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K-AR DATING OF SNAKE RIVER PLAIN (IDAHO) VOLCANIC ROCKS—NEW RESULTS

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In this paper we report the results of three dating studies completed in the years 1972 to 1975 that created new K-Ar dates for Snake River Plain volcanic rocks. Armstrong and others (1975) discuss the stratigraphic framework and its calibration with a large number of K-Ar dates. Additional work was undertaken in the eastern Snake River Plain to assist regional mapping projects of the U.S. Geological Survey under the overall supervision of S. S. Oriel. In addition, the inconsistencies encountered in dating basalts of the Idaho Group were pursued by recollection from critical units, and reanalysis of a few specimens analysed at Yale University in an Ar system at the University of British Columbia with lower atmospheric Ar blanks and higher bakeout temperatures. At the same time W. M. Neill had begun an investigation of siliceous volcanic rocks in the western Snake River Plain that included a number of K-Ar dates done in the U.S. Geological Survey lab in Menlo Park. It seemed most logical to combine these three studies into a single report. The new dates confirm the time-transgressive patterns previously recognized (as shown in Figure 1 slightly modified from Armstrong and others, 1975).

Analytical Techniques and Decay Constants

Similar analytical techniques are used at both U.B.C. and the U.S.G.S. Menlo Park laboratories: K is determined by atomic absorption at U.B.C. and flame photometer at Menlo Park and Ar by isotope dilution (using an AEI MS-10 mass spectrometer at U.B.C. and a Nier-type mass spectrometer at Menlo Park) with high purity ^{38}Ar spike. Errors reported are for one standard deviation. The constants used are:

$K\lambda_\epsilon = 0.581 \times 10^{-10} y^{-1}$, $K\lambda_\beta = 4.962 \times 10^{-10} y^{-1}$, $^{40}K/K = 0.01167$ atom percent.

IDAVADA VOLCANICS AND BANBURY BASALT

Thirteen K-Ar dates for feldspar separates from the Idavada Volcanics range from 14.2 and 13.5 m.y. for the lowest member of the formation near Poison Creek to 9.6 m.y. for the stratigraphically youngest units. Discussion of the stratigraphic relationships of most of these samples may be found in Neill (1975). The new dates, as shown on Figure 1, indicate a slightly wider time span of eruption than shown by Armstrong and others (1975).

The Banbury Basalt overlies Idavada Volcanics at many places in the western Snake River Plain. Armstrong and others reported a date of 13.8 ± 1.5 m.y. for Banbury Basalt in the Mount Bennett Hills. A new analysis of the same sample done at U.B.C. gives 8.1 ± 0.7 m.y. The weighted mean, 9.4 ± 0.6 m.y. is quite acceptable as an age for this Banbury Basalt that overlies Idavada dated 10.1 and 11.0 m.y. and encloses ash dated 10.2 m.y. by Evernden and others (1964). The age anomaly suspected by Armstrong and others (1975) does not exist.

1. *Jmp-1* K-Ar
Jump Creek Rhyolite (43°24'11"N, 116°52'21"W; Owyhee Co., ID; 200 ft E of milepost 14 on Hwy 95 at base of a 1500 ft thick rhyolite). *Rock*: Plagioclase >>sanidine>quartz≃hypersthene vitric lava of "Jump Creek Rhyolite" of Kittleman and others (1965). *Analytical data*: K_2O = 6.23%; $^*Ar^{40}$ = 1.002 x 10^{-10} moles/gm (70%ΣAr^{40}). *Collected by*: W. M. Neill, Stanford; *Dated by*: W. M. Neill, L. Schlocker, and E. H. McKee, U.S.G.S.
(sanidine) 11.1 ± 0.2 Ma

2. *Ryn-1* K-Ar
Idavada Volcanics (43°15'40"N, 116°42'38"W; Owyhee Co., ID; crest of Reynolds Road, Reynolds Creek area). *Rock*: 200 ft thick sanidine>quartz>plagioclase welded tuff, from "Northeast Summit" unit of McIntyre (1972). *Analytical data*: K_2O = 9.21%; $^*Ar^{40}$ = 1.522 x 10^{-10} moles/gm (44%ΣAr^{40}). *Collected by*: W. M. Neill, Stanford; *Dated by*: W. M. Neill, L. Schlocker, and E. H. McKee, U.S.G.S.
(sanidine) 11.4 ± 0.6 Ma

3. *Bn-A* K-Ar
Idavada Volcanics, Brown Creek member (42°57'34"N, 116°26'00"W; Owyhee Co., ID; Brown Creek locality). *Rock*: 200 ft thick, internally contorted, plagioclase <<quartz<sanidine vitric welded tuff. Lowest welded unit in local section, in next-to-top member of Idavada. *Analytical data*: K_2O = 7.85%; Ar^{40} = 1.244 x 10^{-10} moles/gm (38% Ar^{40}). *Collected by*: W. M. Neill, Stanford; *Dated by*: W. M. Neill, L. Schlocker, and E. H. McKee, U.S.G.S.
(sanidine) 11.0 ± 0.7 m.y.

4. *Ps-1* K-Ar
Idavada Volcanics, Poison Creek member (42°42'26"N, 116°21'25"W; Owyhee Co., ID; collected 3.5 mi SE of Poison Creek reference section). Stratigraphic positon not precisely known. *Analytical data*: K_2O = 7.86%; $^*Ar^{40}$ = 1.612 x 10^{-10} moles/gm (60%ΣAr^{40}). *Collected by*: W. M. Neill, Stanford; *Dated by*: W. M. Neill, L. Schlocker, and E. H. McKee, U.S.G.S.
(sanidine) 14.2 ± 0.4 m.y.

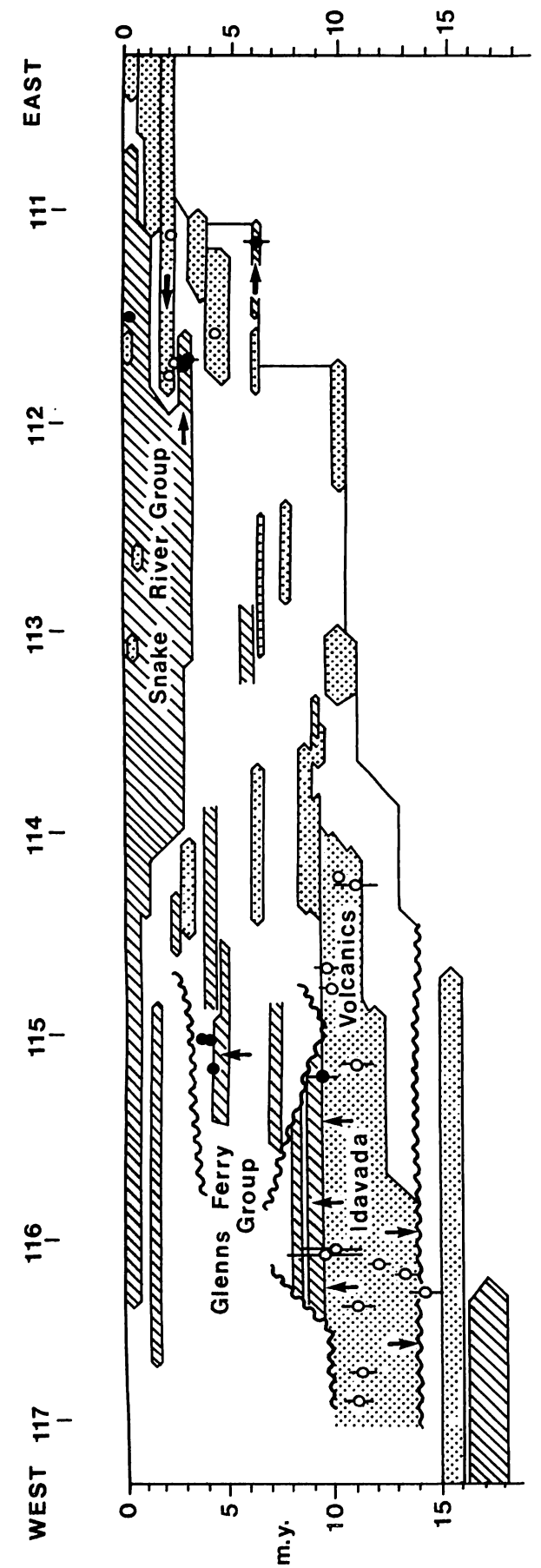

FIGURE 1. Space-time profile along the Snake River Plain, Idaho (simplified from Armstrong and others, 1975). New K-Ar dates are shown by black spots (for basalt) and open circles (for rhyolite). Unpatterned areas represent erosion intervals, sedimentary deposits, and minor volcanic units. Basalt formations are shaded with diagonal lines, rhyolite formations are stippled. The arrows highlight the changes caused by new information: expansion of the time span of eruption of Idavada Volcanics, shift of Glenns Ferry basalts to a younger date, and lateral extension of some units in the eastern Plain.

5. *Ps-A* K-Ar
Idavada Volcanics, Poison Creek member (42°44'12"N, 116°18'29"W; Owyhee Co., ID; Poison Creek section). *Rock*: quartz≈plagioclase<sanidine vitric-crystal welded tuff. Lowest welded unit in oldest member of Idavada. *Analytical data*: K_2O = 9.60%; $*Ar^{40}$ = 1.8675 x 10^{-10} moles/gm (75%ΣAr^{40}). *Collected by*: W. M. Neill, Stanford; *Dated by*: W. M. Neill, L. Schlocker, and E. H. McKee, U.S.G.S.
(sanidine) 13.5 ± 0.2 m.y.

6. *Ps-C* K-Ar
Idavada Volcanics, Poison Creek member (42°44'12"N, 116°18'02"W; Owyhee Co., ID; Poison Creek section). *Rock*: quartz≈plagioclase (an 31)<sanidine vitric-crystal welded tuff. Third welded unit above base of lowest member of Idavada. *Analytical data*: K_2O = 9.62%; $*Ar^{40}$ = 1.663 x 10^{-10} moles/gm (76%ΣAr^{40}). *Collected by*: W. M. Neill, Stanford; *Dated by*: W. M. Neill, L. Schlocker, and E. H. McKee, U.S.G.S.
(sanidine) 12.0 ± 0.2 m.y.

7. *Jk-4* K-Ar
Idavada Volcanics, Owyhee Plateau member (42°43'14"N, 116°07'05"W; Owyhee Co., ID; Little Jacks Creek Canyon). *Rock*: plagioclase (an 34)-bearing vitric welded tuff with <1% agutie/ferroaugite. At top of section in youngest member of Idavada. *Analytical data*: K_2O = 1.362, 1.369%; $*Ar^{40}$ = 0.1967 x 10^{-10} moles/gm (20%ΣAr^{40}). *Collected by*: W. M. Neill; *Dated by*: W. M. Neill, L. Schlocker, and E. H. McKee, U.S.G.S.
(plagioclase) 10.0 ± 1.5 m.y.

8. *Jk-B* K-Ar
Idavada Volcanics, Owyhee Plateau member (42°43'14"N, 116°07'05"W; Owyhee Co., ID; Little Jacks Creek Canyon). *Rock*: plagioclase (an 32)-bearing vitric welded tuff. Next to top of section in youngest member of Idavada. *Analytical data*: K_2O = 1.521, 1.525%; $*Ar^{40}$ = 0.2113 x 10^{-10} moles/gm (16% ΣAr^{40}). *Collected by*: W. M. Neill, Stanford; *Dated by*: W. M. Neill, L. Schlocker, and E. H. McKee, U.S.G.S.
(plagioclase) 9.6 ± 2.0 m.y.

9. *Ben-1* K-Ar
Idavada Volcanics (43°17'26"N, 115°11'38"W; Elmore Co., ID; N side of Mount Bennett Hills, 0.5 mi E of Hwy 68 at National Forest boundary marker). *Rock*: plagioclase-bearing vitric welded tuff. *Analytical data*: K_2O = 1.276%; $*Ar^{40}$ = 0.2023 x 10^{-10} moles/gm (42%ΣAr^{40}). *Collected by*: W. M. Neill, Stanford; *Dated by*: W. M. Neill, L. Schlocker, and E. H. McKee, U.S.G.S.
(plagioclase) 11.0 ± 0.6 Ma

10. *SF-1* K-Ar
Idavada Volcanics (42°11'04"N, 114°47'00"W; Twin Falls Co., ID; escarpment W of Salmon Falls Creek). *Rock*: plagioclase>>sanidine>quartz vitric welded tuff. Uppermost thick cooling unit, should nearly represent the youngest cooling unit in Cassia Mountain region. *Analytical data*: K_2O = 8.63%; $*Ar^{40}$ = 1.190 x 10^{-10} moles/gm (74%ΣAr^{40}). *Collected by*: W. M. Neill, Stanford; *Dated by*: W. M. Neill, L. Schlocker, and E. H. McKee, U.S.G.S.
(sanidine) 9.6 ± 0.2 m.y.

11. *W-194* K-Ar
Basal Idavada Volcanics (43°11'30"N, 114°39'00"W; Gooding Co., ID; eastern Mount Bennett Hills). "Lower welded tuff" of C. L. Smith. *Rock*: rhyolite ash-flow tuff vitrophyre with plagioclase>>aguite. *Analytical data*: K = 0.816%; $*Ar^{40}$ = 0.3225 x 10^{-6} cc/gm (66.7%ΣAr^{40}). *Collected by*: Paul Williams and Harry Covington, U.S.G.S.; *Dated by*: J. E. Harakal and R. L. Armstrong, U.B.C.
(plagioclase) 10.1 ± 0.3 m.y.

12. *Cas-6* K-Ar
Idavada Volcanics (42°24'11"N, 114°17'39"W; Twin Falls Co., ID; near mouth of Rock Creek Canyon, on E side, in Cassia Mountains). *Rock*: plagioclase>> quartz vitric welded tuff at top of section. *Analytical data*: K_2O = 0.870%; $*Ar^{40}$ = 0.1384 x 10^{-10} moles/gm (25%ΣAr^{40}). *Comment*: Date is inconsistent with its stratigraphic position above Cas-1. *Collected by*: W. M. Neill, Stanford; *Dated by*: W. M. Neill, L. Schlocker, and E. H. McKee, U.S.G.S.
(plagioclase) 11.0 ± 1.3 Ma

13. *Cas-1* K-Ar
Idavada Volcanics (42°20'36"N, 114°17'28"W; Twin Falls Co., ID; at base of the Rock Creek East Canyon wall, 1.3 mi N (by road) of the National Forest boundary, in Cassia Mountains). *Rock*: plagioclase>quartz ≈sanidine vitric-crystal welded tuff at base of section. *Analytical data*: K_2O = 9.46%; $*Ar^{40}$ = 1.381 x 10^{-10} moles/gm (81%ΣAr^{40}). *Collected by*: W. M. Neill, Stanford; *Dated by*: W. M. Neill, L. Schlocker, and E. H. McKee, U.S.G.S.
(sanidine) 10.1 ± 0.1 Ma

14. *SRP 70-11* K-Ar
Banbury basalt (43°07'20"N, 115°17'30"W). *Analytical data*: K = 0.297%; $*Ar^{40}$ = 0.0924 x 10^{-6} cc/gm (11.1%ΣAr^{40}). *Comment*: Previously reported: (Armstrong et al., 1975). Best estimate of age is approximately 9.4 m.y., in agreement with feldspar dates as low as 9.6 to 10.0 for the underlying Idavada Volcanics. *Collected by*: W. P. Leeman, Rice University; *Dated by*: J. E. Harakal and R. L. Amrstrong, U.B.C.
(whole rock) 8.1 ± 0.7 m.y.
(whole rock) 13.8 ± 1.5 m.y.

CHALLIS VOLCANICS

One sample from biotite- and hornblende-bearing volcanic rocks on the southwestern side of the Snake River Plain gives a date of 44.7 ± 0.8 m.y. This is evidently a part of the Eocene, Challis, volcanic episode that affected all parts of Idaho (Armstrong, 1974 and 1978).

PC-Rhyodacite K-Ar

Biotite rhyodacite (42°46'40"N, 116°15'10"W; Owyhee Co., ID; Poison Creek area, lower end of exposures). Part of a suite of biotite and hornblendé bearing volcanic rocks between Poison Creek and the south fork of Castle Creek. *Rock*: crystal-rich rhyodacite with phenocryst composition: 8.3% quartz, 17.0% sodic andesine, 2.0% sanidine, 8.3% biotite, 1.0% hornblende. *Analytical data*: K_2O = 8.19%; $*Ar^{40}$ = 5.338 x 10^{-10} moles/gm (74%ΣAr^{40}). *Collected by*: W. M. Neill, Stanford; *Dated by*: W. M. Neill, L. Schlocker, and E. H. McKee, U.S.G.S.

(biotite) 44.7 ± 0.8 m.y.

GLENNS FERRY FORMATION BASALTS

Dating of Glenns Ferry Group basalts by Armstrong and others (1975) produced discordant results that left the precise age of the Hagerman Fauna uncertain and controversial. Evernden and others (1964) obtained dates of 3.6 to 3.3 m.y. for Deer Gulch basalt and nearby ash layers. Armstrong and others (1975) dated the same basalt horizon (Deer Gulch and Shoestring Road basalts) as 4.1 ± 0.3, 6.0 ± 1.0, and 6.3 ± 0.7 m.y. old. Even younger dates, 3.3 ± 2.0 and 2.9 ± 0.3 were obtained for slightly altered basalts lower in the section and 4.5 ± 0.4 m.y. was found for an overlying, much fresher, basalt (Lucerne School lava flow).

Further work has not greatly improved this confused situation. Reanalysis of the same samples of Deer Gulch and Shoestring Road basalt gave younger dates of 3.8 ± 0.2 and 2.6 ± 0.3 m.y. for a weighted mean for five analyses of 4.5 ± 1.6 m.y.

Samples from the same localities were recollected in 1973 with generous application of a sledge hammer to obtain the freshest possible material. These new samples give dates of 4.2 ± 0.2 and 3.6 ± 0.2 m.y. for an average of 3.9 ± 0.3 m.y. The best summary of all this information is that the Glenns Ferry basalts are probably 4 to 5 m.y. old, but not yet precisely dated. Burial and alteration have made it difficult to obtain suitable material for dating. Feldspar-bearing rhyolite does not occur in close proximity to the critical stratigraphic sections, and hydrated rhyolitic ash is not reliably retentive of radiogenic Ar.

1. *SRP 70-16* K-Ar

Deer Gulch basalt (42°54'50"N, 115°09'55"W). *Rock*: basalt with fine grained plagioclase laths in opaque groundmass and mottled patches of altered dark brownish glass. *Analytical data*: K = 0.545%; $*Ar^{40}$ = 0.0809 x 10^{-6} cc/gm (19.1%ΣAr^{40}). *Collected by*: W. P. Leeman, Rice University; *Dated by*: J. E. Harakal and R. L. Armstrong, U.B.C. *Comment*: Previously reported: (Armstrong et al., 1975).

(whole rock) 3.8 ± 0.2 m.y.
(whole rock) 6.0 ± 1.0 m.y.

2. *DG-9* K-Ar

Deer Gulch basalt (42°54.9'N, 115°9.8'W; W side S9,T6S,R11E; Elmore Co., ID). *Rock*: medium-grained subophitic nearly holocrystalline basalt. *Analytical data*: K = 0.689%; $*Ar^{40}$ = 0.1137 x 10^{-6} cc/gm (27.2%ΣAr^{40}). *Comment*: comparable to dates of 6.0 to 3.8 m.y. for the same unit and locality (Armstrong and others, 1975 and this paper). Age of unit is approximately 4 m.y. *Collected by*: R. L. Armstrong, U.B.C.; *Dated by*: J. E. Harakal and R. L. Armstrong, U.B.C.

(whole rock) 4.2 ± 0.2 m.y.

3. *SRP 69-55* K-Ar

Shoestring Road basalt (42°54'10"N, 115°01'50"W). *Rock*: Fine grained, partially glassy olivine basalt. *Analytical data*: K = 0.310%; $*Ar^{40}$ = 0.0308 x 10^{-6} cc/gm (7.5%ΣAr^{40}). *Collected by*: W. P. Leeman, Rice University; *Dated by*: J. E. Harakal and R. L. Armstrong, U.B.C. *Comment*: Previously reported: (Armstrong et al., 1975).

(whole rock) 2.6 ± 0.3 m.y.
(whole rock) 6.3 ± 0.7 m.y.

4. *SRd-1* K-Ar

Shoestring Road basalt (42°54.07'N, 115°1.66'W; E edge S16,T6S,R12E; Twin Falls Co., ID). *Rock*: coarser grained more nearly holocrystalline basalt than sample 69-55. *Analytical data*: K = 0.858%; $*Ar^{40}$ = 0.1212 x 10^{-6} cc/gm (34.7%ΣAr^{40}). *Comment*: comparable to another date of 4.1 ± 0.3 for the same unit (54P93) and dates of 2.6 ± 0.3 and 6.3 ± 0.7 for the same unit and locality (69-55) (Armstrong and others, 1975 and this paper). Age of unit is approximatley 4 m.y. *Collected by*: R. L. Armstrong, U.B.C.; *Dated by*: J. E. Harakal and R. L. Armstrong, U.B.C.

(whole rock) 3.6 ± 0.2 m.y.

EASTERN SNAKE RIVER PLAIN

Mapping projects of the U.S. Geological Survey have provided several samples of eastern Snake River Plain volcanic rocks for dating. The new rhyolite ash flow tuff dates of 2.3 ± 0.1, 2.3 ± 0.1, 2.1 ± 0.1, and 4.3 ± 0.15 m.y. are identical to previously published dates for the Huckleberry Member of the Yellowstone Tuff (2 m.y.; Christiansen and Blank, 1972) and rhyolite welded tuff near Ammon (4.1 m.y. for glass, 4.7 m.y. for feldspar; Armstrong and

others, 1975) and close or exact correlation with those units is likely. The basalts range from quite young (0.2 ± 0.2 for Table Rock basalt southeast of Heise) to intermediate (2.5 ± 0.5 and 3.1 ± 0.2 m.y., for other localities in Bonneville County). The Palisades andesite, 6.3 ± 0.2 m.y., is the oldest unit encountered in the eastern Snake River Plain by our study. Christiansen and Love (1978) have recently described a somewhat younger (5.8 m.y.) welded rhyolite ash flow tuff, the Conant Creek Tuff, that occurs further northeast in Jackson Hole, Wyoming.

1. *B-132* K-Ar
Table Rock basalt (43°36.1'N, 111°33.9'W; Bonneville Co., ID; along Snake River, 6.5 mi SE of Heise). *Rock*: black to grey, dense to vesicular, porphyrite (plagioclase>olivine) basalt. *Analytical data*: K = 0.561%; $*Ar^{40}$ = 0.0052 x 10^{-6} cc/gm (0.8%ΣAr^{40}). *Collected by*: Hal Prostka, U.S.G.S.; *Dated by*: J. E. Harakal and R. L. Armstrong, U.B.C.
(whole rock) 0.2 ± 0.2 m.y.

2. *B-144* K-Ar
Huckleberry Ridge Tuff, member B (43°40'N, 111° 45'W; Madison Co., ID; SW side of Rexburg bench). *Rock*: grey to pink or orange, moderately welded to slightly welded, devitrified, eutaxitic rhyolite ash flow tuff. *Analytical data*: K = 4.28%; $*Ar^{40}$ = 0.3790 x 10^{-6} cc/gm (48.8%ΣAr^{40}). *Collected by*: Hal Prostka, U.S.G.S.; *Dated by*: J. E. Harakal and R. L. Armstrong, U.B.C.
(whole rock) 2.3 ± 0.1 m.y.

3. *B-126A* K-Ar
Huckleberry Ridge Tuff, member B (43°36'N, 111° 48'W; Bonneville Co., ID). Youngest welded tuff along Meadow Creek dugway. Probably distal Huckleberry. *Rock*: grey to orange brown or pink, vitroclastic to devitrified, vapor phase crystallized, slightly to densely welded rhyolitic ash flow tuff. *Analytical data*: K = 4.32%; $*Ar^{40}$ = 0.3844 x 10^{-6} cc/gm (36.9%ΣAr^{40}). *Collected by*: Hal Prostka, U.S.G.S. *Dated by*: J. E. Harakal and R. L. Armstrong, U.B.C.
(whole rock) 2.3 ± 0.1 m.y.

4. *B-88C* K-Ar
Rhyolite (43°56.3'N, 111°10.5'W; Teton Co., ID; from base of welded tuff S of bridge and E of highway at intersection of Birch Creek and Idaho 32, W of Tetons). *Rock*: 3 m thick red vitric welded tuff with black vitrophyre at base. Plagioclase>>sanidine≃ quartz crystal rich base grades to crystal poor top. *Analytical data*: K = 5.89%; $*Ar^{40}$ = 0.4909 x 10^{-6} cc/gm (52.7%ΣAr^{40}). *Collected by*: Hal Prostka, U.S.G.S.; *Dated by*: J. E. Harakal and R. L. Armstrong, U.B.C.
(sanidine) 2.1 ± 0.1 m.y.

5. *B-168* K-Ar
Basalt of Willow Creek (43°34.6'N, 111°44.2'W; Bonneville Co., ID; 0.25 mi upstream from Ririe dam site). *Rock*: dark to medium grey, dense to vesicular or diktytaxitic, olivine basalt porphyry (30 to 60% plagioclase phenocrysts). Stratigraphically below Huckleberry Ridge Tuff. *Analytical data*: K = 0.388%; $*Ar^{40}$ = 0.0384 x 10^{-6} cc/gm (4.4%ΣAr^{40}). *Collected by*: Hal Prostka, U.S.G.S.; *Dated by*: J. E. Harakal and R. L. Armstrong, U.B.C.
(whole rock) 2.5 ± 0.5 m.y.

6. *B-135* K-Ar
Basalt of Birch Creek (43°34.1'N, 111°41.1'W; Bonneville Co., ID; along Birch Creek, 5 mi S of Heise). *Rock*: dark to medium grey, diktytaxitic, dense to vesicular, olivine basalt. Stratigraphically below Huckleberry Ridge Tuff. *Analytical data*: K = 0.261%; $*Ar^{40}$ = 0.0318 x 10^{-6} cc/gm (11.9%ΣAr^{40}). *Collected by*: Hal Prostka, U.S.G.S.; *Dated by*: J. E. Harakal and R. L. Armstrong, U.B.C.
(whole rock) 3.1 ± 0.2 m.y.

7. *B-189* K-Ar
Tuff of Heise (member 2 or 3) (43°38.4'N, 111° 38.6'W; Jefferson Co., ID; Kelly Canyon). Probably equivalent to upper tuff in Ammon quarry. *Rock*: light grey to orange grey, devitrified, eutaxitic, porphyritic (3 to 7% phenocrysts: quartz>sanidine>plagioclase> clinopyroxene), densely welded rhyolitic ash flow tuff. *Analytical data*: K = 4.28%; $*Ar^{40}$ = 0.7122 x 10^{-6} cc/gm (47.8%ΣAr^{40}). *Collected by*: Hal Prostka, U.S.G.S; *Dated by*: J. E. Harakal and R. L. Armstrong, U.B.C.
(whole rock) 4.3 ± 0.15 m.y.

8. *B-243* K-Ar
Andesite of Palisades Dam (43°19.7'N, 111°11.4'W; Bonneville Co., ID; 0.5 mi upstream from Palisades Dam). *Rock*: brown to grey, fine grained, crystalline, flow banded to brecciated, massive, platy andesite. *Analytical data*: K = 1.09%; $*Ar^{40}$ = 0.2683 x 10^{-6} cc/gm (69.4%ΣAr^{40}). *Collected by*: Hal Prostka, U.S.G.S. *Dated by*: J. E. Harakal and R. L. Armstrong, U.B.C.
(whole rock) 6.3 ± 0.2 m.y.

SUMMARY

Our new K-Ar dates are plotted on figure 1. The few changes from the previously established time-stratigraphic framework are highlighted on that figure by arrows. These changes are the increased time span for Idavada volcanism, correction of the age of the oldest Banbury Basalt to 9.4 ±

0.6 m.y., and revision of the Glenns Ferry basalts to an age of 4 to 5 m.y., still not precisely determined. The new dates in the eastern Snake River Plain extend the areas of proven occurrence of previously dated units and establish the ages of a few additional basalts. The broad framework established by previous work remains unaltered, and is strengthened with the increasingly tight control provided by the new dates.

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