

EYES AND NO EYES BOOK 11.

# ON THE SEASHORE



R. CADWALLADER SMITH

Be sure to look for the rest of the Eyes and No Eyes series, as well as many other great books to supplement your nature study at-  
[www.livingbookpress.com](http://www.livingbookpress.com)

### EYES AND NO EYES SERIES 1

- Vol 1. Wild Life in Woods and Fields
- Vol 2. By Pond and River
- Vol 3. Plant Life in Field and Garden
- Vol 4. Birds of the Air
- Vol 5. Trees and Shrubs
- Vol 6. Insect Life

### EYES AND NO EYES SERIES 2

- Vol 7. Nature's Nurseries
- Vol 8. O'er Moor and Fen
- Vol 9. Riverside Rambles
- Vol 10. Highways and Hedgerows
- Vol 11. On the Seashore
- Vol 12. Within the Deep

This edition published 2025  
by Living Book Press  
Copyright © Living Book Press, 2025

First published in 1928.

ISBN: 978-1-922619-99-0 (softcover)  
978-1-922634-00-9 (hardcover)

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any other form or means – electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright owner and the publisher or as provided by Australian law.



A catalogue record for this book is available from the National Library of Australia

EYES AND NO EYES  
BOOK. 11

ON THE SEASHORE

BY

R. CADWALLADER SMITH



## PUBLISHER'S NOTE

**W**E at Living Book Press are extremely proud to bring you this release of *Eyes and No Eyes*, originally published by Cassell.

Some of the old images were not of a high enough quality to reprint so we have included many high quality photographs to accompany the text throughout.

Because this book represents a broad overview of the nature we will find around us the images may sometimes be of similar creatures and plants that are native to other regions than the United Kingdom where the story was first set. This is to help children appreciate that many animal families share similar traits and can be found in many parts of the world, some may even be in their own backyard, as well as provide an opportunity for those who can't access the great outdoors to see nature up close.

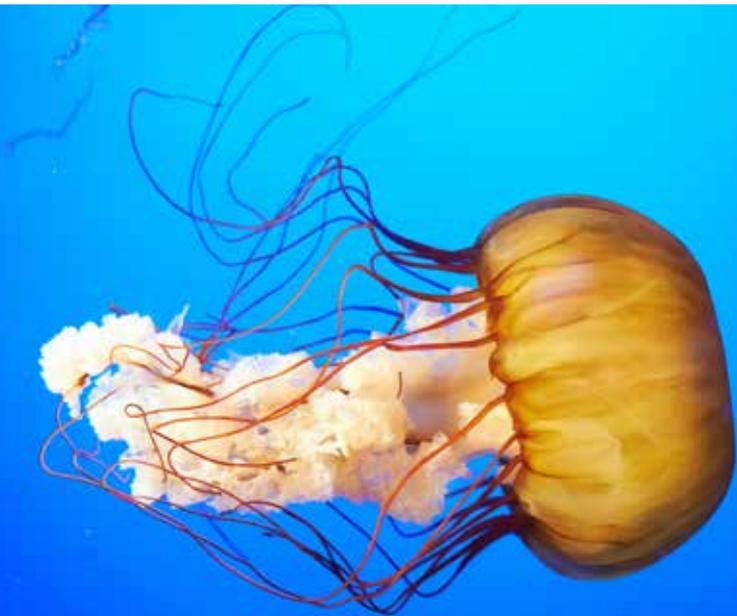
We hope these new editions bring a lot of joy to your homes, and that they will help children everywhere take a deeper look at the natural world surrounding them.



Living Book Press.  
2025.

## CONTENTS

1.	FIVE-FINGERED JACK.	1
2.	A STROLL BY THE SEA.	10
3.	BIRDS OF THE SHORE.	16
4.	CRABS.	26
5.	SHRIMPS, PRAWNS AND BARNACLES.	35
6.	PLANTS OF THE SHORE.	42
7.	FLOWER-LIKE ANIMALS.	49
8.	SEA-WEEDS AND SEA-GRASS.	56
9.	THE JELLY-FISH.	62
10.	SHELLS AND THEIR BUILDERS (1).	67
11.	SHELLS AND THEIR BUILDERS (2).	74







ROCK POOLS (LEFT)

STARFISH

LESSON I.

**FIVE-FINGERED JACK.**

**W**HAT fun it is down by the sea at low tide! Scrambling among the slippery rocks, we quickly fill a bucket with curious things. Some are dead, others very much alive; but all have a story to tell us—the story of the life they lead on the bed of the sea, or among the sands and rocks of the shore.

Look, here is a Starfish! It is lying on the sand, left high and dry by the waves, for now the tide is low. The Starfish looks limp and lifeless, its five reddish-coloured “arms” are quite still.



#### THE MOUTH OF A STARFISH

We know it is an animal that lives in the sea, and dies when washed ashore. But what does it do in the sea? How does it move without legs or fins? How can it live without a head? Has it a mouth? What does it eat, and how does it find its food?

Like so many other sea-animals, the Starfish is a puzzle. Some of its little tricks puzzled clever people until quite lately. But we know most of its secrets now.

Pass your finger down one of its arms, or rays. It feels rough, being covered with knobs and prickles. Now turn the Starfish over, and look carefully at its underside. In the centre, where the five arms meet, is the animal's mouth. A harmless sort of mouth, you think, too small to be of much use. Really, it is a terrible mouth, the mouth of an ogre!

We notice a groove down the centre of each ray. But

what are those little moving things which bend this way and that, as if feeling for something? Now that is exactly what they are doing. They are the feet of the Starfish. Each tiny foot is really a hollow tube, which can be pushed out or drawn in. At the tip of each is a powerful sucker, which acts rather like those leather suckers boys sometimes play with. Suppose the Starfish wishes to take a walk along the bed of the sea. First, it pushes out its tube-feet. Each sucker fixes itself to a stone or other object, and then the animal can draw its body along. You will see presently that the suckers can do other work too.

Our Starfish will die, however, unless we carry it to a pool. Before doing so, we must look at the tip of each ray for a small reddish spot. That is the Starfish's eye. Are those little eyes of much use in helping the creature to find its dinner? I think not. Most likely the Starfish *smells* its way.

If we put the animal on its back in a rock-pool we shall see the tube-feet at work. Once in the water our Starfish revives, and makes efforts to right itself. Can it turn over and crawl away?

The little tube-feet come out of their holes and begin to bend about. Now those near the edge of one "arm" feel the ground. Each tiny sucker at once takes hold, more and more of them touch the ground as the ray is turned right side up, and at last the Starfish turns over, and, slowly but surely, glides away.

Stones, shells, or rocks do not stop it. The rays slide up and over them. If we had feet like those of the Starfish, a journey up the wall of a house, over the roof, and down

again, would be nothing to us. Nature gives all creatures the kind of foot which suits the life they lead. And it is hard to imagine feet more useful to the Starfish than those wonderful sucker-feet!

Ask any fisherman what he thinks of the “harmless” Starfish, and he will call it a pest and a nuisance. “It gets into the crab traps,” he says, “and eats all the bait. And when we are line-fishing it sucks the bait off our hooks, and sometimes swallows hook and all.” Small wonder that Five-fingers, or Five-fingered Jack, as it is called, has no friend among fisher-folk.

On pulling up a useless Starfish instead of a real fish, the fisherman tears the offender in half and throws the halves back into the waves. By doing this he harms himself more than the Starfish! Each half grows into a perfect Starfish with five rays complete. We can say that each part of this animal has a separate life, for each part can grow when torn away.

If you were asked to open an oyster you would need tools, would you not? Even with an oyster-knife it is not always an easy job. The oyster, tight in his shelly fortress, seems safe from the attack of a weak Starfish. Yet the Starfish opens and eats oysters as part of its everyday life.

Finding a nice fat oyster, it sets to work. The Starfish folds its rays over its victim, with its mouth against the edge where the shells meet. The tug-of-war begins. The Starfish’s tube-feet try to pull the shells apart; the oyster, with all its strength, tries to keep them shut. It is stronger than its enemy, and yet the steady pull of hundreds of



#### MUSSELS ON A ROCK

suckers is more than it can stand, and the shells, after a time, begin to gape a little.

Now a strange thing happens. The mouth of the Starfish opens into a kind of bag which slips between the oyster shells. The Starfish, as it were, turns itself inside-out! It then eats the oyster and leaves the clean shell.

Mussels are smaller, so they are eaten in a different way. The Starfish merely presses the mussel into its mouth, cleans out the shells, and throws them away. Were we not right to call this wonderful mouth the mouth of an ogre?

Oysters, as you know, are so valuable that we rear them in special “beds.” Along comes the hungry Starfish, with thousands of its relations, finding the fat oysters very good eating. They do great damage in our oyster-fisheries, and it is one long battle between them and the keepers of the “beds.”

Supporting the tough skin of Five-fingered Jack is a wonderful skeleton. It is like a network of fine plates



BRITTLE STAR

and rods made of lime. Perhaps you have seen one in a museum.

Five-fingers has a great number of cousins, some of them common enough along our shores. One of the strangest is the Brittle Star. On first seeing one of these animals I tried to capture it by holding its long, wriggling arms. At once the arms broke off. Then I tried to scoop the creature out of its watery home. But it began to break its "rays" off as if they were of no value whatever. To my surprise, the broken "rays" broke again while wriggling on the ground. This is a strange habit, is it not? Perhaps the Brittle Star has found this dodge useful in escaping from enemies. Anyhow, the loss of an arm or two matters little, for others grow in their place.

Another cousin of the Starfish is the Sea-urchin, a round prickly creature rather like the burr of the sweet-chestnut tree. This mass of prickles is not a vegetable; he

is very much alive. Nature has given many plants and animals these prickles, like fixed bayonets, for a defence against their enemies. You will at once think of the gorse and the hedgehog, or urchin, as some people call it. Our little Sea-urchin has prickles, like the hedgehog, but he is really unlike any other living creature, except, perhaps, the Starfish.

If you were to roll up a Starfish into a ball, and then stick about three thousand spines on the ball thus made, you would have a creature looking rather like a Sea-urchin.

Beneath the mass of spines there is a hard *test* or shell, made of plates joined closely together; this is the skeleton of the Sea-urchin. Sometimes you find this strange shell on the seashore, rather dirty, and not always sweet-smelling. You might also find Sea-urchins half-dead, washed into the rock-pools. The shells are wonderful objects, so you should clean them in fresh water; they are well worth the trouble of taking home.

All over the shell you will see little rounded knobs. These show where the spines were fixed on; each spine fits into a hole in the shell, but so loosely that it is able to move about. The Sea-urchin can walk by moving its spines, tilting its body along from one place to another on the bed of the sea. It can do much more than that. Like its cousin the Starfish, it has numerous tube-feet, so you would not be surprised to see this prickly ball walk up the face of a rock.

The tube-feet, or sucker-feet, are fixed to the shell in much the same way as the spines. They can be bent this

way or that. If the Urchin is on a rock he clings tightly with these sucker-feet; then, if he wishes to move away, you will see the long thin tubes stretch out and bend about. They fix themselves to the rock, and the animal is drawn along.

Besides these spines and suckers, the Sea-urchin owns another set of tools. Scattered over it, among the spines, are many tiny rods tipped with little teeth or pincers. You will not be able to see them, except under a magnifying glass. Of what use are these strange little pincers or rods? It is thought that the Urchin uses them in several ways. They may help in capturing small prey, or they may be used when the creature has to fight a larger enemy. They are also certainly of use as cleansing tools. That is to say, they can pick off tiny scraps of weed or dirt which settle on the animal's body. Some Starfishes also own pincers of this sort, but they are not so perfect as those of the funny little Ur-

SEA URCHIN SHELL



chin. We must not forget that all these spines, tube-feet, and pincers are worked by a set of muscles.

In the centre of the Urchin's shell is its mouth. The Starfish, we



SEA URCHIN

found, had a terrible mouth, but that of the Urchin is worse still. Not only is it of great size, but it is fitted with strong jaws and five long, sharp teeth, You may see them poking out from the mouth of the animal, and feel for yourself how hard they are.

There is a great deal more to know about Five-fingers; and the Sea-urchin still has his secrets which no one can explain. We have but glanced at their story in this lesson; but you can see that the Starfish, lying limp on the sands, is not so dull as it looks.

### EXERCISES

1. Where is the mouth of the Starfish placed?
2. Describe how the Starfish moves.
3. How does the Starfish feed on the oyster?
4. Why is the *Brittle* Star given that name?
5. How do the Starfish and Sea-urchin keep themselves clean?



A BEAUTIFUL BEACH ON THE DORSET COASTLINE

LESSON II.

**A STROLL BY THE SEA.**

**T**HE sea and the land are always at war. When you are at the seaside, with spade and bucket to make “castles” and “pies” of the sand, you can see and hear the battle.

A wave comes rolling smoothly on towards the shore. It reaches the land and can go no further, and then, with a roar and a crash and splash of sparkling foam, it breaks. It spreads into a sheet of foaming water, and, after rushing as far as it can up the beach, it seethes back as the next wave takes up the battle.

What a grinding and tearing, as wave after wave is hurled at the land! That is the battle-cry of the land and

sea! Most of the pebbles and the sand on the beach have been won from the land in the great fight. We might call them the spoils of war. Once they formed part of the solid land, the rock or cliff. Now they are loose fragments spread for mile after mile round our coast.

Every wave takes them up and has fine fun with them. Pebbles and sand are picked up, swirled along, and thrown at the shore. They are sucked back as the wave is broken by the land. And then the following wave takes them, grinds them and scrubs them together. Thus they are jostled hither and thither, up and down the coast; and, as a result of the long, long fight, rocks and cliffs become pebbles, sand, or mud.

Now if you look at the pebbles on the shore you see that many of them are smooth and round. Some are as round as the "marbles" you play with. No wonder, for the mighty sea has scoured them with sand and rolled them for miles.

As you know, the sea is not always at the same height. It falls and rises. Twice in every day it *ebbs* and *flows*; we call this movement of the sea the *tides*. At low tide we can explore the very bed of the ocean. We can visit the homes of the living, breathing animals, which, at high tide, are hidden far under water. Between the high-water mark and low-water mark is our hunting-place. There we shall find the play-ground and feeding-ground of many a strange creature.

Here is a stretch of sand, with little channels of water; there is a patch of shingle mixed with numbers of tiny



#### A JELLYFISH BEING WASHED ON TO THE BEACH

shells. The ebbing tide leaves shallow pools in every hollow of the beach, and these pools are often full of life.

Shrimps dart away and disappear in the sand as if by magic. Small fish and crabs hide from you as best they can. Helpless jelly-fish and starfish sprawl on the wet sand. What are those thin ropes of sand coiled up into little mounds? They remind us of “worm-casts.” They are thrown up by a sand-worm, called “lug-worm” by the fisherman. He brings a spade and digs wherever he sees the sandy ropes of the “lug,” for this worm makes good fishing bait.

Seagulls love to explore the shallow pools. You may see them walking solemnly about, picking up stray morsels. If you see a screaming group of them you can be sure that one has found an extra large prize, and the others mean to share the feast.

Let us walk down the beach towards the sea. Soon we find ourselves among rocks. Now these rocks are the bare bed of the shore, stripped of all covering. There is no mud, sand, or shingle, so here you see plainly the work done by the restless water. On every side you notice rocks worn to all shapes and sizes. Some jut out as sharp ledges. Others are flat tables, covered with a table-cloth of sea-plants.

These clothe the rocks, or hang over the ledges like wet, shining green curtains. Nearly every rock has its crust of barnacles and clumps of mussels. If we are not careful we slip on the wet weeds, and get a ducking in the pools which lie everywhere among the rocks.

Here is the best place of all for sharp eyes to find the animals and plants we seek. Where the hard rock has been worn down into hollows, the falling tide leaves a pool of still, clear water. These rock-pools are the home of many a creature. So let us look for them, until the rising tide sweeps over the rocks once more, and drives us away.

Sea-anemones and seaweeds brighten the pool with their various colours. Pretty shells gleam here and there; and on the face of the rock there are more limpets, barnacles and mussels than we can count.

SEA-ANEMONE



Where are the other living animals which we came to find? You will not see them unless you hunt for them in the right way. It is a game of “hide-and-seek.” They are the “hidiers”; and, as their lives often depend on their skill in hiding, you cannot wonder that they know every trick in the game.

There may be crabs, fish, shrimps, and others in the pool. If you look for a moment, and then walk to the next pool, your hunting will not have much result. It is best to lie down and wait patiently, gazing into the clear water of the pool. The little inhabitants are hidden in the dark corners under the rock ledges, or buried under stones and sand; or they may be hiding in those thick clumps of mussels—a favourite lurking-place; or else tucked away in the friendly shelter of the seaweed.

Knowing their dodges, you will soon become clever at finding them. Some seaside dwellers, such as prawns, are almost transparent in the water. Others, like baby crabs, are green or brown like the weed in which they hide. Even the sharp eyes of the seagulls must be deceived by this trick.

CRAB





#### SHRIMP

What a strange life they lead, these creatures of the shore! At times they are deep under water, and they form part of the teeming life of the ocean floor.

Then the tide falls and uncovers them. They are in the full light of day again, the sun shines on them. Most of them cannot escape to the sea, and so must face the enemies which prowl along the shore looking for prey. So, from one tide to the next, the rock-pool is like a prison containing prisoners of the strangest sort.

#### EXERCISES

1. How is the sand formed?
2. Give the names of some of the animals to be found in the rock-pools.
3. Where do these animals hide?
4. Prawns and shore-crabs are not easily seen; why is this?



SEAGULL

LESSON III.  
**BIRDS OF THE SHORE.**

**O**N some parts of our coast we find steep cliffs, with the sea beating wildly at their feet. Elsewhere there is a sloping beach of sand and shingle with, perhaps, dark rocks showing at low tide. We explored such a beach as that in our last lesson. There are long, long stretches of sand and thin grass in other places, or else mile after mile of muddy, dreary, salt marshes.

Birds are to be found on every kind of coast. Some, like the Seagull, wander far and wide. Others keep to the cliffs, and many find all they need in the wide mud-flats. Such an army is there of these shore birds, that we cannot even glance at them all in this lesson. So we will take a few of them only—the Black-headed Gull, the Cormorant, the Ringed Plover, the Oyster-catcher and the Redshank.

Out of all the many kinds of Gulls, you know the Black-headed one best. If you live in London you can see and hear him, for he and his cousins have swarmed along the Thames of late years. They find food there, and kind people enjoy feeding the screaming birds as they wheel in graceful flight over the bridges and Embankment.

The country boy, too, sees this Gull. He flies far inland, following the plough, and he then rids the land of many a harmful grub. Because of this habit, some people call him the Sea-crow. At all seaside places you find him, and there he fights for his meals with the Herring Gull, the Common Gull, the Kittiwake and others.

Really we should call this gull the Brown-headed, not the Black-headed, Gull; for the hood is more brown than black; and again, if you look for this bird during your summer holidays, you will see no dark hood on his head. You might, though, know him then by the red legs and

## BLACK HEADED GULL



bill, and the white front-edging to his lovely pearly-grey wings.

Look at him in January, however, and you see dark feathers beginning to appear on his head. The fact is, this dark hood is the bird's wedding dress. It comes only when the nesting season draws near. Then he leaves the fields, parks, and rivers, to fly away to the nesting-place.

These Gulls love to nest in colonies—that is, near one another. Among rushes and reeds, and rough grass growing in deep wet mud, they feel that their nests are safe. There they lay three eggs. The chicks, almost as soon as they leave the eggs, can run about. If there is no dry land near the nest, these youngsters tumble in the water and swim without bothering about swimming lessons.

In summer they are ready to fly with their parents round the coast, and to the muddy mouths of large rivers, where they feed. Flocks of them are also seen out in the open sea, feeding on the shoals of small fish. They also follow steamers, for the sake of any scraps thrown overboard, and they crowd round the fishing boats when they are being unloaded. You see, they are *scavengers*, and so are to be found wherever there are waste scraps of food.

Perhaps you have noticed that Gulls float high in the sea, like so many corks. They can leave the water easily, and take to flight; but they *cannot* dive. The Gull's dinner-table is the whole coast. His eyes are keen enough, as you will know if you have watched him swoop down on a piece of bread in mid-air, and catch it neatly in his beak.

The flight of this Gull is beautiful, graceful, and easy.

Sometimes he wheels up and up into the blue sky, almost without moving a wing. He can also glide for a great while, balancing his body against the wind, and turning his head from side to side on the look-out for food. Those long, pointed wings of his make him one of Nature's most perfect flying-machines. His wild, laughing cry has given him the nickname of Laughing Gull.

In the fields and along the banks of our big rivers you may see the Common Gull with numbers of his black-headed cousins. His beak and legs and webbed feet are greenish yellow, and this is quite enough to distinguish the two birds. Their habits are much the same. Both skim over the sea, or the coast, looking for waste food. They are not very "choice" in their meals; dead fish or live fish, young crabs, worms, shell-fish or grubs they eat readily, as well as any offal thrown from passing ships, or the refuse of the fish-market.

One of these scavenging birds was seen to be carrying a long object, like an eel, in its mouth. The bird was shot; and it was then discovered that the "eel" was really

## LAUGHING GULL

