Australia, fault traps, marginal basins, eocene — lower cretaceous
Adriatic sea, pliocene gliding
Mesozoic exploration
W Africa, continental slope, salt formation, lower cretaceous
Egypt, cratonic fault traps, lower cretaceous-lower tertiary
Andes foreland, classical folding-strat. traps, cretaceous
Palaeozoic exploration
North sea, cratonic undulations and tertiary basins
Alaska, deep seated foreland structures, devonian

2.3. USSR situation
developement of production
1946: oil 21.7 mill/T, gas 4 mrd m^3
1968: oil 300 mill/T, gas 198 mrd m^3
development of production regions
classical Baku, 1870/1920, 97% of total production
Tertiary/Mesozoic Structures, exploration continues
"second" Baku since 1930, west Ural-Volga region
1968 180 mill. T/y
carboniferous basins, all types of structures
biggest oil province, abt 500 fields
"third" Baku since 1965, western Sibiria
lower cretaceous to lower tertiary basin,
sedimentary thickness 2—7 km.
production 1970 30 Mill. T, estimate 1980 230 Mill. T
other major exploration-production provinces
Timan-Pechora, Palaeozoic, 33 fields in operation
Caspi-Taschkent, mesozoic gas province
Pre Caspi depression (N of lake Caspi)
deepest part of european platform, 15—19 km. sediment
salt structures
Baku-Turkmenistan, permian to pliocene structures
marine exploration

Prof. Dr. H. Küpper

Outline of the Sea Floor Geology as per 1970

part one: continental shelf and continental slope

1.1. marine geology, not oceanography
replacing old theories: permanence of oceans, C. Diener, 1890
continental drift, A. Wegener, 1920

1.2. general setting:
coastal plain

continental shelf
continental slope
• 200 m depth line accepted as boundary at UN conference 1958

from continental shelf 17% of world oil production
6% of world gas production

1.3. examples of offshore successes:

old: Baku, Maracaibo, Louisiana, Persian gulf

modern: North Sea, Nigeria, Adriatic sea, Australia
New Sealand, Australasia

part two: deep sea

2.1. historical-technical developement

until 1950 results from old time dredging
results from refraction profiles
"sediments under oceans must be thin"

1964/65 first drilling vessel after mohole failure

1967/71 Glomar Challenger, first cruise 11. 8. 68.
per 1. 12. 70. 230 holes at 144 sites
58,000 m. drilling
10,000 m. core recovery
deepest water 6140 m.
deepest penetration 985 m.

Gl. Ch. staff: 2 co-chiefs, 4 sedimentologists, 4 palaeontologists, 10 technicians plus crew
cores 6.25 cm. diam, 9 m. length

2.2. outline of features:

	ocean	continent
crust	basic, 6—8 km.	acidic, 35 km.
age	young, 155 mill. y (Jur. limst.)	old, 3.5 bill. y
lithology	thin sediment on basic rocks	complex, sediments, igneous, metamorphic rocks
structure	simple, mid ocean ridges abyssal plains	complex, geosynclines, shields platforms

2.3. mineral resources: unique province-ultra basic ore deposits

primary ore deposits mid ocean, indian ocean Cr, Pt, Ni, Co,
surficial deposits glauconite, manganese, phosphorite/placer
hydrothermal deposits rift zones, Fe, Mn, Sn, Pb, Co,

generally hostile for petroleum and salt formation
except in extension of continental conditions
f. i. Challenger Knoll, 3572 m. oil, gas, Gulf of Mexico

2.4. theoretical framework
central oceanic ridges — mid ocean belts
high temperature convection
earthquake zone on axis
tensional features
thin earth crust
lower density mantle material, peridotite → serpentinite
zones of magnetic orientation parallel to axis
outward spreading 1—10 cm./year
E. L. Gealy 1971/p. 5
"data gathered by the Joides Deep Sea Drilling Project strongly support the theory of crustal accretion along mid-ocean ridges and of lateral spreading of the seafloor away from the ridges. Sediments immediately above basalt basement are younger over the crest of the mid-ocean ridges and, with minor exceptions, are progressively older away from the ridges crests in both the Atlantic and Pacific Oceans."

References

E. L. Gealy: Results of the Joides Deep Sea Drilling Project 1968/71. World Petr. Congrs Moscow 1971, Spec. Paper No. 1.
F. J. Vine (1971): Sea Floor Spreading Understanding the Earth, p. 233, The Artemis Press, Sussex.

Doz. Dr. H. K. Mostler, University Innsbruck

Conodonts of the Triassic

Triassic conodonts were neglected for a long time mainly because the general opinion was that they could not be used for stratigraphic purposes. In 1958 R. Huckriede issued a monograph on the conodonts of the Triassic, discussing at the same time their stratigraphic value by means of a table of distribution and also pointing to their comparatively lesser value for stratigraphy. As a result the interest in Triassic conodonts slackened down.

Intensified research on Triassic sediments, however, beginning some 5 years ago, showed that an exact study of conodont faunes could well be used for a stratigraphic subdivision of the Triassic.

The Lower Triassic (Skythian) to start with, can be subdivided into 3—4 "zones" (Staesche, 1964). W. C. Sweet's attempted subdivision into 9 zones derived from the study of the Salt Range sediments cannot be supported by the author's own investigations (samples from the Himalaya). A subdivision of the Skythian into 4 zones remains acceptable.