffering no trespassers near its nest, and having an amazing variety of strident shattering, hissing and growling notes of vituperation at its command.

Added to these are the facts that the shaggy crest-feathers are erected, and the neck and heavy bill are stretched out in a most intimidating manner, and we get the opinion that the Sandwich tern is quite capable of looking after itself.

After a few days, the young are led down to the sea, and about a month after hatching are ready for the long flight southwards, for this, of course, is a migratory species.

Birds rung in Cumberland have been reported from Cape Town, Durban and other places on the west coast of Africa.

An interesting fact, cited in that excellent book “Sea-terns and Sea-swallows” by G. & A. Marples, is that <u>before</u> migration some Sandwich terns have a short <u>northward</u> drift, Cumberland birds having been reported in Scotland, some two to three months after ringing.

A holiday spent on a breeding station of this species offers something to be remembered to the naturalist, and the picture presented of golden sands, grey-green marram, and the countless flashings of white wings over a sea of ever-changing tints, broken ever and anon as the big “sea-swallow” dives for its finny prey, will live long in the memory.

The photographs, which follow, are copyright by the author.

Sandwich Tern
with newly hatched chick, showing spinous down on back. Another nest and eggs in rear. Note horn colour tip to bill and shaggy crest of adult bird.

Sandwich Tern white peppered head type, brooding

Rudimentary nest of the Sandwich Tern

Two Sandwich Terns.
One brooding newly hatched chick, showing both types of head colouring and crest. Bird extreme rear is a black-headed gull.

Nesting colony of Sandwich Terns *(Sterna cantiaca)*

GULLS OF THE TEESMOUTH AREA

by – R. D. SISTERN.

The area is of unusual interest for several reasons. It attracts both gulls and terns as a feeding, resting and halting place on a main migration route. In winter, gulls flight to the estuary to roost on the water from all directions, coming from both the northern and southern coast-lines for many miles, and from inland fields from at least a 40 mile radius. In summer, the area is inviting as a nesting place for terns and a few gulls although in most cases the birds are driven off and their eggs stolen by members of the public. Left unmolested, there is little doubt that a ternery containing common and little terns would be strongly established, although the latter still nest sparingly in the area. The behaviour of some black-headed gulls in the nesting season seems to suggest that a gullery could also be established, given adequate protection.

The following notes are not intended to be comprehensive, but are the result of field observations made in the area between August 1943 and February 1946 with some suggestions for further field study.

BLACK-HEADED GULL

The dark brown hood of the summer plumage, from which the name is derived, appears by March 1st, but is not general among adult birds till the end of the month. During March, this gull is declining in numbers presumably because of gradual dispersal towards nesting grounds. As the pewits cease to feed in flocks on marshes and fields, gulls take to following the plough for insects.

Towards the end of April four or five pairs of these gulls in breeding plumage frequent grass tufts which rise out of the brackish water flashes at Greenabella, on the landward side of the North Teesmouth ponds. From their behaviour these birds would probably nest if undisturbed, but by May 8th the common terns arrive and promptly drive the gulls away by continually diving down at them as they stand on the tufts. During May and June, in company with all other gulls except the herring gull, the large majority of black-headed gulls at Teesmouth are in immature plumage and there is little evidence of the winter flighting to the nightly roost on the

estuary. As the young birds appear on the tideways in July and August the gulls share the abundance of food with terns and hundreds of white wings flutter over the sunlit waters as the birds dive down on the shoals of whitebait coming in on the flood tide. The numbers roosting in August run into thousands although the evening fight to the estuary is not notable until the end of the month, as the gulls feed mainly offshore and over the tideways at this season.

In autumn, the gulls feed on the open marshes near the estuary and in fields far inland by preying on pewits. The gulls spread out evenly among the huge flocks of plovers and wait patiently. When a plover catches a worm, a gull will give chase and in spite of the clever tumbling of the former, the catch is often dropped and then devoured by the gull. This is perhaps the commonest sight on fields and marshes from the end of August until the hard frosts of winter drive the pewits to other feeding grounds. From fields and marshes, the gulls flight to the estuary at dusk, often in V formations, sometimes circling round, gliding in spirals round columns of rising air; this habit is frequently seen in windy weather. The flight lines appear to be direct to the estuary, along north and south coastlines, and from the whole inland basin.

It would be interesting to know how far inland this movement takes place, and also to what extent gulls follow plovers inland during hard frosts in winter when the gulls fall considerably in numbers at the estuary. Really severe weather, particularly long spells of frost, drives gulls from the fields to the towns, as the plovers are then unable to get worms. Thus it would appear that the popular notion of gulls being driven in from the sea in bad weather might not be ornithologically correct. The habit of preying on plovers extends also to the flocks of golden plover, which appear in fields and coastal marshes up to 500 strong in winter – despite the more rapid flight of this plover.

Attempts to count gulls of all sorts, though mainly black-headed, flying to roost on the estuary waters in October and November, on several occasions gave a minimum number of 1,830 gulls passing within the range of vision at dusk over Greatham Creek Bridge. It would be of interest to know the result of simultaneous counts by a number of observers spread out round the approaches to the estuary, to give some idea of the total number of gulls roosting there, which must run into many thousands. The largest numbers arrive at dusk and leave at dawn, but the birds take at least an hour to congregate. Halting places used in the evening drift

towards Teesmouth, such as Hurworth Burn and Crookfoot Reservoir, but observation seems to prove that only the estuary is actually used as a roost, the gatherings of gulls on inland waters leaving at dusk.

COMMON GULL

This gull is mainly a winter visitor to the area and uses the estuary as a roost. The common gull also will come inland in wintry weather from the sea and seashore to fields and marshes where it preys on both peewit and golden plover as the black-headed gull does. The numbers of common gulls at the estuary are only a small proportion of those of black-headed gulls, even though in winter they occasionally outnumber them on the seashore. In general, the common gull appears to feed nearer the sea and is less in evidence further inland.

HERRING GULL

A considerable number nest on the cliffs from Huntcliff, Saltburn, southwards to Boulby Cliff, and this appears to account for this being the only gull seen regularly in May and June in any number on the estuary in breeding plumage. During the above observations this gull was not observed preying on plovers to get their worms, but appears to be more of a scavenger and will drive smaller gulls away.

LESSER BLACK-BACKED GULL

Similar in habits to the Herring-gull, the “Saddleback” gull with its slate-grey mantle, is a regular visitor to Teesmouth, especially in winter, and a few immature birds are present all during the summer. The weather has to be severe before this gull is seen on inland fields, where its habits are similar to the herring gull. The Scandinavian form with a darker slate-black back has not yet been definitely seen in the area, probably due to the difficulty of identification as the colour of the back is the chief difference. As it almost certainly does occur, having been recorded frequently in Northumberland, this would appear to be a point for birdwatchers to keep in mind.

GREATER BLACK-BACKED GULL

The size of this large gull in unmistakable within a reasonable distance and it frequently appears at Teesmouth, although in far smaller numbers than any of the above-mentioned gulls, ten being the highest number observed at one time. Any dead bird or fish washed up on the flats or on the tide-line attracts its attention and it feeds on carrion and refuse at the tide-line.

GLAUCOUS GULL

Hard weather in the Arctic drives this great white gull down to the Tees area where it feeds on carrion, like the previous bird. On 22nd January 1945, three adult birds appeared on Seaton Sands after a period of heavy gales and snow blizzards. The colour is very light and the birds are as large as the greater black-backed gull, with a wing-spread of 5 ft. The complete absence of any black, coupled with the size, is the best identification. The fact that the wings appear to be the same length as the tail identifies the bird from the Iceland gull, in which the wing tips project beyond the tail (apart from the smaller size of the latter bird). The birds were seen daily for some time and allowed approach to within 20 yards. Two adult birds seen on 25th January 1945 were feeding on a dead shag. In flight they showed unusually straight wings for gulls. On 15th February 1945, a glaucous gull was swimming in Crookfoot Reservoir, a giant among the smaller gulls. As late as 22nd march 1945, three glaucous gulls were at Teesmouth estuary, one adult and two light fawn coloured immatures.

LITTLE GULL

Off the South Gare, Teesmouth, on 1st September 1945, an unusual gull was clearly seen on two occasions. The tail had a black edge but the rump was white. The wings had long prominent black primaries, the black extending along the fore part of the wing. There was a distinct black and white pattern on each wing. The body appeared smaller than a black-headed gull but there was considerably more black on the wings than in the case of the immature black-headed gull. A point of identification looked for was the sooty underside of the wings, but this bird

was distinctly white. Reference to museum specimens shows this characteristic of white underwing to appear in the immature little gull

NOTES

by - MISS M. McCOMBIE

(a) The Waxwing *(Ampelis* (or *Bombycilla) garrulous)*
(b) The Cranberry
(c) Courtship of Hedgehog

THE WAXWING – 1946 – 47

The most exciting experience of recent years for ornithologists in this district have been the visits of the so-called "Bohemian" waxwings, which began in the autumn of 1943 when large numbers were to be observed in the Albert Park and the Linthorpe Cemetery, feeding on the berries of hawthorn and service trees. They remained, but in decreasing numbers, until the following spring. On the 17th March I saw one solitary bird in the Park. They were again present in the district at the end of 1945, when I saw considerable numbers at Saltburn on Christmas Day. During November 1946, they were again in the Albert Park, but had gone by the end of the year. They were seen at Nunthorpe and several points in our district. Judging from the notices appearing in various journals, it would seem that they were very widely distributed over the country; they were noted in the London Zoo, and as far north as Aberdeen and the Orkneys. It looks, therefore, as if this attractive migrant from northern Europe were changing its habits, as its "invasions" of our coasts have previously been at intervals of 12 to 15 years, and the distribution then confined to the much narrower range of eastern England. It would be a very valuable addition to our regular winger migrants, although its greed for berries might prove hard upon our resident species.

I have been able to watch the habits of these fascinating strangers on many occasions. They are very gregarious, at times as many as fifty congregating on one tree which they very quickly strip of its berries, sometimes hanging on the branches, feeding voraciously, and dropping many berries to the ground in the process. They are at once recognisable even at some distance by the erect cockatoo-like brown crest. Their flight from the tree branch and back is most pleasing, as they display a fanshaped tail with a border of bright yellow feathers. The general colouration is a soft beige of cinnamon, with dark brown and russet patches about the face and under the tail. It is not easy without binoculars

to pick out the sealing-wax red extensions of the shaft of the secondary wing feathers from which they get their name. Indeed my observations during the winter incline me to think that quite a number of the birds are without these appendages, being perhaps young birds in their first year. Concealed behind a tree trunk one can at pretty close quarters watch an extraordinary gay lido when the birds come down in rapid succession to drink or bathe in puddles made by the rain. They are unsuspicious and not easily frightened. For a bird about as big as a starling, they have a surprisingly thin sibilant whistle, but on a bright sunny day a crowd of them can make quite a considerable and not unpleasant chatter, which has earned then the epithet of "garrulous".

An article in "The illustrated London News" of 7th December, 1946, by J. D. MacDonald, B. Sc., gave an exceedingly interesting account of the first discovery of a nest in a spruce tree in north-west Finland in June 1856.

THE CRANBERRY

The most interesting botanical find of our recent excursions was on Eston Moor in June, 1946. Among sphagnum moss we found some plants of Vaccinium Oxycoccus (Oxycoccus palustris), its bright pink colour, rotate corolla and prostrate habit, being very different from the common Vaccinium Vitis-idaea which is the Scottish Cranberry.

I have never found this flower before, either on the Scottish hills or Cleveland Moors. In Dr. Elgee's book "The Yorkshire Moors" I find a reference to this plant as follows: "That locally scarce bog plant the cranberry (Oxycoccus palustris) is stated by Mr. Baker to grow on these moors, but so far I have never met with the species in this locality. It is restricted to wet peat bogs trailing over the Bog Moss". (The book referred to is J. G. Baker's "North Yorkshire, Etc." 1863.)

I was unable to return with a view to seeing the fruit of this plant until the beginning of October, 1946, and then I failed to find the exact spot, the moor being dry and hard in comparison with its very wet conditions in June. I understand that the berry is red and somewhat smaller than that of Vaccinium Vitis-idaea, called in English Flora, the Cowberry.

The Cowberry *(scotice cranberry*) grows in great quantities on the hills of Upper Donside and Deeside, in Aberdeenshire. The fruit is a regular article of commerce, appearing in the shops of Aberdeen and other Scottish towns in early September. I have myself gathered as much as eight pounds at a time of this fruit, which make a somewhat bitter but delicious preserve. The berry is the size of the bilberry or blueberry *(Vaccinium Myrtillus*). During the war so much value was placed on the cranberry that it became worthwhile for the villagers in one place I visit to gather the fruits with combs or rakes, which left the bushes bare; very good prices were offered at the local store.

The large imported cranberries at present selling in our shops at the exorbitant price of six shillings a pound come, I am told, from the United States. They used also to be imported from Russia.

There is another plant closely resembling *Vaccinium vitis-idaea* – *Vaccinium uliginosum* (greater bilberry or bog whortleberry). This is fairly common, at least in Scotland, but is not considered edible.

The term “whortleberry” seems to be applied in England both to the bilberry and to the Scottish cranberry.

THE COURTSHIP OF HEDGEHOGS

I have often had hedgehogs in my garden at Linthorpe and have seen them after dark drinking from saucers of milk but down for my cats. One mid-summer night, seeing a movement in the garden, I stole out quietly in bedroom slippers, and had the interesting experience of watching what I believe was the courtship of two hedgehogs, so absorbed in their own affairs that they were unaware of a witness. The larger of the two executed a kind of circular dance about the smaller, this going on until I grew tired of stooping over them in the dusk. The sounds emitted, I suppose by the male, was like the puffing of a miniature train. Shortly afterwards, I read in (I think) “The Times” a letter in which the contributor recounted his interesting experience of the love-making of hedgehogs, and corroborated my observations of dance and chant.

PER ARDUA AD ASTRA

A Memoir of DR. FRANK ELGEE

by Mrs. H. W. Elgee

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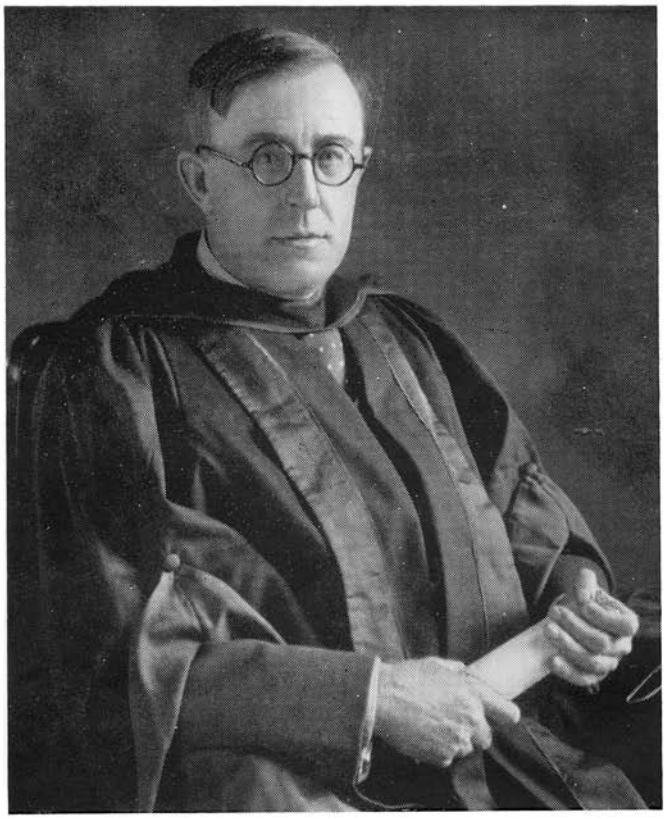

Photo by Lafayette.

Frank Bolles

By the death of Dr Frank Elgee on 7th August 1944, at the age of 63, the scientific world lost a great man and a great scholar, a man who had an outstanding, steadfast love for what is good, true and beautiful, which found its expression not only in his daily life but also in his research work on the Yorkshire Moors, and the papers and books in which much of, but by no means all, his knowledge has been recorded.

Those who knew him were invariably impressed by the ease with which he discussed almost any subject, for he was an unusually versatile man. He was as much at home in the world of literature, history, philosophy and religion as in the natural sciences. Yet, in spite of his learning, no one ever felt ill-at-ease with him, for he enlivened his conversation with a fine, dry humour and an innocent gaiety, difficult to recapture, and those light skilful touches of his gave a sparkling vitality to what he had to say. His intellectual curiosity was boundless; the grasp of his mind was both wide and deep; his judgments were considered and accurate; his humility and selflessness were a perpetual astonishment. He never toyed with anything that was trifling or unworthy of the attention of a wise man; the pursuit of knowledge and the quiet practice of virtue were his sole passions.

One might easily suppose that a man of such parts must have had all the advantages of a fortunate youth. But such was not the case. His parents were cultured but poor, his mother delicate, and for several years an invalid, to whom he was deeply devoted. He inherited from her both courage and patience, and from his father, a pay-clerk and book-keeper, in an iron-monger's office, a love of philosophy and literature and the brilliant art of conversation.

When seven years old he attended a rough and wretched type of elementary board school at North Ormesby, Middlesbrough, where he was born (8th November 1880), and later the Hugh Bell Higher Grade School. Before he was ten he had suffered from every childish complaint, culminating in pneumonia at the age of fourteen. This illness put a stop to his education, such as it was and wrecked his health beyond recovery, for he was left with an empyema which was not treated (and then unsuccessfully) till three years later, owing to the indifference or the ignorance of the doctor.

When fifteen years old he became an office boy at a wage of five shillings a week, but the confinement and the long hours exhausted him, and he broke down completely two years later.

He was then operated upon at the North Riding Infirmary; an anterior incision in the chest was made to drain it. His parents were not allowed to see him, owing to the outbreak of smallpox in the town. After a few weeks he was sent home to die - a gaunt skeleton, carried in his fathers arms from the hospital to the gate where a cab was waiting to receive them.

His parents, distressed and desperate, took him for three months to Ingleby Greenhow, at the foot of Urra Moor, where he was wheeled about in a bath-chair. Weak as he was, he pursued the study of insect life, and read everything he could lay his hands on. Still in his chair, he became a familiar figure in the Albert Park, Middlesbrough. Although his health was ruined his mind was insatiable, and he was even then mentally intent on the problems of the origin and evolution of the North-eastern Moorlands whose blue escarpment he could see from his bedroom window, and he was resolved to investigate and understand them. Although never free from physical distress, he plunged into the realms of conchology, geology, astronomy and botany. He made himself master of the German tongue, and read both Latin and French; for recreation he dived into English history, literature and philosophy, and he played a good game of chess.

As he grew stronger he paid visits to the Moors, and applied himself to their study, but his investigations had to be done slowly and laboriously on foot, save when he was the winner of a “prize” (half-a-crown, I believe) for a contribution on entomology or astronomy to the *Weekly Northern Gazette*. This he would use for train fare or to pay for a night’s lodging at some moorland farm. Fortunately, the Moors were not far afield; and Eston Hills, a small replica of the main moorland area, was near his home, and a favourite haunt.

His method was to investigate whenever and wherever he could, and as his energy allowed, during the summer months; and to read and write in the winter. I have before me several of his carefully kept records from the age of eighteen onwards.

By a stroke of real good fortune, in 1904, at the age of twenty-four, he was appointed Assistant curator (under the Librarian) to the Dorman Memorial Museum which had just been built by the late Sir Arthur Dorman, Bart., as a memorial to his son, Lieut. G. N. Dorman, and to his fellow-officers and men who had fallen in the Boer war. He was paid what to him was the princely sum of £70 per annum, with small annual increments.

It had thus become possible for him to do more carefully planned work, and he could travel further afield, and even stay on the moors, the whole of which were to come under his scrutiny, and they cover an area of four hundred square miles. But do not think the whole of his income was devoted to his work. He always contributed his share to the family purse.

At the Dorman Museum he had the advantage of familiarising himself with the good local collections of geology and natural history, to which he himself all the time contributed, and as his knowledge expanded he made contact with scientists of note.

In 1907 he read a paper to the Cleveland Naturalists' Field Club on "The Origin of the Cleveland Moors;" in the same year he published papers in *The Naturalist* on "The Driftless Area of North-eastern Yorkshire, and its Relation to the Distribution of Certain Plants and Animals," and "Glacial Survivals;" and in 1905 he read before the Yorkshire Naturalists' Union an account of the "Problems of the Fauna of North-east Yorkshire."

The mere titles indicate that he had amassed enough knowledge to attempt a monograph of the region he loved so ardently; and in the winter of 1907 he began to write what in later life he regarded as his greatest achievement, "*The Moorlands of North-eastern Yorkshire; their Natural History and Origin*. After writing steadily for two years he felt dissatisfied with his plan; this he altered, and re-wrote the book in 1910, revisiting it in the winter, and once more in the winter of 1911-12. All the time he was haunted by the legitimate fear that he might not live to see it in the press; but he controlled any impatience that assailed him, and he published nothing until he felt he could speak with full authority.

"To know all naked truths
And to envisage circumstance, all calm,
That is the top of sovereignty."

To such a height he had attained; sovereign of the Moorlands, knowing them more intimately than any other man; sovereign over circumstance, for he had become “disciplined to perfection in the knowledge of himself.”

For those who have not read *The Moorlands of North-eastern Yorkshire*, published by Brown’s of London in 1912, I cannot do better than quote from his preface; “On this work I have gathered together the results of over fifteen years’ research into the botany, geology and zoology of the Eastern Moorlands of Yorkshire. So far as I am aware, it is the first English book which deals with the moors of a district from a scientific standpoint and which treats their varied phenomena as a coherent whole. Moors in different parts of Great Britain have been botanically considered in papers by the members of the Central Committee for the Survey and study of British Vegetation, Drs W. G. Smith, Moss, Rankin, F. J. Lewis, and the late R. Smith. In Tansley’s *Types of British Vegetation (1911)*, moors and heaths are considered in relation to other types of vegetation and to their conditions of existence, climate, soil etc. On the Continent, they have long been recognised as important objects of research, and there are innumerable books and papers concerning them, among which may be mentioned Graebner’s *Heide Nord-Deutschlands,* and Schröter and Fruh’s *Moore der Schweiz.* But this work differs from all these in that it considers not only the plant life of the Eastern Moorlands, but also the geology and zoology in their relationship and interdependence.

“It may be as well to direct attention to certain sections of the work which deal with aspects and problems of the moors hitherto over-looked, or merely hinted at by earlier workers; the peat beds and the evidence they yield as to primitive woodland on the moors; the relationship of the moorland fauna and flora to the glaciation of the district; the origin of the chief moorland land-forms, especially outliers like Roseberry Topping, and inliers like the Hole of Horcum; the fauna of the moors and its relation to the flora. Problems of more general interest here discussed are, the conditions which determine the existence of moors; the origin of the moorland flora; the origin of the Red grouse; the origin of the insect life, particularly the Butterflies and Moths. I have approached each problem independently, and have, in each case drawn my conclusions from the numerous data my investigations have afforded. Much still remains to be done before our knowledge of the Eastern Moorlands can, in any way, be regarded as complete. Those who have explored the district will understand how arduous a task it is to examine thoroughly an area nearly as large as an average English county, and intersected by innumerable

valleys, each of which possesses its peculiarities. Perhaps the investigation of the peat deposits, layer by layer, is the most urgent piece of research that is needed, not only because it would furnish indications of climatic changes in post-glacial times, but also on account of the light it would throw on the development of the Mosses, our knowledge of which at present is largely inferential.

"As every aspect of the Eastern Moorlands has been touched upon in these pages, an exhaustive treatment of each topic has not been attempted. General characteristics alone have been described. Detailed descriptions of moorland plants and animals have been purposely avoided, as such can be found in works specially devoted to accounts of the British flora and fauna. My aim throughout has been to trace the moors to their causes; to indicate their interaction and interdependence between the animals and plants, and the geological history of the district."

Thus we see that *The Moorlands of North-Eastern Yorkshire* is, by the author's own showing, the first regional survey to be published in Britain. Since 1912 it has become almost a fashion for groups of investigators to undertake regional surveys, but which of these is as thorough, as original or as profound as this outstanding, solitary achievement?

In this short article I cannot deal with the many scientific papers he wrote from time to time, or with his dialect poems, but must proceed to his next classic, *Early Man in North-East Yorkshire,* published in 1930.

The research he undertook for this work was perhaps rendered less arduous by the fact that from 1920-31 we made our home at Commondale, in the very heart of the Cleveland Hills. He pursued his investigations into the Prehistory of the moorland region with the same admirable thoroughness, patience and acumen, which he had observed in dealing with their Natural History.

At the beginning of his preface he writes "This work surveys the Archaeology of North-East Yorkshire, one of the great prehistoric regions of England and comparable in this respect to the better known Cotswolds, Wessex, Sussex Downs, and other famous tracts of south country. With this region I have been on intimate terms for a life-time so that is it perhaps not too much to say that my love for it has been a powerful motive in the creation of this work. Otherwise I question whether I should have

been able to summon up enough patience, endurance or courage to study so much arid archaeological literature, or to examine dusty antiquities in many museums. These dry labours, however, were essential to a right understanding of the vast collection preserved on the wide-open spaces of the moors, North-East Yorkshire's greatest glory. Here amidst the bracken and ling and with the companionship of wind, sun and rain, archaeology became a pure joy and the life of past a real presence."

As before he began and completed his huge undertaking unsponsored, and with some doubt of the possibility of its eventual publication, owing to the two difficulties that have always beset his path; ill-health and lack of means. But I eased his labours wherever I could, and we practiced an exhilarating economy.

He was thereby able to procure and read everything that has been written about the archaeology of the area, and to track down every "find," examining it or obtaining a photograph of it, and he card-catalogued all the information he gleaned. Every spare moment was spent in the field, on foot.

His book deals chronologically with the various prehistoric cultures that invaded the moorland area, from the vague evidence for Palaeolithic Man to the Anglo-Viking age. The Bronze Age, especially the Urn Period, figures most largely in the work, for most of the settlements of the Urn Folk are still undisturbed. He not only dealt with each succeeding culture specifically, but showed its setting in the Pre-history of Britain and Western Europe. He evinced, what is rare in archaeologists, a mastery of synthesis as well as of analysis; and his inferences, based as they invariably were, on evidence put before the reader, are distinguished by his shrewd common sense. He revealed once again a dispassionate, judicial mentality, sure of itself, because it was unflinchingly devoted to the discovery of truth.

Out of the appreciative reviews which were written on *Early Man in North-East Yorkshire,* I like best this single sentence from *The Yorkshire Post.* "Elgee may by his several studies, historic and natural historical, be conceded 'rights of pre-eminent domain' over the Moorlands or North-Eastern Yorkshire and he has added to his 'rights' by his substantial and handsome book."

As a result of the publication of this book we were invited by Mr T. D. Kendrick to write *The Archaeology of Yorkshire* for the county series edited by him, and published by Methuen. We found it a truly formidable task, owing to the size of the county, and the restrictions on the size of the book.

My husband finally broke down in health early in 1932, and the latter part of this county archaeology was written at this bedside, whenever he felt himself able to deal with it. I often wondered whether he would live to see it completed; I also had the added anxiety of knowing that he was too desperately ill for sustained thought, but he would not relinquish his task, however great his distress. We seized the most favourable moments for work, and at length the day dawned when we could at last say that it was completed. As he whimsically put it "I think the editor will agree that we have given the public a gallon of Tadcaster ale from a mere pint pot." This book in which the Roman Occupation of Yorkshire and the Anglican culture largely figures was published in 1933.

I must not omit to say that his enthusiasm for his work at the Dorman Museum was as keen as that for his literary labours, When the late Mr Baker Hudson retired in 1923 he was able and with the fuller freedom and responsibility thus gained he was able to develop the Museum in accordance with his own ideas, and enhanced its value as a cultural centre for Middlesbrough and the district. His work there remains a monument for information he willingly and courteously helped, nor did he forget the teachers and their pupils whom he encouraged to attend the Museum and for whose use he prepared and mounted many cases of specimens.

He relinquished his post at the Museum in 1932, and I carried on his work there until 1938, when his doctor ordered him south as a last resource. He spent the remaining years of his life in Alton, a pleasant market town in North Hampshire. He appreciated the cultural miniature beauties of the landscape of this region, but I am sure that his mind was constantly in the capacious Yorkshire Moorlands, which satisfied his reason, captivated his imagination, and elevated his heart; and although he made no mention of it, I feel that he suffered from a sense of exile. It was with some relief that I found in his diary a quotation from Horace which he had jotted down on the garden seat where he used to lie when the weather permitted: "Ille terrarium mihi praetor omnis angulus ridet " (This little corner of the earth smiles on me beyond all others).

He was still and quiet the last year of his life; his Missal was always near his hand and so was his Shakespeare. The last books he re-read were Hardy's *The Mayor of Casterbridge*, and Keats' Poems.

His body lies in Alton cemetery, on a hill, open to the sky. I wish that the Moorlands could have received him. In this respect all I was able to do was to place a little heather in his hands, and he held it caressingly.

In 1933, before he died I am glad to say, the national importance of his work was recognised by the conferment of the degree of Doctor of Philosophy of Leeds University, an honour he richly deserved. In 1936 he was elected an honorary member of the Yorkshire Philosophical Society in succession to Professor Kendall. His labours were Herculean; his physical strength was nothing more than frailty; and his monetary resources were always meagre. All his work was his true vocation; it sprang from his head and his heart, unconditioned by any thought of worldly gain or bodily ease. He stands indeed, for the triumph of mind over body, of spirit over matter. He was pure spirit, well-founded on the earth but reaching to the heavens. He communed with the invisible world with the same comprehensive power and reverence with which he studied the Moors he loved so loyally, and now that he is freed from his body which endured nobly to the very end, I like to think of him, the scholar-saint of the Yorkshire Moorlands as having entered fully into his "rights of pre-eminent domain," the *genius loci*, unto whom all is now revealed.

H. W. E.

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THE EARLIEST BOAT-BURIAL OF WESTERN EUROPE DISCOVERED AT LOOSE HOWE, 1937

Author: Mrs. H. W. Elgee

Permission to excavate Loose Howe was obtained from the landowners, Milbourn Estates Limited, Newcastle-upon-Tyne, but we were requested not to begin our work until the middle of October 1937.

The excavation was carried out by members of the Technical Staff of Imperial Chemical Industries, Billingham and of a Workers' Educational Class on Local Prehistory, at weekends from October 17th to November 17th.

I take this opportunity of thanking them for their able work and resourcefulness, which triumphed over wind, fog, rain and snow.

The contents of the barrow are at the British Museum.

Loose Howe stands at an altitude of 1400 feet above Rosedale in the very heart of the Eastern Moorlands of Yorkshire and some twenty-three miles north west of Scarborough. The Howe itself is just over sixty feet in diameter and seven feet high, and is one of a series of large Bronze Age burial mounds, from one to two miles apart, that crown the central watershed. Few of these have been excavated by archaeologists, but most of them at one time or another have been plundered. Loose Howe was selected for excavation because it had not been much disturbed, and because, being the highest in the neighbourhood, the late Dr. Elgee felt convinced that its excavation would reveal something important.

A trench was driven through the Howe and revealed that it had been constructed with great care. The base was surrounded by a ring of contiguously placed large stones and the mound itself was encased with similar stones, except at the summit. The mound was built up of alternate layers of white sand and dark turves, gathered from the adjoining moor.

The interment over which the Howe had been erected lay ten feet north west of the centre of the mound, and consisted of three boats each hollowed out of a separate oak trunk. Two were so placed as to form a coffin, the third lay alongside, and the prows of all three pointed E.N.E., that is, towards the sea, about thirteen miles distant.

On lifting the inverted boat which formed the cover of the coffin the lower dug-out was found to contain a black greasy mush, in which there still remained traces of a body and its clothing. Amongst these was a bronze dagger, the blade of which was about 5" long, near the position of the left hip. A fragment of feet-wrapping attached to an ankle bone and a small piece of a shoe showing two lace holes indicated the position of the left foot at the prow end of the boat. The body had been laid on a bed of reeds, rushes or straw, and vestiges of a pillow of the same material still adhere to the coffin at the stern end. Fragments of hazel twigs and nuts indicate an autumn burial. A single short fragment of flax was the only remaining indications of a linen garment, identified as such by the British Museum authorities. Owing to the heavy rainfall on this area and the waterlogged condition of the burial during wet weather anything else that may have been deposited with the dead had perished.

The age of this boat burial is fully established by the bronze dagger, which belongs to a type characteristic of the Early Bronze Age, and Mr. C.F.F. Hawkes of the British Museum dates it at about 1600 B.C.

Further confirmation of this dating was afforded by a secondary burial found immediately beneath the summit of the Howe. It had been somewhat disturbed and comprised the fragments of a cinerary urn, with human bone and charcoal, in which had been deposited a small ornamented offering cup, a beautifully fashioned perforated stone axe-hammer, a trefoil-headed bronze pin, and a grooved and riveted bronze dagger about 9" in length.

This type of interment is characteristically Mid Bronze Age, which in East Yorkshire began about 1400 B.C.

Hitherto no canoes assignable to the Early bronze Age have been discovered in Britain. Indeed it is possible that the Loose Howe dug-outs are the earliest dated canoes we have in this country, with the exception of one from Kent and another from the Clyde which have tentatively been assigned to the Late Neolithic age.

Each is about 9' in length, from 2 – $2^1/_2$' wide, narrowing slightly towards the stern. In height they range from 1 – 2', the stern in each case being lower than the prows. The least well-preserved is that which held the body, but the outside still shows the marks of the adze with which it had been fashioned.

The cover is more perfect, with a rounded prow and square cut stern, at the bottom of which is a remarkable T-shaped slot, about 2" deep, 3" wide and 6" long, a feature never noticed before in any dug-outs and the purpose of which is problematical, though some form of steering apparatus could perhaps have been keyed into it. There are indications of a keel at the prow end.

The canoe that lay alongside shows the finest workmanship of the three. The prow rises to a definite beak, the bottom has a well-marked keel, the stern a T-shaped slot at the base. Although hewn out of the solid this boat in its lines is a real prototype of the modern rowing boat. Only one other keeled dug-out has been recorded in Britain, a larger example having been found in Deeping Fen, Lincolnshire, and probable of Early Bronze Age date, that is more than a thousand years later that our canoe.

The supreme importance of this burial lies in the fact that it is the only prehistoric boat-burial recorded in the whole of Western Europe and this is all the more amazing when we bear in mind that thousands of prehistoric burials have been excavated. Consequently its occurrence on the Eastern Moorlands presents a problem not easily solved. On the analogy of the Anglo-Viking ship burials we can but assume that it was the burial of a person particularly concerned with boats, most probably a sea-farer, and one moreover who believed in the spiritual voyage of the dead, an idea which seems to have originated with the Ancient Egyptians, who, as is well known, deposited model boats with their dead so that souls could voyage along the celestial Nile in the wake of the sun-God, Ra. From Egypt this idea was carried into other lands, where it assumed different aspects, but always took the form of a spiritual voyage. In this respect it is interesting to note some Egyptian associations found with the tree-trunk coffin burials of Scandinavia, dated from 1400-1200 B.C. This type of burial of which a few examples have occurred in Britain, is the only one that has any resemblance to that at Loose Howe. They consist of split and hollowed-out oak trunks in which, as is seen particularly in Jutland where they are better preserved, the dead were laid fully clothed with their weapons, ornaments, and other grave goods. In two or three of these Jutland coffins two or three folding stools of Egyptian type have been found, and in another a hairnet displayed Egyptian weaving technique. Some years ago Dr. Elgee advanced the hypothesis that these tree-truck coffins are symbolic boats, a hypothesis which seems now to be confirmed by the Loose Howe burial.

The problem is further complicated by the presence of three boats. It should be remembered however that three has always been regarded as a mystic number, and in East Yorkshire we have further evidence of this belief during the Early Bronze age in the three chalk bætyls found in the grave of a child on Folkton Wold, three cowry shells from the grave of a woman on Langton Wold, three amber beads in a barrow near Driffield, besides numerous threefold groups of barrows on the Eastern Moorlands and groups of three standing stones associated with other barrows. As the three cowries and chalk bætyls are known to be Earth Mother symbols, may it not be possible that the three boats also symbolised her, especially as in Ancient Egypt the boat was also associated with a Mother goddess?

The belief in the spiritual voyage of the dead no doubt persisted in the north until the Anglo-Viking Age. It has already been suggested that it continued under the form of the tree-trunk coffin burials, which are later than the Loose Howe interment. It re-appears again in the Late Bronze and Early Iron Ages of Scandinavia in the form of ship shaped groups of stones arranged on the surface of the ground, enclosing burials. After this there appears to be a gap of about a thousand years but about the 5th century A.D. ritual boat burial again re-appears in the same region. This suggests that the rite actually died out, despite the apparent break of continuity, for it is a far too specialised idea to have been forgotten and re-invented. I suggest that during this interval boat burials were sent out to sea on fire as was often practiced later by the Vikings themselves and a custom preserved for us in the account of the funeral of Balder.

Thus we must regard the Loose Howe burial as the very beginning of a religious rite which has persisted under varying forms from 1600 B.B. down to the Christianisation of the Vikings when all their pagan burial customs were finally abandoned.

HERALDRY NOTES

Author: T. H. Brown

During the summer of 1946, coats of arms were seen at Wilton, Gunnergate and Sockburn.

WILTON

On the fall-pipes and stonework of the Castle is the LOWTHER crest – a dragon passant (walking). The initials "C.H.L." are for Charles Hugh Lowther, 3rd Baronet.

Over the archway leading to the stables is a stone shield showing six rings; in the centre is an inescutcheon showing a hand (this small shield is the badge of a baronet). The Lowther arms are 6 black annulets (rings) arranged three, two and one on a gold field. Wilton Castle was built about 1807 by Sir John Lowther on the site of an earlier castle of the Bulmers. The Bulmer arms can be seen on the effigy in the porch of Wilton church – a golden rampant lion on a blue field billettée (i.e. scattered with fold blocks).

The old coach which was seen at Wilton (it is to be kept by the I.C.I. as a museum piece) carried a shield divided vertically showing on one side the Lowther arms and on the other the Morehead arms. The Morehead arms are 3 gold acorns on a blue bend (diagonal stripe) with a silver field. This shows the marriage of Sir C.H. Lowther with Isabella, daughter of Reverend Morehead of Easington.

GUNNERGATE

Two shields in coloured glass were seen at Gunnergate Hall. One shield was that of VAUGHAN of MONTGOMERYSHIRE (granted 1583) and the other showed the marriage of Thos Vaughan with Catherine Jane, daughter and heiress of Capt. Duncan McFarlan of Glasgow and Oban. VAUGHAN arms are a red saltire ('St. Andrews Cross) on an ermine field, the CREST of the family being the demi-lion rampant half gold and half red, holding in its paw a scroll inscribed "Immaculata gens".

I attempted, at a later date, to rescue these windows for the Dorman Museum, but was only able to find one shield, the rest having been hopelessly smashed by the workmen.

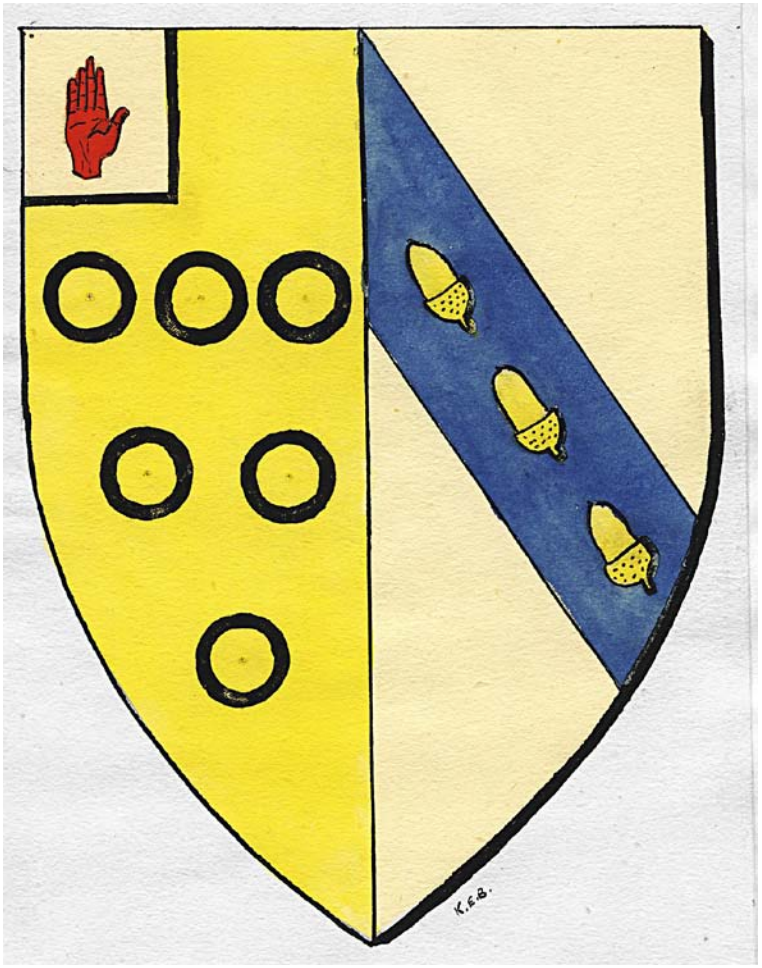
On a fountain in the grounds can be seen the Vaughan crest (demi-lion etc) and the initials T. V. (Thos Vaughan) 1871.

SOCKBURN-ON-TEES

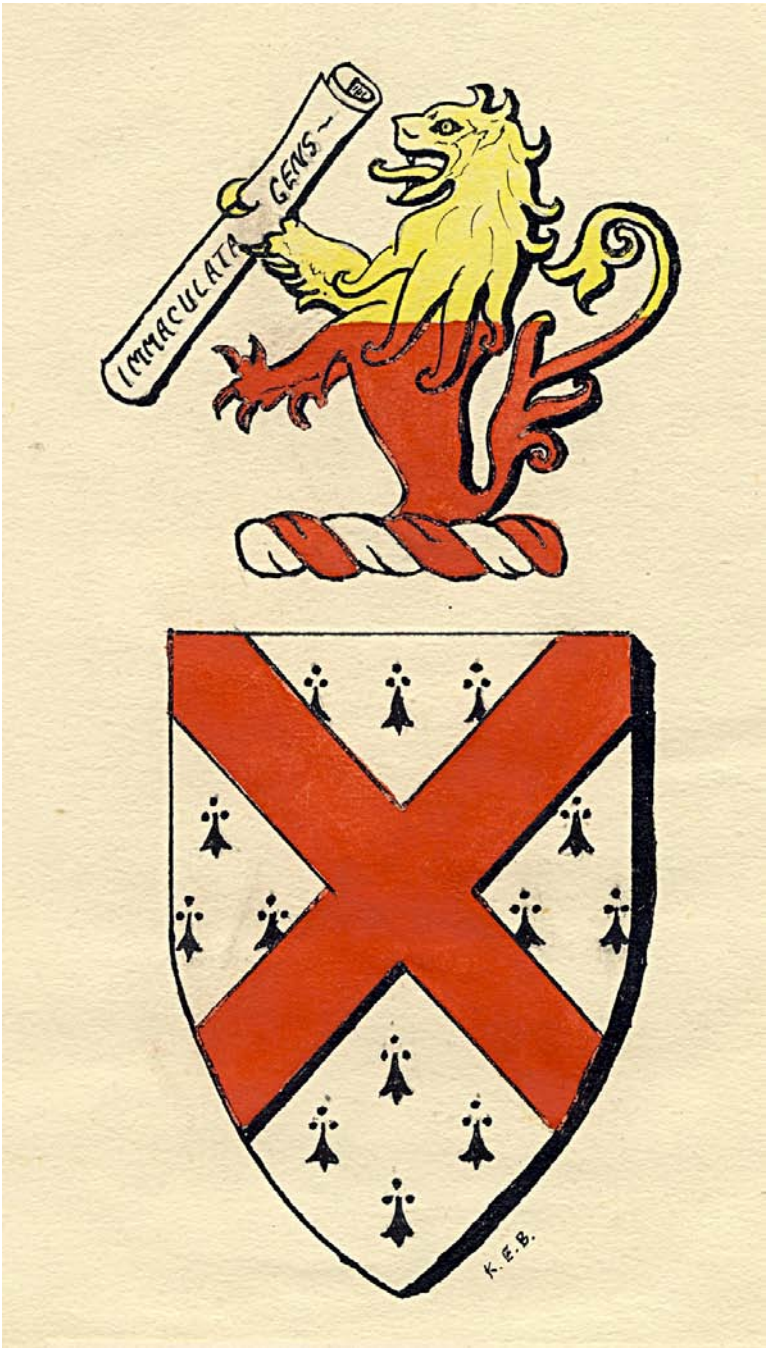
The Conyers Arms were seen in the Conyers chapel and show a gold maunch (sleeve) on a blue field. The Conyers arms can be seen on the effigy in Norton church. Above the doorway of Sockburn Hall are the arms of Blackett – a black chevron charged with three silver escallops, between three mullets (stars) pierced black on a silver shield. The Crest is a hawk's head erased (torn off!!).

I shall be pleased to help any member with heraldry difficulties.

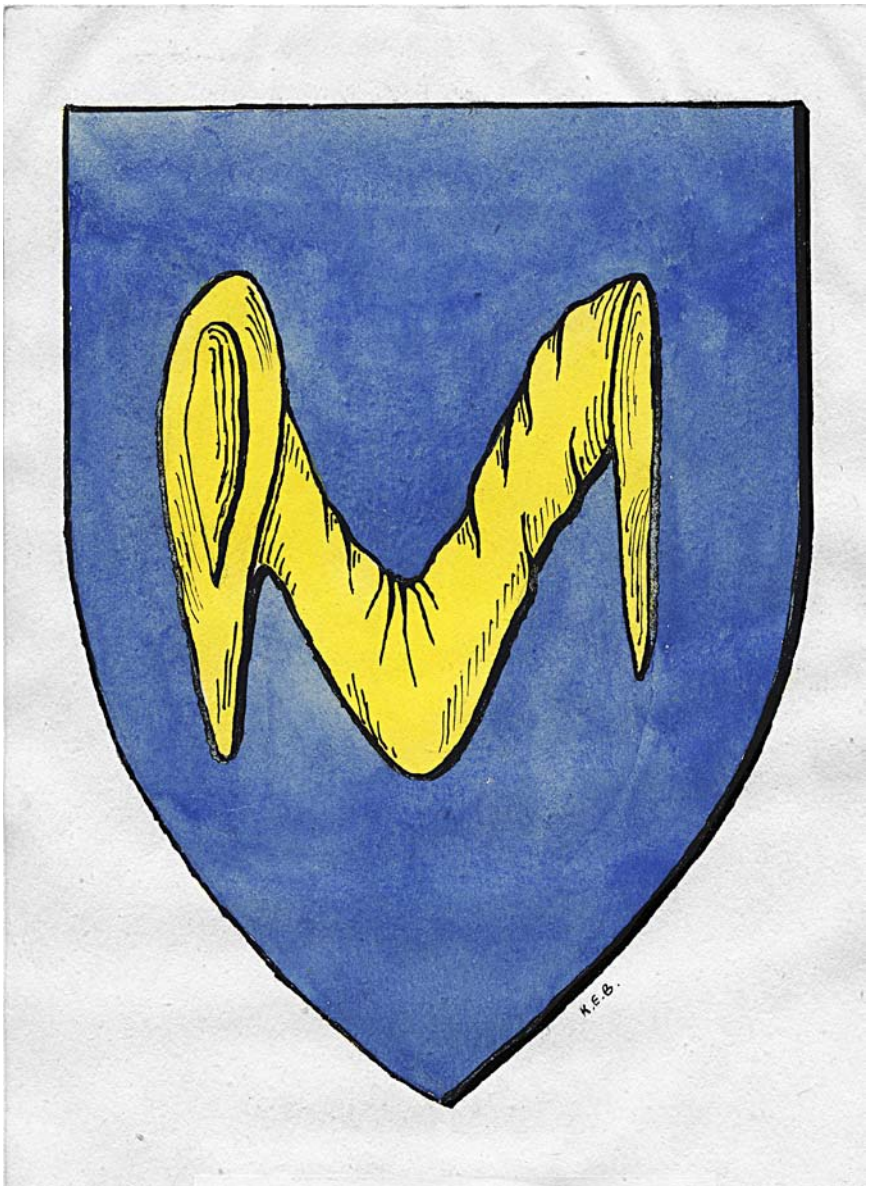
Illustrations by Kate E. Brown B.A. and Thos H. Brown.



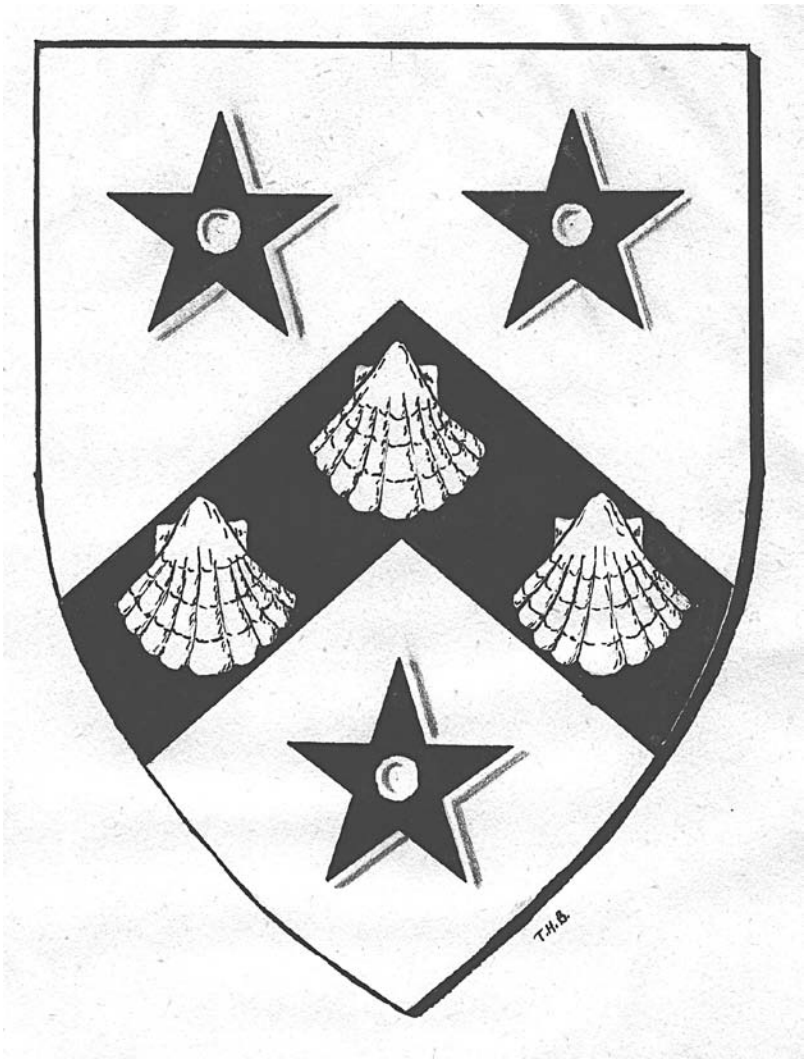
Lowther impaling Morehead



Vaughan of Montgomeryshire, granted 1583



Conyers of Sockburn



Blackett (late of) Sockburn

THE SPA WOOD GAP

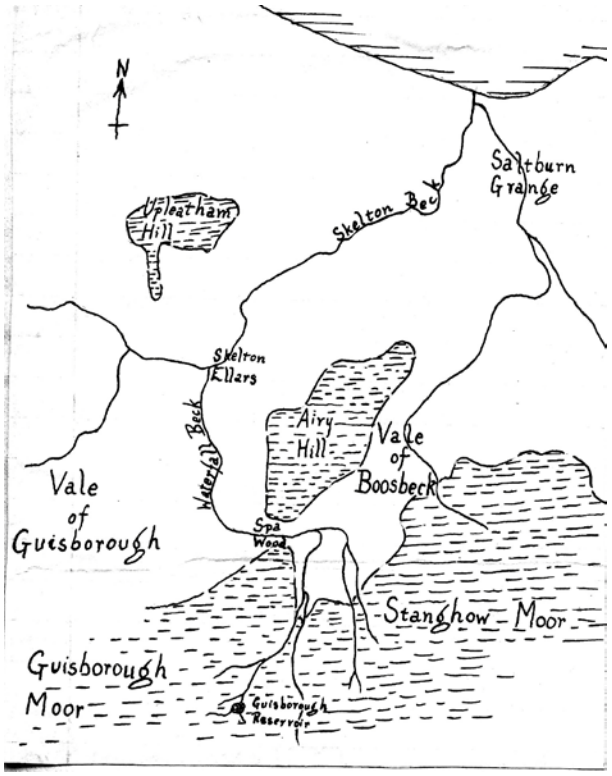
An interesting case of River Capture of Glacial Origin.

Author: W. C. Harris

A view to the N.N.E. from Guisborough Reservoir shows a broad valley leading seawards, with its outlet near Saltburn. Curiously enough, the streams rising in the higher part of the valley do not take this obvious course to the sea, but winding near Charlton Terrace and making a bold hairpin turn, cut through the main moorland escarpment, thus isolating the Airy Hill outlier. In the vale of Guisborough, the Waterfall Beck cuts an impressive minor gorge in the soft boulder clay; it is about 100 feet deep, and forms a most pronounced "wound" of uncultivated wood and scrubland in the cultivated vale. Nearer the sea the Skelton Beck (as it is there called) shows similar signs of rejuvenation, especially between the railway viaduct and Saltburn Toll Bridge.

The evidence for the presence of glacial lakes in this district is well known. In particular the various "slacks" of the Guisborough and Great Ayton Moors indicate the overflow of water ponded in the Vale of Guisborough between the forefront of the southward – advancing glacier and the edge of the moorland escarpment. That the ice once covered part of Stanghow Moor is evidenced by the presence of glacial deposits in the form of sandy "drumlins" at a height of over 800 feet (above sea level) in the neighbourhood of the Lockwood Beck reservoir. Suppose, then, an advancing glacier, coming from the direction of the sea, with its front somewhere near the present site of Boosbeck, to have enclosed a lake in the vale of Boosbeck, contemporaneously with, or subsequent to, a similar flooding of the Vale of Guisborough. As the Boosbeck Lake increased in depth, it found outlet over a low col, probably of rifted origin, on the site of the present Spa Wood Gap. Over this col, the drainage flowed to the Vale of Guisborough, cutting the deep gorge ("gill") of Waterfall beck, and rejuvenating the drainage of the Vale of Guisborough below the confluence of skelton Ellars. When the Boosbeck glacier finally withdrew, the Spa Wood col had been eroded to a height of less than 400 feet above sea level. The lowest point in the Vale of Boosbeck is just over 400 feet. The Waterfall Beck did not, therefore revert to its pre-galcial direction, and the marshy ground near Boosbeck (South Skelton) Mine, now forms the watershed between the Skelton and Saltburn Grange streams.

A glance at the Ordnance Map will show the value of the Spa Wood Gap through the escarpment for taking the main road and railway between Guisborough and Whitby.



THE LITTLE OWL

Author: G.A. Ewbank

There have been various reports as to the extermination and re-introduction of this interesting bird, and one item at lease appears to be accurate. That is, that the bird was re-introduced into Lincolnshire. In the late nineteen twenties it was well established as a breeding bird on the North side of the Humber between Goole and Hull, and by 1932 had reached the West riding near Harrogate. Had it been suggested, however, in 1935, to the bird student in Cleveland, that in approximately 10 years' time these birds would be breeding over a wide area in this district at intervals of about a mile, there is no doubt that such a statement would have been regarded as incredible, yet such is the case to-day.

During the winter months, the bird is very elusive and observations are made of it much less frequently than in the spring.

The four or five eggs laid one every other day until the clutch is complete, appear with amazing regularity about April 20th.

Following an incubation of 26 days the downy white owlets appear, unfertile eggs being a rarity in striking contrast to the tawny owl.

During the incubation period, the hen is fed part of the time by the male, and traces of small birds, chaffinches, willow wrens, etc., have been found at the nesting sites.

The bird does, however, take mice, and in one instance a hollow ash branch was used as a storing place. One inspection of this site revealed 13 mice and 2 birds including a Song Thrush, whilst the next inspection showed 11 mice and 2 birds including a green finch. One of the peculiarities of the little owl is her reluctance to leave the eggs and take to the open when disturbed. In five nesting sites out of six, the bird was able to slip unnoticed off the eggs and hide in some other part of the tree usually in the hollow running upwards, until the real or imaginary danger had passed.

Considering the rapid rate of extension of its breeding range in recent years, and its elusiveness in the Winter, it would be decidedly interesting to learn by what methods it came to be exterminated.

BOTANICAL NOTES

Author: M. Odling

In the spring or early summer of 1941 when cultivating a piece of ground I had taken over as a market garden in 1940, I noticed a number of seedlings appear in the moister parts. These somewhat resembled seedling docks and the hoe was put through them. However closed examination showed that they had only one leaf and so a few were left in order to see into what they would develop.

To my surprise they turned out to be Adder's-Tongue Fern *(Ophioglossum Vulgare).* Their roots, or rather their rootstocks, are quite unmistakable and since then I must have come across hundreds when digging. Their abundance can be judged by the fact that when digging a celery trench in 1946 I came across nearly three dozen in about 30 feet of trench. They seem restricted to the damper parts so are chiefly restricted to an area of about one eighth of an acre.

They appear to be very tenacious of life, as I have this year found them coming to the surface from the turf that was buried in 1940. They appear however to be incapable of standing strong sunlight even through the soil be moist, and it is probably from their habit of growing in grass that they are rarely noticed and therefore considered to be rare. I also found two specimens when digging an allotment at Marton Moor, Nunthorpe.

Mr. Chas. Postgate has called my attention to two patches of Goldilocks *(Ranunculus Auricomus)* at the junction of Cargo Fleet Lane and the Normanby Road, Ormesby, and also to a large patch of the Snake Weed or Bistort *(Polygonum Bistorta)* in Ormesby churchyard; it would appear that these were planted at some time on a grave and have since spread over a considerable area all around it.

NOTES ON THE HABITS OF A COCK ROBIN

Author: M. Odling

When cultivating my garden this spring (1946) I had a Robin in constant attendance; this in itself is not unusual, but the remarkable thing was that he would suddenly disappear for about an hour; so constant was this that I made a note of the time when I missed him and, to my astonishment found it never varied more than five minutes either side of half past eleven. With the advent of the mating season he paid me only occasional visits at varying times, but has returned this autumn (1946) and on the few occasions that climatic and soil conditions have allowed me to work I have noticed that he does not appear to have lost this habit.

Can anyone explain it?

THE YORKSHIRE COAST – WHITBY TO SALTWICK

Author: K.W. Brown

(Observations made during two excursions)

The stretch of coast between Whitby Harbour and Saltwick Nab can be said to consist roughly of (1) the scar, a plain of marine denudation formed by the erosion of the cliffs and the wearing down of the basal rocks to below the level of breaker action; (2) a shingle and sandy beach at the base of the cliffs, consisting of derived boulders and pebbles formed of debris from the cliffs; and (3) the cliffs themselves which consist of dark grey, finely laminated shale at the base, followed by a thin bend of hard ferruginous gritty sandstone, which is succeeded by alternate strata of sandstones and shales, with a capping of several feet of red clay.

The scar consists of dark grey shale with well-defined joints, the main ones of which run due north and south, parallel to the dip, and the secondary ones W.115^{o}E. The strata at East Cliff dip 2^{o} to the south, that is the beds tilt in from the sea. Further down the coast at Saltwick there is an alteration in the dip – the beds dipping at an angle of 3^{o} to the S.W. Because of this alteration in dip lower beds are exposed at Saltwick Nab that at East Cliff. The two dips meet between Whitby and Saltwick where the hard ferruginous grit bed comes down to below H.W.M. The shales of the scar are known as the Alum shales on account of their being used in former days as a source of alumina for the production of Alum.

Between the scar and the base of the cliffs there in a shingly beach about 20 yards wide and composed of debris from the cliffs including newly fallen blocks of sandstone, pieces of shale, and varying types of sand, together with numerous glacial erratics of which specimens noted include Jasper, Cheviot Porphyrites, Porphyry, Granites, and Red Sandstones.

As was stated before, the beds at the base of the cliffs are also Alum shales and it was from the cliffs at Saltwick Bay that the shales were worked as, on account of the 3^{o} S.W. dip, they are well above sea level. Above these comes a sandstone known as the Dogger Ironstone (dogger is a local word meaning nodule and the Dogger Ironstones has a distinctly nodular structure). This bed is of a fairly uniform thickness and is clearly defined on the cliff-face as it is harder than the other strata. Above the Dogger lie the Lower Estuarine sandstones and shales, light brownish in

colour with occasional dark ferruginous patches. These weather very easily and the debris goes to make up much of the talus at the foot of the cliffs. Above these, which are the thickest beds, on the cliff is a capping of stiff red clay containing erratics. This is known as the Boulder Clay and is the moraine material discharged by the Scandinavian, Teesdale, and Scottish glaciers during the Ice-Age.

In describing the scar I mentioned that lower beds were exposed at Saltwick Nab at the East Cliff owing to the dip of the strata. These lower beds are known as the Jet shales and it was from these that the Jet, so popular when made into ornaments in Victorian days, was obtained. At Saltwick Bay a vast amphitheatre has been excavated by the Jet and Alum workers, forms a lasting memorial to the days when two industries flourished there.

R O C K S

The following lithological characters were observed in the strata:-

The alum shales were seen to consist of grey laminated shale (weathered to a brown colour) with hard calcareous bands of pyritic nodules.

Being only a thin bed the dogger Ironstone is composed of only one type of rock, namely, highly ferruginous gritty sandstone.

The Lower Estuarine Sandstones and Shales are very variable in composition and the following types of rock were noted:-

(a) Freestone with current bedding in parts.
(b) flaggy sandstones.
(c) Sandy shale.
(d) sandstones and shales with veins and bands of carbonaceous material.

F O S S I L S

Fossils obtained from the Alum shales at East Cliff were:-

Ammonites communis
Harboceras bifrons

Belemnites

Leda ovum.
Inoceramus dubius

Many of the fossils, especially the Ammonites, are enclosed in hard calcareous nodules or doggers, which, however, can be broken open with a smart blow from a trimming hammer.

EXCURSION TO UPPER TEESDALE

Author: M. M^{c}Combie

An excursion to Upper Teesdale took place on 1st June, 1946. It is pleasant to think that more normal conditions are now making possible such longer outings. The start was not auspicious, for we waited about an hour in a chilling wind until the driver of our bus and his engine were awakened from their night's repose. In pouring rain the party proceeded via Bishop Auckland, Barnard Castle, Cotherstone, which, if you will consult the map, is not a short cut to High Force. The driver, it appeared, was afraid of losing his way, and had once been to Bishop Auckland. At Barnard Castle he insisted on crossing the Tees. These detours, however, may have had their advantages for those who did not know the district, as they afford an opportunity of seeing Raby Castle, in passing, and also took then through a beautiful stretch of country by Cotherstone and Romaldkirk. To enthusiastic botanists the time lost was a distinct disappointment, for it prevented our reaching the habitat of the chief treasure of Upper Teesdale, that alpine plant found nowhere else in England, *Gentiana Verna*. Other specialities of the region were seen – *Primula Farinosa* (Mealy or Bird's Eye Primrose) Trollius Europaeus (Globe Flower), *Potentilla Fruticosa* (Woody Potentilla or shrubby Cinquefoil) – which last however is not in full bloom until July. *Serratula Tinctoria* (Saw-wort), which is found about Winch Bridge, does not flower until August. In Hooker's "Flora" I find a note on *Potentilla Fruiticosa* – "In Teesdale the flowers appear to be functionally 1-sexual; the sexes differ in appearance."

The excursion had been well planned by our secretary, Mr. J. K. Thomas, and was led by our President Mr. C.C. Hill. A sudden cessation of the rain coincided with our leaving the bus at Newbiggin, and fine bracing conditions attended us until the start on the homeward way. The stretch between Scorberry Bridge and Winch Bridge proved rich in flowers, including Meadow Saxifrage and Mountain Pansy. Picnic lunch was partaken of on the rocks at Winch Bridge, and the rock pools provided good sport for some of our younger members who are keen on pond life. Very conspicuous were the larvae of water beetles as they came to the surface for air. One might remark on the number of Junipers on the south bank of the river above Winch Bridge, and also on the height of some of these which are trees rather than the usual low bush, and which always make me think of the prophet Elijah who slept under a Juniper tree. I

notice that Hooker remarks “rarely sub-arboreous (10 – 20 ft with trunk 5 ft in diameter)”.

Rejoining the bus at High Force we proceeded past the Whinstone quarry at Forest towards Langdon Beck, and a ramble over the fells yielding interesting observations, botanical and ornithological. The bus fetched us back to the High Force Hotel where tea had been ordered. After tea there was time to visit the Falls, which showed a considerable rush of water. We were glad to hear from the attendant at the pay-box that the red squirrel is holding its own in these parts. He described the habits of tame squirrels of which he made pets, and I believe some of our party saw one of these.

And so home in pouring rain, considering ourselves very fortunate for so many hours of dry weather in a summer which had been unusually grudging to the excursionist.

I am indebted for the following lists of plants and animals found during the excursion to Miss M. MacDonald (plants) and Mr. D. Jones and Mr P. Stead (animals).

PLANTS

Early Purple Orchis
Spotted Orchis
Crosswort
Viviparous Plantain
Milkwort
Meadow Saxifrage
Mountain Pansy (purple, yellow, purple and yellow mixed)
Marsh Valerian
Butterwort
Bitter Vetch
Woodrush
Wood Melic grass
Water Mint
Mealy Primrose
Water Avens
Wood Cranesbill

Bird Cherry
Cat’s Foot
Globe flower
Bitter Cress
Lousewort
Sweet Cicely
Rue-Leaved Saxifrage
Wild Strawberry
Figwort
Woodruff
Primrose
Cowslip
Wild Hyacynth (Bluebell)
Golden rod
Forget-me-not
Wood Sanicle

Juniper

Yellow Pimpernel
Wood Sorrel
Dog violet
Shrubby Potentilla

BIRD NOTES

On Widdy Bank fell a pair of Redshanks were very anxious about their nest, which, however, we failed to locate. Near by a Golden Plover flew from a nest with four eggs. An eggshell found later was, apparently, that of a Landrail.

Near Low Force a Chaffinch was seen on a nest high up on the side of a birch tree bole.

A pair of goldfinches were watched at close range near Newbiggin. Newbiggin appears to be the highest altitude which the house sparrow reaches in this district, though house martins are frequent about Langdon Beck.

Mr P. Stead made a list, below, of all birds noted by the party during the outing, including those seen from the bus windows. In many instances only one specimen was seen.

Curlew	Widdy Bank Fell
Redshank	" "
Red Grouse	" "
Snipe	" "
Eggshell of Landrail	" "
Greenfinch	Langdon Beck
Chaffinch on nest	Low force
Goldfinch	Newbiggin
Green Woodpecker hole in tree	Near Sadberge
Pair of Pheasants	Raby Castle
Missel Thrush	" "
Swallow	
Swift	Yellow Wagtail
Pair of Linnets	Golden Plover with nest
Skylark	
Magpie	Sandpiper
Rook	Blue Tit
Carrion Crow (immature)	Great Tit
Sand Martin	Goldfinch
Yellow Hammer	Grey Wagtail
House Martin	Water Ouzel (Dipper)
Moorhen	Whitethroat

Plover	Sparrow Hawk
Cuckoo	Wood Pidgeon
Woodcock	Pied Wagtail
Spotted Flycatcher	Song Thrush
Partridge	Blackbird
	Starlings

OTHER ANIMALS

Other forms of animal life seen en route and in Teesdale include :-

Fallow Deer	Raby Castle
Common Newt	(Molge Vulgaris)
Palmated Newt	(Molge Palmatis)
Great Water Beetle	(Dytiscus Marginalis)
Small Devil's Coach Horse Beetle	
Common Water Beetle (black)	
Corixas	
Water Skaters	
Water Cricket	
Red Squirrel	High Force
Rabbit	
Large Caddis Fly	
White Butterflies	

SHORE PLANTS AND SHORE BIRDS

Some Notes on a Field Club visit to South Gare Breakwater – May 18th, 1946

Author: C. C. Hill

It was meant to be a bird outing, but we had scarcely left the station at Grangetown with the intention of walking along the "sea wall" to the breakwater, when the interest of the party was captured by the astonishing wealth of botanical interest before us. Considerable yellow patches proved to be Oxford ragwort – *Senecio squalidus*, a plant which, as a new-comer to the district within the last 10 or 12 years, caused a great deal of interest among the local botanists. It has apparently come to stay. Everywhere on suitable sites it is flourishing, growing well on the poorest of soils, railway sidings being a favourite habitat.

Yellow was the prevailing colour among flowers, augmented by clumps of cat's ear – *Hypechaeris radicata*, and occasional examples of wild mignonette – *Reseda lutea*; bird's foot trefoil – *Lotus corniculatus*; and toadflax – *Linaria vulgaris*.

All along the slag wall – on top – on the deep sides sloping to the marsh – at the base of the wall, and on the marsh itself, plants were numerous and varied: sea beet – *Beta maritime*; sea aster – *Aster Tripolium*; wild lettuce – *Lactuca virosa;* stonecrop – *Sedum acre;* buck's horn plantain – *Plantago coronopus;* sea plantain – *Plantago maritime;* dog violet, stork's bill, fennel; all were met with greater or lesser frequency. Many of the more common plants were abundant.

Towards Warrenby a patch of dove's foot cranesbill was met with, and then a patch of purple mountain milk vetch – *Astragalus hypoglottis,* and on the near-by marsh a bed of green winged orchis. Nearer still to the sea there were thrift, sea blite, and sea arrow grass, black saltwort in abundance on the salting, sand sedge and sea lyme grass on or near the sand banks.

The approach to the breakwater was through a sharp shower of rain, and in the face of a cold strong wind. A few birds had been noted on the way, three mallard – all drakes, occasional wheatears, wagtails and redshanks, and a nest with eggs of the meadow pipit found on the marsh.

Strictly speaking, however, the ornithological interest began at the breakwater. Not that the breakwater itself yielded much beyond an occasional gull, and the weather being so bleak and cold, the party, after a snack in the shelter of the lighthouse, was soon on the move again. From here a few decided to return home by the shorter route. The remainder proceeded towards Redcar by way of the seashore.

On leaving the breakwater we were delighted by a wonderful display of flying by a cormorant. Coming from the direction of the river the bird crossed the road at a good height, turned head on to the wind, which was blowing off the sea, and, instead of battling against the strong breeze, as we might have expected, he set his wings on an even keel and planed right into the wind. A few flaps and he was planing again. Without further effort he continued in a long glide which was estimated to be quarter of a mile; steadily lowering till he dropped gently into the water and was lost to sight in the waves.

The power to manipulate their feathers so as to be able to plane against the wind without moving their wings is common to many birds, but somehow we hadn't expected it of a cormorant. The apparently heavy laboured flight so often seen in their passage between Hunt Cliff and the neighbourhood of the Tees mouth, which is a favourite fishing ground, had led one to imagine them to be not the best of flyers. Actually, though their speed in flight cannot compare with our long sharp winged waders, and many other birds, they are by no means poor flyers, and their slow seeming flight, just above the waves, is, when carefully noted, not so slow after all. In a very short time after passing they are beyond the range of vision. While watching the cormorants nesting on Hunt Cliff, at a later date, we were struck by the effortless way they sometimes planed backwards and forwards along the face of the cliff, and how slim and graceful they look when sailing high overhead.

Along the water's edge were many dunlin, some curlews and ringed plovers, and several other small waders, which would not allow an approach near enough for recognition. About twenty lesser terns passed over, apparently travelling northwards. A few of them were curious and flew near, calmly looking down at us.

The most interesting observation was of a flock of bar-tailed godwits. There were some seventy birds in all, in three groups, all allowing us a fairly near approach. We were able to watch them plunging

their long bills deep into the wet sand as they probed for worms and sand-dwelling creatures. After rain, sandhoppers come to the surface in great numbers, and both dunlin and godwit were having a good time running rapidly about capturing these lively crustaceans. The godwits were nearly all in winter plumage. As one after another the groups rose and swirled past in swift and graceful flight, one's pulse beat a little more quickly and we felt like taking our hats off as we thought of these beautiful and brave travellers soon to essay the passage across the North Atlantic to the Arctic, for no bar-tailed godwit breeds south of the Arctic Circle. At this time of the year vast numbers of waders, and other northern breeding birds make their way along our shores, staying here and there for a few hours, or days, or even weeks, waiting for the mysterious signal which tells them that the ice is yielding, and the snow melting from the marsh and tundra where they nest. Among the first to arrive in the far north are the bar-tailed godwits, "and the Samoyedes tell how the tufek, as they call it, runs round the frozen pools tapping impatiently with its long bill and crying for the ice to melt". A week or two later a flock of godwits was still haunting the Teesmouth area, either the same flock or another that had moved up from the south. Usually there are non-breeding birds on our coasts throughout the summer, and in fact, throughout the year, for all do not go far south in winter, or far north in summer. It is generally believed that the larger waders do not breed till their second or third year.

We found the sand very soft and difficult to walk on and near Warrenby, left the beach and climbed the banks to firmer ground and so to the bus route.

A surprising record, as we left the beach, was a pair of partridges, which flew close past us.

GEOLOGICAL NOTES ON VISIT TO WILTON

Author: M. Odling

On the expedition to Wilton held on 6th April, 1946, Dr. Vickers gave an account of the geographical conditions under which the Permian and Triassic rocks were laid down. He emphasized the fact that recent observations had shewn that animal life could exist in much more saline conditions than had previously been considered possible. The borings had yielded a number of minerals new to science and in one case a deposit of Potash salt, analogous to the Stassfurt deposit, had been met with; however, these were at too great a depth to be workable by present known means. A remarkable fact was that the various salts (Anhydrite, Gypsum, rock Salt, etc.) had not separated out in the order that might have been expected and that research as to the reasons for this was in progress. A few of the cores from the borings were examined, particularly those yielding the shell of the mollusc *Avicula (Pteria) contorta* which is characteristic of the Rhaetic Beds, that is the beds directly underlying the Lias. Previous to this, there was no evidence of the occurrence of the Rhaetic in Cleveland, though certain green marls visible in the Beck just north of Ormesby Station were believed to be of Rhaetic age.

The party then went into the Woods East of Wilton towards Yearby Wood to examine the outcrops of the Middle Lias, and though not generally well preserved the following fossils were found:-

Cardium Truncatum
Avicula Cygnipes
Avicula Insequivalvia
Pectin Sublaevis
Gryphaea Depressa (right valve)
Dentelium Giganteum
Rhynchonella tetrehedra

These would suggest the bottom part of the Ironstone series; that is the bottom part of the upper division of the Middle Lias.

NOTES ON MOTHS IN 1946

Author: Rev. P.V. Allen

On March 29th I took a newly emerged Yellow Horned Moth *(flavicornis)* on Easton Moor.

Larvae of the Wood Tiger *(plantaginis)* I found in abundance on Eston Moor on April 12th.

On the Club expedition to Eston on June 25th we captured specimens of the Wood Tiger, Fox Moth female *(rubi)* and the Forester *(statices).*

I found a larva of the Fox Moth on March 29th and another as late as May 2nd. Both pupated, but in neither case did the moth emerge.

Larvae of the Drinker Moth *(potatoria)* were again to be found at New Marske, where I took three on June 7th.

On Eston Moor I found three larvae of the Elephant Hawk Moth *(elpenor)* on September 27th – a very late date for them.

Puss Moth *(vinula)* larvae were more than usually plentiful this year on Eston Moor.

Photographs taken by Mr M. Ward on the excursion to the Guisborough district, which was conducted by Mr W. C. Brice on Saturday 7th September 1946. Seated in the back row is our president, Miss E. Calvert

Photograph taken on a club excursion to Lanchester June1934.
Presented by Mr. H. Hood