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Additional Abstracts

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Chattanooga Shale in Tennessee—Resource Evaluation

At the time of its deposition during the Devonian Period, the Chattanooga Shale apparently covered all of Tennessee west of the Unaka Mountains except for two small areas. Erosion has removed the shale from west Tennessee, most of the Central Basin, and most of the Valley and Ridge. Folding and faulting further obscure its distribution in the Valley and Ridge. Five cores from a seven-county Eastern Highland Rim area were analyzed for shale thicknesses, organic elements, mineralogy, major inorganic elements, trace elements, and Modified Fischer Assay. Analyses indicate that in the initial study area, the Putnam-NW White County area is the best potential mine-plant site. Six additional cores were taken in this restricted area and analyzed as before. These data were also compared with similar data from an east Tennessee Chattanooga Shale core. One square mile of Chattanooga Shale in the restricted study area contains 14.4 x 10^6 bbl of oil—11.5 x 10^6 bbl from the Gassaway member and 2.9 x 10^6 bbl from the Dowelltown member using normal retorting methods. Topography, nature and depth of overburden, other geologic conditions, and environmental considerations almost dictate underground mining. Underground methods give approximately 50% resource recovery. Hydrogen retorting should increase the oil yield by a factor of two. Although the east Tennessee section is 21 times thicker than the Eastern Highland River section, it is much leaner as far as extractable materials and is thus eliminated as an oil source. Organic analyses indicate potential carcinogenic materials present. Oil samples derived from the cores darken upon standing for a few weeks. This aging may cause problems during storage.

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First Record of *Palaeacis* Haime 1857 from Western Canada

A single elongage and structurally advanced specimen of the rare and problematical supposedly tabulate coral genus *Palaeacis* Haime, 1857, in Milne-Edwards, 1860, emended Conkin, Bratcher, and Conkin, 1976, was collected in 1980 by H. J. Negrich (submitted by M. Wilson) from the Kananaskis Valley, Alberta, in beds high in the Mississippian Rundle Group.

The taxonomic status of *Palaeacis* is problematical, as it lacks septa and tabulae, and has a porous sponge-like wall rarely found in coelenterates, although the alternating biserial arrangement of 18 calyces appears coral-like. The origin of interwoven submicroscopic fibers lining the calyces is unknown. The recorded species, *P. bifida* (Kinderhookian and Osage), *P. cavernosa, P. obtusa* (Osage), *P. cuneiformis* (Meramecian), *P. carinata* (Chesterian). *P. walcotti, P. testata,* and *P. kingi* (Pennsylvanian), may demonstrate restricted stratigraphic ranges, although symbiotic and sedimentological controls may also be involved, *Palaeacis* has been recorded from the Carboniferous of the British Isles, Morocco, Soviet Union, United States, Australia, and from the Permian of Timor.

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Geological and Chemical Conditions for Formation of Large Nonmarine Oil Field

Taking Daqing oil field in the Songliao sedimentary basin as an example, the geological and geochemical conditions for the formation of a large nonmarine oil field and the factors controlling its formation are presented.

On the basis of the features in the source-reservoir framework of the horseshoe (the semi-ringlike) source area with a huge deltaic complex wedged into it, the paper also analyzes the significance in the formation of a large nonmarine oil field, due to the ideal combination of the source-reservoir-cap rocks formed with the excellent shale-sand ratio and the stable regional caps, as well as the favorable reservoir spaces set by the large complex deltaic sands and the large placanticline structure belts.

On the basis of the regularities of the generation, migration, and accumulation of nonmarine oil and gas, in the author's opinion, the formation of Daqing oil field is characterized by the following.

1. Around the field, there is a highly effective source rock not very large in volume.
2. The reservoir rocks are interbedded with the source rocks. Vertically, both rocks are largely contacted, laterally they are interfingered. The expulsion efficiency and the probabilities of oil-entrapment are high.
3. On the south, the oil was generated and was preserved there.
4. In the northern part, the lateral short-distance migration dominates.
5. Within the field, no large-scale oil migration ever occurred in a south-north direction. The oil-gas accumulation is controlled by the dynamic system of the subsurface water. The differences between the formation pressure and the saturation pressure resulted in oil and gas segregation.

On the basis of the ratio of the reservoir area to the source area, it is concluded that it is not necessary for the large nonmarine oil field to be formed to have long distance large-scale source rocks as in the case of a marine oil field.

The formation and development of the Daqing placanticline are discussed in detail. By combining the relation of the time and space for oil and gas generation, migration, and accumulation into the development history of geological structures, it is considered that the favorable coordination between the time during which oil was generated, migrated, and accumulated and the time when the structure was formed, is the basis for the formation of the Daqing oil field.

NON-STATIONARY GEOSTATISTICS SHORT COURSE

The Centre de Geostatistique et de Morphologie Mathematique of the Ecole Nationale Superieure des Mines de Paris will present a short course on non-stationary geostatistics, with applications to cartography and petroleum industry. The course will be given in English, September 13-17, 1982, at the Centre de Geostatistique, Fontainebleau, France.

Topics will include: short review of stationary methods widely used in the mining industry; universal kriging (U.K.); theory of k-IRF; kriging analysis of regionalized data. Domains of use: geophysics, petroleum industry, meteorology, cartography, hydrogeology, etc.

Registration fee: $600. Further details are available from Alain Galli, Centre de Geostatistique, 35, Rue Saint-Honore,

77305 Fontainebleau, France. Telephone: 422. 48.21. Telex: Minefon 600736 F.

ERRATA

AAPG *Bull.,* v. 66, no. 3 (March 1982), "New Upper Paleozoic and Lower Mesozoic Stratigraphic Units, Central and Western Brooks Range, Alaska," by C. G. Mull, I. L. Tailleur, C. F. Mayfield, Inyo Ellersieck, and S. Curtis, p. 360, second column, under "Age":

(1) in both paragraphs, pectanacid should be pectinacid.

(2) in second paragraph, *Monotis (Eomonotis) ochotica pachypleura* should be *Monotis (Entomonotis) ochotica pachypleura; Monotis (Eomonotis) ochotica ochotica* should be *Monotis (Entomonotis) ochotica ochotica;* and *Monotis (Entomonotis) typica* should be *Monotis (Eomonotis) typica.*

AAPG *Bull.,* v. 66, no. 3 (March 1982), "Effects of Oil and Gas Accumulation on Water Movement," by Richard E. Chapman, p. 368, 3rd line from bottom of Abstract: *mm* should be *nm* (nanometer).