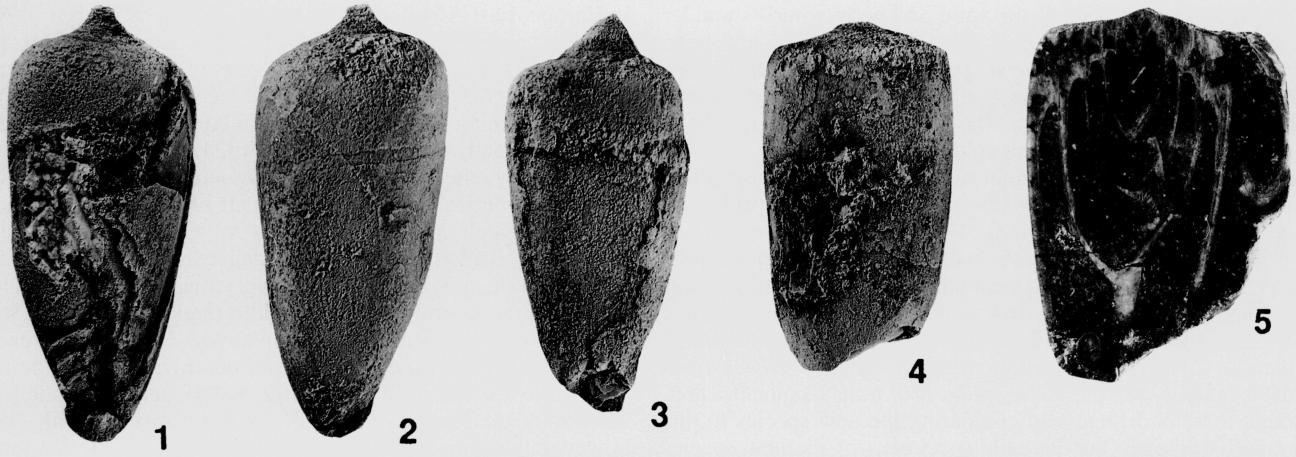

FIGURE 2—New Late Cretaceous (Cenomanian) gastropod from east-central Oregon. Specimens coated with ammonium chloride. *1–5, Trochactaeon* (*Neocylindrites*) *allisoni* n. sp., LACMIP loc. 9936; *1–2,* holotype, LACMIP 12898, ×2.5; *1,* apertural view; *2,* abapertural view; *3,* paratype, LACMIP 12899, abapertural view, ×2.1; *4,* paratype, LACMIP 12900, abapertural view, ×1.5; *5,* paratype, LACMIP 12901, interior view, ×1.8.

Genus SOGDIANELLA Djalilov, 1972

Type species.—*Actaeonella supernata* Pchelintsev [also spelled as Ptselintsev or Pcelincev], 1953, by original designation; Turonian, Transcaucasia.

Discusson.—*Sogdianella* was included in Actaeonellidae by its describer. Kollmann and Sohl (1980) considered this genus to belong to Itieriidae primarily because the base of the body whorl ends in a small projecting beak. In *Sogdianella*, the columella is either solid or only slightly hollow (Kollmann and Sohl, 1980). The specimens of the new species do not show any thin hollow space between pillar and adjoining part of the columella of the next whorl, nor do they even show the pillar. Their absence is the result of poor preservation.

In addition to having a small projecting beak at the base of the body whorl, *Sogdianella* differs from *Actaeonella* by having the posterior extension of the aperture twisted antispirally and notched, as well as by having shell-wall thinning, narrower whorls, and a less solid columella (Kollmann and Sohl, 1980).

SOGDIANELLA OREGONENSIS new species
Figure 1.11–1.15

Diagnosis.—*Sogdianella* with pointed terminal apices.

Description.—Shell medium (up to 53 mm in height), subcylindrical, involute, widest at middle and pointed at terminal apices; external surface smooth; columella with three strong plaits, anterior two plaits slightly closer to each other; basal lip very narrow, slightly beak-like; aperture very narrow, posterior extension twisted antispirally and open posteriorly; interior shell walls thin in middle part of shell.

Etymology.—The species is named for Oregon.

Types.—Holotype, LACMIP 12895, type locality LACMIP loc. 9936; paratypes, LACMIP 12896 and 12897, both from LACMIP loc. 9936.

Measurements.—LACMIP 12895, height 34.6 mm, diameter 14 mm. LACMIP 12896, height 37 mm, diameter 15.7 mm (slightly crushed). LACMIP 12897, height 23.5 mm, diameter 8.1 mm.

Occurrence.—Lower Cenomanian, unnamed strata about 9.5 km southeast of Dayville, Grant County, east-central Oregon.

Other material examined.—Ten specimens, all from LACMIP loc. 9936.

Discussion.—Preservation of the specimens is generally good, although the tips of some of the specimens are missing.

The new species is most similar to *Sogdianella peruviana* Olsson (1934, p. 71–72, pl. 9, fig. 7; Kollman and Sohl, 1980, p. A12, fig. 6d, 6e) of Albian age from the Pananga Formation of Peru. The new species differs from *S. peruviana* by having a smaller and wider shell with more constricted apices.

Family ACTAEONELLIDAE Pchelintsev, 1954
Genus TROCHACTAEON Meek, 1863

Type species.—*Actaeonella renauxiana* d'Orbigny, 1842, by original designation; Turonian, France.

Subgenus NEOCYLINDRITES Sayn, 1932

Type species.—*Trochactaeon* (*Neocylindrites*) *barremicus* Sayn, 1932, by original designation; Early Cretaceous (Barremian), southern France.

TROCHACTAEON (NEOCYLINDRITES) ALLISONI new species
Figure 2.1–2.5

Diagnosis.—*Neocylindrites* with usually rounded body whorl shoulder and small, narrow, slightly elevated spire.

Description.—Shell medium (up to 32 mm high); cylindrical; shell widest at body whorl shoulder; external surface smooth; spire small, narrow, lowly elevated, and consisting of at least six whorls; body whorl shoulder rounded on juvenile specimens, angulate on mature specimens; three columellar folds; columella very thin on spire whorls, thicker and better developed near anterior end.

Etymology.—The species is named for the late Edwin C. Allison, who made important contributions in the study of western North America Cretaceous mollusks, including actaeonellids.

Types.—Holotype, LACMIP 12898, type locality LACMIP loc. 9936; paratypes, LACMIP 12899–12901, all from LACMIP loc. 9936.

Measurements.—LACMIP 12898 height 23.1 mm, diameter 10.3 mm. LACMIP 12899, height 25.7 mm, diameter 11.7 mm. LACMIP 12900, height 29.7 mm (incomplete), diameter 16.8 mm. LACMIP 12901, height 26.5 mm, diameter 18.8 mm.

Other material examined.—Twenty-one specimens, all from LACMIP loc. 9936.

Occurrence.—Lower Cenomanian, unnamed strata about 9.5 km southeast of Dayville, Grant County, east-central Oregon.

Discussion.—Most of the specimens are poorly preserved, and most show the effects of compaction after burial. Ten of the total

27 specimens consist only of the spire and body whorl- shoulder area. Some of the interiors have been crushed and a few have also been recrystallized. On most specimens, the very thin columella in the median part of the shell is either broken or missing (probably resorbed). The columella is thick on the body whorl, and that is where the columellar folds are present.

The elevated spire is small, delicate, and more intact in juvenile specimens of the new species than in more mature specimens, whose spires have been subjected to abrasion and/or weathering. These juvenile specimens are very similar to a very small specimen (7.5 mm high) of an actaeonellid known from the Lower Cretaceous (middle Albian) Alisitos Formation at Punta China, northern Baja California. Allison (1955, pl. 44, fig. 4) illustrated the exterior of this specimen (hypotype, UCMP 33708) from UCMP locality A-8831 as *Actaeonella fusiformis* Coquand, 1865. Although there is difficulty in comparing the new species to this very small specimen, late-juvenile specimens of the new species (Fig. 2.1–2.3) differ from the Alisitos specimen by having a rounded body whorl shoulder rather than a tabulate one. It is important to mention that the Alisitos specimen does not have the entire spire sunken as in true *A. fusiformis* Coquand (1865, p. 69, pl. 3, fig. 9), which is known from Aptian strata of the Mediterranean area. Kollmann (1976) also noted that this Alisitos specimen is not actually *A. fusiformis*, which, according to Kollmann is characterized by having its body whorl overlapping the preceding whorl. Proper identification of this Alisitos specimen requires more study and additional specimens. That is not to say, however, that *A. fusiformis* does not occur in the Alisitos Formation. Allision (1955, pl. 44, fig. 1) illustrated another actaeonellid specimen (hypotype, UCMP 33707) from UCMP loc. A-8331, and this specimen does have a sunken spire. He also identified this specimen as *A. fusiformis*. We have seen other UCMP specimens from this locality, and they, like hypotype, UCMP 33707, have a sunken spire.

The new species is remarkably similar to *Trochactaeon* (*Neocylindrites*) sp. Kollmann (1976, p. 187–189, pl. 6, figs. 52–53) from the middle Albian to lower Cenomanian Losenstein Formation of northern Austria. *Trochactaeon* (*N.*) *allisoni* n. sp. differs from the Austrian species by having weaker columellar folds. The interior of *T.* (*N.*) sp. Kollmann is unknown.

The only other species of *Trochactaeon* (*Neocylindrites*) known from the Pacific slope of North America is the middle to late Albian *Trochactaeon* (*Neocylindrites*) *cumminsi* Stanton (1947, p. 111, pl. 63, figs. 3–6, 13) from the Alisitos Formation in northern Baja California, Mexico, and from various formations in Texas (Sohl and Kollmann, 1985). Allison (1955, p. 429, pl. 44, fig. 5) identified this species as *Actaeonella parvus* (Stanton), but Sohl and Kollmann (1985) put *A. parvus* into synonymy with *T.* (*N.*) *cumminsi*. The new species differs considerably from *T.* (*N.*) *cumminsi* by having a very small and narrow spire rather than a swollen one.

Sohl and Kollmann (1985) inferred that *Neocylindrites* probably had an infaunal-life habit, based on its general shell form and on its sutural slit. Also, according to them, secondary deposition of lamellae and resorbtion phenomena, both features of epifaunal dwellers, have not been observed in *Neocylindrites*.

CENOMANIAN PALEOBIOGEOGRAPHIC IMPLICATIONS OF THE NEW TAXA

According to Hallam (1981), the earliest record of *Cercomya* is Late Triassic (Carnian and Norian stages), in the western Tethys region of Europe. Skelton and Benton (1993), however, cited the earliest record of this genus as latest Triassic (Rhaetian Stage) in England. Pethö (1906) reported the youngest record of *Cercomya* as being Late Cretaceous (Maastrichtian). *Cercomya* was most common during the Middle and Late Jurassic, when it was found in Europe, East Africa, Gulf of Mexico, Western Interior of North America, and the Pacific coast of North America (Hallam, 1976, 1977, 1983). The following workers have provided details for the Western Interior of North America occurrences: Utah (Imlay, 1964); Wyoming (Crickmay, 1936; Imlay, 1967); Montana (Stanton, 1899); and Alberta (McLearn, 1924). Besides the new species, the only other occurrence of *Cercomya* from the Pacific coast of North America is in the eastern part of Maude Island, located at approximately 53 degrees north in the Queen Charlotte Islands of western British Columbia (Whiteaves, 1900). Unfortunately, Whiteaves' locality information is very meager, but Imlay (1964) assigned this occurrence to the Middle Jurassic (Callovian Stage). McLearn (1949) corroborated Whiteaves' (1900) occurrence of *Cercomya* [as *Anatina*] by reporting this bivalve from the upper part of the Yakoun Formation in the eastern part of Maude Island. According to Lewis et al. (1991) and Thompson et al. (1991), however, this entire formation is assignable to the Middle Jurassic Bajocian Stage. According to Haggart (personal commun.), Whiteaves' locality information is so vague as to make it impossible to be certain that his material of "*Anatina*" came from the Yakoun Formation or from nearby strata on the east end of Maude Island which have been subsequently assigned to the younger Jurassic Moresby Group, of Bathonian-Callovian (and possibly Oxfodian) age. The Queen Charlotte Islands are part of an allochthonous crustal block known as the Wrangellia Terrane. As reviewed by Thompson et al. (1991), there are two alternative viewpoints when this terrane docked. It might have been in place as early as the Middle Jurassic, in which case *Cercoyma* lived in waters at 53 degrees north. Alternatively Wrangellia might have been at low latitudes until Cretaceous time, with accretion not taking place until possibly during the Late Cretaceous. If so, then *Cercomya* did not live as far north as 53 degrees north on the Pacific coast of North America.

Early Cretaceous records of *Cercomya* are sparse, with Aptian-Albian occurrences in France, England, and Japan. Its Late Cretaceous records are slightly more numerous, with occurrences in the Cenomanian of Oregon (new), the Campanian of India (Stoliczka, 1871; Pascoe, 1959), and the Maastrichtian of Hungary (Pethö, 1906).

As discussed earlier, the species that is most similar to *Cercomya* (*C.*) *hesperia* n. sp. is the late Albian *Cercomya* (*Cercomya*) sp. aff. *C.* (*C.*) *gurgitis* from England. Given that the *C.* (*C.*) *gurgitis* lineage was a warm-water, cosmopolitan one, and utilizing Albian through Cenomanian ocean-circulation studies done by Johnson (1999), it is plausible that this bivalve lineage migrated via a surface current that flowed westward from the Western Europe Tethys Sea region. In the sea between North and South America, this current was positioned north of the paleoequator, and a northward component (Johnson, 1999, fig. 4) of the current extended into the west-coast region of North America. A less likely explanation is that *Cercomya*, which was present in North America during the last half of the Jurassic, survived somewhere (so far undetected), until showing up in the Cenomanian of Oregon as a species closely resembling *C.* (*C.*) sp. aff. *C.* (*C.*) *gurgitis*.

The geologic range of *Vernedia* is Cenomanian to Maastrichtian. It was most widespread and diverse in rocks of Cenomanian and Turonian age with species ranging from Japan, central Asia, western Europe, southern Mexico, and Oregon (new), but a few species are found as late as Campanian and Maastrichtian age in southern India (Kollmann and Sohl, 1980, fig. 1). The biogeographic pattern of *Vernedia* closely approximates that for orbitolinid foraminifera and rudist bivalves, and Kollmann and Sohl (1980) referred to *Vernedia* as a shallow, warm-water, truly Tethyan mollusk. The new species of *Vernedia* is most similar to *Vernedia marianii* (Alessandri) from upper Cenomanian rocks of