

Tectonics and Sedimentation

Paul E. Schenk

Volume 2, numéro 4, novembre 1975

URI : https://id.erudit.org/iderudit/geocan2_4br05

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Éditeur(s)

The Geological Association of Canada

ISSN

0315-0941 (imprimé)

1911-4850 (numérique)

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Citer ce compte rendu

Schenk, P. E. (1975). Compte rendu de [Tectonics and Sedimentation]. *Geoscience Canada*, 2(4), 226–226.

Tectonics and Sedimentation

Edited by William R. Dickinson
*Society of Economic Paleontologists
 and Mineralogists*
Special Publication No. 22, 204 p. 1974.
 AAPG, SEPM members \$9.00;
 Non-members \$11.00.

Reviewed by Paul E. Schenk
*Department of Geology
 Dalhousie University
 Halifax, Nova Scotia*

Buy this book! Bill Dickinson selected eight regional summaries from a 1973 Amer. Assoc. Petroleum Geologist symposium. He tried to present plate-tectonic applications based on rock, rather than those based on paper which characterize early stages of the "revolution".

Dickinson's excellent review/overview suggests terminology useful under the new theory. Especially worthwhile is his provoking summary of basin evolution.

To an Appalachian geologist, the next three papers give a convincing, lucid, well-illustrated, evolution of the American West during the Paleozoic. Outstanding is Stewart and Poole's account of the Late Precambrian to Late Devonian, passive continental margin. Poole then introduces the mammoth Antler flysch (Late Devonian through Mississippian) that apparently runs from Mexico into the Yukon. Bissell dries out the miogeocline with late Paleozoic - early Mesozoic basin-fill.

Cratons the world over are gloriously assaulted by Sloss and Speed. Sequences are up-dated, complicated, and hooked to plate tectonics. Inflation and subsequent voiding of sub-cratonic, hot-fluid, bladders cause alternate emergence and flooding of continents - so much for phlegmatic cratons! I like this paper!

Bob Morris attempts a plate-tectonic reconstruction for the Ouachita fold belt based on a wealth of data. He even discovers Llandoria!

The next two papers try analyzing debris (molasse) from mountains to read the tectonic activity of these sources. Eisbacher, Carrigy, and Campbell take on the Mesozoic and Cenozoic of the entire Canadian Cordillera, whereas

Anderson and Picard plunge into sedimentologic detail of the latest Eocene in the Uinta basin of Utah. Both papers differentiate drainage patterns and find two episodes of tectonic uplift.

Finally, John Crowell builds deep basin by dominantly horizontal slip along sinusoidal and rectilinear faults of the California transform zone. Because Nouveau Maroc (Nouvelle Ecosse) has the Paleozoic San Andreas, Crowell's models illuminate in our fog!

We should congratulate Bill Dickinson on his collection, editing and idealism. In these days, the extensive references alone are worth the price.

MS received August 25, 1975.

Plate Tectonics - Assessments and Reassessments

Edited by Charles F. Kahle
American Association of Petroleum Geologists, Memoir 23, 514 p. 1974.
 AAPG and SEPM Members \$32.00,
 Others \$40.00.

Reviewed by H. A. K. Charlesworth
*Department of Geology
 University of Alberta
 Edmonton, Alberta T6G 2E1*

Although aware of the dangers of preconceived ideas, most geoscientists probably maintain that without a conceptual framework their studies are likely to become routine and unproductive. Probably, therefore, few regret the general acceptance of the principle of plate tectonics whose value in the past decade has been inestimable. The objective of this *Memoir*, which stems from the symposium "Seafloor spreading - some different viewpoints" held at Bowling Green University in 1971, is to displace the principle from its position of supremacy and reduce it to being but one of several working hypotheses.

The first introductory paper, transcribed by A. A. Meyerhoff from a tape-recording of an "unscripted and over-illustrated talk" by P. J. Wyllie, is incomplete, in the second, G. A. Davis and others attempt to show that geologists have known about plate tectonics for decades. Of the 13 major papers opposing the principle of plate tectonics, the three most passionate, making up a quarter of the *Memoir*, are by A. A. and H. A. Meyerhoff who assemble data galore to claim - 1) all plate tectonic models contain serious errors, 2) the linear magnetic anomalies of ocean basins are Precambrian (*sic*), 3) most of the Atlantic Ocean north of latitude 62°N is underlain by continental crust. J. C. Maxwell lists 35 observations and features apparently not predicted by the principle of plate tectonics. Two papers by P. S. Wesson examine some problems concerning mechanisms of plate movement. One conclusion, "accept seafloor spreading, but not relative movement of the continents" will please supporters of an expanding earth; another, "plate tectonics and