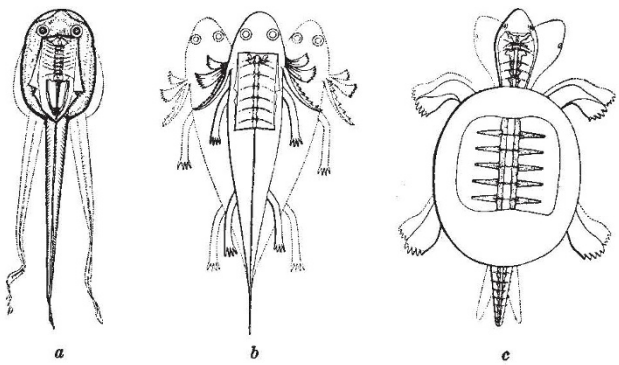
Contrary to the opinion of previous authors[1], I hold the view that different vertebrates follow a general basic principle in the formation of the vertebral centra. After the formation of the notochord and its sheaths, the skeletogenous layer aggregates round them, forming an outer jacket known as the perichordal tube. The intervertebral portion of the perichordal tube remains membraneous or procartilaginous for a long time. Through these intervertebral zones of perichordal tube, the migratory connective tissue cells enter[2–5].

Now the migratory connective tissue cells normally enter through the intervertebral portion of the perichordal tube, the direction being at right angles to the notochord and to the vertebral column. I believe that procœlous, ophisthocœlous and amphicœlous conditions are produced by various types of movement of the embryos at the time when the migratory connective tissue cells are actively entering the intervertebral zones of the perichordal tube.



a *b* *c*

FIG. 1. Diagrammatic figures on which frontal sections passing through the centra of the vertebral column are superimposed. Oscillations of the embryos are shown by dotted lines. The paths of migratory connective tissue cells have been shown by two consecutive lines through the intervertebral zones of the perichordal tube indicated by arrows on both sides.
a, tadpole of *Rana temporaria*.
b, post-embryonic stage of *Triton vulgaris*.
c, post-embryonic stage of *Chrysemys marginata*.

It has been observed that a tadpole moves through the water oscillating the whole body except the head in such a manner that the greatest degree of oscillation will be at the free end of the tail, in both clockwise and anti-clockwise directions, and thereby changing the course of the migratory cells to the notochord, from the perpendicular direction to a curve, the concavity of which is directed towards the cephalic end, and thus leading to the formation of a procœlous condition (Fig. 1*a*).

In the case of newts which were reared in the laboratory, it was observed that during their post-embryonic stage they move forward in the water by oscillation of their head ends and the migratory cells in this case therefore pass in a curve the direction of which is opposite to that of the tadpole; thus an ophisthocœlous condition is produced (Fig. 1*b*). In the eggs of snakes which I examined a rhythmic movement of the embryos is perceptible even from outside the egg-shell, which is rather soft and papery. The vertebræ of snakes are generally procœlous. It may be inferred that the particular mode of movement of the snake embryo is responsible for the formation of this type of vertebra.

So one may conclude that those animals that move their anterior end during the embryonic stage when the migratory connective cells are entering through the intervertebral zones of the perichordal tube have ophisthocœlous, and those that move their posterior end, keeping the anterior end in a so-called stationary condition, generally have procœlous vertebræ. Confirmation of this view is to be found in Chelonia, where the head and neck move in such a way as to present an ophisthocœlous condition, the tail moves in a different direction so as to bring about a procœlous condition, while the middle region of the body, remaining stationary due to the early formation of the carapace, has an amphicœlous condition (Fig. 1*c*).

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May 16.

[1] *Phil. Trans. Roy. Soc.*, B, **187**, 1; 1896.
[2] *Phil. Trans. Roy. Soc.*, B, **218**, 415; 1930.
[3] *Phil. Trans. Roy. Soc.*, B, **219**, 165; 1931.
[4] NATURE, **127**, 705, May 9, 1931.
[5] *Current Science*, 342–343, March 1934.

Enteropneusts in the Clyde Sea-Area

THE following unpublished records from the Clyde sea-area help to extend the summary of the known distribution of British enteropneusts given in NATURE of June 16 by Prof. F. W. R. Brambell and H. A. Cole.

From time to time during the last twenty-five years, parts of enteropneusts, which appeared to be damaged *Dolichoglossus ruber* Tattersall, have been seen in mud dredgings. Undoubted specimens of this species have been dredged off Cumbrae, in December 1927, 20 fathoms, and near Loch Striven Head, in 1929, 7 fathoms.

On several occasions parts of what appears to be a brownish enteropneust, with the peculiar smell of *D. serpentinus*, have been seen in mud dredgings, but no accurately determinable specimens have been taken.

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Fossil Insect from the British Coal Measures

IN 1922 I described the wing of a fossil insect with Odonate affinities, from the Upper Coal Measure of Ayrshire, under the name of *Tillyardia*[1]. My attention has been directed to the preoccupation of the name *Tillyardia*[2] in Coleoptera.

I therefore replace the genus name of *Tillyardia* Bolton, 1922, by that of *Truemania* nom. nov., genotype *Tillyardia multiplicata* Bolton, 1922, in recognition of the admirable work done in recent years upon the fauna of the Coal Measures by Prof. A. E. Trueman.

The new name will appear in a list of Odonata shortly to be published by Mr. J. Cowley, of Cambridge.

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[1] "Monog. Foss. Insects of the British Coal Measures", p. 145, pl. x, fig. 2; text-figure 45. Palæontographical Society, 1921–22.
[2] Carter, *Proc. Linn. Soc. New South Wales*, **37**, 489; 1913.