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Potassium-argon dates, Socorro and Sierra counties, New Mexico

W. H. Burke, G. S. Kenny, J. B. Otto, and W. H. Burke
1963, pp. 224. https://doi.org/10.56577/FFC-14.224

in:

Socorro Region, Kuellmer, F. J.; [ed.], New Mexico Geological Society 14 th Annual Fall Field Conference Guidebook, 204 p. https://doi.org/10.56577/FFC-14

This is one of many related papers that were included in the 1963 NMGS Fall Field Conference Guidebook.

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POTASSIUM-ARGON DATES, SOCORRO AND SIERRA COUNTIES, NEW MEXICO

W. H. BURKE, G. S. KENNY, J. B. OTTO, and R. D. WALKER

Socony Mobil Oil Company, Inc., Field Research Laboratory, Dallas, Texas

Potassium-argon dates were measured on five samples collected by R. W. Foster, F. E. Kottlowski, and R. H. Weber from the general vicinity of the Rio Grande Valley in Socorro and Sierra counties, New Mexico.

#187—A vitric crystal tuff from the Hell's Mesa Member of the Datil Formation. Sample location is SE¼, Sec. 7, T. 1 N., R. 8 W. (Foster)

#188—A trachy-andesite from the highest point of Socorro Peak in SW¼, Sec. 5, T. 3 S., R. 1 W. (Foster)

#190—A massive rhyolitic tuff-breccia from the Thurman Formation. This sample is from the Apache Valley in the southwestern Caballo Mountains. (Kottlowski's 392-632)

#191—A semiwelded rhyolite tuff which probably represents the basal unit of the Hell's Mesa Member of the Datil Volcanic series. Sample location is the south side of Canyon of Arroyo Los Alamos, 3500 feet WNW of Los Alamos Spring, La Joya quadrangle. (Weber's 249C-SR-1)

#192—A latite tuff boulder in a tuffaceous matrix from the upper part of the Spears Member of the Datil Formation between the Baca Formation and sample 191. Location is 2700 feet east of Los Alamos Spring, La Joya quadrangle.

The results of the K-Ar measurements are given in the following table. The laboratory measurements are believed to be accurate to ± 1.5 million years.

Sample No.	*Mineral*	*Measured Age (m. y.)*	*Average Age (m. y.)*	*Epoch*	*Formation Name or Description*
187	B	31.9	32.1	Oligocene	Hell's Mesa Memb.
	B	32.3			of Datil Fm.
188	W	10.6	10.7	Pliocene	Trachy-andesite
	W	10.8			of Socorro Peak
190	B	33.2	33.6	Oligocene	Thurman Fm.
	B	33.9			of Caballo Mts.
191	B	32.2	32.4	Oligocene	Hell's Mesa Memb.
	B	32.6			of Datil Fm.
192	B	36.5	37.1	Upper Eocene-	Spears Memb.
	B	37.7		Oligocene	of Datil Fm.
	W	31.8			
	W	31.9			

B—Biotite measurement
W—Whole rock measurement

The discordance between the whole rock age and the biotite age of sample 192 is, in all likelihood, due to leakage of radiogenic argon from the whole rock sample. The 37.1 million years measured on the biotite is probably the true age. Since only a whole rock measurement was made on sample 188, the results given here represent a minimum age. However, the sample is probably no older than late Miocene. The assignment of Epoch is in accordance with the geologic time scale outlined by J. L. Kulp (1961, Science, v. 133, no. 3459, p. 1105-1114).