where contemporaneous planktonic-foraminiferal pelagites accu-

mulated. Middle Eocene to middle Miocene carbonate rocks de-

posited in the deep-sea realm represent a distinctive lithoge-

netic unit heren united as the Montpeler Group.

The preponderance of globigerinid and radiolarian tests typi-

fies lower Montpeler (late Eocene to early Miocene) microfos-

sil assemblages. Dominant benthic forms include Melonis pom-

plioides, Fontbonia wettelstorfi, and species of Stilostomella and

Pleurostomella. Available faunal criteria including assem-

blage parameters, depth preferences for extant species, and

convergent-ecologic morphologies suggest that abyssal (below

2,000 m) paleodeposits prevailed at the depositional site on a

sediment apron at the base of the Duanvale-Wagwater escarp-

ment. Middle Eocene to early Miocene subsidence computed

from inferred paleodepth and estimated sedimentary thickness

totals 2,800 m. Biostratigraphic and paleoecologic evidence

does not support the concept of a regional unconformity within

the Montpeler, as has been proposed.

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NEOGENE STRATIGRAPHY OF PARATETHYS OF CEN-

tRAL EUROPE AND ITS CORRELATION WITH OTHER AREAS

During the last 10 years, a group of Neogene specialists has

restudied the Neogene sections in the Alpine and Carpathian

foredeep (molasse zone) and the inner Alpine and Carpathian

basins. These studies have given rise to a new Neogene stratig-

graphic concept for this area—the so-called "Paratethys."

The lower boundaries of these Miocene and Pliocene stages

(Egerian, Eggenburgian, Ottnangian, Carpathian, Badenian,

Sarmatian, Pannonian, Pontian, Dacian, and Romanian, in

ascending order) are defined by planktonic and larger forami-

niferae, calcareous nannoplankton, ostracods, mollusks, micro-

vertebrates, and macrovertebrates. From radiometric age deter-

minations of biostratigraphically dated glauconite and rhyolite

or andesitic tuft zones, correlations are possible with the Neo-

gene planktonic zonation of Blow on one side, and with verte-

brate Neogene scales on the other. Correlations can be made

between the boreal, Atlantic, and Mediterranean bioprovinces

of Europe and, therefore, with most of the stratotypes of the

international Neogene time scale. On the basis of Paratethys

faunas, the bioprovinces of western Europe can be correlated

with the eastern Neogene deposits as far as the Crimian and

Caspian Sea areas. Planktonic and larger foraminiferae, as well

as macrovertebrates and macrovertebrate correlation levels, can

be related to the Neogene of the United States. There are major

conflicts between the early and middle Miocene radiometric

dates obtained in the Paratethys and those from deep-sea cores.

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UPPER PRECAMBRIAN AND LOWER PALEOZOIC MIOGEOCLINE IN GREAT BASIN, WESTERN

UNITED STATES

Shallow-marine, intertidal, and supratidal detrital and car-

bonate strata of late Precambrian (less than 850 m.y.) and early

Paleozoic (more than 345 m.y.) age thicken from a few thou-

sand feet in cratonic areas of the Great Basin to 40,000 ft

in the central Great Basin 200-300 mi west. Coeval rocks in the

western Great Basin are deep-water strata characterized by

clasts and argillite associated with mafic pillow lavas. Strata

deposited at moderate depths are present between the shallow-

and deep-water facies, but have a limited distribution, suggest-

ing a relatively abrupt transition from shelf to deep-ocean ba-

sin. The thick accumulation of shallow-water deposits in the

Great Basin is similar to deposits along present-day stable

continental margins. Such accumulations have been termed

miogeoclines, rather than miogeosynclines, because they are

open to the sea on one side and are not synclinal in form.

The continental margin along which the late Precambrian

and early Paleozoic miogeocline was constructed apparently

developed as the result of a late Precambrian (less than 850

m.y.) continental separation. Extensional faulting and flowage

related to this separation extended well into the continent and

may have produced major crustal thinning as far east as the

"Wasatch line," across which the rate of westward thickening

of upper Precambrian and Paleozoic strata increases markedly.

A persistent positive belt, perhaps analogous to the buried ridge

beneath the outer edge of the present-day Atlantic continental

shelf, may account for regional thinning and local erosional

truncation of lower Paleozoic strata along the western margin

of the Cordilleran miogeocline.

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ley, Godalming, Surrey, England

MODELS FROM EUROPEAN SEAS TO AID DETECTION OF, AND SEARCH FOR, ANCIENT SAND BODIES

Many large porous sand bodies formed in open reaches of

ancient continental shelves and slopes should be recognizable

in the stratigraphic record; they have considerable economic

and academic significance. The present paper is concerned with

modern analogues in the shallow seas around western Europe.

The new deposits and their depositional environment allow the

depositional environment of the ancient ones to be interpre-

ted more realistically. In addition to the extensive but thin sand

sheets, there are many modern sand bodies that are isolated

from one another. They can be tens of miles in length, a few

miles wide, and more than 200 ft thick. They may occur singly

or in extensive groups and are parallel with or transverse to the

currents that formed them. Some of the largest ones were made

by the Mediterranean undercurrent on the continental slope of

the Gulf of Cadiz. Others, of similar size on the continental

shelf, are attributed to a tidal-current origin. Modern tidal flow

around the British Isles also is responsible for such sand bodies,

as well as a variety of other forms. Only semiandirectional cur-

tents seem to be depositing sand in the western approaches to

the Baltic.

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