vated hexagonal apertural crown; and *M. horodyski* has an inflated, turbanlike triangular margin at the oral end. All forms possess an equilateral triangular, or, more rarely, a circular operculum.

Associated microfossils include the acritarchs *Chuaria circularis* and *Trachysphaeridium levis* and a cyanophytic assemblage of solitary and colonial forms. The melamocyrillid acritarch community is significant for three reasons: (1) these forms apparently represent a morphologically and biologically advanced grade of organization heretofore unrecognized in Precambrian microfossils; (2) they could prove useful for regional and perhaps global biostratigraphic correlation of upper Precambrian strata; and (3) they provide another example of the usefulness in studying shale environments, in addition to silicified stromatolitic chert environments, to gain a better understanding of the biologic diversity of late Precambrian seas and of the dating of significant evolutionary events.

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Upper Triassic Radiolaria from Eastern Oregon and Queen Charlotte Islands, British Columbia

Radiolarian-bearing rocks have been collected from eastern Oregon (Rail Cabin Formation) and the Queen Charlotte Islands, British Columbia (middle member of the Kunga Formation). The Rail Cabin Formation consists predominantly of 365 m of thin-bedded, manganiferous argillite. The middle or black limestone member of the Kunga Formation consists of 210 to 280 m of thin-bedded, black carbonaceous limestone with minor amounts of black argillite.

The Rail Cabin Formation can be subdivided into two zonal units based on radiolarian biostratigraphy: a lower *Mostlerium* Zone (?Karnian, early Norian to late middle Norian) and an upper *Pantanellium silberlingi* Zone (late middle to late Norian). Samples from the middle member of the Kunga Formation contain radiolarians which are indicative of the *Pantanellium silberlingi* Zone. Norian ages for both radiolarian zones have been confirmed primarily by associated pectinacid bivalves.

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Developmental Phases in Lagoonal Patch Reefs—Implications for Paleozoic Bioherms, or New Models for Reefs

Observation of modern reefs indicates that lagoonal patch reefs may provide a more useful model for Paleozoic bioherms than conventional fringing or barrier-reef models.

Most Paleozoic bioherms develop within inland basins or seaways surrounded by continental masses. Adjacent lands contribute varying quantities of fine clastic material to "reef"-derived carbonate rocks. Thus, bioherms are commonly associated with micrite or calcareous shales and mudstones. Few Paleozoic bioherms occur on coarse-grained carbonate substrates similar to those of modern fringing or barrier reefs. Rather, the bioherms generally appear to have had a mud substrate like that common in modern lagoonal settings.

Similar development of modern lagoonal reefs and Paleozoic bioherms further strengthens the proposed model. Development of many Paleozoic bioherms progresses from an initiation phase of substrate stabilization, to a diversification phase, and finally to a termination phase dominated by a single group of organisms. Modern lagoonal patch reefs have been observed to develop in an identical manner in response to rapid fluctuation in sedimentation, a common condition in the lagoonal environment.

In addition to substrate and developmental phases, there are other implications of a lagoonal model for Paleozoic bioherms. Reduced light penetration causes modern lagoonal coral and algal associations to occur in shallower water than predicted. Also, increased suspended matter results in dominance of sponges over corals in the lagoon.

Recognition that lagoonal patch reefs exhibit developmental phases and substrate characteristics similar to those described for many Paleozoic bioherms demonstrates the potential importance of replacing conventional models with lagoonal patch reefs when examining Paleozoic bioherms.

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Influence of Rate on Demand and Use of Natural Gas in California

In the past 2 years innovative changes in rate structure for customers of California's utilities have led to significant changes in demand and end uses of natural gas in the state. Passage of the Miller-Warren Lifeline Act in 1975 has led to subsidies to residential users that have been balanced by inversion of rate schedules for large users and higher rates to interruptible industrial customers. Fuel switching from natural gas to other fuels, principally oil, has been extensive in the last few years owing to the depressed prices associated with No. 6 and No. 2 fuel oil on the West Coast. Because 87% of California gas is imported from Canada and the southwest on all-year contracts, summer surpluses are materializing. A benign 1977-78 winter, together with loss of summer industrial customers has led to load management problems which were solved by increased use of natural gas for electrical generation in 1977 and 1978.

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Vitrinite Reflectance, Present Rock Temperature, Laumontite Occurrence, and Burial History in Los Angeles and Ventura Basins, California

Coordinated research on vitrinite reflectance, rock temperature, first occurrence of laumontite, and burial history at five sites in the Los Angeles basin and one in the Ventura basin resulted in significant findings regarding late Miocene and younger rocks. Data from 17 boreholes (reaching as deep as 5,800 m), including 110