

Microfossils in the Early Years of Plains Exploration

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In the 19th century, G.M. Dawson (1875) and J.B. Tyrrell (1891) of the Geological Survey of Canada recorded Cretaceous microfossils in southwestern Manitoba from outcrops in Pembina Mountain and from a water well at Deloraine. Tyrrell's Deloraine samples, stored in antique pill boxes, are curated at GSC Calgary and are possibly the oldest set of well samples from western Canada. In 1927, Dr. J.A. Cushman of Harvard University published a paper on Cretaceous foraminifera from nine wells in Western Canada indicating the presence of zones, "which may be used for stratigraphic correlation when more is known about the details of vertical ranges and distribution." In 1930, Dr. R.T.D. Wickenden, a graduate student of Cushman's, was appointed micropaleontologist to the Geological Survey of Canada and foraminifera were used to correlate Jurassic and Cretaceous strata. Thus Cushman's prediction was fulfilled, and Wickenden became the pioneer of Canadian foraminiferal studies.

Prior to the introduction of electric logging techniques in 1945, microfossils were instrumental in the exploration of western Canada. In 1939, Imperial Oil Limited began an exploration program in southern Saskatchewan where Dr. J.C. Sproule used microfossil horizons for correlating shallow core holes to compile structural maps. Similarly, Dr. A.W. Nauss (1941-1942) utilized microfossils for correlating Imperial Oil test holes in the Vermilion area of east-central Alberta. In 1945-1946, microfossils were also used in the adjoining Wainwright-Hardisty area in conjunction with primitive electrologs for correlation. With the rapid improvement of logging techniques, however, microfossils were soon largely supplanted in slim-hole exploration.