

ABSTRACT OF TALK ON PHOTOGEOLOGY

presented at luncheon of A.S.P.G.

by VICTOR MILLER

January 14, 1953

Photogeology combines two branches of geology - geomorphology and structural geology - into a unique approach to the solution of exploration problems. It is not a hit-or-miss proposition whose reliability must always be questioned; neither is it a cure-all which is not subject to field check. Usually, when applied intelligently it supplies much valuable structural and stratigraphic information rapidly and economically.

Photogeologic procedures vary, depending primarily on the following independent factors: Topography, vegetation, climate, and geologic province. Also, the availability of reliable geologic information, such as published maps, stratigraphic studies, papers, and the like, has a pronounced effect on the refinement which can be attained in any given photogeologic study.

In the Allegheny Plateaus of the United States despite widespread forest cover and very low dip, the coordination of geomorphology and excellent U.S.G.S. topographic maps permits determination of sufficient spot elevations along structural benches to afford control for structure contouring. In the Gulf Coast areas, where extensive Pleistocene terrace deposits blanket generally poorly-consolidated Tertiary sediments, dip estimation is virtually impossible, but detailed stream analysis and again the application of other geomorphic principles permit the delineation of local anomalies associated with salt domes and faults.

In much of the U.S. Rocky Mountain area published maps and well-known stratigraphic sections are especially valuable in the identification of beds and the mapping of detailed structure. In such areas one must be psychologically aware of the tendency, followed by some, to let his "interpretation" be guided largely by what published material dictates to be the geologic situation. The purpose of photogeology is to discover the unknown as well as to confirm the known.

In Canada photogeology must solve two vastly different problems: the frequently complex structure of the Foothills, and the glaciated expanses of the Plains. It can generally be said that in neither is the photogeologist aided by abundant published material. In the Foothills, where vegetation is far less a hindrance than one might at first expect, structure is boldly expressed and with little exception can be accurately mapped. In the Plains one must call upon all the training, experience, and imagination at his command. Rapid but intelligent study of the Plains, preferably on a regional basis, is suggested as the best approach to this challenging problem.

When carried out by trained and competent experts, photogeology has much to offer Canadian exploration, but it must be understood by all before its full value can be appreciated and correctly applied.