The Natural History Of Teesmouth

A SIMPLE INTRODUCTION

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for the

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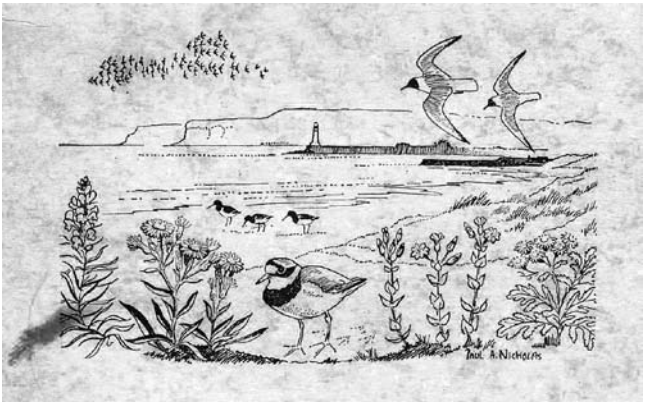

* In the text denotes a specimen, which is illustrated.

Scientific names in Latin are only used where confusion might otherwise occur.

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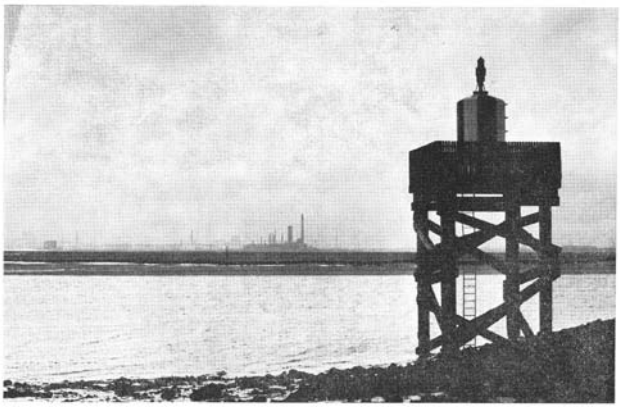


Seal Sands, Teesmouth, looking South towards Imperial Chemical Industries Petrochemical Works. *Photo by A. C. Clay*

PREFACE

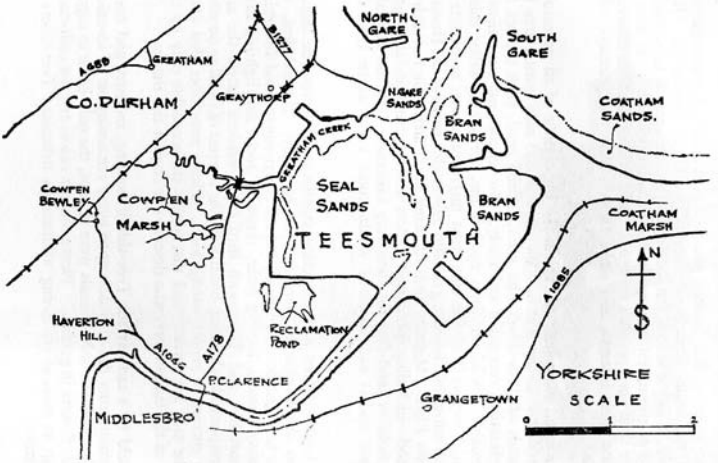
In the pages of this booklet you will find a factual, unsentimental survey of the main features of natural history at Teesmouth. It is clearly only an introduction, not a complete account, and is as simple as possible so as to interest non-specialists, including children. It aims to do no more than open people's eyes to the wild richness on their doorstep, to stimulate their interest, and make them realise the priceless value of the area.

There is no room here to explain the importance of all its natural assets: suffice it to say that it is the obvious and only coastal area for the thousands of Tees-siders who want, indeed need, such a place for outdoor relaxation, recreation and study. To schools and naturalists it is indispensable. Wild creatures need it too, for among other things it is a bird "airport" on the east coast migration route, and contains the only real salt-marsh left along the 200 mile stretch between the Humber and Fenham Flats. Migrant birds of many kinds stop here for shelter, rest and food – including specialised feeders, which depend on salt marsh, brackish pools, or mud flats, for their very existence. We are host also to countless waders and wildfowl, which come every winter from the Arctic.

This booklet is not a conservation manifesto. It gives you factual information about what is there for you to enjoy. Nevertheless, we must stress how priceless the area is, and ask everybody to avoid disturbing birds, picking flowers, leaving litter, throwing rocks and lighting fires. Special constables and Teesmouth Bird club wardens patrol the area to curb irresponsible shooting, but it is in the interests of us all to do what we can to correct or report wrong-doers. Please remember that some parts of the area are private, and that others are accessible only by the generosity of the landowners, who deserve our respect and thanks.

It would be a sad day for Tees-side if housing, industry and man-made entertainments did encroach upon every remaining bit of so-called "waste" land – if

the only animals were in zoos, the only birds in cages, and the only flowers in gardens. Please come as onlookers, not collectors. Let us keep an oasis of refreshing wildness for urbanised Tees-siders – you! – to enjoy.



THE TEES ESTUARY

HISTORY

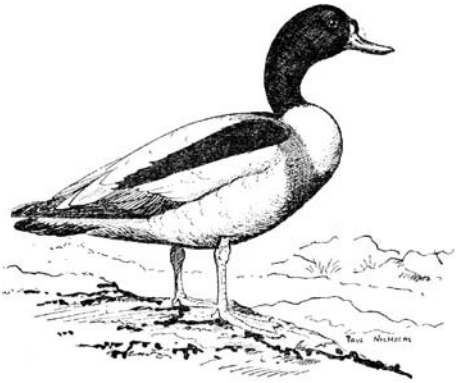
In the last 115 years the development of the River Tees as a major port has brought many changes to the mudflats and marshlands, which lie at its mouth. Some of the mudflats have disappeared; marshlands have been created only to disappear again, but a great variety of wild birds continue to haunt the estuary.

In 1850, had you stood where the road to Seaton Carew now crosses Greatham Creek on the Durham bank you would have been on the edge of nearly four miles of mudflats and sands stretching between you and the Yorkshire bank. At the time the river was confined within a man-made channel only as far as Middlesbrough docks. Downriver from there it broke free from its embankments and fanned out across a broad delta taking three and sometimes four courses to the sea.

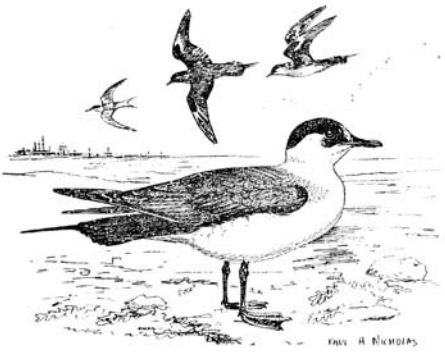
The Durham bank of the river lay roughly where the Port Clarence-Seaton Carew road now runs. A sandspit from the Seaton Carew sand dunes marked the mouth, about a mile west of the present North Gare Breakwater. Neither this breakwater nor the present sand dunes inside the river existed. The Yorkshire bank lay roughly on the line taken later by the Darlington-Saltburn railway. Few people realise that the river then joined the sea at 'Tod Point,' now covered by part of the Dorman Long Warrenby Steel Works and over two miles from the end of the south Gare breakwater, the present mouth.

Most of the existing seawalls along the riverbanks between Middlesbrough and the sea were completed between 1875 and 1900 in order to reclaim land. They were built with waste slag from the Iron and steel Industry by the Tees Conservancy Commissioners, the river authority. The most important and far-reaching development was the building of the North Gare and South Gare breakwaters, between 1863 and 1891. These breakwaters were built out, like promontories, from the seawalls, and over the years the sanddunes have accumulated against them, bringing their own flora and fauna. The dunes around the North and South Gares are therefore of very recent origin and vary from year to year in shape and size as a result of the action of wind and wave. At one point of the North Gare dunes, the original retaining wall has been exposed again recently.

About half of the Tees Estuary has been reclaimed in the last century and, no doubt, as the port of Tees-side prospers and develops, more will be reclaimed. The River channel is at present being deepened and widened in the lower reaches to enable large tankers to reach the two new oil refineries now under construction. As yet, a fair proportion of the original wildlife remains on the marshes, mudflats and coast, close to the steel works, oil refineries and chemical factories, which line the rapidly expanding port of Tees-side. However this proportion could be drastically reduced, or even disappear altogether, if we do not preserve part of the essential wildlife habitats of Teesmouth.



Shelduck



Arctic Skua

BIRDS

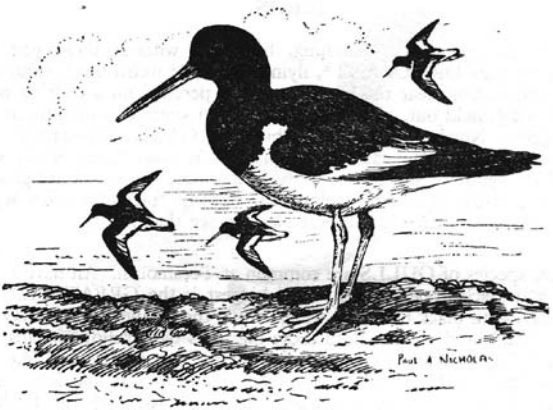
Binoculars help bird-watching, but even without them you can hardly miss the CORMORANT*, flying like some weird black swan over the sea, swimming near the breakwaters, or perched on a rock or buoy with its wings held out. Further out to sea in summer and autumn fish the biggest North Atlantic sea-birds; GANNETS – rather like enormous gulls – diving with a big splash. At most times of the year FULMARS glide to and fro on stiffly held wings, like miniature gliders. They are gull-like in size and colour, but have no trace of a gull's floppy flight. Saltburn cliffs are the best place to see them.

Five species of GULLS are common at Teesmouth. All have white bodies and black-tipped wings. The biggest is the GREAT BLACK-BACKED with black back and wings, while the smaller HERRING has a pale grey back and wings. Both these big gulls have yellowish bills and flesh-pink legs. The COMMON has a grey back and wings like the Herring, but is a size smaller still, with very slender pointed wings, showing a white wedge along the front, and deep red beak and legs. (Its dark hood disappears in winter.) All these gulls are more or less brown when immature and have to be separated on size and shape. The popular name "sea-gulls" is misleading, as they frequent the shore, and inland fields and rubbish tips, rather than the open sea. However, the KITTIWAKE – identified by its black legs and dark eyes – is purely coastal.

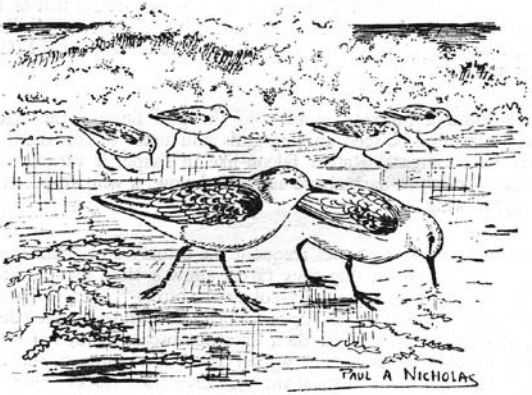
TERNS are related to gulls, but are much longer and slenderer in bill, body and wing; they are very short-legged, and have black crowns. They may be seen between April and October, diving for fish or resting on the shore. The three commonest species are the SANDWICH, with black bill and legs, and the smaller COMMON and ARTIC, with red bill and legs.

In autumn a bullying relative of the gull family the ARCTIC SKUA* - can often be seen chasing gulls and terns to rob them of the fish they have caught. Rather falcon-like in shape, it varies in colour from dark all over, to dark above and pale below; a whitish patch shows on the upper wing.

Ducks of up to 16 species frequent the estuary and offshore waters, but are so often shot at that they rarely allow a close view. This is a pity, as ducks are beautifully coloured birds. The hundreds of SHELDUCK* on Seal Sands appear as black and white dots at a distance, but a closer view would show their chestnut breast-band, red beak and legs, and metallic green head. Winter is the best time to see them – as it is for most ducks. Most of the smaller, darker ducks, which appear as a dark mass on the water at high tide are MALLARD, with a few TEAL, WIGEON, and PINTAIL. Of the diving ducks, the EIDER – identified by its long 'Roman' nose – can sometimes be seen near the breakwater, diving for molluscs and



Oystercatcher



Sanderling

crabs. The mussel-beds opposite the Staincliffe Hotel, Seaton Carew, sometimes attract a flock of COMMON SCOTER, the only all-black sea duck.

GEESE (mostly PINKFEET) are usually only seen in autumn flying over on their way to the Humber, and rarely settle. In addition to the resident MUTE SWANS, the odd WHOOPER and BEWICK'S visit us in winter and can sometimes be seen on the pools and flood-water beside the Port Clarence – Seaton Carew Road. Unlike the Mute, which has an orange beak with a black base, these two have a yellow beak with a black tip. The Whooper is the same size as the Mute, but the Bewick's is smaller and has the yellow confined to the basal half of the beak.

Waders usually feed at the edge of water. Look out for four kinds along the shore. Tiny SANDERLINGS* run like clockwork toys along the edge of the sea, just keeping out of the way of the waves, and looking very pale with grey backs and gleaming white under parts. The similar-sized but much slower-moving RINGED PLOVER is brown above white below and has a black collar. Two larger waders are OYSTERCATCHER* - very black and white, with a long orange bill – and BAR-TAILED GODWIT, mainly brown, with long, slightly upturned bill.

Rock-loving waders should be looked for at North and South Gare and at Hartlepool: the TURNSTONE, a plump, dappled black-brown-and-white bird with orange legs and stubby bill, and the PURPLE SANDPIPER, a small, thin-billed, very dark wader with yellowish legs, never found away from rocks.

Most of the amazing cloud of greyish-brown birds, which swirl round like a cloud of smoke over Coatham Sands at high tide are KNOT. It is marvellous to reflect that these come all the way from Siberia to winter with us. LAPWINGS with their wispy crests and floppy wings, CURLEWS with their long down-curved bills and REDSHANKS with their red legs and white wing-bars, are all to be seen on the mudflats and marshy fields.

Birds of prey are few, but a KESTREL may sometimes be seen posed with beating wings and fanned tail, watching for voles in the grass. A SHORT-EARED OWL – a daylight hunter – may glide over the rough fields on long rounded wings, with its characteristic slow, rolling flight.

Small birds are harder to see, but look out for the SNOW BUNTINGS* between October and March, flashing white on their wings as they drift in scattered flocks along the sand-dunes near North and South Gare. In spring and autumn WHEATERS perch prominently on the old block-houses and huts near North Gare, or on the walls at South Gare, showing their white rumps as they sweep low over the ground up to their next perch.

Such are just some of the birds typical of Teesmouth; there are many others. All seasons have their specialties. In spring the summer visitors arrive; in summer, all birds are rearing families; in autumn, the big southward migration fills the coastal bushes and gardens with WARBLERS, FLYCATCHERS and REDSTARTS; in winter, flock after flock of BLACKBIRDS and THRUSHES, FIELDFARES and REDWINGS, fly in off the sea, and hordes of waders and duck fill the estuary.

We hope you will come to see what there is. For best results bring binoculars or telescopes, a bird-watcher guide, and disturb the birds as little as possible.

RECOMMENDED BOOKS

A FIELD GUIDE TO THE BIRDS OF BRITAIN AND EUROPE – R. Peterson, G Mountfort, and P.A.D. Hollom – published by Collins.

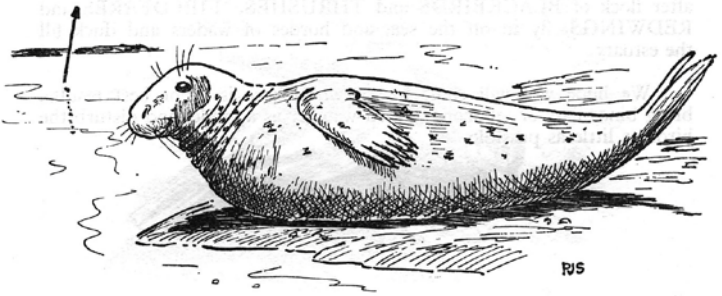
* THE BIRDS OF TEES-SIDE – by P.J. Stead – 10/6d

* THE BIRDS OF TEESMOUTH – Teesmouth Bird Club – 2/-

* Obtainable from the Teesmouth Bird Club, 85 Junction Road, Norton, Stockton-on-Tees.

Snow Bunting

Cormorant



Atlantic Grey Seal

Water Vole

Fox

ANIMALS

Despite the industrialisation of the region since the mid-nineteenth century something still remains of the animal life of the Tees estuary and marshes.

Seal Sands in the mouth of the river itself was so-named because over a hundred years ago the COMMON SEAL bred there in some numbers. Today this species is rather scarce in the estuary and no longer breeds, buts its larger cousin the ATLANTIC GREY SEAL* is a regular visitor from its breeding ground on the Farne Islands off the Northumberland coast. In late summer and autumn herds of up to twenty can be seen basking in the channel and odd ones occur in all months. The bull Grey Seal is unmistakable with his long dog-like head, but the cow is not so easy to tell from the smaller round-headed Common Seal. However, the two species can be distinguished by the position of the nostrils if you can approach close enough: those of the Grey Seal are separated and look like the outer strokes of the letter W, whereas those of the common seal meet in a V.

The only other mammal which occurs at all often in the estuary is the PORPOISE, schools of which can sometimes be seen off the two breakwaters at the mouth of the river – particularly in August when they follow the mackerel shoals into the bay. Their slow rolling action showing the blunt dorsal fin every now and then, distinguishes Porpoises from the much faster DOLPHINS, which are comparatively rare here.

The marshes are the haunt of a number of species, perhaps the most typical of which is the WATER VOLE*, which is quite common though not easy to see. A loud “plop” in one of the fleets or ditches is usually the only clue to its presence. The much smaller FIELD VOLE is abundant in the fields and pastures, where it often falls prey to the Kestrel and Short-eared Owl, which frequent the area.

The BLACK RAT can be found around the wharves and warehouses near the Transporter Bridge. It is much rarer that it was fifty years ago and seldom ventures far from buildings. The rather larger BROWN RAT or NORWAY RAT, however, is common in the industrial and slum areas of Tees-side and around the rubbish tips at Seaton Carew and Coatham. LONG TAILED FIELD MICE prefer hedgerows and woodland so are rather scarce on the open marshes, but a few can be seen.

The RABBIT is now recovering from the epidemic, which reduced its numbers some years ago and a few inhabit the slag revetment walls of the estuary. HARES, too are present on the marshes, but are commoner on the drier, higher ground inland.

FOXES* are not rare, and people who frequent the marshes in the early hours or late evening can sometimes see them hunting for the unwary Water Vole or Rabbit. Earths exist on at least three of the slag tips in the region and vixens are known to have reared cubs close to the estuary twice in recent years.

Both STOATS and WEASELS occur, but stoats have become decidedly rare in recent years owing to the reduction in the number of Rabbits, which form their chief food supply. However, the smaller but no less bloodthirsty Weasel is very common, preying on the many Field Voles and ground-nesting birds. In fact, Weasels are probably seen more often that any other mammal on the marshes. Another member of the Weasel family, the sleek and attractive OTTER, has been reported only once in recent years – in 1954, when one was seen on the estuary wall.

MOLES are fairly common and HEDGEHOGS can occasionally be seen in the evenings waddling along the banks of one of the dykes in search of a juicy slug. The COMMON SHREW is fairly abundant, but the PYGMY SHREW has been recorded only twice in recent years.

COMMON FROGS and TOADS breed in the marshes on the North side of the Tees, and both SMOOTH and GREAT CRESTED NEWTS can be found in some of the ponds on the South side.

THREE-SPINED STICKLEBACK is also a common inhabitant of the fleets and thrives in the brackish water close to the revetment walls of the estuary. Much more local, however, is the TEN-SPINED STICKLEBACK, which occurs only on the South side. EELS are often seen in the tidal gutters.

RECOMMENDED BOOKS

A BEAST BOOK FOR THE POCKET – E.Sanders – published by Oxford University Press.

THE HANDBOOK OF BRITISH MAMMALS – H.N. Southern – published by Blackwell.

PLANTS

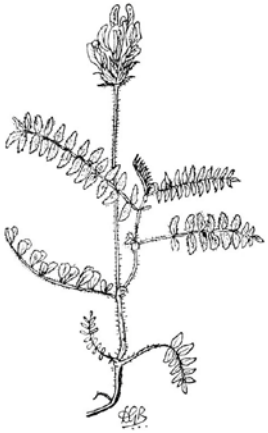
Teesmouth is an area of specialised plants, many of the kinds not occurring two or three miles inland, though of course many of the common species are there as well. Only certain plants can really thrive, much of the terrain being strongly salty. However, on the dry land behind the sand-dunes, such as around the golf courses at Coatham and Seaton Carew, grow several of the original turf plants that existed before the formation of the sand-hills and the gradual encroachment of town and industry. This type of ground also exists between Redcar and Saltburn and around Hartlepool golf course.

Tipping of slag, with its high limestone content, has produced an interesting alien flora, including many lime-loving species. Such areas exist near Warrenby, where much of Coatham Marsh has been filled in. This has resulted in the loss of many salt-marsh plants – though we have inherited a new type of flora in their place. It is unfortunate that these salt-marsh plants are disappearing, as Teesmouth is one of their few remaining strongholds along the East coast.

Many of the original Teesmouth plants have unfortunately disappeared and even some that survived up to ten years ago have now to be written off, particularly since the construction of docks, etc. at Teesport. Where rubbish is tipped at Warrenby, near the Trunk Road, and near the acid works at Seaton Carew, many garden weeds have sprung up from the introduced soil used to cover up the rubbish along with such arable weeks are POPPIES, MAYWEEDS, and HEARTSEASE. Several garden plants grow happily among these, especially MARIGOLDS and PANSIES.

You need to visit the area two or three times during the season, July being the month when most species can be seen. In April the marshes are white with the flowers of the COMMON SCURVY GRASS, but another plant of that time will have to be sought on hands and knees on the turf behind the dunes! This is a small MOUSE-EAR CHICKWEED *Cerastium semidecandrum* with tiny white flowers. In May the DARK GREEN SEA MOUSE-EAR *C. atrovirens* can be found – a more straggly and sticky plant to which the sand clings, and with rather bigger flowers. The FIELD MOUSE-EAR, with much larger flowers, will also be on the edge of both golf courses. It is often mistaken for the more common GREATER STICHWORT *Stellaria holostea,* but that plant does not grow at Teesmouth. Another small plant of early spring is the SPRING WHITLOW GRASS, not a grass despite its name, but a member of the cress family with small four-petalled white flowers. It grows on the dunes near Seaton Carew.

Towards the end of May one of the gems of the grassy turf appears, the PURPLE MILK VETCH, usually an uncommon plant of limestone pastures and dunes. Here at Teesmouth, and along the Stray from Redcar to Marske, it flourishes well. This plant is the signal for others to follow, including the STORK'S-BILL,* a typical dune plant which soon colonises the barer patches. The OXFORD RAGWORT starts to flower at this time lasting through to October and even later.



Purple Milk Vetch

Scentless Mayweed

Stork's-Bill

Red Fescue

This alien has established itself during the last thirty years or so on every available piece of waste land in the area. It is the commonest plant of the dunes, and also brightens the dusty roadsides between Port Clarence and Seaton Carew with its bright yellow flowers.

In the salt marshes during June one may find the delicate pink flowers of the SEA MILKWORT, sometimes forming a 'carpet'. The THRIFT is now conspicuous and the SEA SANDWORT *Honkenya peploides* will be noticed because of the masses of thick green leaves, which give off a cucumber-like smell when trodden on. A closer look will reveal its small greenish-white five-petalled flowers. The attractive deep red flowers of the MUSK (NODDING) THISTLE appear this month in a few waste places. The red and white CLOVERS are now at their best, and the YELLOW HOP TREFOIL adorns the sand dunes.

In late June appear many of the alien plants of the wasteland. These include the EASTERN ROCKET *Sisymbrium orientale* and the TUMBLING MUSTARD *S. altissimum*; BLUE FLEABANE – a sombre daisy-like flower – is a typical slag plant. Both the YELLOW AND WHITE MELILOTS occur locally. At this time much of the slag is colonised by masses of HAWKWEEDS, and several plants of WILD MIGNONETTE and WELD *Reseda lutea* and *luteola* may be seen.
YELLOW STONECROP is fairly abundant in such places. A close look at smaller plants of the turf around the golf courses should be rewarding, and the LESSER MEADOW RUE will be flowering nearby.

By July yellow flowers abound. As well as those already mentioned, BIRD'S FOOT TREFOIL, YELLOW RATTLE, YELLOW TOADFLAX, LADY'S BEDSTRAW, CAT'S EAR, NARROW-LEAVED WALL ROCKET *Diplotaxis tenuifolia* and SAND ROCKET or STINKWEED *D. muralis* illuminate the scene with their various shades of yellow. SCENTLESS MAYWEED*, with daisy-like flowers, add a splash of white, while the attractive pink flowers of the CREEPING REST HARROW and COMMON CENTAURY are now at their best. You may find the smaller and deeper flowers of the SLENDER CENTAURY among the dunes. The deep red flowers of the BLOODY CRANE'S-BILL are now unfortunately mainly buried by rubble. The small white flowers of EYEBRIGHT now appear. Two sea-side PLANTAINS grow near South Gare: the SEA PLANTAIN and the STAG'S-HORN PLANTAIN, whose leaves resemble stags' antlers. The YELLOW-WORT is an interesting alien, now well established on slag at Teesmouth. The WILD LETTUCE is an alien on slag on the South side, growing up to six feet tall. (If picked, the flowers cover one's hands with a sticky, white milky fluid.)

In July ORCHIDS appear – two species of MARSH ORCHID and the SPOTTED ORCHID. All these hybridise freely and still flourish. A few FRAGRANT ORCHIDS sometimes occur as well. However, since Orchids only grow locally and often take years to reach the flowering stage, they should never be picked.

In late summer many plants are in flower, including many with petal-less flowers such as *Atriplex* and *Salicornia* species, SEA BLITE, SEA-PURSLANE and SEA-BEET. A splash of colour is provided by the SEA LAVENDER and the SEA ASTER. The star-shaped white flowers of SEA SPURRY are one of the gems of the marshes just now.

In the ditches and pools grow the white SALT-WATER CROWFOOT Ranunculus *baudoti* and the CELERY-LEAVED CROWFOOT *R. sceleratus*, both forms of the common buttercup. Of the umbel-flowered plants (those of the parsley and carrot family), two interesting species are worth mentioning, both of the genus *Oenanthe*: HEMLOCK WATER DROPWORT *O. crocata* and PARSLEY WATER DROPWORT *O. lachenalii* – very local in the East of Britain. The poisonous HEMLOCK is now abundant on wasteland at Teesmouth, and the yellow flowered WILD PARSNIP is increasing.

You will admire a well-established patch of SPURGE plants near the North Gare. This is *Euphorbia uralensis*, which, along with a very attractive ROSE Rosa *rugosa* nearby, has found itself a suitable home there.

Look for the SEA CLUB-RUSH *Scirpus maritimus* and the GREY BULRUCH *S. tabernaemontani*, both common in ditches. The pre-dominant grass, other that the kinds introduced onto the dunes, is a variety of the RED FESCUE* *Festuca rubra*. The dune grasses are the MARRAM GRASS, the blue-green LYME GRASS and the SAND COUCH, while the CORN SOWTHISTLE grows in abundance among them. On the sand grow the lilac SEA ROCKET and the FROSTED ORACHE – whose leaves glisten with a frost-like appearance. These are among the last flowers of the season.

There are no trees worth mentioning, but on the edge of the Seaton Golf Course you will certainly come across the big stand of SEA BUCKTHORN bushes, whose orange berries make such a fine show in the autumn.

A good flower book will help you identify species not mentioned in this chapter. It must be stressed, however, that with so many of the native flora disappearing through reclamation, specimens must never be picked. Anyway, it is far more satisfactory to identify your plants in the field than from withered specimens at home.

RECOMMENDED BOOKS

COLLINS POCKET GUIDE TO WILD FLOWERS – McClintock and Fitter – published by Collins.

THE CONCISE BRITISH FLORA IN COLOUR – W. Keble Martin – published by Ebury Press and Michael Joseph.

INSECTS

Insects are one of the most successful and diverse classes in the animal kingdom, both in numbers of species and individuals. Many orders of insects are represented in this country, and while the *Lepidoptera* (butterflies and moths) are the best known, they comprise only a small proportion of the total species. The order *Diptera* (flies) is one of the most numerous, comprising over 5,500 species. Teesmouth has many interesting kinds, but not all orders have been equally studied.

Butterflies

Butterflies are more common in the South of England – the North East is not particularly rich in variety. Nevertheless at least nineteen species of butterfly have been recorded at Teesmouth and the careful observer could find at least ten of these during most years.

Three of the most common species in the area are the SMALL, LARGE* and GREEN-VEINED WHITES. They are separated by the amount of black on their wings – the observer should consult the appropriate reference book.

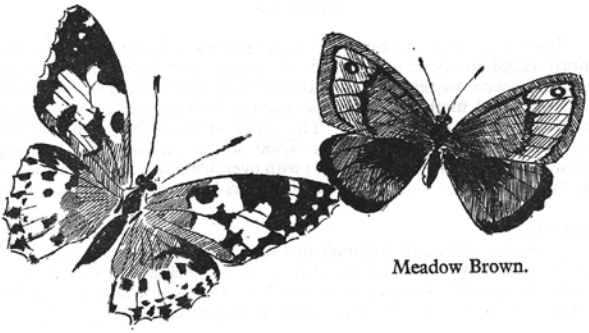
Another very common butterfly is the MEADOW BROWN*. This slow-flying insect is found on both sides of the estuary from the end of June until August, and is particularly plentiful in long grass.

The SMALL TORTOISHELL may be found throughout the summer. This handsome butterfly has the general colour orange, tinged with red, and with black, yellow, white and blue marks on the wings. Adult Small Tortoishells hibernate during the winter. When they awake in spring mating occurs and then the female goes off in search of a nettle-bed to lay her eggs. This butterfly is double-brooded, the first brood hatching in June and the second in August.

Of the several species of blue butterfly that occur in Britain the only one the naturalist is likely to meet at Teesmouth is the COMMON BLUE, which may be found on the wing from June to August on both sides of the river.

Two beautiful migrant species – the RED ADMIRAL* and the PAINTED LADY* arrive throughout the summer, the former from the Mediterranean regions and the latter from North Africa. Both species breed at Teesmouth, but their numbers fluctuate from year to year.

Several other kinds of butterfly have been found in the area but are more uncommon. One of these, the WALL, has the rare distinction of becoming more abundant in recent years than it used to be: most other species of butterfly have declined in numbers. The PEACOCK and SMALL HEATH are also seen from time to time, and during “invasion” years CLOUDED YELLOW butterflies may be found. The most recent of these “invasions” was in 1947 with a smaller one in



Meadow Brown.

Painted Lady.

Red Admiral.

Large White.

1949. During the 1947 “invasion” hundreds of Clouded Yellows were noted, but since that time there have only been a few isolated records of the species.

Butterflies make a field of wild flowers so much more attractive but unfortunately the poisonous chemicals used recently in farming and gardening appear to have reduced their numbers considerably. So please do not contribute to this decrease by collecting any. In any case, they look so much less beautiful when pinned, dry and brittle, in a cabinet, than they do flitting over a summer meadow.

Moths

Moths are much more numerous than butterflies at Teesmouth, but many moths are on the wing only at night or at dusk, and are consequently difficult to observe. Nevertheless the caterpillars (larvae) of these nocturnal insects may be found during the day. The caterpillars of the DRINKER MOTH, so called because the larvae suck small drops of dew off plants, occur on Marram Grass near the South Gare during the spring. (It is not wise to handle these dark hairy larvae, as they tend to irritate the skin and produce a rash.) Another very distinctive caterpillar, which you may find at South Gare, is that of the ELEPHANT HAWK MOTH. The species is not always common but can be searched for on Willow Herb from August to September. Adults are not often seen because they are not on the wing until dusk, but the caterpillar is nearly 3” long, rather plump, and with a horn the same colour as the greyish body. PUSS MOTHS are also night fliers, and their caterpillars can be found commonly at South Gare during July and August on Sallows. The general colouring of these caterpillars is green with a light-edged brownish band on the back.

Not all moths fly at night, and some of the brightly-coloured day-flying ones are often mistaken for butterflies. An example is the GARDEN TIGER MOTH, which may be found at Teesmouth during the summer months. The black and white forewings and orange hind wings make it unmistakable. The larvae are well known under the popular name of “woolly bear” caterpillars. One of the commonest of the day-flying moths is the SILVER Y. This is a migrant insect, which comes to Britain in large numbers. It is brownish in colour, and can easily be recognised by the presence of a Y-shaped mark on each forewing. Finally two very colourful moths that may be seen on both sides of the estuary during the summer are FIVE AND SIX-SPOT BURNETS, which take their name from the number of red spots on their black forewings. These moths are found particularly on ragwort flowers.

Beetles

The coleopterist has a great advantage over students of any other insect order, in that he can find many species in any month of the year. Beetles are present in almost every habitat, even on the rocks that are covered at high tide.

Violet Ground Beetle.

Amara sp.

Feronia madida.

Typical Weevil.

Devil's Coach Horse.

Burying Beetle.

Dor Beetle.

You can start by turning over stones or old pieces of wood. In this way you will find many species of ground-beetle, a large family of insects known as the *Carabidae*. A very common example is *Feronia madida**, a shining black insect about ¾" long. The back (which is actually the first pair of wings, termed the elytra) bears rows of raised striae. Other species of *Feronia* also occur in the area, and the rare *Feronia adstricta* has been seen on the slag heaps. A larger more handsome insect – the familiar VIOLET GROUND BEETLE* *Carabus violaceus* – can nearly always be seen along the seawall. This is a large black beetle nearly an inch long and with the side margins of the elytra and thorax a beautiful violet. If you happen to see *C. violaceus* and a *Feronia* species, look closely at the front tibia (that is the centre section of the three-jointed leg). That of *Feronia* is notched, but that of *Carabus* is not. This feature is used to separate the very large family of *Carabinae* into the two smaller sub-families, *Harpalinae* (with notch) and *Carabinae* (without notch). Many other species of ground-beetle can be found along the slag-walls of the estuary, and a common genus is that of *Amara**. Several common species of this genus may be found under stones, etc., or even running along paths in summer. The individual species are rather difficult to identify, but the general oval shape of the thorax makes the genus distinctive (see illustration).

So far we have dealt only with ground-beetles, but if you visit Teesmouth during the spring and summer, examination of the wild flowers and grasses will yield many interesting species. A search of Ragwort flowers in July and August may reveal the handsome SOLDIER BEETLE. These insects are about ½" long and orange-red in colour, and belong to the large family of beetles know as the *Cantharidae*, of which several species occur locally. LADYBIRDS too, are present on flowers during the summer, the most familiar being the SEVEN-SPOT Ladybird, which does much good work as the larvae eat many greenfly. The smaller TWO-SPOT Ladybird should also be looked for. This is a very variable insect in colouration and may be red with black markings or black with red markings. While you are looking at flowers, another beetle with a long "nose" may attract you attention – one of the very many species of Weevil*. Several species occur, those of the genus *Phyllobius* being fairly abundant on nettles.

No habitat is too distasteful for some beetles, so if you find a dead bird or small mammal examine it for BURYING BEETLES* of the genus *Necrophorus*. These very interesting beetles are fairly large, black in colour with two bright orange bands across the elytra. The sense of smell in the *Necrophorus* is very highly developed, and decomposing carrion quickly attracts them. On arriving, the beetles crawl under the carcase and excavate the earth until the animal is buried. The eggs are then laid nearby and on hatching the larvae are fed for several hours by the adults before they begin to feed from the carrion themselves. Several of these beetles have been seen burying a dead hedgehog near North Gare.

While you are looking for the above species of beetle you may see a thin black insect about 1" long. At first glance this may be mistaken for a larva form of some other species, but it is actually the adult DEVIL'S COACH HORSE*. It is

most abundant under stones and old pieces of wood. When disturbed, it erects its hind body rather like a scorpion, but is quite harmless and cannot sting.

Finally, of the large numbers of beetles that frequent animal dung, two of the most important genera need mentioning. The most easily seen are the large insects of the genus *Geotrupes*, popularly known as DOR BEETLES*. These are found in dung of all kinds and also in flight, especially in spring and autumn. Many examples of the large genus *Aphodius* will also be found.

RECOMMENDED BOOKS

General

AN INSECT BOOK FOR THE POCKET – E. Sanders – published by Oxford University Press.

Butterflies and Moths

A BUTTERFLY BOOK FOR THE POCKET – E. Sanders – published by Oxford University Press.

Beetles

BEETLES OF THE BRITISH ISLES (2 vols) – E. F. Linssen – published by Warne & Co.

SEA SHELLS

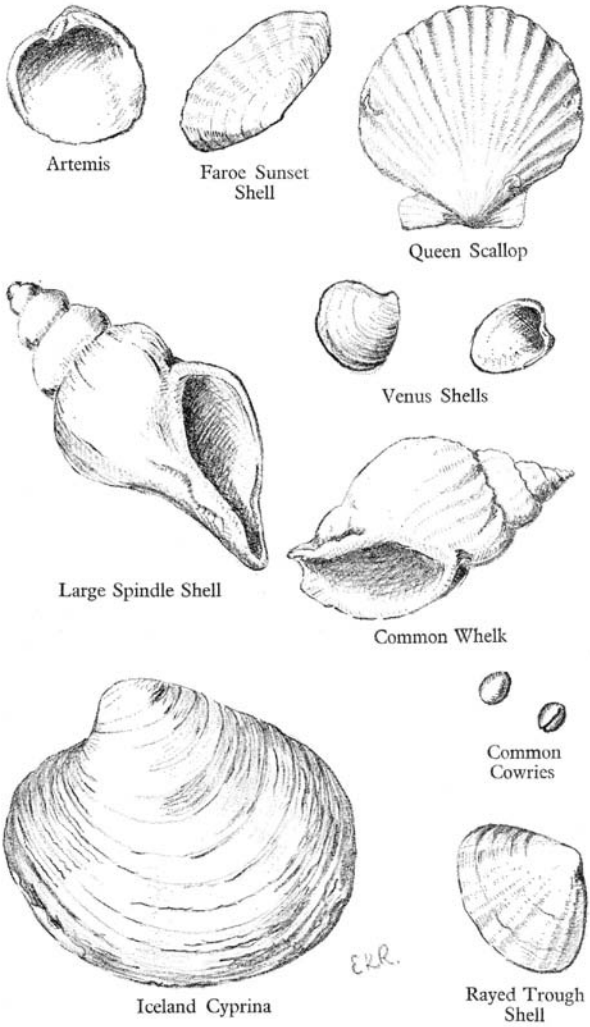
A beautiful shell collection may be built up without any harm to wildlife. There are several localities at Teesmouth where many kinds may be found. Seaton beach and the beach from Redcar to South Gare are productive, especially after rough seas.

Most of the shells you find are empty, but remember that at one time, each was occupied by a marine animal. These animals are contained in the large phylum *Mollusca*. This can be split into three main groups. Firstly the Univalves, which have a single coiled shell (e.g. periwinkles); secondly, the Bivalves – two halves joined together with ligaments (e.g. Mussels); thirdly, the Octopuses and Squids, in which the shells are much reduced or lacking.

One of the commonest Univalves you will find on the coast is the DOG-WHELK. Empty shells of this species can be found on the sandy beaches, and live examples on the rocks at Redcar and Hartlepool. The colour of the Dog-whelk is very variable, ranging from white through yellow to black, depending on the area in which the animal lives and also on its diet. Dog-whelks are snails, which eat all kinds of animal food and in this respect are similar to a much larger species, the COMMON WHELK*. Empty whelk shells can be picked up on all beaches but do not confuse them with those of the more uncommon large SPINDLE SHELL*. The latter is smoother and more slender and has a distinctly spout-shaped point to the mouth. Probably the most attractive of the carnivorous snails is the delicate COMMON COWRIE*. The shells of this animal may be found by searching the patches of sea-coal at Seaton Snook and Redcar. It is a small, light-coloured shell with a very characteristic shape (see illustration) and is rarely over ¼" long. Occasionally you may find SPOTTED COWRIE, with similar but somewhat larger, pinker and with dark marks on the top of the shell. It is not very common in the Tees bay, but has been found near North Gare.

As for the Bivalves, two very abundant species on all beaches are the COMMON COCKLE and COMMON MUSSEL. Not so well known, and more local, is a large shell known as the ICELANDIC CYPRINA*. This is probably more numerous on the North side of the river around North Gare than it is on the South side, and is certainly commoner after heavy seas.

Also after rough seas the beaches are covered with many delicately coloured shells, which resemble butterfly wings. These are the WEDGE-SHELLS and TELLINS. The BANDED WEDGE is a very shiny shell about 1" long. It varies in colour from yellowish-brown to purple. The inside of the valves is a beautiful deep purple, and the outer margins to the shell are milled like the edge of a sixpence. Two species of Tellin are found commonly, the THIN and the BALTIC. Thin Tellins are delicate, transparent shells ranging from white to faint pink, while


Artemis
Faroe Sunset Shell
Queen Scallop
Venus Shells
Large Spindle Shell
Common Whelk
Common Cowries
Iceland Cyprina
Rayed Trough Shell

28

Baltic Tellin is a thicker, often crimson shell. Tellins and Wedge shells are sand-and-mud-burrowing Bivalves that obtain their food by long siphons, which the animal extends through the sand to suck in organic material from the surface.

Several species of TROUGH, CARPET and VENUS* shells may be found. The Trough shells have the beaks centrally placed, which readily distinguishes them from the Venus and Carpet shells, which have their beaks off-centre. Two species of Trough shells are found commonly. The first is the THICK Trough shell, which may be up to 2" across, and is yellowish-white. Very similar is shape, but much thinner and more glossy is the RAYED* Trough shell. The over-all colour is yellowish-white with several rays radiating from the beak to the margin.

VENUS shells abound between Redcar and South Gare, easily recognised by their roughly triangular shape and the reddish-brown lines radiating from the beak to the margins. The best adapted of all the Bivalves to sand-burrowing are the RAZOR shells. These are un-mistakable, about 1" wide and up to 7" long. Empty ones are common on the beach and live animals can be dug out of the sand near the low water mark.

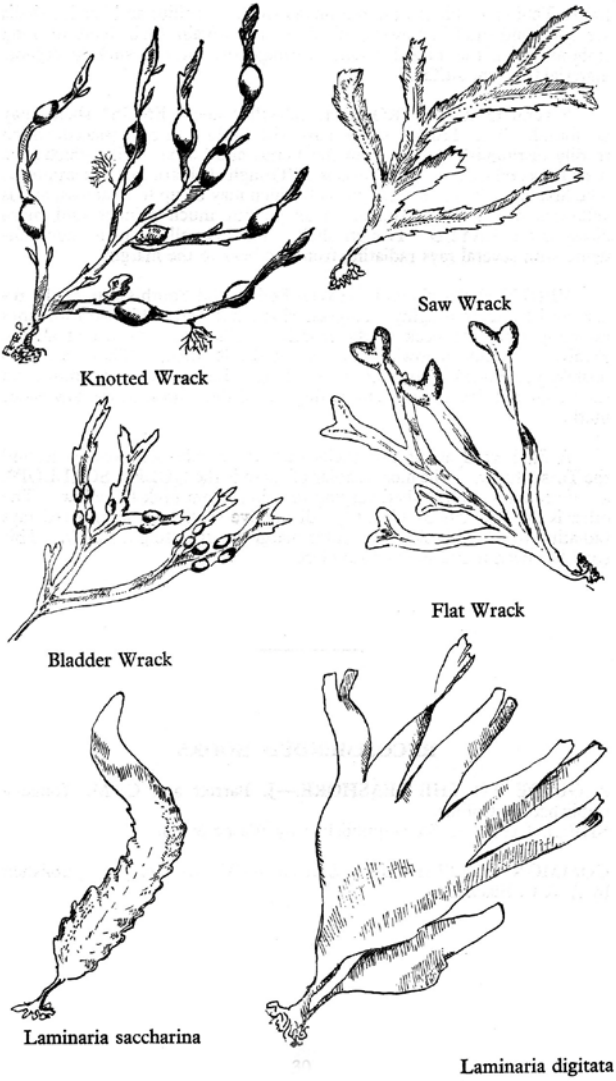
A final word about two shells that occur only occasionally around the Tees estuary. The more regular of these is the QUEEN SCALLOP*, a round, many-ribbed shell varying in colour from pink to yellow. The other is the FAROE SUNSET*, a distinctive shell with several red rays radiating from the beak to the outer margins, suggesting a sunset. This shell has been found near South Gare.

RECOMMENDED BOOKS

A GUIDE TO THE SEASHORE – J. Barrett and C. M. Yonge – published by Collins.

SHELL LIFE – E. Step – published by Warne & Co.

COMMON BRITISH SEA SHELLS – W. S. Forsyth – published by A & C Black Ltd.


Knotted Wrack
Saw Wrack
Flat Wrack
Bladder Wrack
Laminaria saccharina
Laminaria digitata

MARINE LIFE

When you visit Redcar rocks, it is a good idea to go at "spring" tides as they enable you to get further out.

You may be surprised to know that SEAWEEDS have many uses. To animals they mean food, and also shelter from storms or from drying up when the tide is out. To man they mean many things. Some are edible: alginates from wracks and tangles give smoothness to ice-cream and easy-spreading properties to processed cheese. They give a good set to jellies, blancmange powders and Turkish Delight, and are also used in emulsion paints, toothpaste, barrier creams and shaving creams. Alginates can be produced in fibre form and woven. Carregeen moss is a source of agar, which is used in the making of face creams and sunburn lotions.

There are zones of seaweeds – the green in the shallows, the brown wracks and tangles further out and finally the red. But since rocks are not all flat there is often intermingling.

An example of green seaweed is ULVA, sometimes called SEA LETTUCE because it can look quite like the land variety. Next come the brown seaweeds – CHANNEL WRACK, FLAT WRACK* and in more sheltered places or on the shore as flotsam BLADDER WRACK* and KNOTTED WRACK*. Just before the tangle weeds you find the serrated edges of SAW WRACK*. The TANGLE WEED is very common.

*Laminaria saccharina,** with its single frond, can be used either as a "weather glass" when hung up at home, or as a food – the edible part being between the holdfast and the frond. The white crystals you see when drying it off are sugar crystals of manitol. Here and there you can find LAVER – a very popular food in Devon, where it is boiled and eaten flavoured with vinegar. It is brownish purple, rather shapeless, and is often found growing where there is sand. Finally, look out for DULCE, another red seaweed, which can be eaten straight out of the sea or kept until it is dry. It is leaf-like with a springy texture.

If you are in luck in the summer, as well as finding the COMMON JELLYFISH you may see drifting the attractive, transparent SEA GOOSEBERRY, a Comb Jelly the size of a grape.

You are sure to meet the COMMON BEADLET, SEA ANEMONE and the larger DAHLIA, but to meet the PLUMOSE ANEMONE you will need deeper water, though you may find DEAD MEN'S FINGERS under an overhanging rock. This does not do well in aquaria, so leave its beautiful underwater pinkness or whiteness for others to enjoy.

For RAGWORMS you must dig among the unsavoury sand after you have crossed the main sewer pipe that links the rocks to the shore. SEA LEMONS however, can be found in more attractive places and often give themselves away by

their wide coils of white ribbons of eggs on the rock faces. If you see these, start looking for a yellow, two or three inch long NUDEBRANCH SLUG. A more dainty and attractive slug is the *Doto coronata*, which feeds on hydroids like *Sertularia*.

Among the Crustacea are the belligerent SHORE CRAB and the more peaceful EDIBLE CRAB, which needs to be over four inches long before it can be taken, and which you should never try to catch by putting your hand under a rock in case it traps you by standing on tip-toe. There is also the swimming FIDDLER CRAB with its modified rear claws.

If you are lucky, there are LOBSTERS which to be taken, must be at least nine inches and then not carrying eggs – also the much smaller SQUAT LOBSTER*, whose body is just two or three inches long. If a winkle or whelk suddenly gets up and walks it means there is a HERMIT CRAB inside. There is also the odd, fragile SPIDER CRAB, which is hard to see until it moves.

It is nice to be able to tell the difference between a PRAWN and a SHRIMP before cooking (when only the prawn turns handsomely pink). The prawn has a rostrum at the front, which is serrated. The shrimp hasn't got one. Occasionally you meet a shrimp that looks a little swollen round the head – it is parasitised.

Watch out for two difference kinds of STARFISH – the COMMON and the many armed SUN-STAR. They cleverly pull bivalves apart with their strong suckers, and extrude their stomachs inside out into the space between the valves to digest their prey. There is also the BRITTLE STAR and a near relation the SEA-URCHIN. The HEART URCHIN also occurs frequently.

Finally there is the ACORN BARNACLE, which, though cemented to a rock or shell during its adult life, goes through a more obvious crustacean existence when it is drifting as plankton in it youth. Notice how when under water it kicks its prey (another plankton) into its mouth.

The Barnacle's predator is the DOG-WHELK. Try to find out the colour of the Dog-Whelk which eats Barnacles, as against those that just eat mussels. Then try to find the banded variety, which has changed from one diet to the other. Incidentally, behind the head of the Dog-Whelk is a small cavity, containing a white fluid, which when exposed to air turns first yellow, then green and finally purple – the famous purple day of Tyre. Look out for Whelk eggs, which are often washed up by the tide – also for the corn-like Dog-Whelk eggs.

On a good day you may find the attractive little CUTTLE. It changes colour most spectacularly and can shoot out a little cloud of black ink, enabling it to escape unnoticed.

Finally to fish. Under stones you find BUTTER FISH, which are certainly slippery. With a shrimp net you can sometimes catch the SNAKE PIPE FISH with its strange eyes which move in parallel, further away or nearer, as it brings its prey into focus.

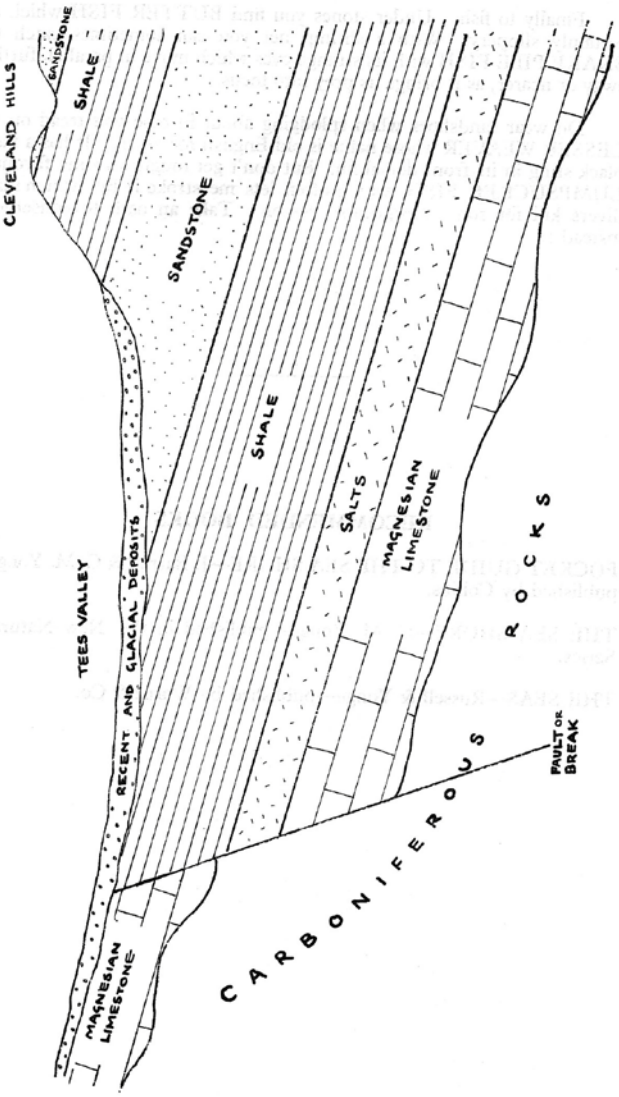
Do wear sandshoes when splodging about in case you tread on the LESSER WEAVER whose name is old English for viper. It has a nasty black sting in its front dorsal fin. But don't get tough with my favourite LUMPSUCKER FISH, which often lets me stoke it but which many divers kill for some inexplicable reason. Take an oath to conserve it instead!

RECOMMENDED BOOKS

POCKET GUIDE TO THE SEA SHORE – J. Barrett & C. M. Yonge – published by Collins

THE SEA SHORE – C. M. Yonge – published in the New Naturalist Series.

THE SEAS – Russell & Yonge – published by Warne & Co.


CLEVELAND HILLS
SANDSTONE
SHALE
SANDSTONE
SHALE
SALTS
MAGNESIAN LIMESTONE
TEES VALLEY
RECENT AND GLACIAL DEPOSITS
MAGNESIAN LIMESTONE
CARBONIFEROUS ROCKS
FAULT OR BREAK

ROCKS

A simple vertical sequence of the rock formations from which Tees-side and its immediate environs are built is given as follows:

Recent surface deposits and glacial deposits

Sandstone)
)rocks of Jurassic Age
Shale)

Sandstone and shale)
)
Salts)rocks of New Red Sandstone Age
)
Magnesian Limestone)

Older rock of Carboniferous Age

The recent surface deposits and glacial deposits are soft and un-consolidated, and represent material that has accumulated during the last million years. (This is recent in geological time). Most of this material is of glacial origin and much is present as a brownish-red boulder clay, which was left behind when the ice melted. Some is also present as sand with gravel or as fine-grained clays, both types may be seen in melt-water lakes associated with glaciers. The gravel may be seen in the many quarries that are worked, mainly on the northern fringe of Tees-side. The boulder clay is best seen at say Saltburn, or forming the relatively low-angled upper part of the cliffs on both the Durham and Yorkshire coasts. This formation is particularly interesting as the boulders portray innumerable different rock types, most of which have been carried great distances by the moving ice.

The sequence of rocks beneath these surface deposits consists of hard consolidated rocks, which were deposited many millions of years ago, mainly as sediments in the seas, which once covered this area but sometimes as accumulations of sand and dust on dry land. These older rocks are shown on the simple section accompanying this chapter and you can see that they have been tilted downwards towards the Southeast. This tilting was produced by the earth movements which were responsible for the formation of the Alps, but the folding shown by the Carboniferous rocks was caused by a very much older movement of the earth's crust which occurred before the New Red Sandstone series was laid down. Notice the fault or break in the earth's crust that is shown on the section. This represents, in a simple manner, a much more complex disturbance which was caused by the relatively recent earth movement which tilted the rock to the Southeast.

It is now time to say a few words about the most interesting aspects of these consolidated rocks.

1. The rocks of Jurassic age may best be seen forming the steep lower sections of the cliffs on the Yorkshire coast southwards from Hunt Cliff at Saltburn or in the Eston Hills or the North-facing ridge of the Cleveland Hills. In most of these exposures it will be seen that yellow sandstone overlies grey shale. The upper 60 or 70 feet of the latter are the Alum shales and were quarried in North Yorkshire for several centuries for use in the Alum industry. A little below are the wafery thin "Jet" Shales, in which the famous Whitby Jet was found, which supported a thriving industry up to the beginning of this century. A few tens of feet below the Jet Shales lie the Ironstone series, the discovery and exploitation of which were responsible for the rapid growth of Middlesbrough. The mining of this Ironstone has only ceased recently. Fossils are abundant throughout most of this shale sequence and Ammonites, Belemnites etc., may be seen in profusion at low tide on some of the Scars at Redcar for example.

2. The sandstone and shale forming the upper group of the New Red Sandstone rocks are of less interest but the salts immediately beneath are of considerable importance today. Rock salt, for example, is won on the north bank of the Estuary by drilling boreholes, pumping down fresh water and extracting the salt in the form of brine. Anhydrite is another type of salt, which is mined at Billingham and is used in the chemical industry.

3. The Magnesian Limestone forms the rising ground to the north of Tees-side and this creamy coloured stone may be seen exposed on the shore and in cliffs from Hartlepool northwards. Fossils may also be found abundantly in this rock in places. This particular limestone is extremely porous and permeable and for this reason it is an extremely important source of water, both on Tees-side and in the colliery villages along the Durham coast.

4. The older rocks of Carboniferous Age are not exposed anywhere in Tees-side and the only information regarding them has been obtained by boreholes.

RECOMMENDED BOOKS

BRITISH REGIONAL G EOLOGY: EAST YORKSHIRE AND LINCOLNSHIRE

BRITISH REGIONAL GEOLOGY: NORTHERN ENGLAND
Both published by the Department of Scientific and Industrial Research.

POSTSCRIPT

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Copies of this booklet can be obtained from: -
The Cleveland Naturalists' Field Club
The Teesmouth Bird club, (85 Junction Road, Norton, Stockton)