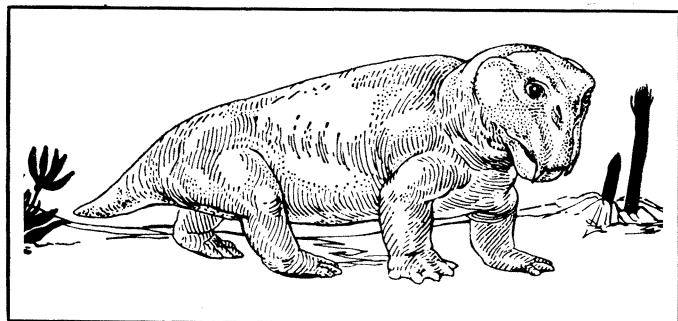


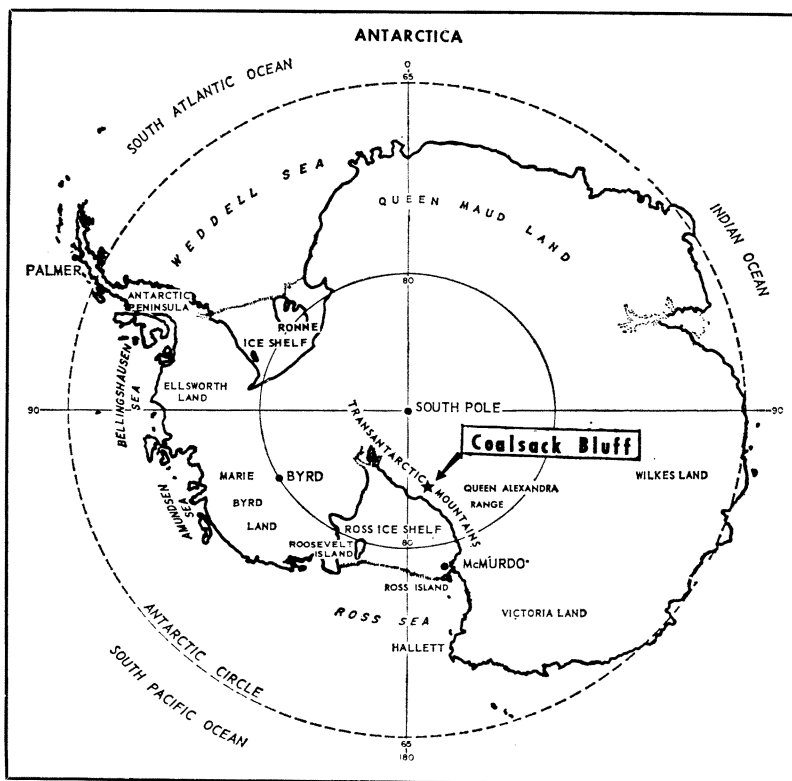
A clue to the past

A major fossil find in Antarctica shows Gondwanaland probably existed



Colbert, *The Age of Reptiles*

Lystrosaurus: Best biological evidence yet of drift.



NSF

Coalsack Bluff fossil bed 400 miles from the South Pole.

For two years the only known remnant of land creatures thought once to roam the temperate forests and swamps of Antarctica some 200 million years ago was a piece of a jawbone of an animal belonging to an extinct group of freshwater amphibians called labyrinthodonts.

Since such fossils had previously been found in South Africa and Australia, the find (SN: 3/23/68, p. 280) was enthusiastically greeted by many scientists as a sign that all the southern continents had once been part of a single giant supercontinent, Gondwanaland.

But more fossils were wanted. Another search of the same area was organized (SN: 10/11, p. 330) and begun a few weeks ago as part of the 1969-70 U.S. Antarctic Research Program. Results were not long in forthcoming.

On Nov. 23, the first day of work in the field, Dr. David H. Elliot of the Institute of Polar Studies at Ohio State University discovered fossil bones in a bed of sandstone at a site in the central Transantarctic Mountains known as Coalsack Bluff. The area is about 400 miles from the South Pole and within 100 miles of the site where the fossil jawbone was discovered two years ago.

The find appears to begin a new era of Antarctic paleontology, and provide the continental drift theory with its strongest assist yet from the biological sciences.

At the new site a wealth of vertebrate fossils has been uncovered since

the Nov. 23 find, in an intensive collecting program led by Dr. Edwin H. Colbert of the American Museum of Natural History in New York. More fossil bones of labyrinthodont amphibians have been identified, and bones of various reptiles, the first ever found in Antarctica, have been retrieved. Among these are remains of a diverse group of reptiles called thecodonts, which once flourished in North America and Europe during the Triassic period, 180 million to 215 million years ago. Ancestors of the dinosaurs, they became extinct at the end of the Triassic.

Thecodonts included both small, lightly built reptiles, which ran across the ground on strong hind legs, and more cumbersome and armor-plated, crocodile-like animals. The presence of land reptiles and freshwater amphibians in Antarctica 200 million years ago strongly supports the idea of continental drift.

Then last week, on Dec. 4, while the National Science Foundation was completing plans to announce the discovery, the scientists at the site found another reptilian skull. Dr. Colbert identified it as a *Lystrosaurus*, a small, hippopotamus-like reptile, whose remains have been found in great abundances in South Africa and also in India, China and Russia.

Lystrosaurus fossils are so prevalent in early Triassic fossil beds in South Africa that the depth at which they are found is called the *Lystrosaurus* zone.

A specialist in Antarctic geology who

made his first trip to the continent in 1928, Dr. Laurence M. Gould of the University of Arizona, happened to visit the site on the day of the discovery. That evening he radioed the news to NSF. The find, he said, "establishes beyond further question the former existence of the great southern continent of Gondwanaland." He and geologist Dr. Grover Murray of Texas Technological University considered the find "not only the most important fossil ever found in Antarctica but one of the truly great fossil finds of all time."

With nostrils high on the skull, between elevated eyes, *Lystrosaurus* almost certainly lived in and around rivers and lakes, probably feeding on aquatic vegetation. It was about two to four feet long.

"This is a terrifically fascinating find," says Dr. Nicholas Hotton, curator of fossil amphibians and reptiles for the Smithsonian Institution. He and Dr. Bobb Schaeffer, chairman of the Department of Vertebrate Paleontology at the American Museum of Natural History, point out that *Lystrosaurus* is the first fossil vertebrate in Antarctica identified as to specific genus. The others, the thecodonts and labyrinthodonts, are general terms for a variety of animals.

Geophysical evidence for drifting continents has been piling up in the last few years (SN: 10/8, p. 430), but the biological support has not been as firm. "This to me is the first really convincing biological evidence of continental drift," says Dr. Hotton.