

prongs projecting into the dorsal parts of the lateral lobes of the bursa. On first view these prongs appear to originate from and to be part of the terminal portions of the dorsal ray, but closer study shows that they have no connection with the dorsal ray but are a part of the telamon.

Female.—22 to 24 mm long and 0.175 mm wide. Vagina 1.150 mm long. Lips of vulva swollen and prominent. Vulva about 0.125 mm from tip of tail. Body narrows abruptly immediately posterior to vulva. Anus 0.045–0.050 mm from tip of tail. Well-developed provagina present.

Hosts.—Sheep and goats. Specific identity of sheep and goats unknown.

Location.—Small bronchioles and lung tissue.

Distribution.—Lanchow, China.

Specimens.—U.S.N.M. Helm. Coll. No. 45105, 45106.

Remarks.—*Varestrongylus sinicus* differs from *Varestrongylus pneumonicus* Bhalerao, 1932, the only other member of the genus, principally in the shape of the gubernaculum and its appendages.

LITERATURE CITED

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- BOEV, S. N. *Sintetokauliusy legkikh ovets Alma-Atinskoi oblasti Kazakhstana* [The nematodes of the genus *Synthetocaulus* parasitic in Alma-Ata Territory, Kasakhstan]. Rabot. Gel'mintol. (Skrjabin) [Papers on Helminthology (Skrjabin)], 1937: 55–62.

ZOOLOGY.—*Unusual abnormalities in sea-stars*.¹ W. K. FISHER, Hopkins Marine Station, Pacific Grove, Calif. (Communicated by WALDO L. SCHMITT.)

The following notes concern two species, *Linckia columbiae* Gray and *Pisaster ochraceus segnis* Fisher, which are characteristic of the fauna of southern California. Although I have examined sea-stars in almost galactic numbers, I have never before encountered these deviations from the normal.²

Linckia columbiae Gray³

Figs. 1, 2.

This species, which ranges from southern California to the Galápagos Islands, is characteristically asymmetrical. Most specimens have one or more rays in the process of regeneration, and it is possible for an autotomized ray to grow a new disk and four new rays. Such are known as comet forms. In the specimen under discussion (U.S.N.M. No. E. 6606) a new individual is being budded off from the dorsal surface of the shortest ray, to which it is attached

by a very short peduncle about 4 mm thick. The dorsal plates of the parent are in complete continuity with the plates of the young one, but in the latter all the normal categories of plates are perfectly differentiated. The young has two unequal madreporites, with a third in the process of separation from the larger. The parent has three madreporites. They vary from three to five in the species. The young has one papula to an area on the four rays but none on disk; the parent has a maximum of 10 or 11. There are four ambulacral furrows with their bordering granules. Owing to dessication it is not possible to determine whether mouth and anus are present.

Pisaster ochraceus segnis Fisher⁴

Fig. 3.

In the specimen shown in Fig. 3 (U.S.N.M. No. E 6607) the rays have fused nearly to tip along the *lateral* part of the abactinal surface. The dorsal surface of the fused rays has two series of carinal spines, the space between which is equal to about half width of the two other dorsolateral areas. The superomarginal plates of the fused halves as well as the inferomarginal, are

¹ Received April 22, 1945.

² I am indebted to Mrs. Edward H. Anderson, formerly Miss A. E. Blagg of the Hopkins Marine Station staff, who found these specimens among *miscellanea zoologica* at the Compton, Calif., Junior College. They were probably taken not far from San Pedro, Calif.

³ W. K. Fisher, *Asteroidea of the North Pacific and adjacent waters*. U. S. Nat. Mus. Bull. 76, pt. 1: 242, pl. 48, figs. 1–7. 1911.

⁴ *Idem*, pt. 3: 171, pl. 73, figs. 4, 8; pl. 75, fig. 6; pl. 84. 1930.

on the ventral surface and are in somewhat less regular alignment than normally. While on the outer halves of the fused rays there are three series of actinal plates, on the inner halves there are but two. Along the middle of the ventral surface between the two series of superomarginals is a narrow

area of irregular plates, carrying spines very similar to the superomarginal spines, which must be reckoned as a part of the abactinal system.

The coelomic cavity of the two rays is in perfect continuity, and there is only one pair of hepatic caeca.

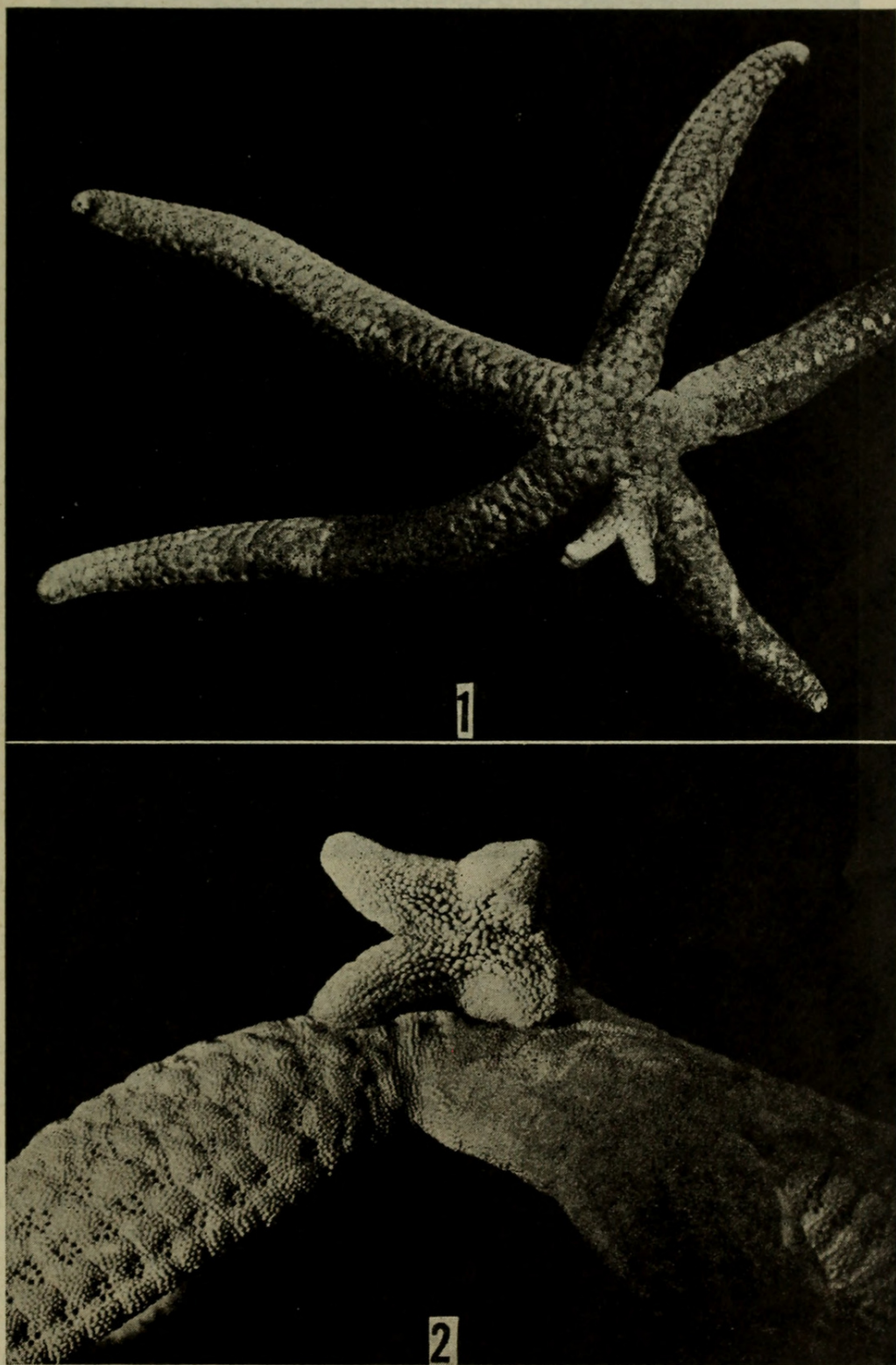


FIG. 1.—*Linckia columbiae* Gray, $\times 1.3$, showing position of adventitious young. FIG. 2.—Same, $\times 4$, actinal surface of the bud. U.S.N.M. No. E. 6660.

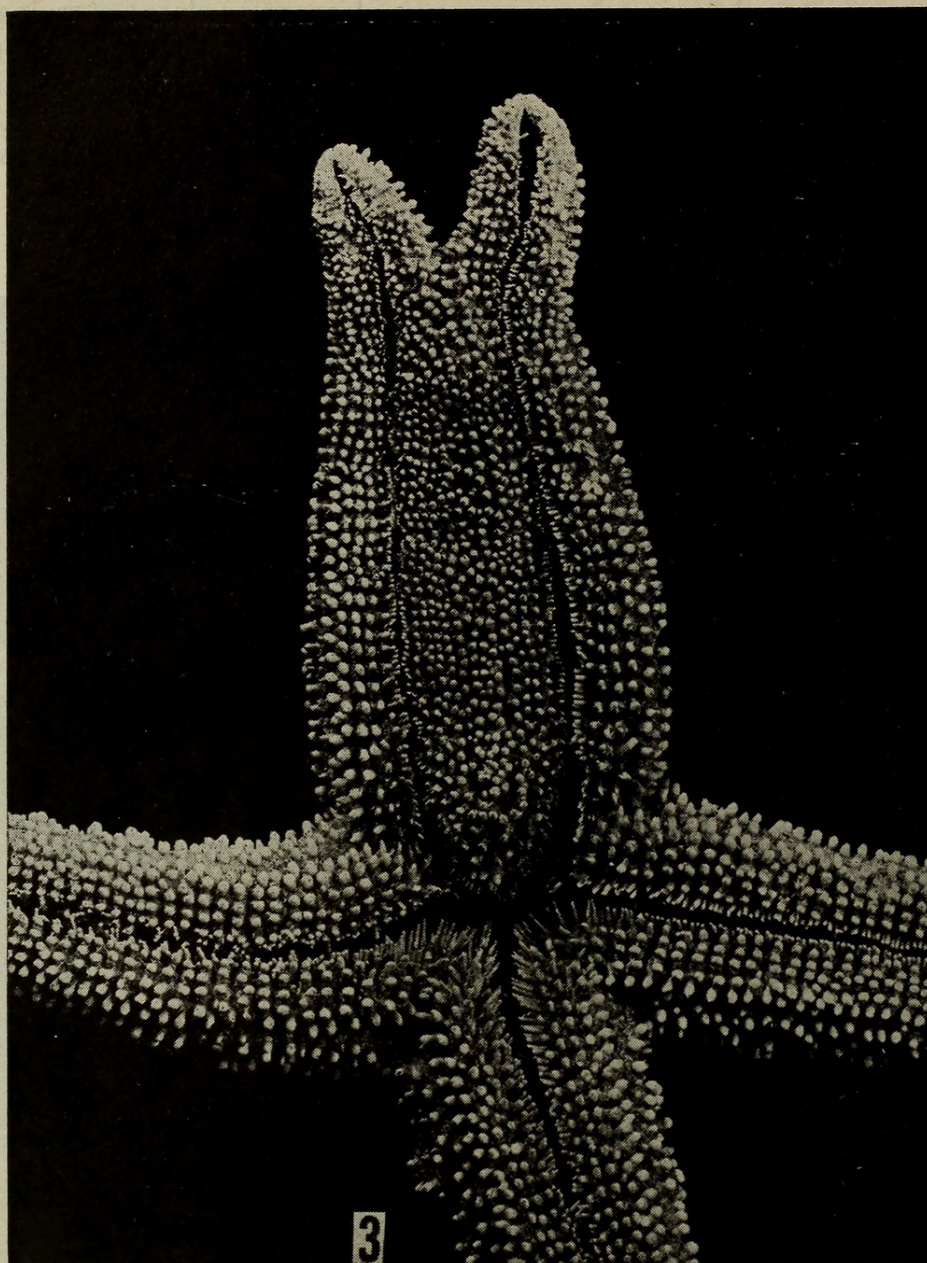


FIG. 3.—*Pisaster ochraceus segnis* Fisher, slightly larger than natural size. Actinal surface showing coalesced rays. U.S.N.M. No. E. 6607.

PROCEEDINGS OF THE ACADEMY

NEW MEMBERS

There follows a list of persons elected to membership in the Academy by vote of its Board of Managers, during the Academy year 1944, who have since qualified as members in accordance with the bylaws of the Academy. The bases for election are stated with the names of the new members.

RESIDENT

WILLIAM RICHARDS BLAIR, technical adviser, Automatic Electric Co., Washington, D. C., in recognition of work in meteorology,

especially in the field of upper-air observations and research, for having devised the radiometeorograph, and for numerous improvements in rapid communication equipment and technique.

AUBREY KEITH BREWER, physicist, National Bureau of Standards, Washington, D. C., in recognition of contributions to chemical physics and in particular researches on the photoelectric properties of catalytic surfaces, chemical action in the electric discharge, mass spectrographic analysis, and isotopes.

CHARLES NILES CLAIRE, U. S. Coast and



Fisher, Walter K. 1945. "Unusual abnormalities in sea-stars." *Journal of the Washington Academy of Sciences* 35, 296–298.

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