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D.H. McIntyre and F. Foster

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PRE-TERTIARY VOLCANIC ROCKS IN CENTRAL IDAHO—A REAPPRAISAL

D. H. MC INTYRE, *U.S. Geological Survey, Denver, CO 80225*
FESS FOSTER, *University of Montana, Missoula, MT 59807*

McIntyre and others (1978) proposed that pre-Tertiary volcanic rocks, possibly of Cretaceous age, may be present in central Idaho. McIntyre concluded that the volcanic rocks exposed near Mt. Jordan in Custer County were intruded by quartz monzonite dated at about 74 m.y., indicating that the volcanic rocks were pre-Tertiary. McIntyre and others (1978) also suggested that broadly similar rocks locally present elsewhere in central Idaho might also be pre-Tertiary.

Detailed mapping by Foster at Mt. Jordan and toward the north during the summer of 1980 shows that McIntyre and others incorrectly interpreted the relationships there. The contact of volcanic rocks and Cretaceous quartz monzonite, previously interpreted as an intrusive contact, is now shown to be a complex fault zone. In addition, the volcanic rocks locally are invaded by an intrusive complex whose rocks resemble those known to be of Tertiary age elsewhere in the region. The pervasive alteration of the volcanic rocks in the Mt. Jordan area most probably is caused by the Tertiary intrusive complex.

The isotope data for the quartz monzonite sample reported in McIntyre and others (1978) are compatible with this revised view. The K-Ar and Rb-Sr results were concordant at about 74 m.y. The fission-track determinations on minerals from the same sample indicate a later heating event that ended about 40 m.y. ago. This reheating of the quartz monzonite may have been caused by the emplacement of the Tertiary intrusive complex.

McIntyre and others (1978) suggested that some of the volcanic rocks in the vicinity of Meyers Cove, 45 km northeast of Mt. Jordan, might also be of pre-Tertiary age. Field work in that region by E. B. Ekren in 1979 and 1980 (oral commun., 1980) has shown that these altered rocks, which occupy a deep volcano-tectonic depression, have equivalents outside the depression in volcanic rocks of known Tertiary age. However, Ekren also has found near the headwaters of Morgan Creek felsitic lavas rich in potash feldspar that have no counterpart in the Tertiary volcanic sequence of the area. The age of these peculiar rocks is, at present, unknown.

In summary, the relationships near Mt. Jordan are not evidence for the occurrence of pre-Tertiary volcanic rocks in that area and cast doubt on the proposition that similar rocks elsewhere in the region are pre-Tertiary. Certainly, those in the Meyers Cove area are not. Therefore, it seems appropriate that the concept of widespread pre-Tertiary volcanic rocks in central Idaho, buried and presumed dead by Cater and others (1973), but exhumed and briefly resuscitated by McIntyre and others (1978), should once more be laid to rest.

REFERENCES

Cater, F. W., and others (1973) Mineral resources of the Idaho Primitive Area and vicinity, Idaho: U.S. Geol. Survey Bull. 1304.

McIntyre, D. H., Marvin, R. F., Mehnert, H. H., Naeser, C. W., and Futa, K. (1978) Pre-Tertiary volcanics in central Idaho: Isochron/West, no. 23, p. 29.