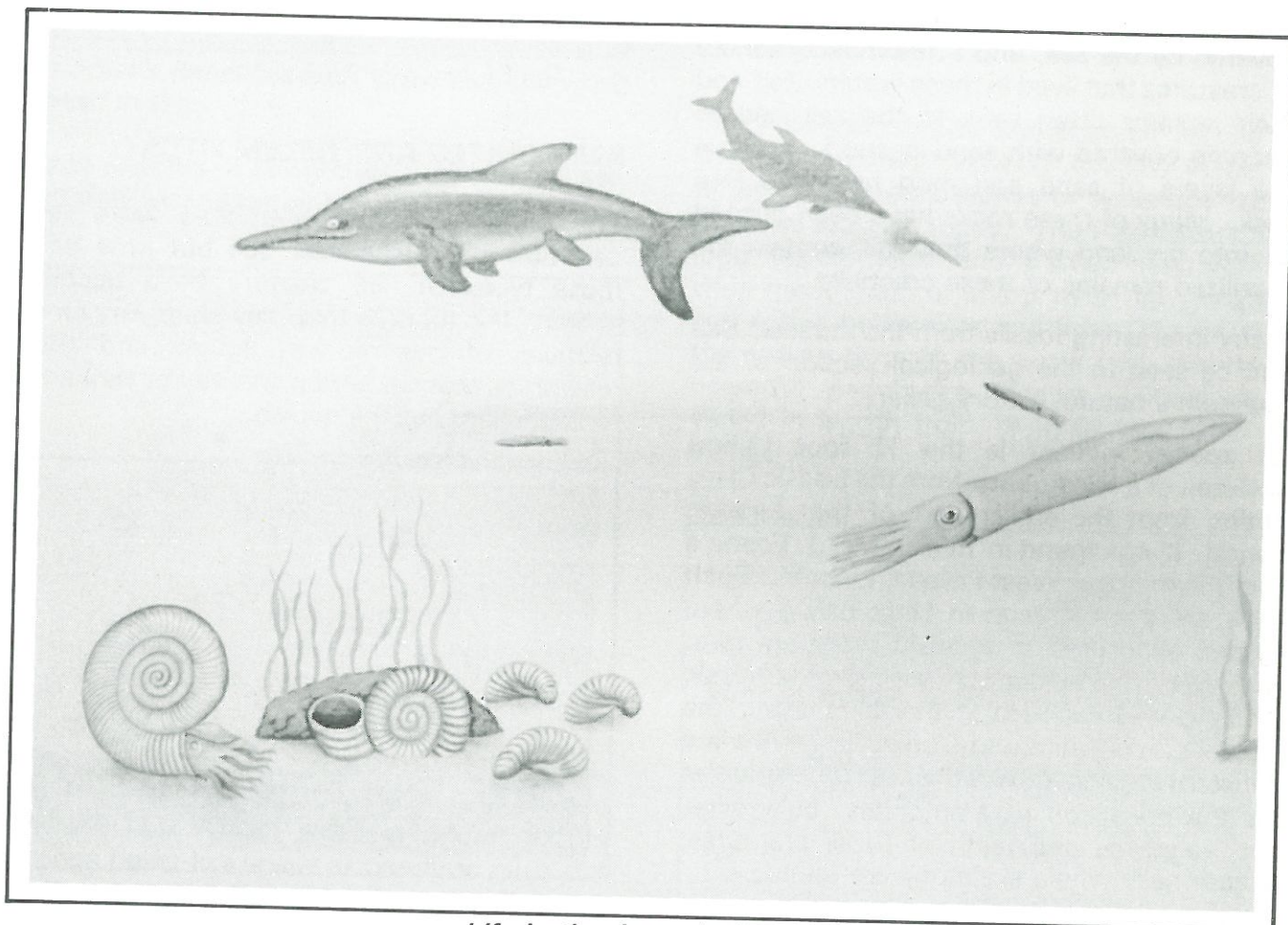


Information Sheet

Natural History & Geology Series No. 1

THE JURASSIC SEA



Life in the Jurassic Sea from a colour painting by John Ford

INTRODUCTION

When prehistoric animals are mentioned we usually think of Dinosaurs and Mammoths. These, however, are only a few of the creatures that lived during the past ages and a vastly greater number of animal species lived and died in prehistoric seas. During prehistoric times Lincolnshire was covered by the sea on a number of occasions; one of the most important being during the Jurassic Period of Earth's history which began about 180 million years ago and ended approximately 135 million years ago. During this period shallow seas covered

much of Europe and almost the whole of the British Isles. In Britain the sea must have had clear warm water similar to a present day subtropical sea where beds of coral carpeted the bottom in some places, and thick layers of grey mud covered the sea bed in others.

The sea covering Britain at that time laid down the sediments that now form finely-bedded shales, impure limestones, and occasional sandstones. The fossils found in these rocks show that the Jurassic Sea teemed with life and during this period ammonites, belemnites and various kinds of shellfish became

common. Ichthyosaurs and Plesiosaurs also appeared. Although some of the plants and animals living in the sea were very different from those of the present day many of them looked like and lived similar lives to their modern relatives.

FOSSILS

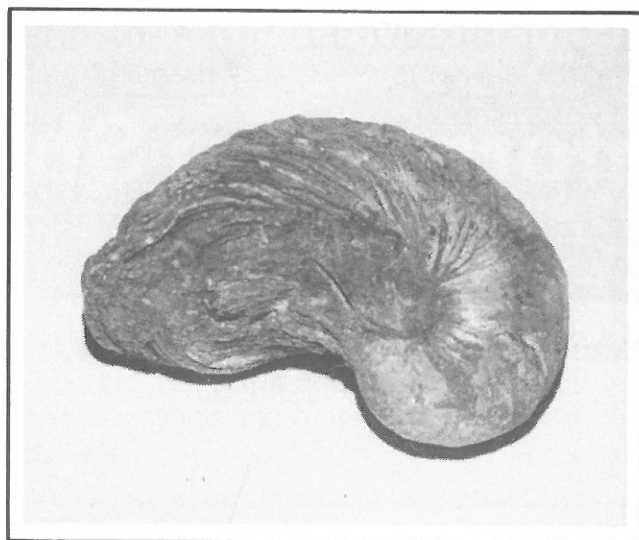
Almost everything we know about life in the Jurassic Sea comes from the evidence of fossils found in the rocks of the period. In the past, places that are now dry land were covered by the sea, and a fascinating variety of creatures that lived in these waters died and their remains often sank to the sea bed to become covered with sand or mud. In time the layers of sand and mud hardened into rock. Many of these rocks have been pushed up into dry land where they still contain the fossilized remains of these creatures.

Many interesting fossils from the Jurassic Sea can be seen in the geological section of the museum's natural history gallery.

Of special interest is the 12 foot (3.6m) skeleton of a **Plesiosaur** from the Liassic Clays dating from the earlier part of the Jurassic period. It was found in 1906 in Mr. J. Foster's Old Brickpit near West Parade, Lincoln. Such finds are not common in Lincolnshire where natural exposures of Jurassic rocks are rare. However, the whole succession of Jurassic rocks is well exposed in the cliffs along the coasts of Yorkshire and Dorset and there the constant erosion affords the best opportunities for the collection of ammonites, belemnites and vertebrae and teeth of fossil creatures; occasionally whole skeletons are found.

Note the fine colour paintings by John Ford, which give an artist's impression of life in the Jurassic Sea. These have been included in the display in order to help compare the fossils with the same animals as they looked in life.

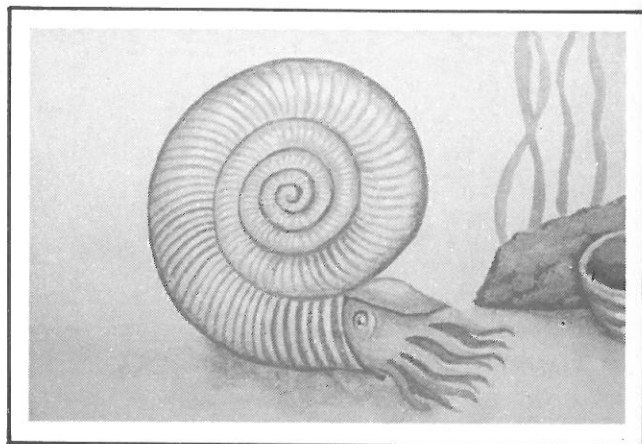
One very important group of shellfish (Molluscs) are the bivalves which includes oysters, scallops and mussels. A fossil oyster called **Gryphaea**, which is often known as the 'devils toe-nail' because of its strongly curved shell, was very common in the Jurassic period. It was a heavy and very thick-shelled bivalve and one of its valves or shells was much larger than the other. The shells were hinged and they could be opened for the animal to feed and then tightly closed as a protection against enemies.



Gryphaea and fossil system

AMMONITES AND BELEMNITES

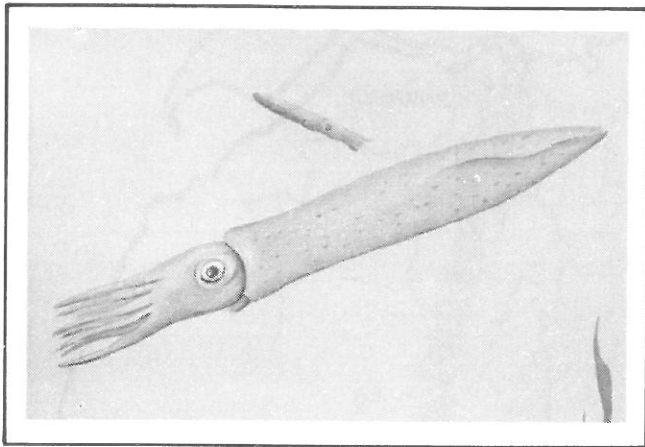
The ammonites and belemnites were very common in the Jurassic sea but now both these types of sea creature have become extinct. It is thought that they were very close relatives of our modern squids and they resembled them in having an array of suckered tentacles around the mouth.



An artist's impression of the ammonite Dactyloceras as it looked in life

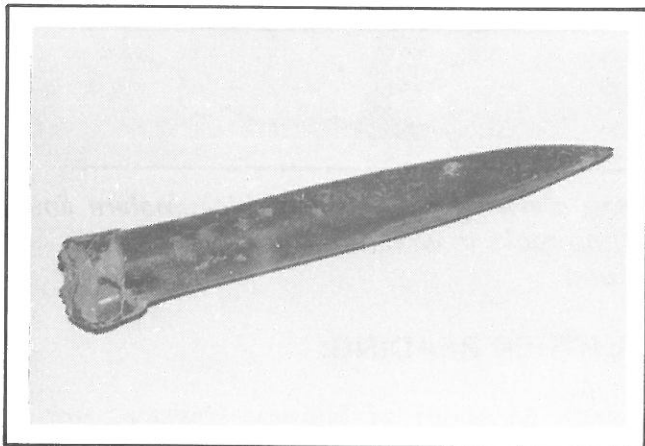
The ammonite lived in a coiled shell rather like that of a modern Nautilus, relatives of which also lived in the Jurassic Sea. An ammonite shell was divided into separate sections or chambers and the creature lived in the outermost section of the shell. As it grew it added another larger chamber and then moved into it, leaving all the other chambers in the shell empty. All the chambers were interconnected by a fine tube through which the vacant chambers could be filled with gas or fluid. It is thought that this strange mechanism was used by the ammonite to equalize its internal pressure as it moved around in different

depths of water beneath the surface of the sea.



An artist's impression of the Belemnite as it looked in life

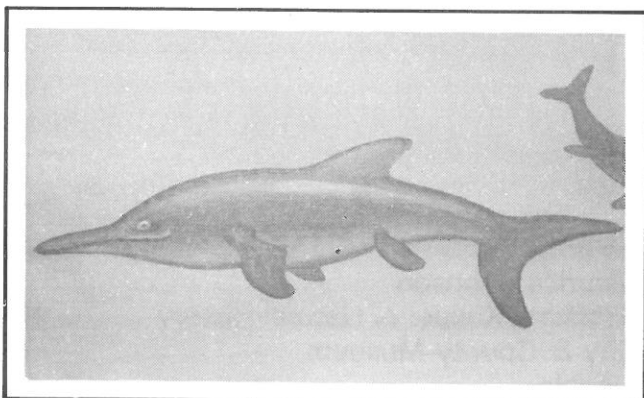
Large swarms of belemnites swam in the sea and they looked rather like our modern cuttlefish.



A fossilised belemnite Guard

Today all we usually find of the belemnite is the fossilized part of its hard bullet-shaped internal shell. This is called a 'Guard' and its strange bullet-like shape at one time gave rise to the popular fallacy that these fossils were thunderbolts which had fallen from the skies.

ICHTHYOSAUR AND PLESIOSAUR

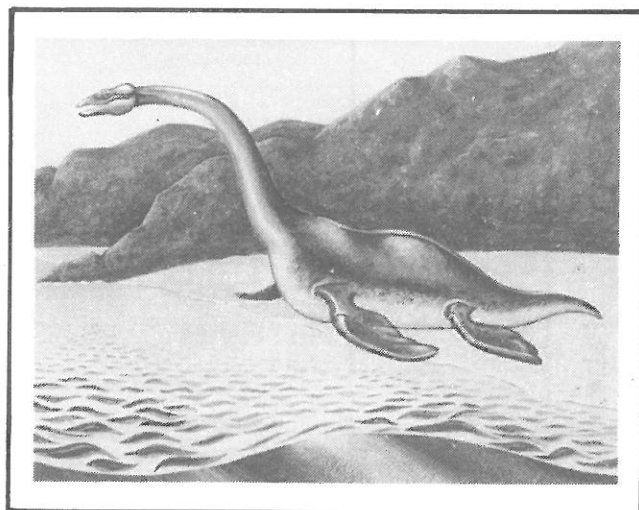


An artist's impression of the Ichthyosaur as it looked in life

During the Jurassic Period there were no marine mammals such as whales, dolphins and seals and their places were taken by marine reptiles, all of which are now extinct. Two very common marine reptiles were the Ichthyosaur and the Plesiosaur.

The Ichthyosaurs were dolphin-like reptiles streamlined for life in the sea and it is thought that the females gave birth to live young instead of laying eggs as most reptiles do. The largest Ichthyosaurs grew to a length of 30 feet (9.1 metres) but many were much smaller than this and some were only 2 feet 6 inches (0.75 metres) long.

The Plesiosaurs were also adapted for life in the sea but they probably left the water at times to bask on beaches or waterside rocks much as seals do today. The Plesiosaurs had long flexible necks and a small head with a wide mouth, full of sharp teeth for grasping and eating belemnites and fish. They rowed themselves through the water with their long powerful paddle-like flippers. Plesiosaurs varied in length from 19 to 52 feet (6 to 16 metres).

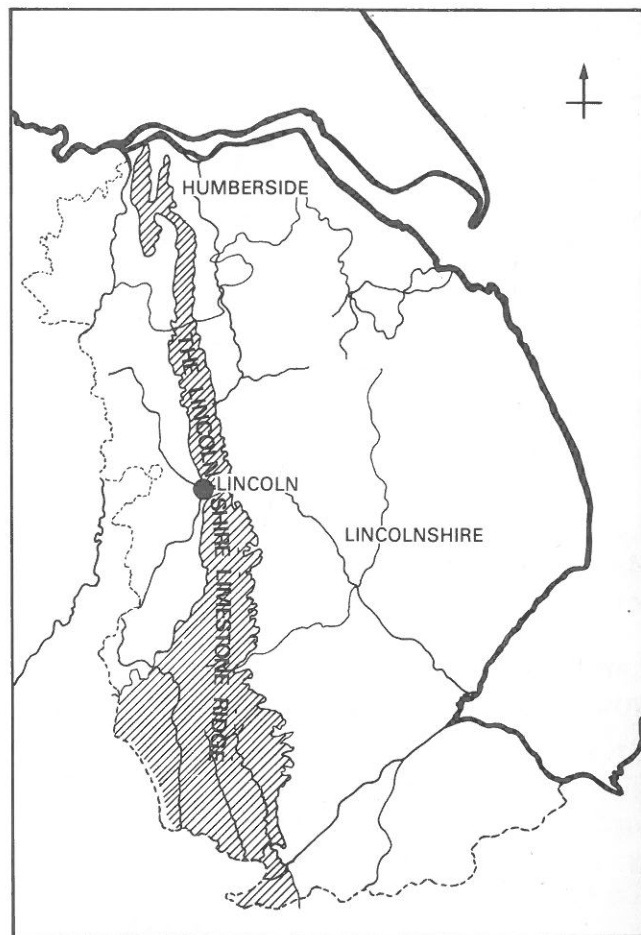


An artist's impression of the Plesiosaur as it looked in life

RESERVE COLLECTIONS

A large number of fossils are housed in the museum reserve collections, which are available for inspection by special arrangement. These include many typical specimens from the Jurassic Period. For example, various species of ammonites, belemnites and fossil reptile bones. The museum staff also welcome gifts of fossils from members of the public.

Caenozoic		First Men
		70 million years Extinction of Dinosaurs
Mesozoic	Cretaceous	135 million years
	Jurassic	Ammonites, belemnites and marine reptiles 180 million years
	Triassic	First Dinosaurs 225 million years
Palaeozoic		First Fishes
		600 million years First abundant fossils



Map showing the ridge of Lincolnshire limestone rocks in which many Jurassic fossils are found

FURTHER READING:

- British Museum of Natural History, *British Mesozoic Fossils* (1967)
- H.H. Swinnerton and P.E. Kent, *The Geology of Lincolnshire* (1976)
- Edwin H. Colbert, *The Age of Reptiles* (1965)
- Carroll Fenton & Mildred Fenton, *In Prehistoric Seas* (1964)
- Roger Hamilton, *Fossils and Fossil Collecting* (1975)

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