

Rhynie Chert: A Scottish Devonian Lagerstätte

GEOL 204 The Fossil Record

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A. A photograph of Rhynie Village, located approximately 50km northwest of Aberdeen. Rhynie Chert is located very close to Rhynie Village. (5)

B. Locality map for Rhynie, N.E. Scotland. The Rhynie Chert is at the top of a sequence of Devonian sediments in a narrow basin, sitting on older igneous & metamorphic rocks. (5)

C. Early Devonian Age (416-358 Ma). North America, Greenland, and Europe were united into a single Northern Hemisphere landmass known as Laurasia. The Earth's oceans covered approximately eighty five percent of the Devonian globe.

D. Referred to as the "Age of Fishes" because of the abundant and great diversity of creatures. The environment was characterized by hot springs and geysers in the Scotland area specifically. The Rhynie Chert formed when silica-rich water from volcanic springs rose rapidly and petrified the early terrestrial ecosystem. The Rhynie Chert preserved a community of freshwater plants, animals, bacteria, and fungi.

G. A plethora of plants and arthropods are preserved in the Rhynie Chert including *Aglaophyton*, *Nothia*, *Rhynia*, Harvestmen, Mites, Myriapods, and more. In general, there is a larger number of plants preserved in the Rhynie Chert than there are arthropods. In addition, the plants are better preserved due to there being a large number of only animal fragments (9).

E. A photo of Dr. William Mackie the researcher who discovered the Rhynie Chert. He was a medical practitioner who went on the excursion to the location of the Chert and found the unusual siliceous rocks incorporated into a dry-stone wall field boundary.

F. The Rhynie Chert is known for containing well preserved fossil plants and animals which is why it is one of the most important fossils sites in geological history. With these fossils we are able to reconstruct early land-based ecosystems. (8)

Notable figures who worked at the Rhynie Chert

- William Mackie discovered the Chert (1910-1913)
- Robert Kidstont and William Henry Lang both worked to describe the plant fossils that were found (1917-1921)
 - Alexander Geoffrey Lyon sparked new interest (1963-1971)
 - The University of Munster performed research (1980-1987)
 - Aberdeen University did performed research and confirmed the chert was formed by a hot spring (1988-1997)

Bibliography

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