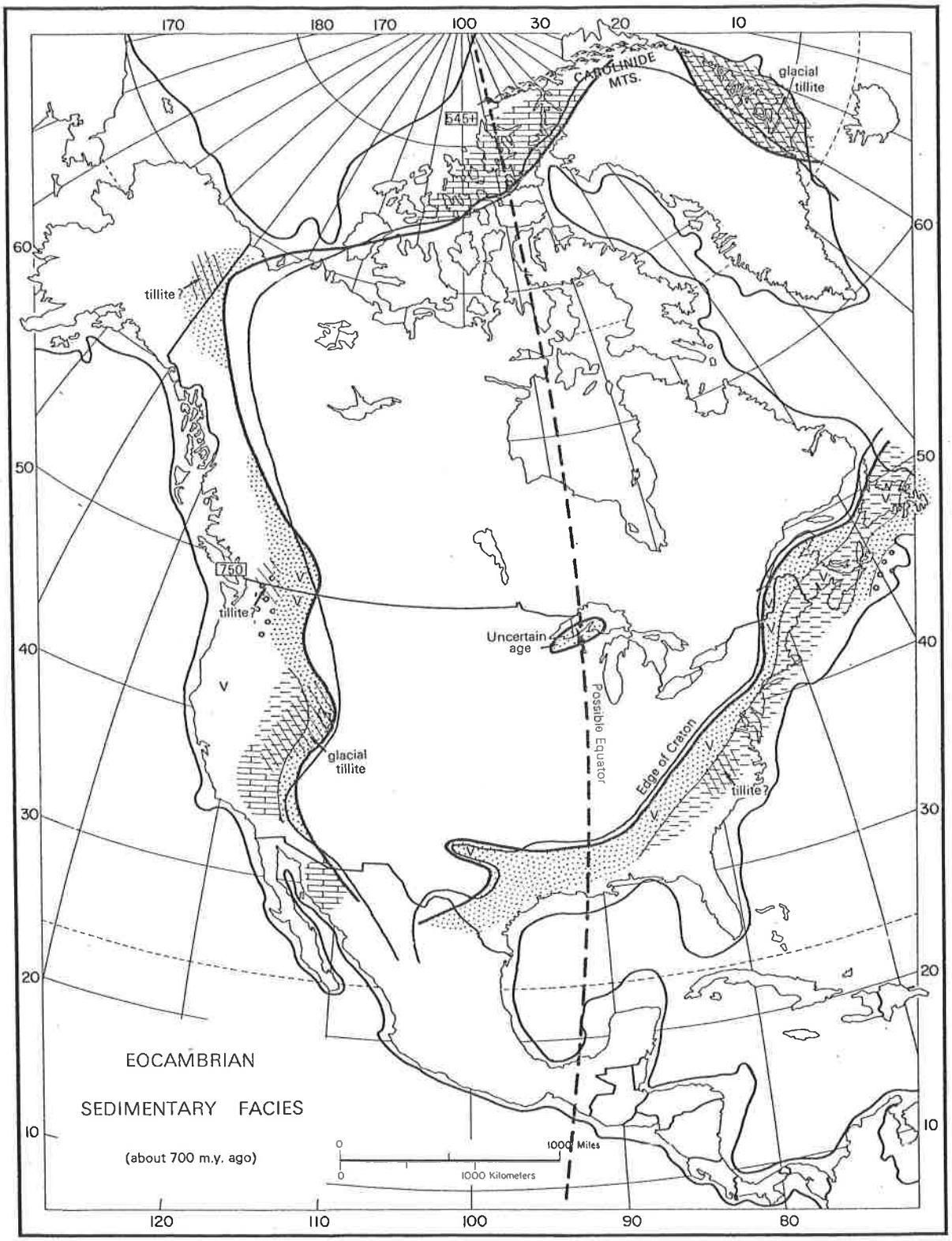
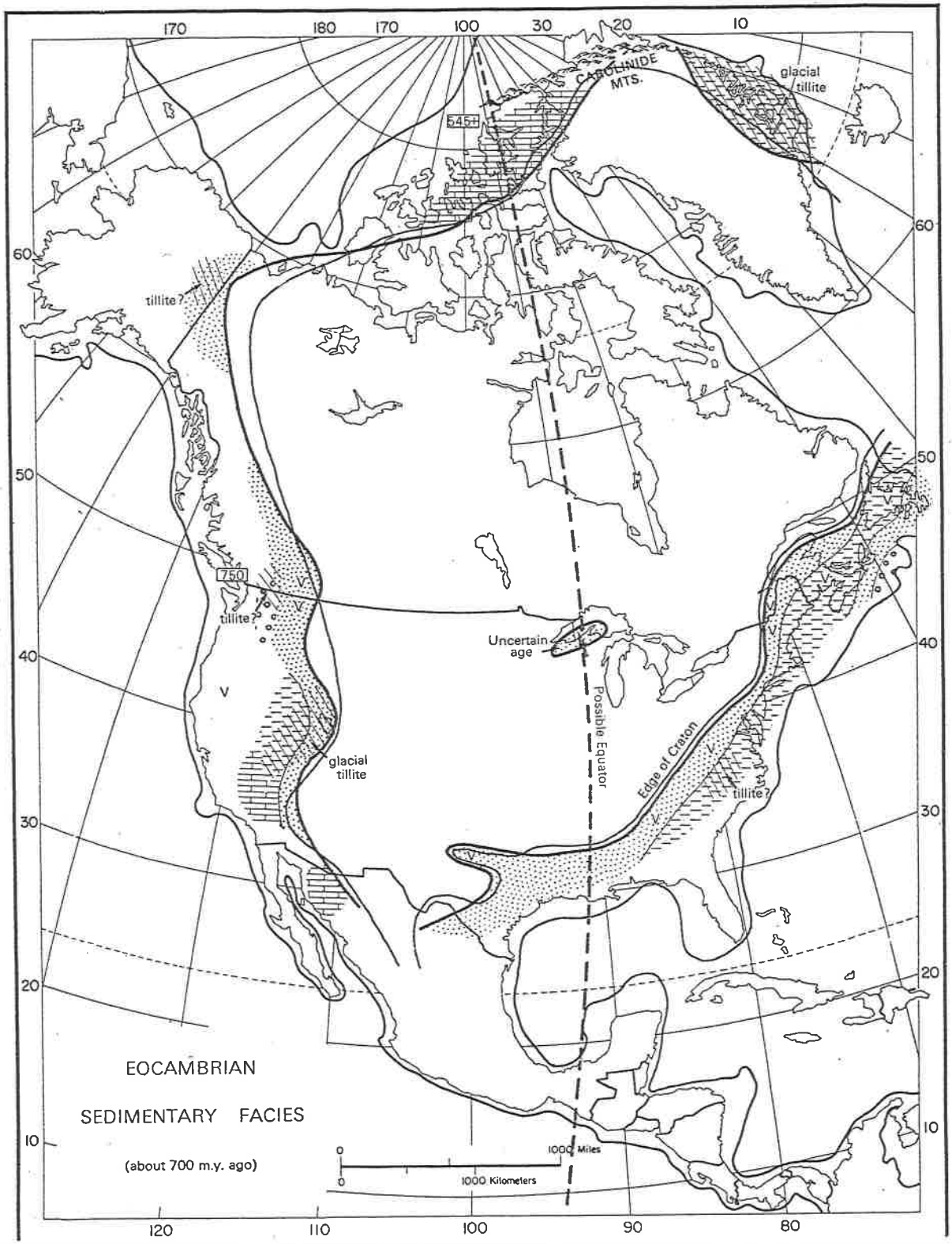
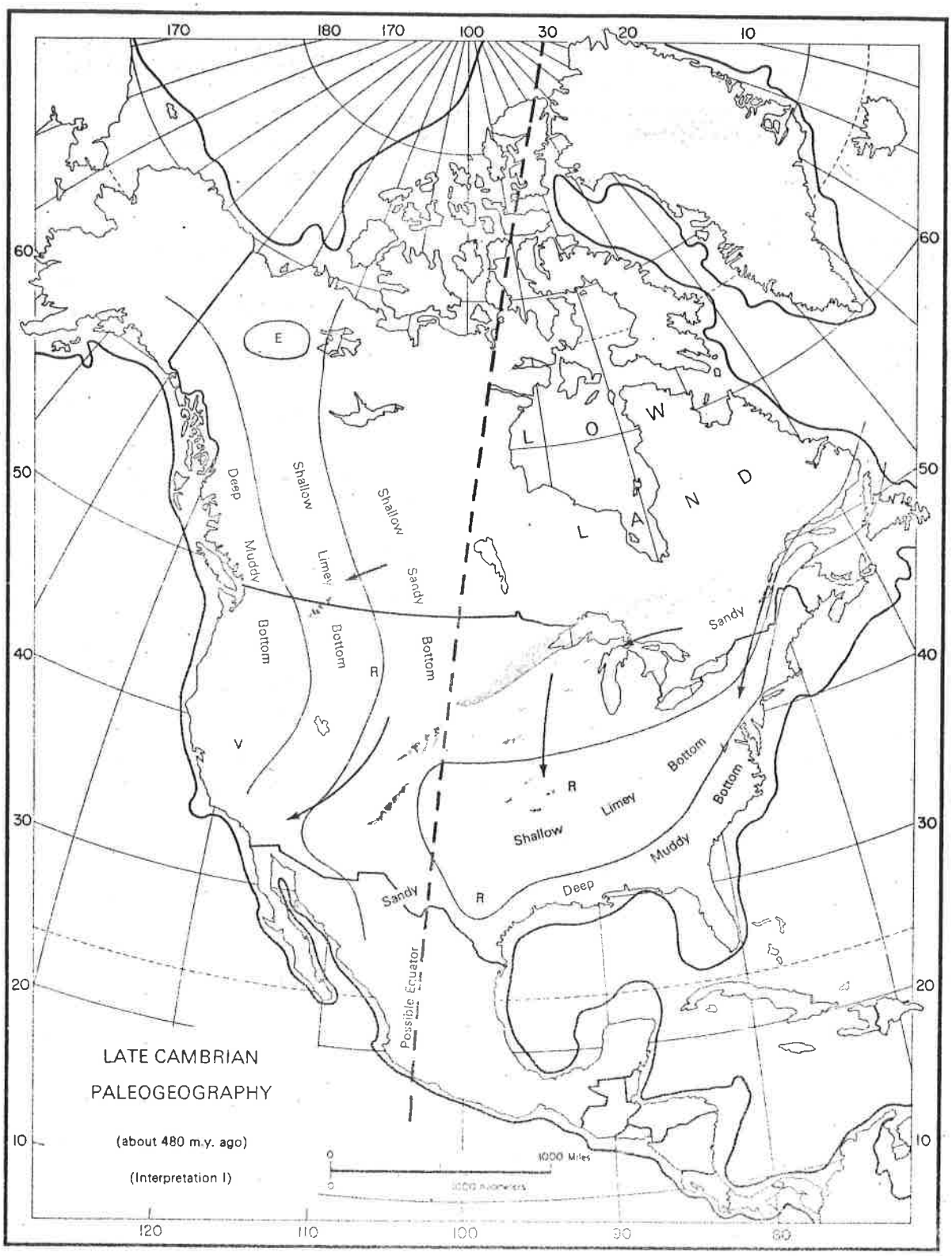
Evidence from the continents (other than shape)

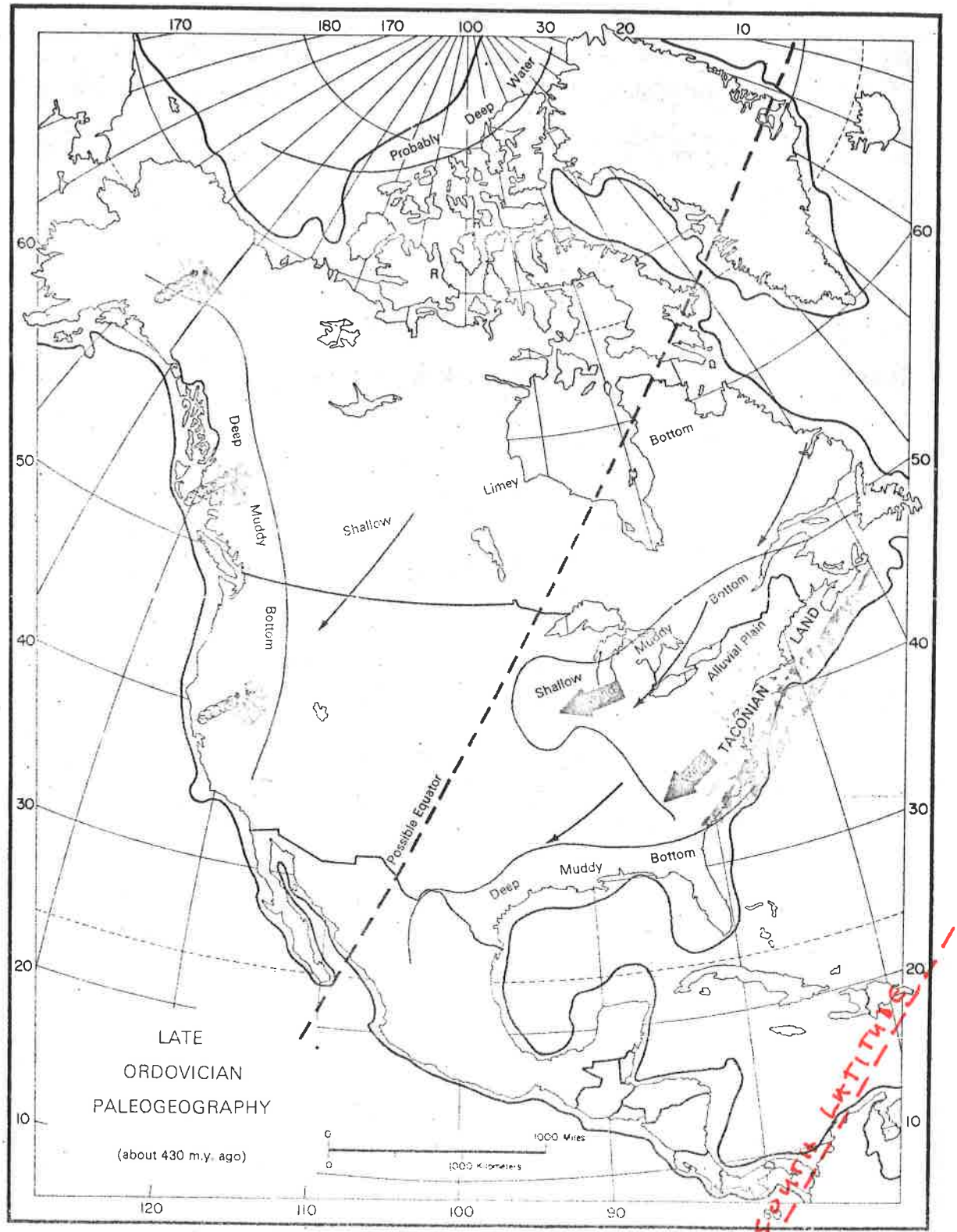
E. Paleomagnetic data

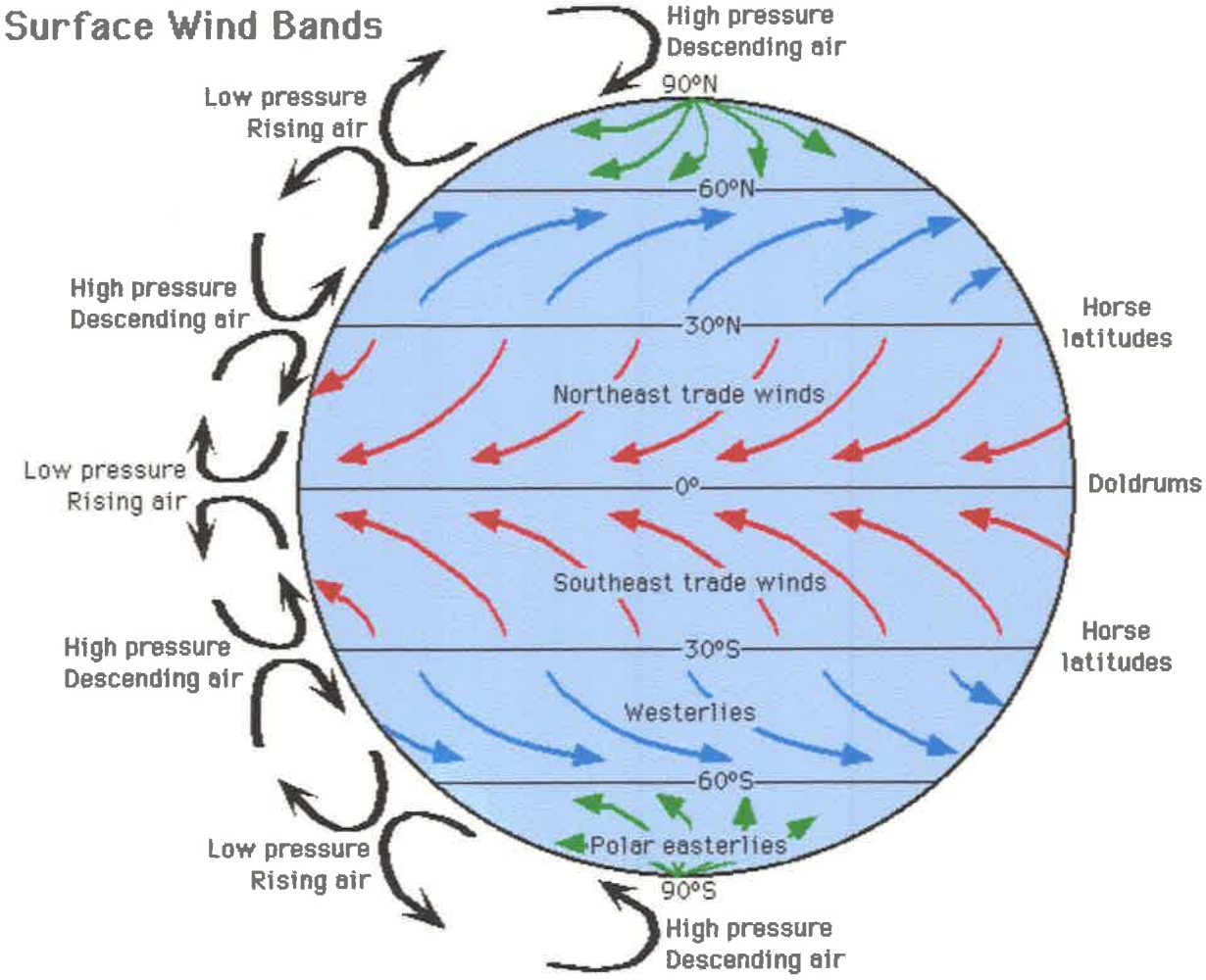
2. Paleogeographic maps of North America

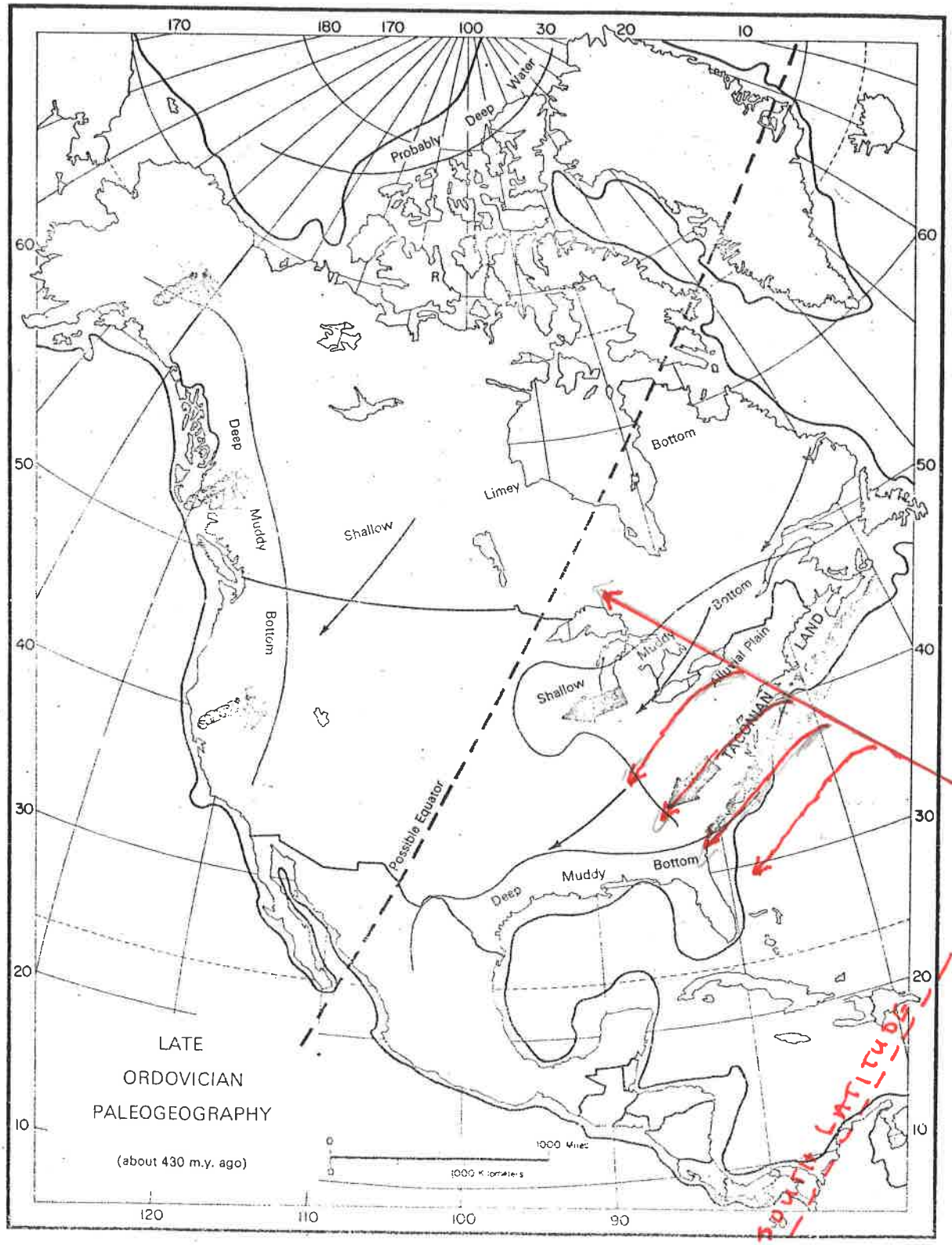

170
180
170
100
30
20
10
CANOLINIDE MTS.
glacial tillite
545+
60
50
40
30
20
10
tillite?
750
tillite?
Uncertain age
Possible Equator
Edge of Craton
glacial tillite
tillite?
EOCAMBRIAN
SEDIMENTARY FACIES
(about 700 m.y. ago)
0
1000 Miles
0
1000 Kilometers
120
110
100
90
80


170
180
170
100
30
20
10
CARIBOU-HIDE MTS.
glacial tillite
545+
60
50
40
30
20
10
tillite?
750
tillite?
Uncertain age
Possible Equator
Edge of Craton
glacial tillite
tillite?
EOCAMBRIAN
SEDIMENTARY FACIES
(about 700 m.y. ago)
0
1000 Miles
0
1000 Kilometers
120
110
100
90
80


170
180
170
100
30
20
10
60
50
40
30
20
10
120
110
100
90
80
E
L O W L A N D
Deep
Muddy
Bottom
Shallow
Limey
Bottom
Shallow
Sandy
Bottom
R
Sandy
V
R
Limey
Bottom
Shallow
Muddy
Bottom
Sandy
R
Deep
Possible Equator
LATE CAMBRIAN
PALEOGEOGRAPHY
(about 480 m.y. ago)
(Interpretation I)
0
1000 Miles
0


170
180
170
100
30
20
10
Probably
Deep
Water
60
50
40
30
20
10
Deep
Muddy
Bottom
Shallow
Limey
Bottom
Muddy
Bottom
Alluvial Plain
LAND
Shallow
TACONIAN
Possible Equator
Deep
Muddy
Bottom
LATE
ORDOVICIAN
PALEOGEOGRAPHY
(about 430 m.y. ago)
0
1000 Miles
0
1000 Kilometers
120
110
100
90





30° SOUTH LATITUDE

How else might the Coriolis Effect affect you:

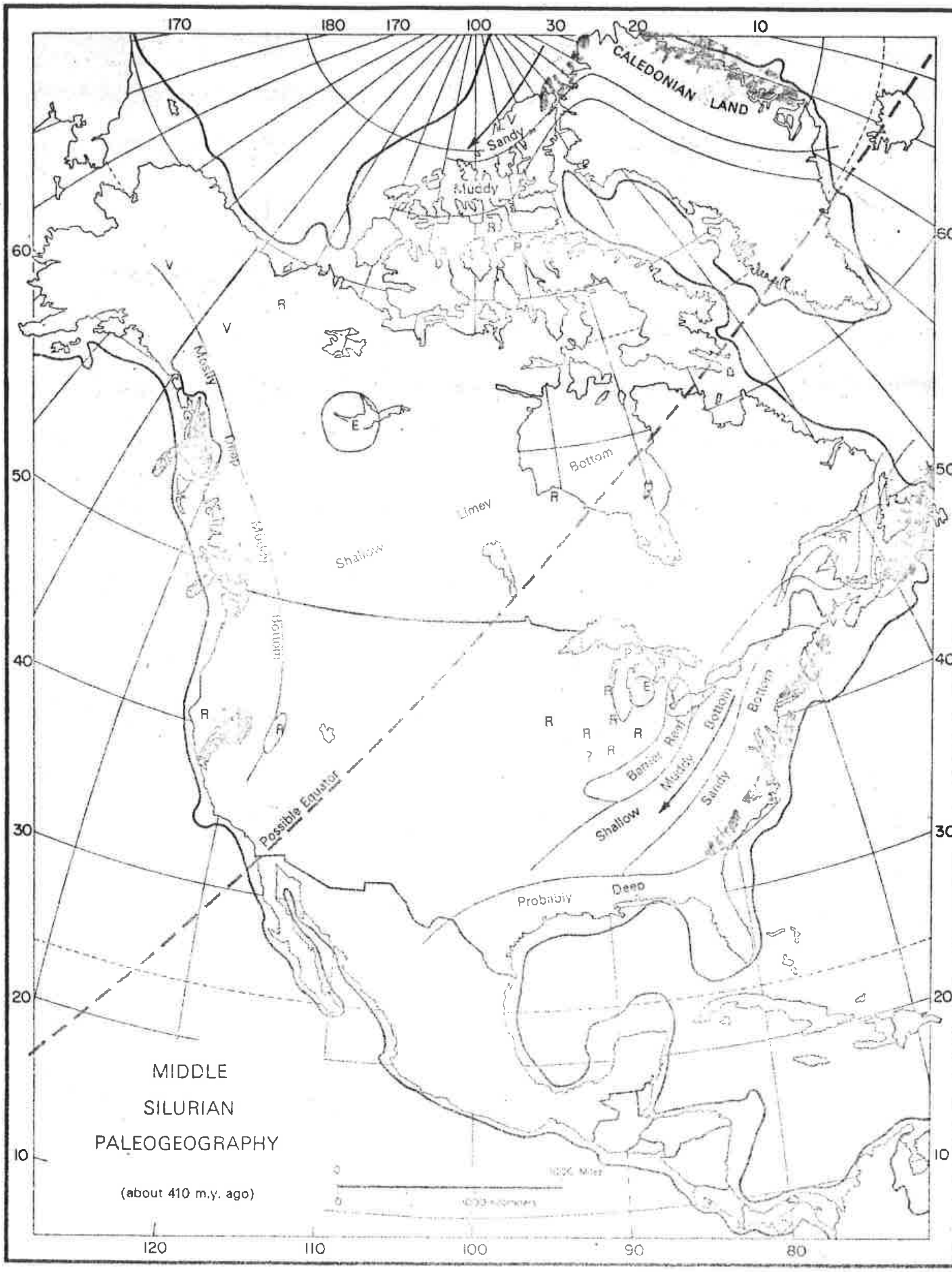
1. **History**

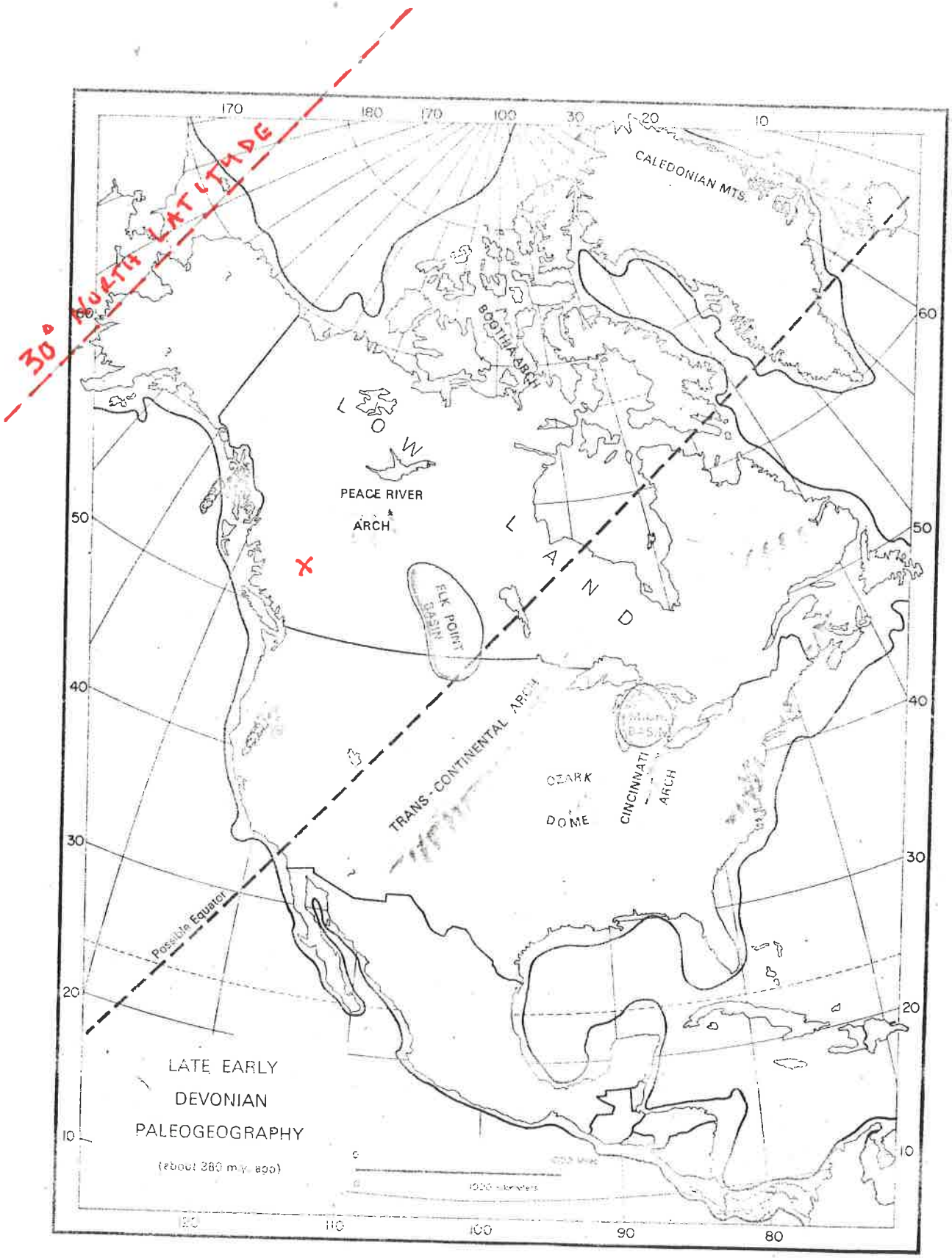
2. **Fishing**

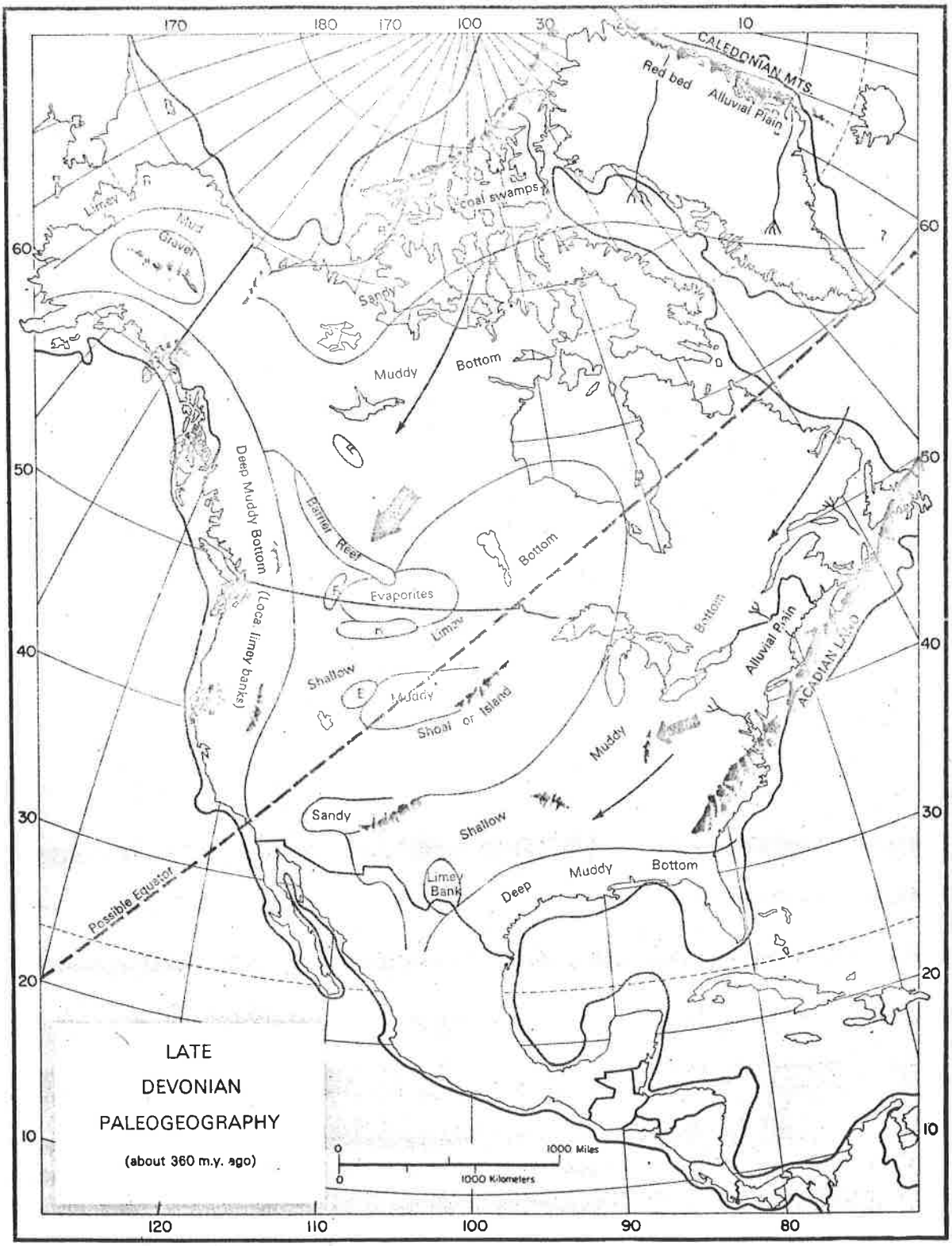
3. **Literature**

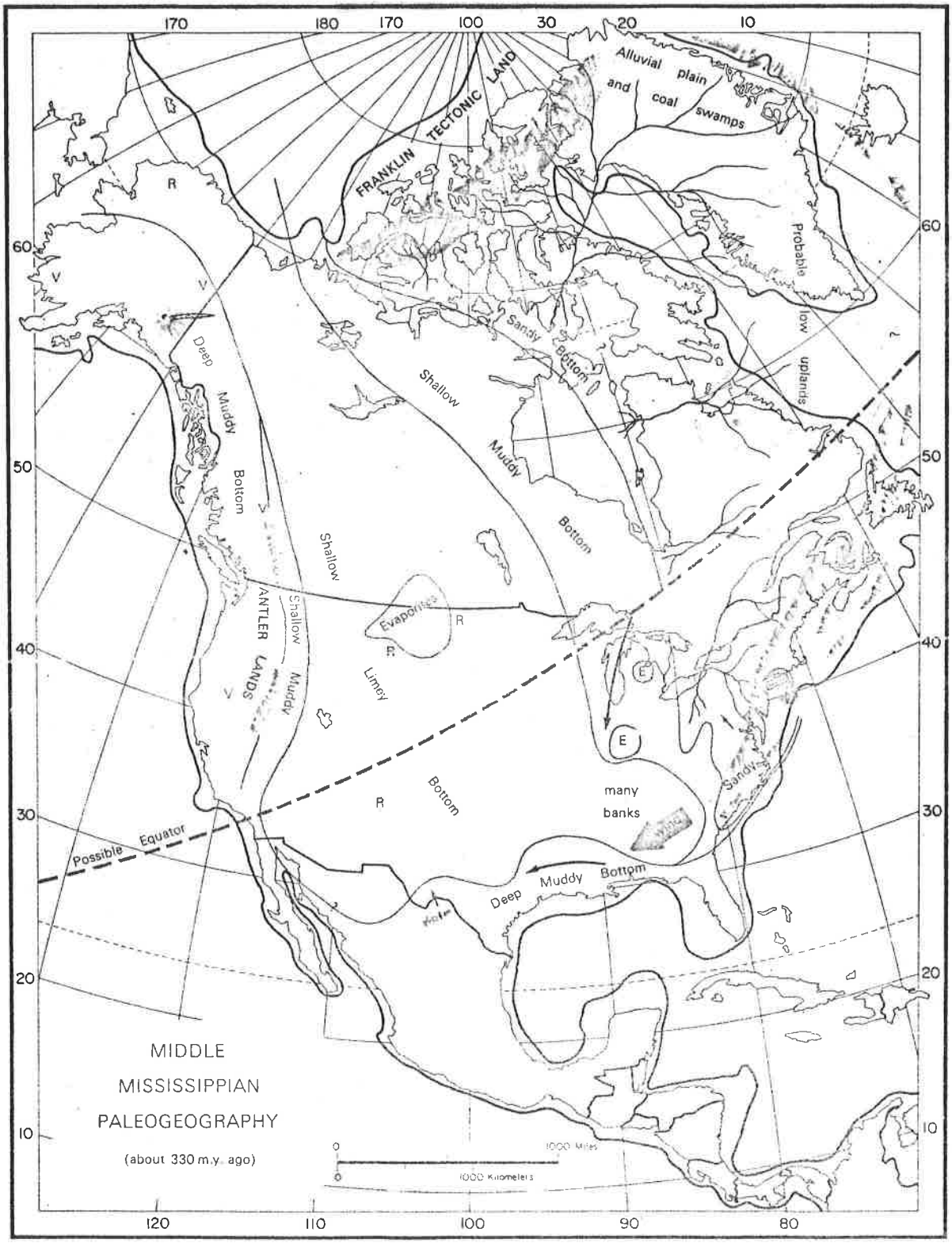
4. **Your personal hygiene**

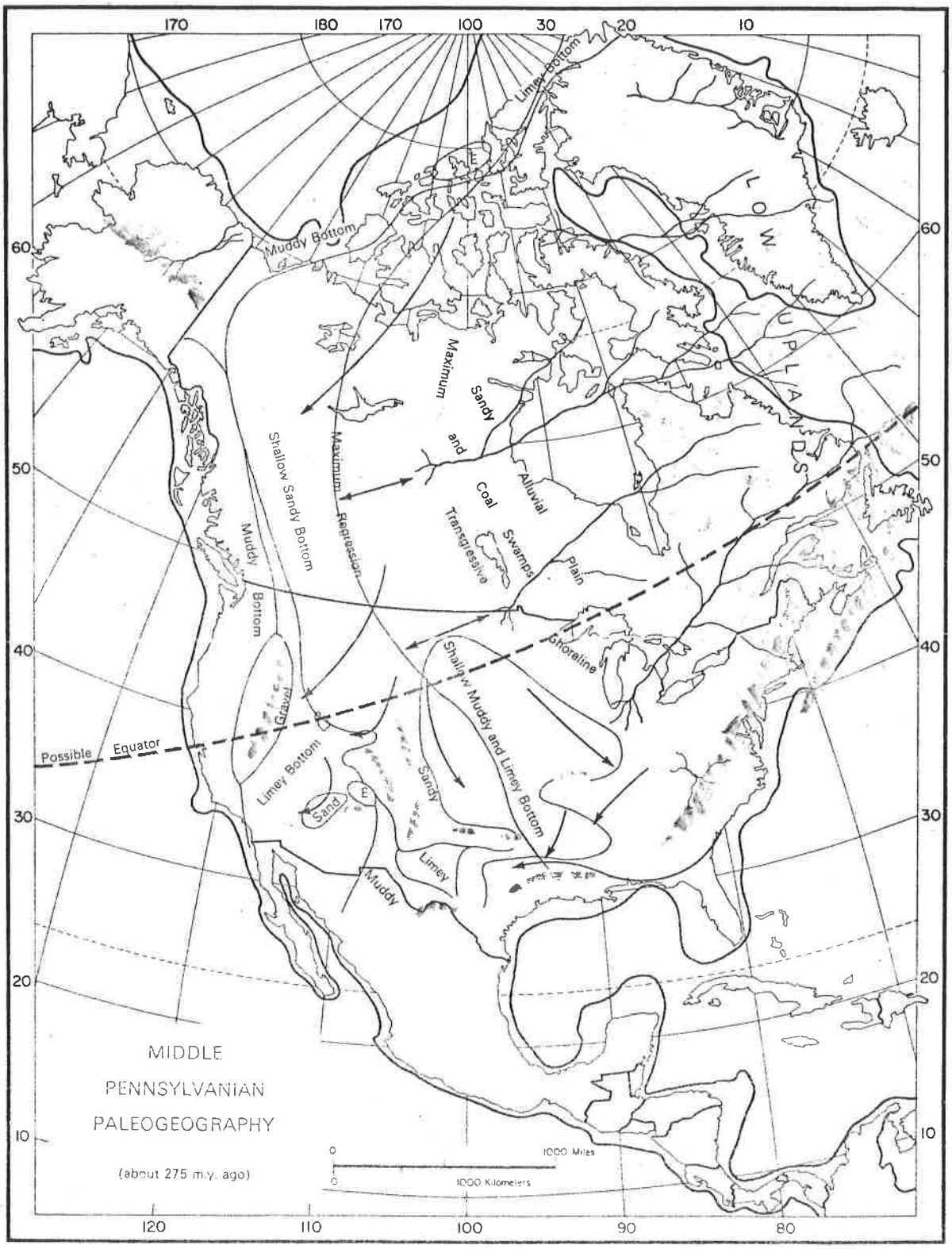
5. **That photo of you standing with a local individual in native regalia at the Equator while on your African bus tour.**

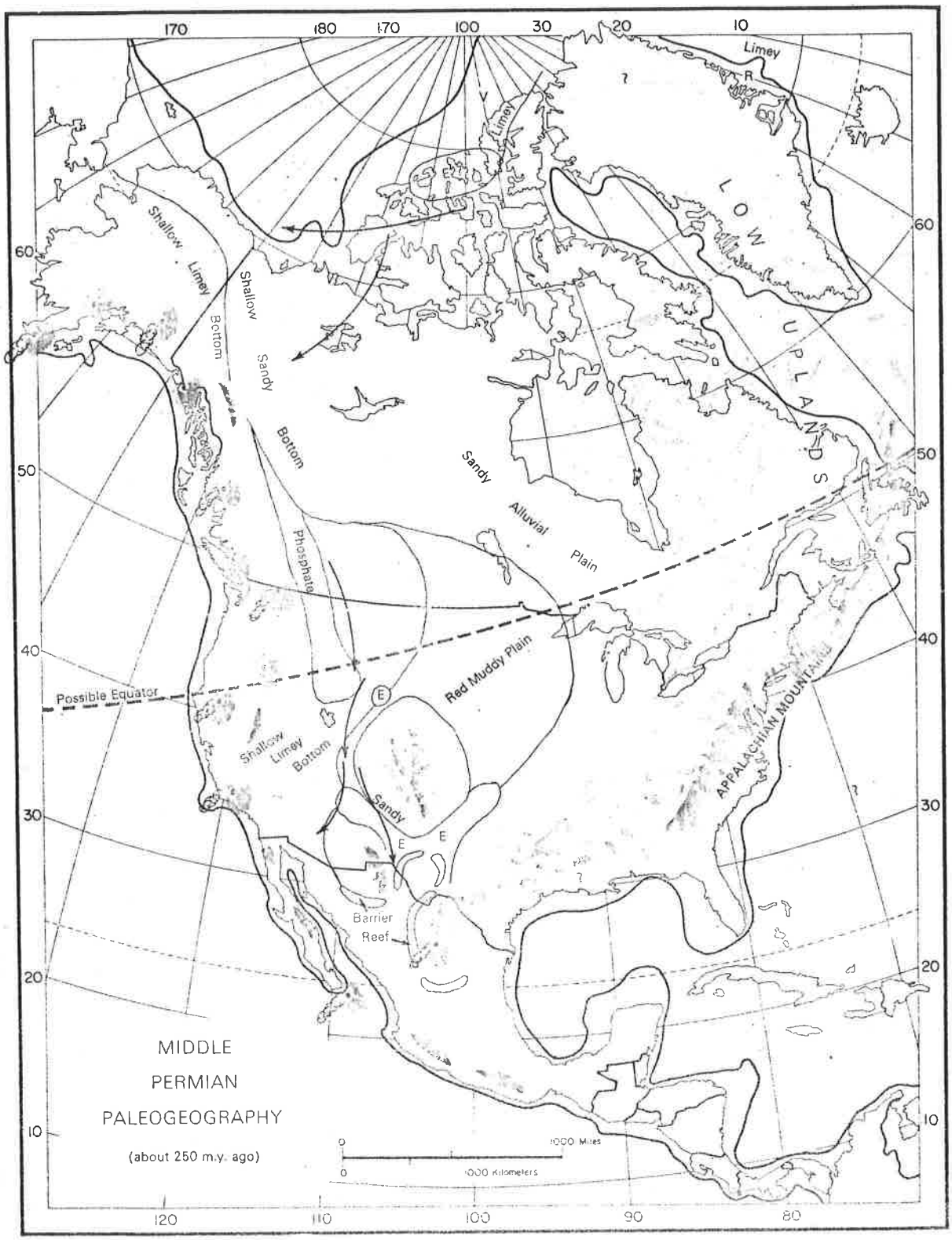

CALEDONIAN LAND
Sandy
Muddy
Mostly
Deep
Muddy
Bottom
Shallow
Limey
Bottom
Possible Equator
Barrier Reef
Muddy
Bottom
Sandy
Bottom
Shallow
Bottom
Probably
Deep
MIDDLE
SILURIAN
PALEOGEOGRAPHY
(about 410 m.y. ago)


30° SOUTH LATITUDE
CALEDONIAN MTS.
BOOTHIA ARCH
PEACE RIVER
ARCH
LAND
FLK POINT BASIN
TRANS-CONTINENTAL ARCH
OZARK
DOME
CINCINNATI ARCH
Possible Equator
LATE EARLY
DEVONIAN
PALEOGEOGRAPHY
(about 380 m.y. ago)
170
180
170
100
30
20
10
60
50
40
30
20
10
120
110
100
90
80

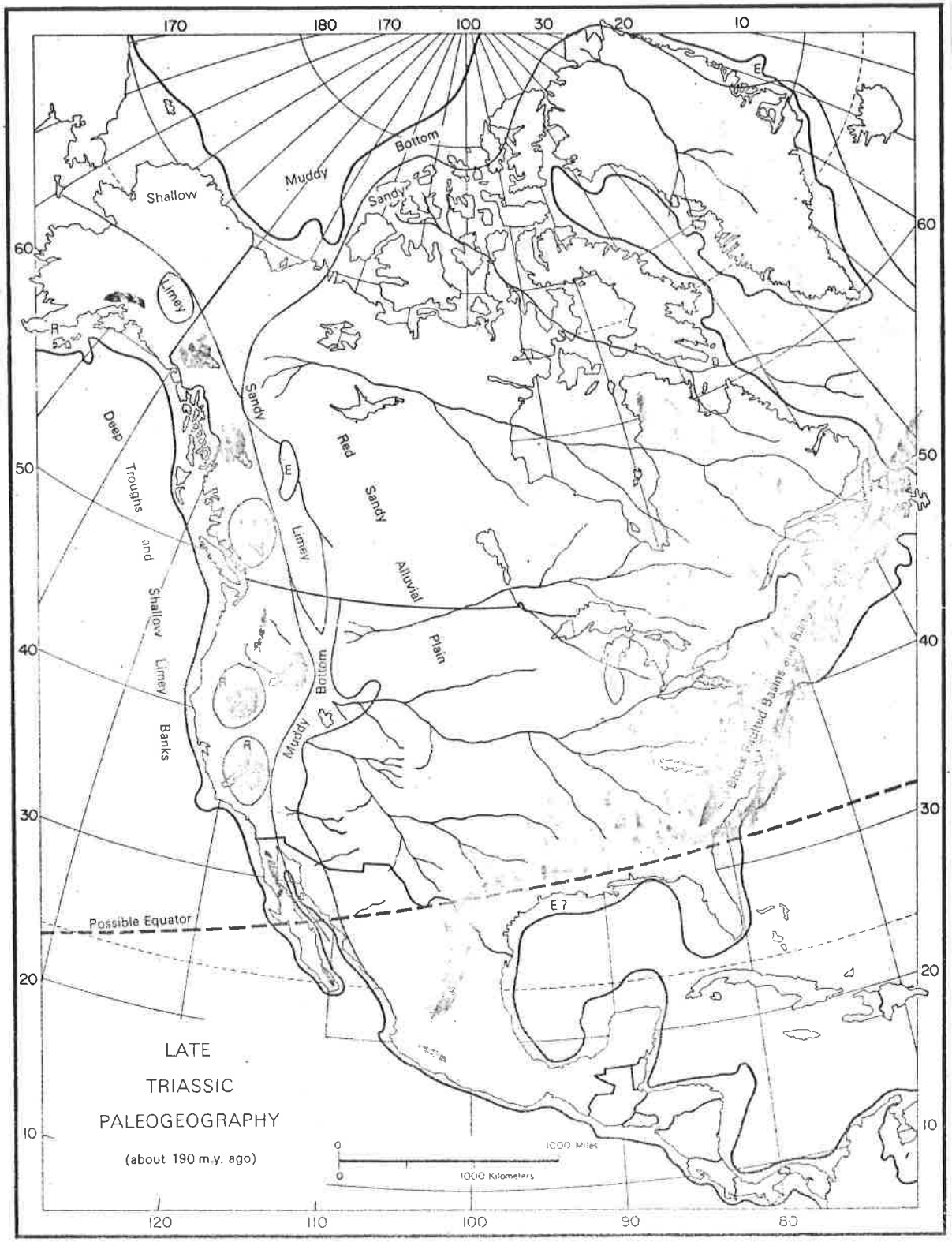

170
180
170
100
30
10
CALEDONIAN MTS.
Red bed
Alluvial Plain
Coal swamps
Limey
Mud
Gravel
Sandy
Muddy
Bottom
Deep Muddy Bottom
(Local limey banks)
Barrier Reef
Evaporites
Limey
Shallow
Muddy
Shoal or Island
Bottom
Alluvial Plain
ACADIAN LAND
Muddy
Sandy
Shallow
Limey Bank
Deep
Muddy
Bottom
Possible Equator
60
50
40
30
20
10
120
110
100
90
80
LATE
DEVONIAN
PALEOGEOGRAPHY
(about 360 m.y. ago)
0
1000 Miles
0
1000 Kilometers

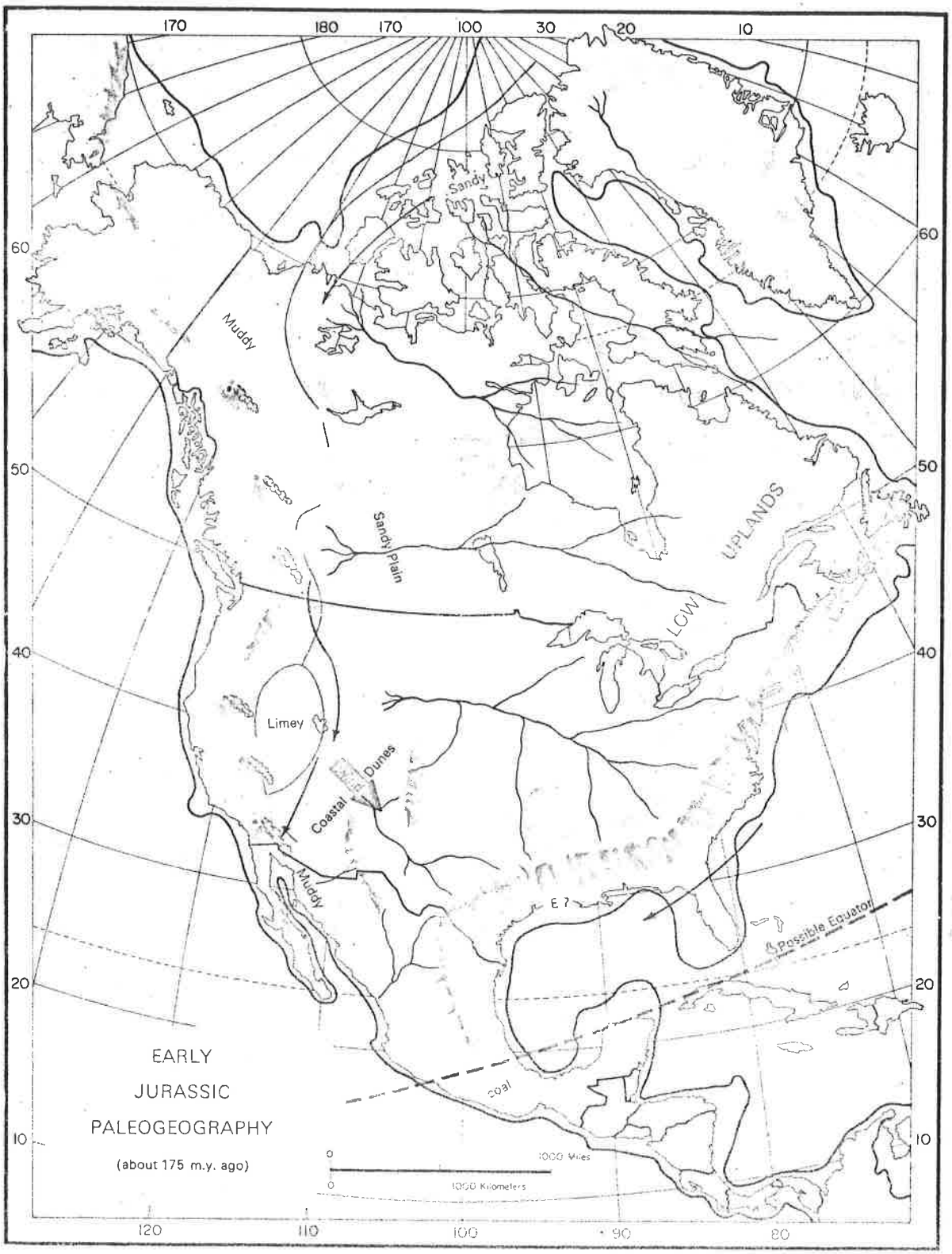

170
180
170
100
30
20
10
Alluvial plain and coal swamps
FRANKLIN TECTONIC LAND
R
60
V
Deep Muddy Bottom
Sandy Bottom
Shallow Muddy Bottom
Probable low uplands
50
Shallow
ANTLER LANDS
Shallow Muddy
Evaporites
R
Limey
E
40
R
Bottom
many banks
Sandy
30
Possible Equator
Deep Muddy Bottom
20
MIDDLE
MISSISSIPPIAN
PALEOGEOGRAPHY
(about 330 m.y. ago)
0
1000 Miles
0
1000 Kilometers
10
120
110
100
90
80

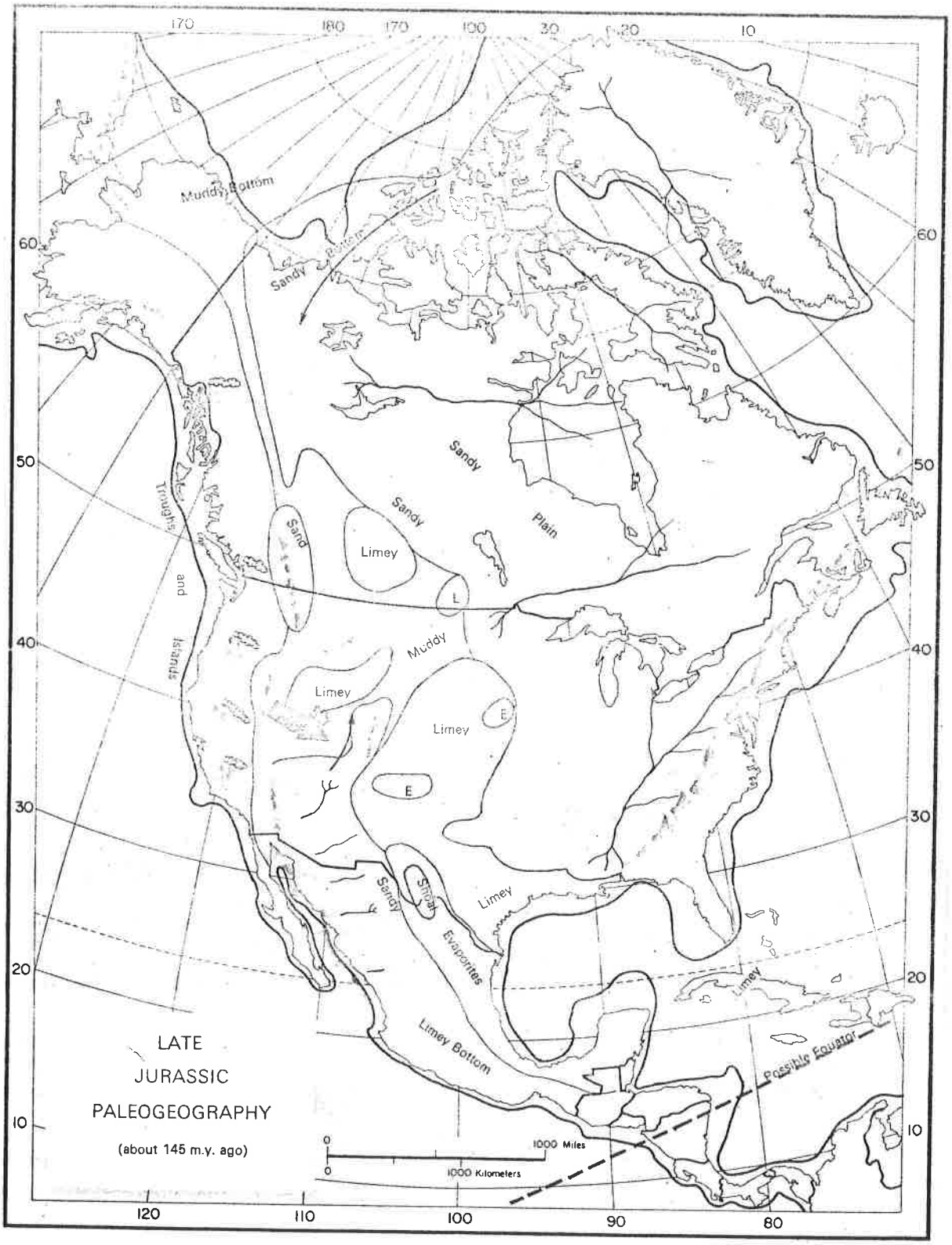

170
180
170
100
30
20
10
60
50
40
30
20
10
120
110
100
90
80
Limey Bottom
Muddy Bottom
L O W
U P L A
N D S
Maximum
Sandy
and
Coal
Alluvial
Swamps
Plain
Transgressive
Maximum Regression
Shallow Sandy Bottom
Muddy Bottom
Shoreline
Shallow Muddy and Limey Bottom
Gravel
Limey Bottom
Sand
E
Sandy
Limey
Muddy
Possible Equator
MIDDLE
PENNSYLVANIAN
PALEOGEOGRAPHY
(about 275 m.y. ago)
0
1000 Miles
0
1000 Kilometers

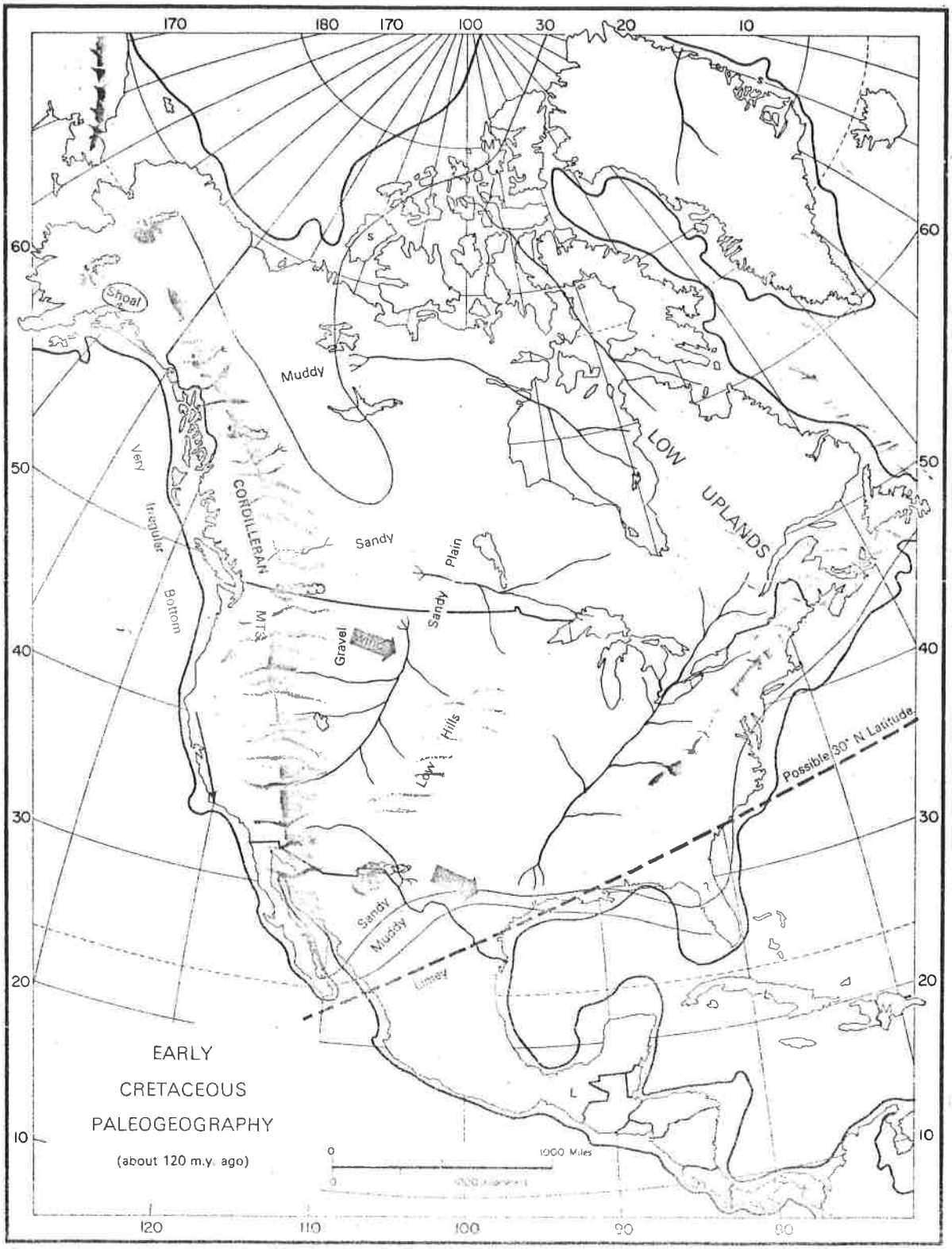

170
180
170
100
30
20
10
Limey
R
Limey
Shallow Limey Bottom
Shallow Sandy Bottom
LOWLANDS
UPLANDS
Sandy
Alluvial Plain
Phosphate
Red Muddy Plain
Possible Equator
E
Shallow Limey Bottom
Sandy
E
E
Barrier Reef
APPALACHIAN MOUNTAINS
60
50
40
30
20
10
120
110
100
90
80
MIDDLE
PERMIAN
PALEOGEOGRAPHY
(about 250 m.y. ago)
0
1000 Miles
0
1000 Kilometers

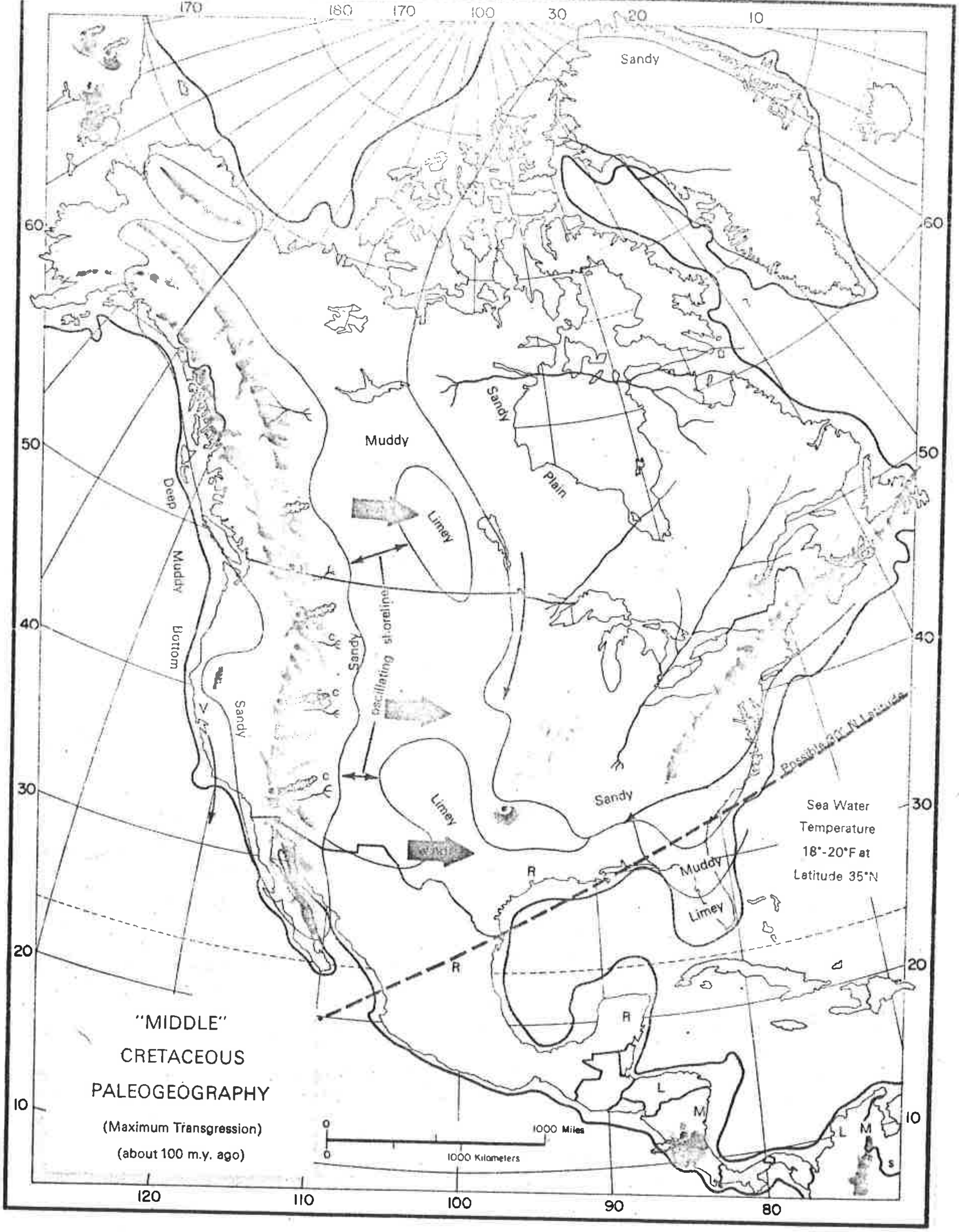

170
160
150
100
30
20
10
60
50
40
30
20
10
120
110
100
90
80
Shallow
Muddy
Bottom
Bottom
Sandy
CASSIAR
MTS
Red
Sandy
Sandy
Alluvial
Plain
Limey
Bottom
Muddy
E
Sandy
E
Possible Equator
Muddy Plain
EARLY
TRIASSIC
PALEOGEOGRAPHY
(about 210 m.y. ago)
0
1000 Miles
0
1000 Kilometers


170
180
170
100
30
20
10
60
50
40
30
20
10
120
110
100
90
80
Shallow
Muddy
Bottom
Sandy
Limey
Deep
Troughs
and
Shallow
Limey
Banks
Sandy
Red
Sandy
Alluvial
Plain
Muddy
Bottom
Block Faulted Basins and Ranges
Possible Equator
E
E?
R
LATE
TRIASSIC
PALEOGEOGRAPHY
(about 190 m.y. ago)
0
1000 Miles
0
1000 Kilometers

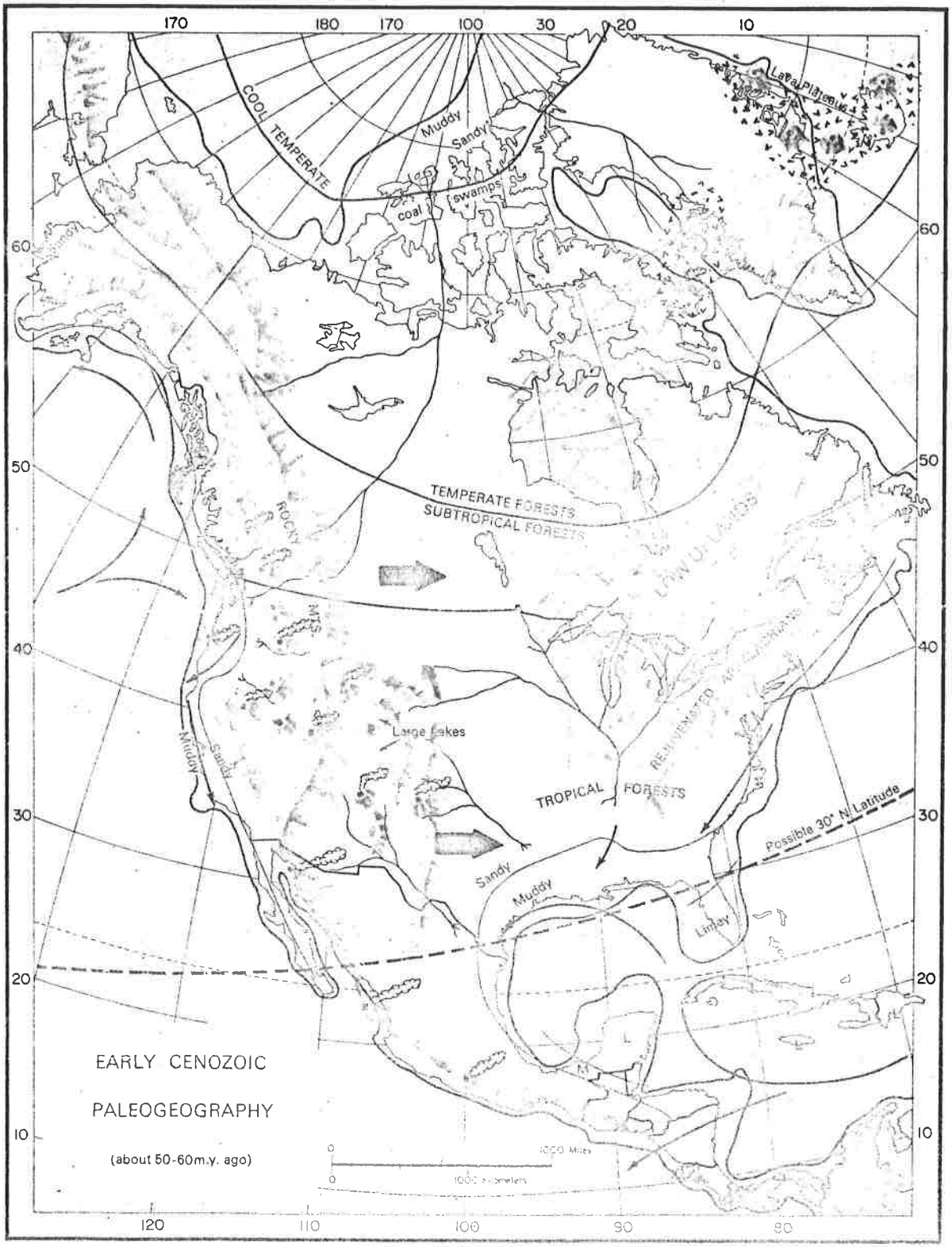

170
180
170
100
30
20
10
60
50
40
30
20
10
120
110
100
90
80
Sandy
Muddy
Sandy Plain
UPLANDS
LOW
Limey
Coastal Dunes
Muddy
E ?
Possible Equator
coal
EARLY
JURASSIC
PALEOGEOGRAPHY
(about 175 m.y. ago)
0
1000 Miles
0
1000 Kilometers


170
180
170
100
30
120
10
60
50
40
30
20
10
120
110
100
90
80
Muddy Bottom
Sandy Bottom
Sandy
Sandy
Plain
Sandy
Sand
Limey
L
Troughs and Straits
Muddy
Limey
Limey
E
E
Sandy
Shoal
Limey
Evaporites
Limey
Limey Bottom
Possible Equator
0
1000 Miles
0
1000 Kilometers
LATE
JURASSIC
PALEOGEOGRAPHY
(about 145 m.y. ago)


170
180
170
100
30
20
10
60
50
40
30
20
10
120
110
100
90
80
Shoal
Muddy
LOW
UPLANDS
Very
Irregular
Bottom
CORDILLERAN
MTS.
Sandy
Plain
Sandy
Gravel
Wind
Low
Hills
Possible 30° N Latitude
Sandy
Muddy
Limey
EARLY
CRETACEOUS
PALEOGEOGRAPHY
(about 120 m.y. ago)
0
1000 Miles



"MIDDLE"
CRETACEOUS
PALEOGEOGRAPHY
(Maximum Transgression)
(about 100 m.y. ago)


170
180
170
100
30
20
10
60
50
40
30
20
10
120
110
100
90
80
COOL TEMPERATE
Muddy
Sandy
swamps
coal
Laval Plateau
TEMPERATE FORESTS
SUBTROPICAL FORESTS
ROCKY MTS.
Large Lakes
Muddy
Sandy
TROPICAL FORESTS
Possible 30° N. Latitude
Sandy
Muddy
Linley
EARLY CENOZOIC
PALEOGEOGRAPHY
(about 50-60m.y. ago)
0
1000 Miles
0
1000 Kilometers

For North America the 'movement' of the Equator is systematic. If we look at other continents, we see the same, a systematic movement. Using the current orientation of the continents and looking at the same age rocks in each continent, we see that there seems to be several magnetic north poles. If the magnetic pole is created because of the Earth rotating on its axis, then there must be several rotational poles and thus the Earth is rotating several directions at once. You thought TTU class registration was difficult!

If you put two continents together and look at the paleomagnetic data of the same age rocks should be the same (have the same north pole). If you put two continents together and look at the paleomagnetic date of the same age rocks and the data indicates two different north poles, then the continents have split.

Northern continents—split in Permo-Triassic

Gulf of Mexico---opened in Jurassic-Cretaceous

South Africa-Antarctica—split in Triassic-Jurassic

Indian and Atlantic Oceans---opened Mid-Cretaceous

Australia and Antarctica---split about 40 to 50 mya (during the Eocene Epoch)