

1940

## Some Abnormalities of a Pair of Siamese Twin Lambs

Carroll Padley  
*Iowa Wesleyan College*

James Shipley  
*Iowa Wesleyan College*

Copyright ©1940 Iowa Academy of Science, Inc.

Follow this and additional works at: <https://scholarworks.uni.edu/pias>

---

### Recommended Citation

Padley, Carroll and Shipley, James (1940) "Some Abnormalities of a Pair of Siamese Twin Lambs," *Proceedings of the Iowa Academy of Science*, 47(1), 401-404.

Available at: <https://scholarworks.uni.edu/pias/vol47/iss1/99>

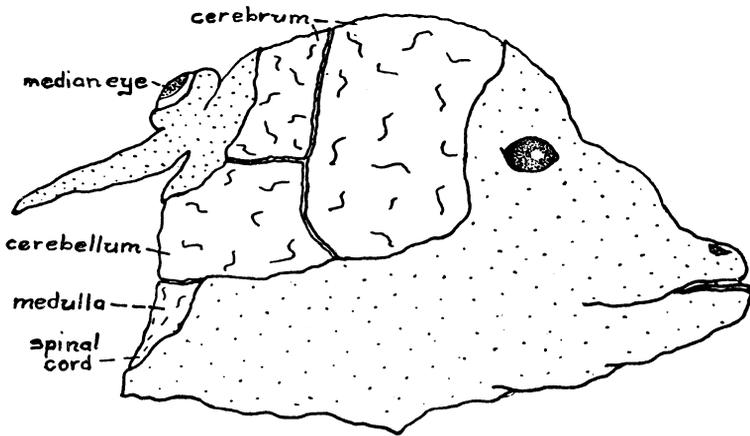
This Research is brought to you for free and open access by the Iowa Academy of Science at UNI ScholarWorks. It has been accepted for inclusion in Proceedings of the Iowa Academy of Science by an authorized editor of UNI ScholarWorks. For more information, please contact [scholarworks@uni.edu](mailto:scholarworks@uni.edu).

## SOME ABNORMALITIES OF A PAIR OF SIAMESE TWIN LAMBS

CARROLL PADLEY AND JAMES SHIPLEY

An interesting problem in the study of anatomy was presented by a pair of Siamese lambs recently brought to our laboratory. The lambs were from a Shropshire ewe that had given birth to normally developed twins the previous season. The Siamese lambs were delivered with much difficulty and as a consequence, they were damaged at the region of fusion causing an internal disruption of their organs. Although the lambs were alive immediately after delivery, the damage to their organs brought death within a few minutes.

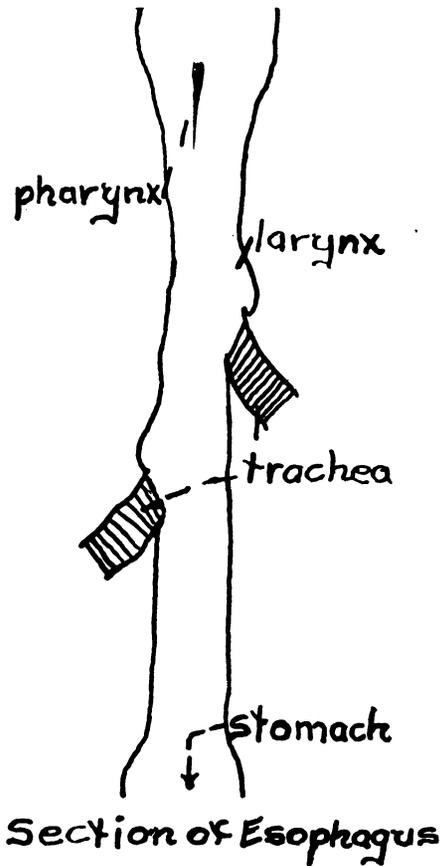
The twins had four front and four hind limbs, two complete sets of mammae, two tails, two anal openings, two urogenital openings, four ears, three eyes and two snouts. The fusion con-



Head of Siamese Lamb showing Lobes of Brain

tinued from the head region posteriorly to the naval where a single umbilical cord connected the lambs to the placenta. From this point, posteriorly, the lambs separated into two normal bodies. The heads were fused back to back. However, the two spines were twisted so that the bodies were fused ventrally in the thoracic region but were wholly independent otherwise. One facial region

appeared to be normal with the customary location of the eyes, ears, and snout. The opposite facial region was poorly developed. It consisted of a bony, trunklike snout with a single nasal passage and nostril. The snout arose from the bottom part of the circular, protective bone surrounding the single median eye. Immediately below the snout, the bases of two ears were fused. In the center



of this fusion, was a single opening. It would seem that this abnormal head was formed by the fusion of the lateral sides of the head from which a wedge-shaped section of the mid-frontal area had been left out. The one median eye thus formed seemed to have resulted from a fusion of the right side of the right eye with the left side of the left eye. This eye was noticeably more elongated and a bit larger than either of the two eyes in the other rather normal head.

The abnormalities found in the internal structures are given as follows: There was a single mouth cavity with a single esophagus leading to an abnormally developed stomach. The stomach differed from the usual four-chambered ruminant stomach in that there appeared to be two rumens and two psalteriums. Leading from the abomasum was a single intestinal tract. This tract appeared to continue normally to the anal opening of one lamb. The intestine of the other lamb seemed to end blindly at its anterior end and there was no provision for its connection to the stomach.

One abnormally large liver was present with a single gall bladder. The liver served both of the intestinal tracts, for a bile duct led from the liver to each of the small intestines. The bile duct belonging to the blind intestine, however, was not connected and seemed to have no opening into the tract.

A single diaphragm stretched across the entire common thoracic region. This region was separated into two chambers by a membrane connected from the diaphragm to the body wall. Each chamber contained a heart and a pair of lungs. The aortic arches of the two normal hearts were joined by a single trunk vessel. The pericardia of the hearts were attached to the membrane dividing the two chambers.

From each pair of lungs, a trachea led to the esophagus connecting on opposite side somewhat below the pharynx. The one larynx was about an inch higher on the esophagus than the other one. A dissection of the head showed that the cerebrum consisted of two large lobes and a smaller third lobe. This extra cerebral lobe seemingly had resulted from a fusion of the two lobes which should have belonged to the more abnormal head. There were also two cerebellums, two medullae, and two spinal cords. The medullae and spinal cords seemed normal in their structure and attachment.

The remainder of the organ systems were normal. Due to rupturing of the structure, in delivering the Siamese lambs, and the overcrowding of the skeletal system in the region of fusion, it was difficult to make close observations in the damaged sections. It is doubtful if the animal could have survived for any length of time. The peculiar twisting of the spines would seem to have made it impossible for it to live.

It is generally conceded that Siamese twins result from incomplete separation of the blastomeres in the first cleavage stages of the embryo. Since the region of union of the twins in this speci-

men was at the anterior end and on the ventral side it would seem that the plane of separation had progressed from the dorsal posterior in a ventral anterior direction.

DEPARTMENT OF BIOLOGY,  
IOWA WESLEYAN COLLEGE,  
MT. PLEASANT, IOWA.