

GENERAL SCIENCE NOTES

THE *SPIRORBIS* PROBLEM

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A marine spiral tubeworm, called *Spirorbis*, is usually overlooked by beachcombers and collectors because it is only about 3 mm in diameter. This worm secretes a hard tube of calcium carbonate around its body which is coiled like a miniature snail and could easily be mistaken for one. It does not crawl around in mud, but attaches its tube usually to some hard object such as rocks and seashells, or sometimes to softer seaweed.

Spirorbis and all the other members of the family Serpulidae live in salt water. None have ever been found in fresh-water. The larva of this worm, called a trochophore, looks like a miniature pear-shaped speck with bands of cilia around it. Several other kinds of sea animals also have trochophore larvae, but no fresh-water animal has ever been known to produce larvae of this kind. *Spirorbis* is found quite generally in the oceans around the world.

In the fossil record, *Spirorbis* is also common. In the coal measures of Nova Scotia, I have observed *Spirorbis* fastened to the outside edges of mussels. Apparently the fossil *Spirorbis* had the same kind of relationship with the mussel as its modern counterpart. This worm is distributed throughout, the geological record, and on the basis of the standard geological time scale, *Spirorbis* has been in existence for nearly 500,000,000 years. When found, fossil *Spirorbis* are frequently seen attached to sea creatures — corals, lampshells, molluscs, and other marine animals and plants. Thus it appears that the fossil worm, when alive, also lived in the sea. Because it lives only in the ocean today, its trochophore larva is characteristic only of ocean-living animals, and it is found in the fossil record attached to marine animals, we can conclude that *Spirorbis* is and always has been a sea-dwelling creature. But this brings us to an interesting dilemma.

Spirorbis is often found associated with coal. In order to understand the importance of this, we need to know how those who do not recognize a worldwide catastrophe such as the Genesis flood hypothesize that coal was formed. These individuals tend to interpret the past according to the present, and by looking at the processes of geology going on today, they

draw conclusions regarding what has happened in the past. Where can coal be observed now in the process of formation? Accumulations of plant debris in peat bogs, salt marshes, and swamps are said to represent coal in its beginning stages of formation. If the bogs etc. were buried, the plant material would eventually become coal. This is known as the peat-bog theory for the formation of coal.

The little worm creates a problem for this theory. *Spirorbis* will not live in peat bogs, because this is not the right kind of environment, yet sometimes its shells are found in great numbers in coal. The interpretation that *Spirorbis* was always a sea animal conflicts with the interpretation that coal is produced by buried peat bogs.

To overcome this difficulty, geologists have postulated that during the supposed hundreds of thousands and millions of years when coal was being produced., *Spirorbis* was a fresh-water animal instead of a salt water animal. We have already noticed all the evidences against this, but this change in interpretation is necessary to resolve the conflict. The only reason for making this change in the proposed environment for *Spirorbis* during the coal-forming time is that it is found with the coal which is not thought to have been produced in a salt water habitat. But there are other ways to account for coal.

The flood described in the book of Genesis, which is said to have covered the whole earth, could have produced conditions which explain the presence of *Spirorbis* in coal. Probably forests of trees eroded from the land floated about in the seas before being buried. There was sufficient time for the tubeworm larvae to attach themselves to trees, pieces of wood, and other vegetation in the water. When the material was buried and when it eventually changed into coal, the spiral bodies of these worms were preserved with it.

The association we thus find between plants common to land and a marine worm can best be explained by a model of a worldwide flood such as described in the Bible.