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(Mark D. Wilson, Willard R. Green, W. J. Turney)
- Moore, Richard Vernon, Billings, Mont.
(Wallace E. Lumb, Marvin A. Heany, Max W. Dix)
- Morrison, John Augustus, Durango, Colo.
(Robert R. Smart, L. J. Wanek, John P. Lockridge)
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(Richard R. Priddy, Paul H. Dunn, Tracy W. Lusk)
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(Solon W. Stone, L. T. Hart, H. M. Buchner)
- Rowlinson, Norman Richard, Bogota, Colombia, S. A.
(W. C. Hatfield, C. T. Spalding, Dan Bozanic)
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(John Reid Black, G. R. Pierce, Hugh B. Patrick)
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(George N. Mueller, Edward E. Pugh, Jr.,
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- Scott, Ralph La Moyne, Wichita, Kan.
(J. K. Wetherill, David E. Reed, Stanley D. Smith)
- Strunk, Paul Milton, Corpus Christi, Tex.
(Henry V. Beck, Charles P. Walter,
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(John J. Gill, Richard C. Linden, Dick Teel)
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ROCKY MOUNTAIN SECTION ANNUAL MEETING, BILLINGS, MONTANA, FEBRUARY 7-10

ABSTRACTS

ALLEN F. AGNEW and JOHN PAUL GRIES, South Dakota State Geological Survey, Vermillion, S. D., and South Dakota School of Mines and Technology, Rapid City, South Dakota
South Dakota Oil—Past, Present, and Future

Of the approximately 350 oil and gas tests drilled in South Dakota before July 1, 1959, only 56 per cent reached the Pennsylvanian rocks. Less than 17 per cent of the total penetrated all of the formations and thus reached the Precambrian.

Twenty-two per cent of all holes reported shows of oil or gas; however, in the Williston Basin area and its fringes, the percentage of shows has been twice as great.

The Buffalo field in the southwestern part of the Williston Basin is experiencing a boom, with 12 holes completed as producers in the Ordovician Red River dolomite at a depth of approximately 8,500 feet, in the six months between May 20, 1959, and November 20, 1959. Daily production is more than 1,500 bbl. oil, with a small amount of gas. The only other oil production in the state is from the Pennsylvanian Leo sands at a depth of 1,400 feet in a well in the southern Black Hills.

Future exploration will be directed toward stratigraphic-structural traps in the Williston Basin portion of South Dakota, where increased activity is expected in 1960. The oil possibilities of the Cretaceous, Jurassic, and Pennsylvanian sands merit further systematic work. The Kennedy Basin area will probably be tested by wildcaters who are attempting to corroborate the Pennsylvanian shows in nearby parts of Nebraska, as will the Forest City Basin in the extreme southeastern corner of the state.

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Crisis in the Earth Sciences. Legal or Self-Regulation?

The earth sciences need some system of regulation and accreditation. Such action will not *immediately* provide one more job; nor will it raise our stature or increase our income at once. Our chief concern is how this regula-

tion should be accomplished. Hence, the AGI Committee for Study of Professional Standards. AGI is the only *vehicle* which can represent all branches of earth science and through which a profession-wide study can be made! The Committee *is not constituted to force legal regulation or accreditation* on either the profession or colleges and universities.

It is proposed to reorganize AGI as the one and only *professional* organization; a federation representing all earth scientists and their scientific organizations. Within this new federation, creation of a "Professional Institute" for self-regulation and accreditation is proposed. Far more stringent professional requirements can be made than can be written into any acceptable law. Surveys indicate industry supports and individually rewards real attempts to raise professional standards and competence. Self-regulation is a step in the right direction, but *may or may not* take the place of legal regulation. Only those of us in the profession can decide how we want it regulated.

FRED A. F. BERRY, Petroleum Research Corporation, Denver, Colorado
Geologic Field Evidence Suggesting Membrane Properties of Shales

Some anomalous pressure and salinity data observed within oil- and water-bearing reservoir rocks can not be explained by prior theories in hydrodynamics and geochemistry. Laboratory evidence has shown that compacted clay minerals act as semipermeable membranes and thereby exhibit osmotic-pressure and salt-filtration effects. Osmotically induced pressure and salt filtering occur in reservoir rocks adjacent to shales presumably serving as semipermeable membranes. Osmotic conditions might result from differences across a shale of salt concentration. Pressure would tend to increase in the reservoir rock on the emergent side of the shale membrane and decrease on the influx side under osmotic conditions. Cross-formational flow through a shale membrane may also cause salt filtering and thereby increase the salinity on the influx side of the membrane.