DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY

Joint Spacings, Mineral Modes and Grain Size Measurements for Selected Granitic Rocks in the Northern Rockies and in Southwest England

by

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and

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Open-File Report 90-48

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

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NOTE FOR THE MONTHLY LIST

OF90-48.   Joint spacings, mineral modes, and grain size measurements for selected granitic rocks in the northern Rockies and in southwest England, by Judy Ehlen and E-an Zen. 105 p., 1 diskette.

This Open-file Report documents data on spacings of joints in granitic rocks from 3 areas in southwestern Montana (Pioneeer batholith, satellites of Boulder batholith, and related plutons), one area in south-central Montana (a pre-Stillwater pluton), one area in central Wyoming (Granite Mountain granite), and one area in southwestern England (the Dartmoore Granite). Spacing measurements between successive joints in systematic joint sets were made at 116 described stations in these six areas, and more than 22,000 joints were measured. These joints are distinguished according to their size and morphology, and the data are supplemented by petrographic data including mineralogical modes and grain sizes of samples from each station. The spacing data are presented both as hardcopy in the text and on an IBM-compatible double-density, 5-1/4 inch diskette in ASCII format.

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Introduction

This report contains the field data from studies on joint spacing in granitic rocks as well as related petrographic data derived from laboratory measurements. Discussion of the methodology and site descriptions are in the main text. Modal analyses and grain size measurements are given in Appendix 1. The field data are given in Appendix 2 and on floppy disk. The field work in the United States was shared equally by the authors; field work in England was done by Ehlen, assisted in part by Zen and by Dr. A.J.W. Gerrard, University of Birmingham, Birmingham, England. All laboratory work was done by Ehlen.

There is a large body of literature on fractures in rocks, but most of it deals with sedimentary, not igneous, rocks. A complete review of this literature is beyond the scope of this report, which, as indicated above, is intended only as a repository for field and petrographic data. Recent reviews of this subject are available, however, including Engleder (1987), Pollard and Aydin (1988) and Ehlen (1990, in prep).

Various authors have noted a relation between grain size and joint spacing and landform and joint spacing in granitic rocks as well as between composition and joint spacing in igneous rocks as a whole. We also noted such relations in a number of different granite terrains. Our curiosity led us to measure joint spacings in granitic rocks in a variety of compositional and geomorphic settings to evaluate and quantify these observations. Field work was done each summer between 1982 and 1986.

Study Area Locations

Data from six groups of sample sites are presented in this report. The general locations of these study areas are shown in Figures 1 and 2. The first area, a composite of several plutons, is in the east Pioneer Mountains, southwestern Montana. This area ranges in elevation from 1,500 meters to over 3,000 meters; several peaks rise above 3,200 meters. These high areas have undergone multiple episodes of ice-field and valley glaciation. Granites, granodiorites, tonalites and quartz diorites are present as distinct plutons, with granodiorite predominating, and are part of the Late Cretaceous to Early Tertiary Pioneer batholith. The area included in this report has been mapped most recently by Zen (1988) in the north and by Snee (1978) in the south. The sample sites, shown in Figure 3, are located on the following 7 1/2 minute quadrangle maps: Maurice Mountain (1978), Torrey Mountain (1952), Twin Adams Mountain (1952) and on the 15-minute Vipond Park (1958) topographic map. Access is mainly by foot; the limited vehicular access commonly requires four-wheel drive. Field work was done in the summers of 1982 and 1983.

The second study area comprises parts of two satellite plutons of the Boulder Batholith north and east of the Pioneer Mountains. Joints in rocks from the Big Hole Canyon pluton (Zinter, 1982) were studied along the Big Hole Gorge (Figure 4); rock types include quartz diorite, granodiorite and
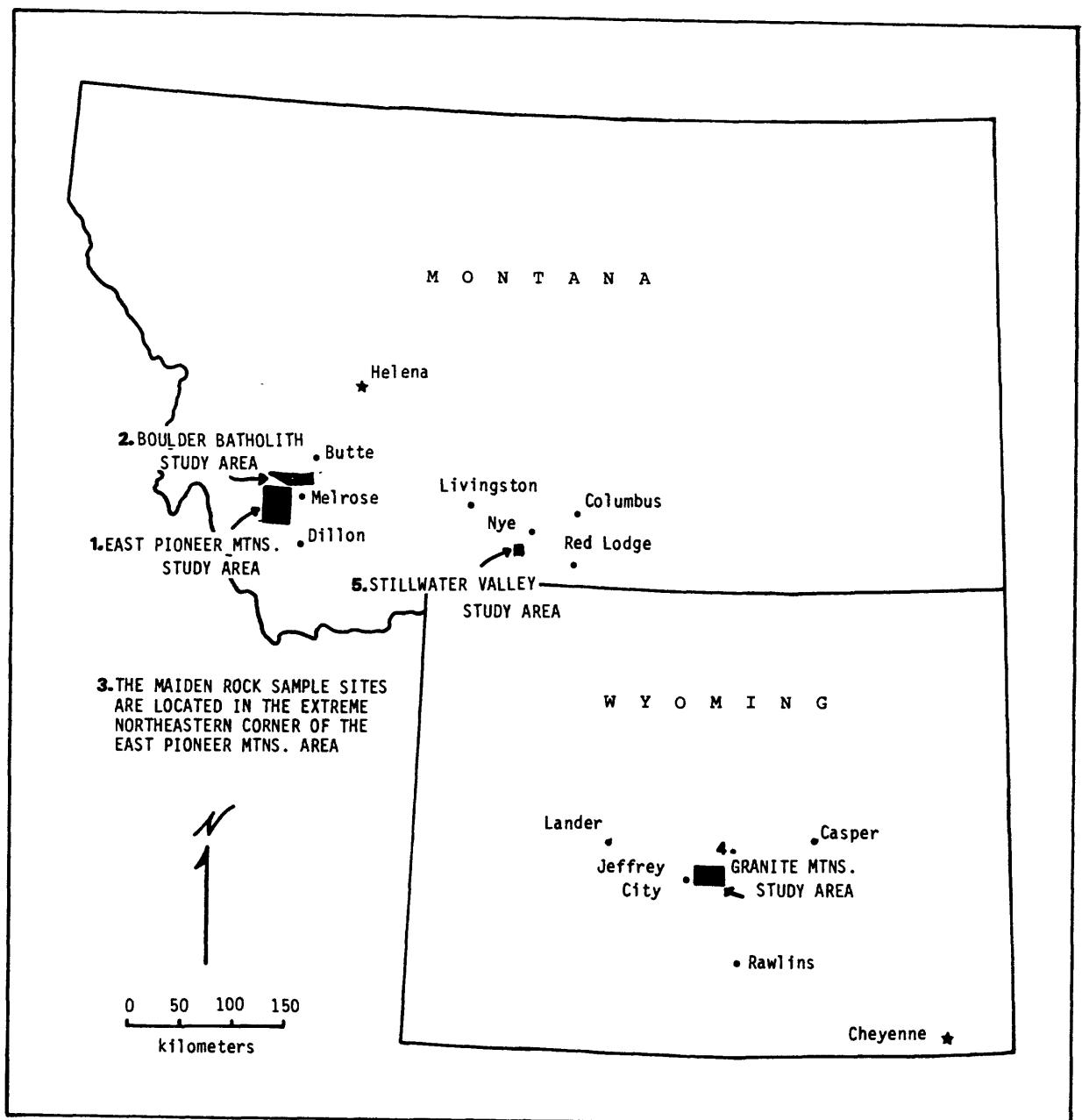
Figure 1: Location map showing the study areas in Wyoming and Montana.
1. East Pioneer Mountains. 2. Boulder Batholith. 3. Maiden Rock and Glen.
4. Granite Mountains. 5. Stillwater Valley.
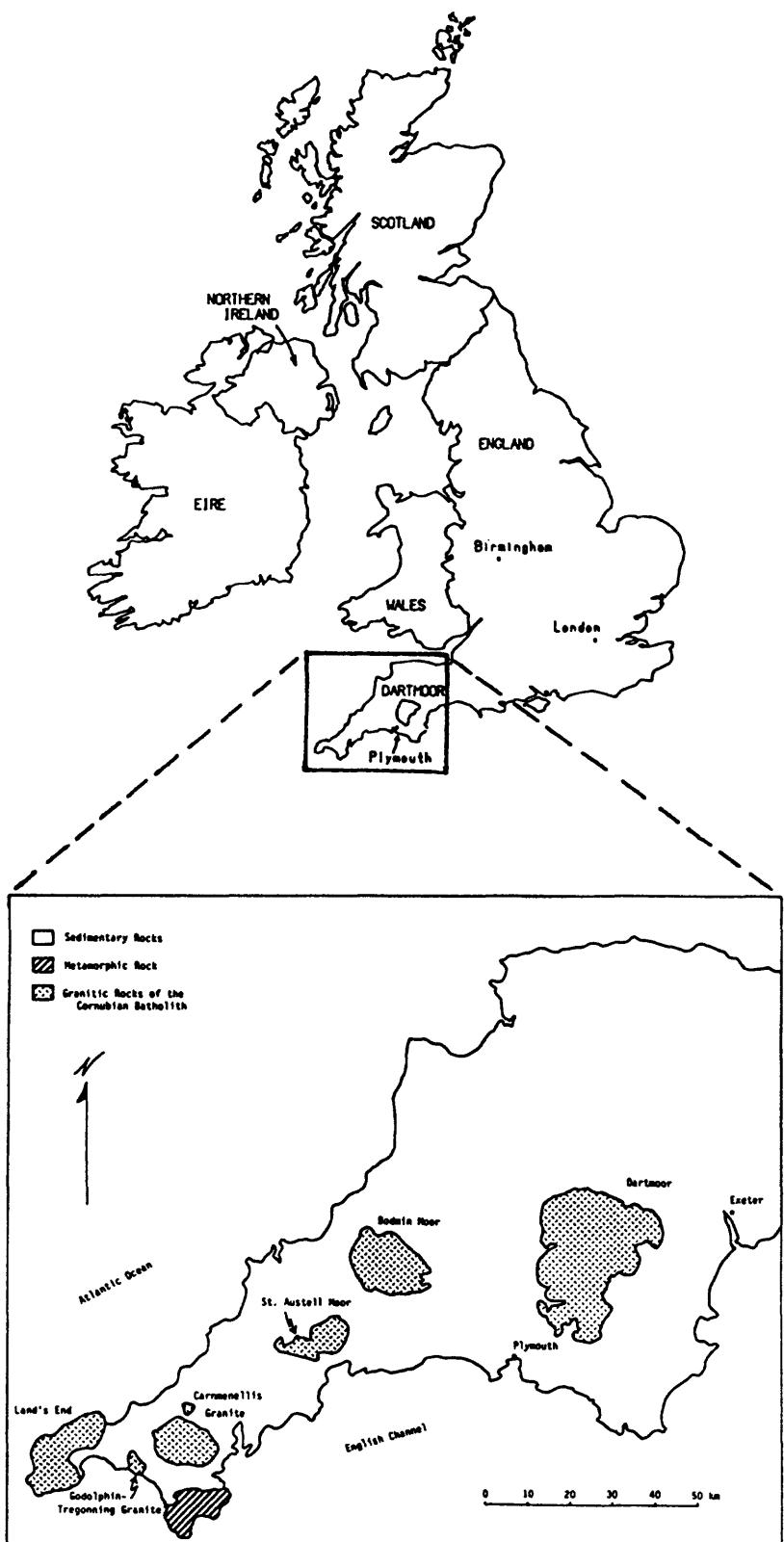
Figure 2: Location map showing Dartmoor in southwest England
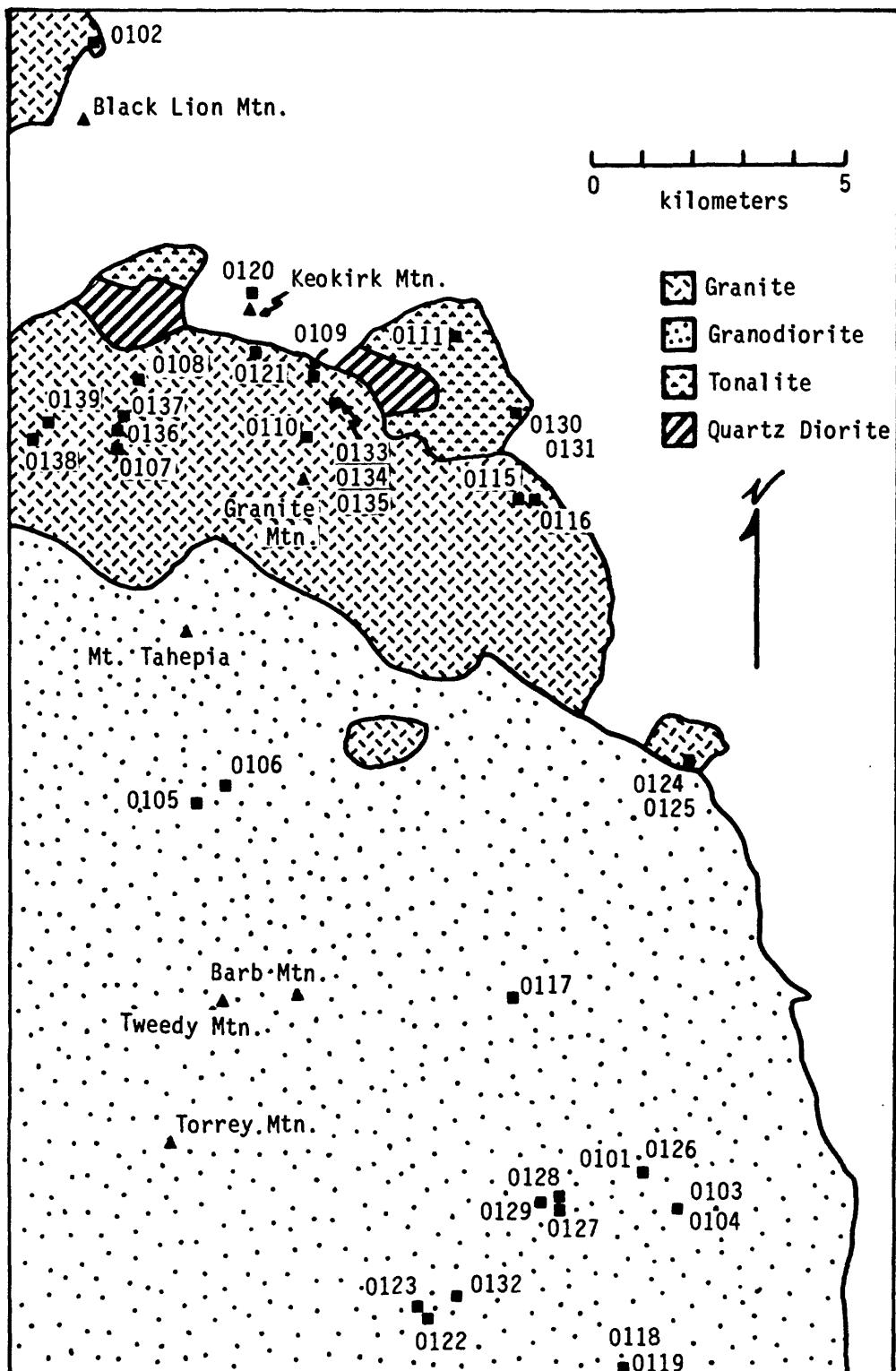
Figure 3: Geological map (after Zen, 1988 and Snee, 1978) showing sample sites in the Pioneer Mountains, Montana. Sample sites are indicated by solid squares and mountain peaks by solid triangles.
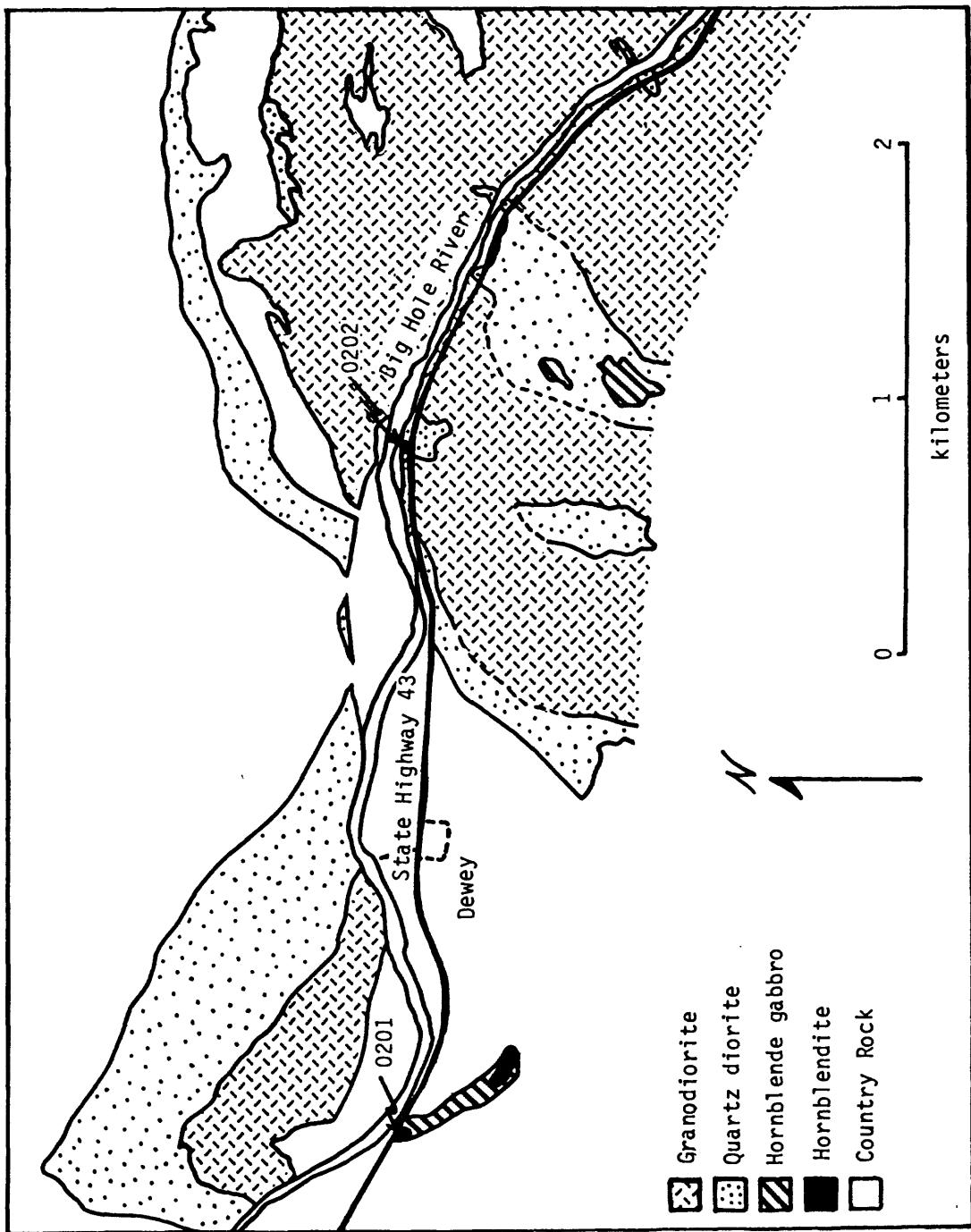
Figure 4: Geological map (after Zinter, 1982) showing sample sites in the Big Hole River section of the Boulder Batholith. Sample sites are indicated by solid squares.

hornblendite. Access to the Big Hole River gorge, located on the 7 1/2-minute Dewey (1961) quadrangle map, is by State Highway 43. Mildly peraluminous granite from the Moose Creek pluton (Smedes and others, 1988) was sampled in the Humbug Spires Primitive Area, a region of large, spectacular pinnacles located on the 15-minute Butte South (1961) quadrangle map (Figure 5). Vehicles are prohibited in Humbug Spires and access is by foot. Field work was done in 1982 and 1983.

One sample site in the third study area is located in a sill west of U.S. Highway 91 between Glen and Dillon, Montana (Figure 6). The sill is an unmapped and undefined granite within the area of the Glen 7 1/2-minute quadrangle map (1960). Field work was done in 1982. Two sample sites near Maiden Rock on the east flank of the east Pioneer Mountains comprise the second part of this group of sample sites (Figure 7). The Maiden Rock site consists of a pluton composed of tonalite and granodiorite mapped by Fraser (1973, written communication). Maiden Rock is located on the Melrose 7 1/2-minute quadrangle map (1961). Access is by gravel road from Melrose. Field work was done in 1983.

The fourth area is in the large, Archean Granite Mountain batholith east of Jeffrey City (formerly Home on the Range) in central Wyoming. Large domes of coarse-grained granite, similar to but smaller than those in Yosemite National Park, rise up to 600 meters above flat to rolling, semiarid plains. The granite is uranium rich and mildly peraluminous (Stuckless and others, 1977). The sample sites, shown in Figure 8, are located on the following 7 1/2-minute quadrangle maps: Buckland Reservoirs (1951), Lankin Dome (1951), Black Rock Gap (1951), Split Rock (1951) and Lone Mountain (1951). Access to the sample sites is mainly by good gravel road and short walks. Four-wheel drive is needed only for a few sites. Field work was done in the summers of 1983 and 1985.

The fifth area is on the west side of the Stillwater River valley near Beartooth Ranch south of Nye in south-central Montana. The sample sites are located mainly in the rock called Maout Quartz Monzonite by Butler (1966), and called simply quartz monzonite by Page and others (1985). The pluton predates the adjacent late Archean Stillwater layered ultramafic igneous complex (Page and others, 1985). According to our modal data and the Streckeisen classification (1973), the rocks are granites and granodiorites. The sample sites, shown on Figure 9, are located next to the paved road that parallels the Stillwater River on the 15-minute Mt. Wood quadrangle map (1939). Field work was done in 1983.

The sixth and final study area is in Dartmoor National Park in southwest England (Figure 2). Dartmoor is the most significant highland in southern Britain, and forms a relatively flat-topped plateau that tilts gently to the southeast. Elevations range from 150 to 600 meters. Most of the outcrops are located on large mounds or conical hills and are called "tors." The Dartmoor granite forms the eastern-most boss of the Cornubian batholith, is Carboniferous/Permian in age (about 280 Ma; Darbyshire and Shepherd, 1985), is highly peraluminous and is associated with important mineralization. The rocks have been extensively altered by a number of late-stage hydrothermal processes. Ehlen (in prep) summarizes previous
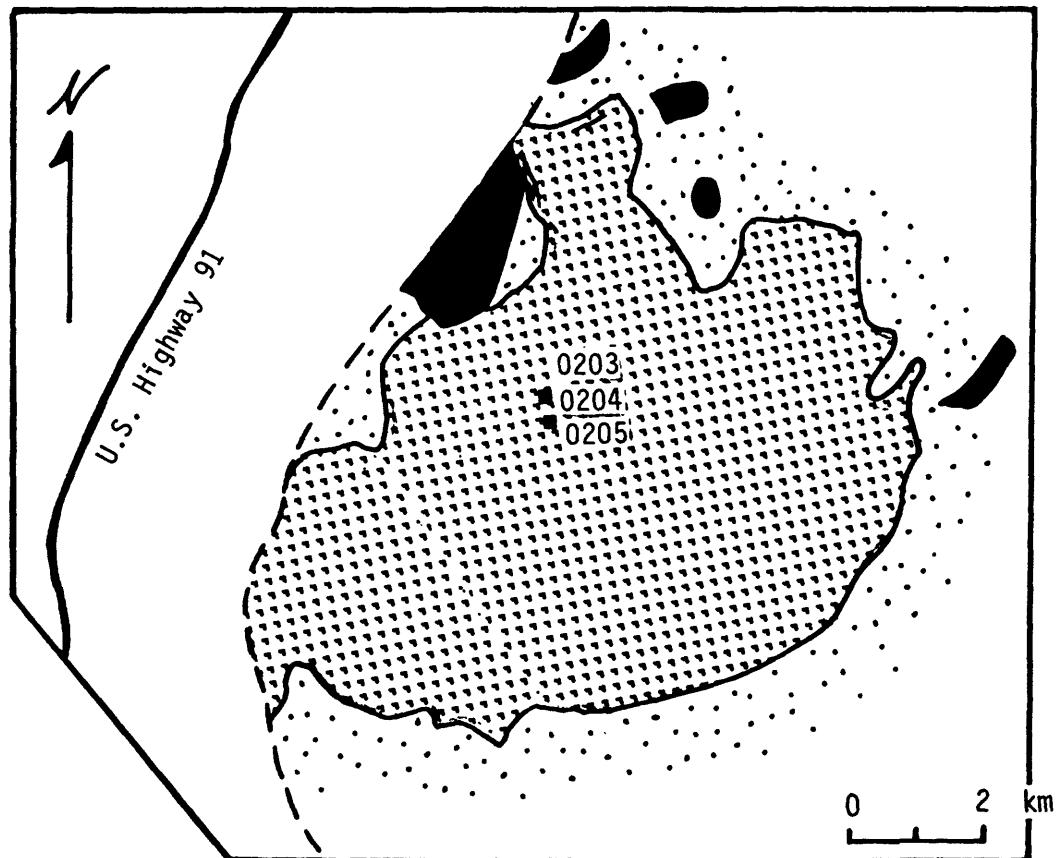
Undifferentiated Tertiary and Quaternary sediments

Undifferentiated Paleozoic and Mesozoic sedimentary rocks

Undifferentiated igneous rocks

Moose Creek pluton

Figure 5: Geological map (after Smedes and others, 1988) showing sample sites in the Humbug Spires area in the Boulder Batholith. Sample sites are indicated by solid squares. Both 0204 and 0205 are represented by the lower square.
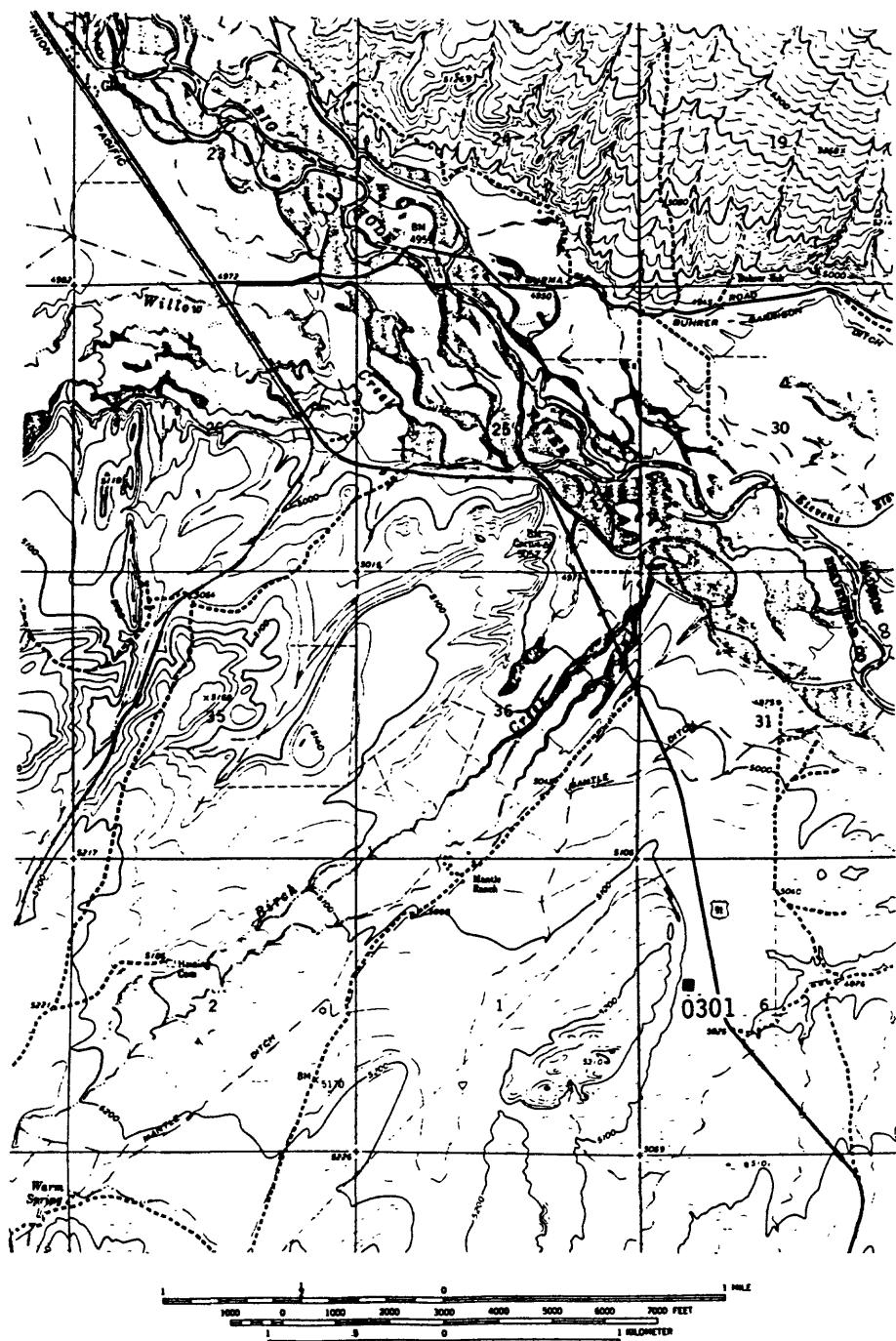
GLEN QUADRANGLE
MONTANA
7.5 MINUTE SERIES (TOPOGRAPHIC)

Figure 6: Part of the Glen 7 1/2-minute quadrangle showing the
sample sites in the sill. Sample sites are indicated by solid
squares.
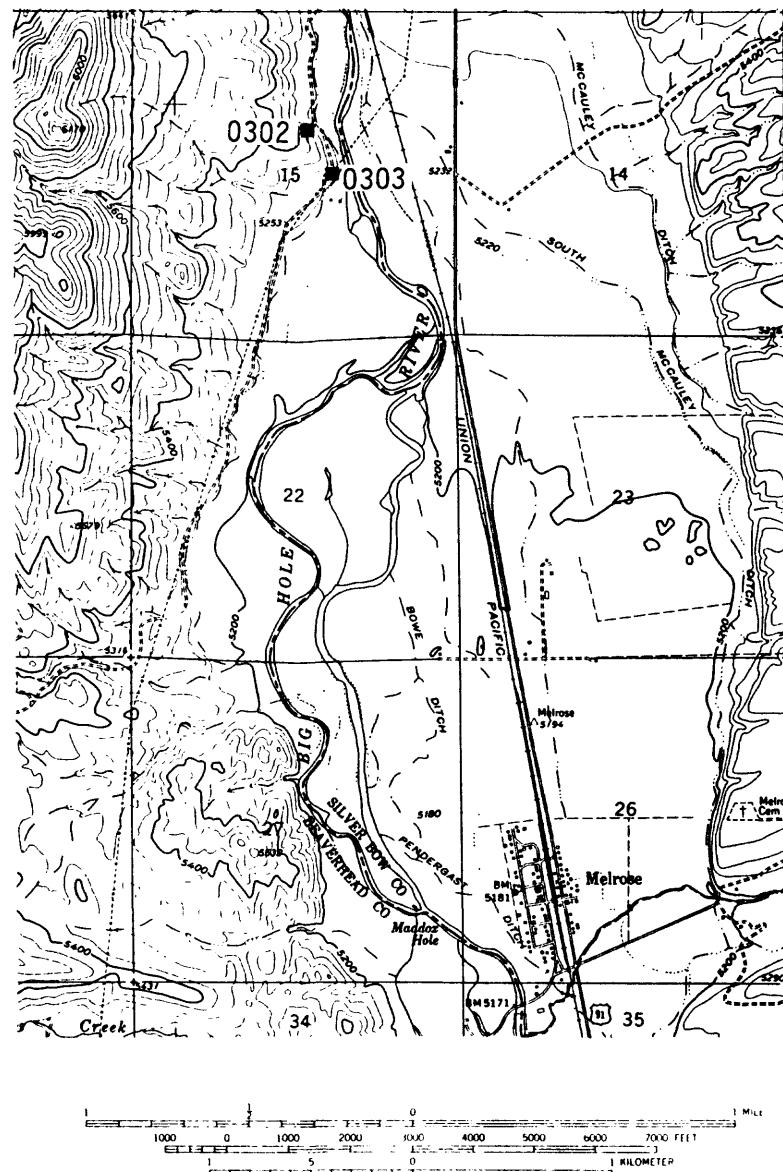
MELROSE QUADRANGLE

MONTANA

7.5 MINUTE (TOPOGRAPHIC)

Figure 7: Part of the Melrose 7 1/2-minute quadrangle show-
ing sample sites in the Maiden Rock area. Sample sites are
indicated by solid squares.
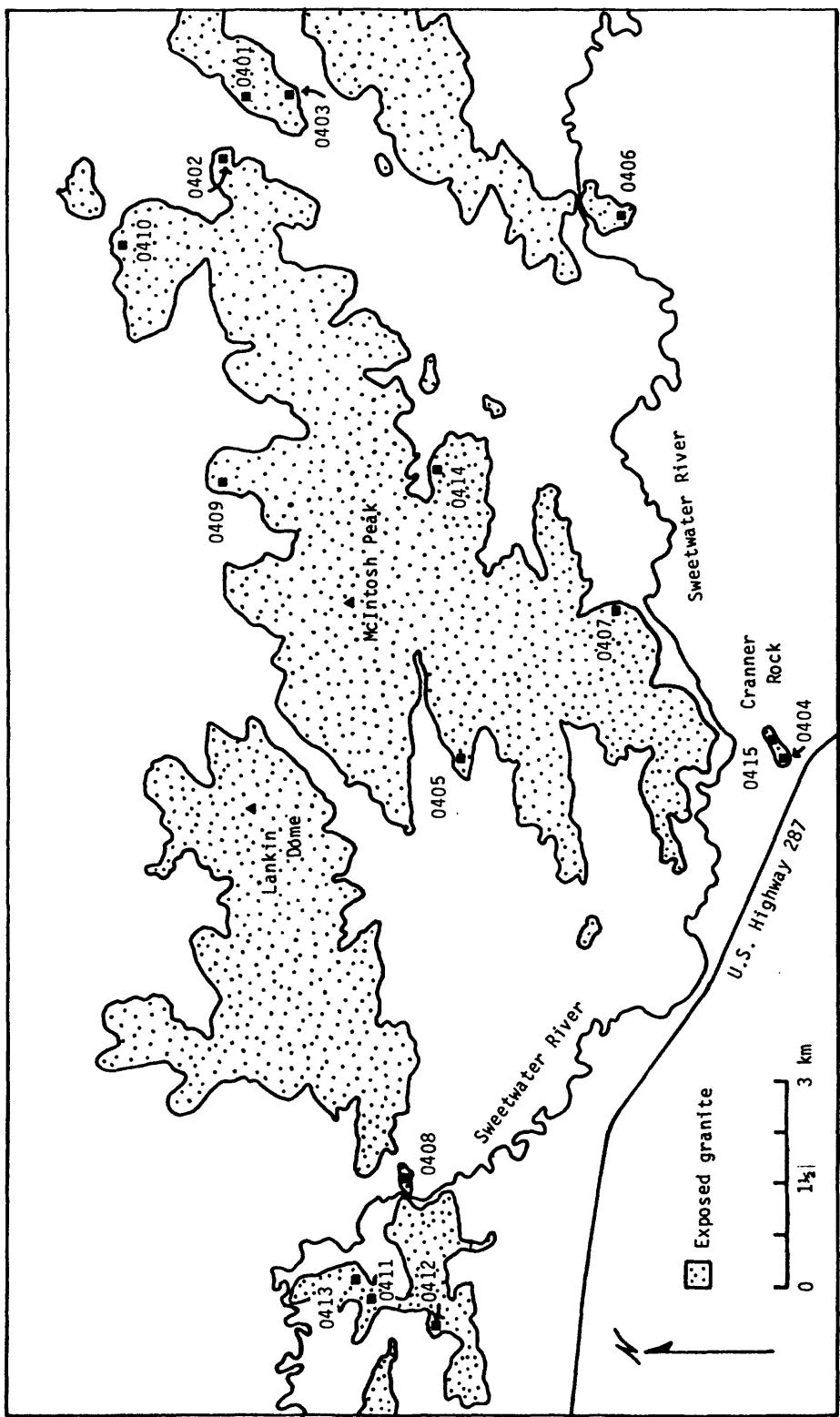
Figure 8: Geological map showing sample sites in the Granite Mountains, Wyoming (after Stuckless and others, 1977; boundaries from air photos). Sample sites are indicated by solid squares and mountain peaks by solid triangles.
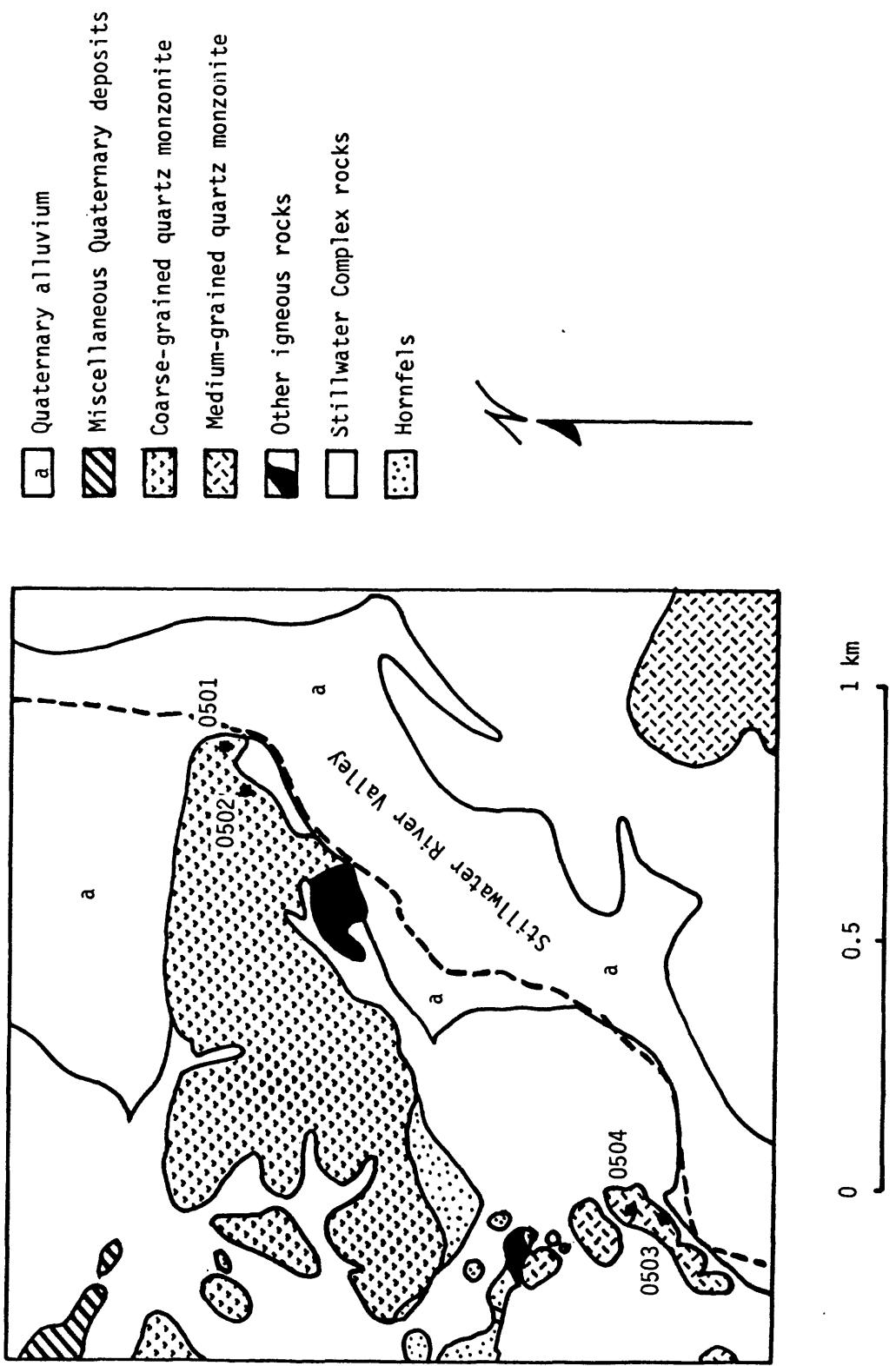
Figure 9: Geological map (after Page and Nokleberg, 1974 and Page and others, 1985) showing sample sites in the Stillwater valley. Sample sites are indicated by solid squares.

work in this area. Figure 10 shows the locations of the 58 sample sites. All sites are located on the 1:25,000 scale Ordnance Survey Outdoor Leisure Map No. 28.[3] The sample sites are also shown on the following first and second series 1:25,000 scale maps upon which the leisure map was based: Lydford, Moretonhampstead and Chagford, Yelverton, Princetown, Belstone and Cheriton Bishop, Okehampton, Widecombe in the Moor, and Two Bridges. Most of the sample sites have names and are referred to accordingly. Vehicular access to the sample sites is limited and most outcrops can be reached only on foot. Several sites, however, have their own parking lots. Field work was done in 1984 and 1986.

Definitions of Terms

Castellated: an outcrop that has an irregular, jagged profile when viewed from a distance and that is usually located on a mound or summit. The term derives from the profile of a battlemented castle, which such an outcrop supposedly resembles.

Dipping or inclined joint: a joint that dips between 26 and 69 degrees.

Horizontal joint: a joint that dips between 0 and 25 degrees.

Joint: a crack without discernible movement in the plane of fracture.

Joint set: a collection of individual joints identified on the outcrop that deviate no more than 15 degrees from each other for both dip and strike.

Joint spacing: the distance between successive joints in a given joint set, measured normal to the planes of the joints along a linear traverse of continuous outcrop. Only spacings between joints belonging to systematic sets were measured.

Lamellar: an outcrop that looks like a stack of pancakes; this shape results from very closely-spaced, parallel or nearly parallel horizontal joints coupled with either very widely-spaced or absent vertical joints.

Pavement: a relatively smooth, bare rock surface that is commonly controlled by horizontal joints.

Platform: the flat base of a large outcrop. Platforms are controlled by horizontal joints.

Primary joint: a long, usually open, outcrop-shape-controlling joint that can cut across other joint traces (Figure 11).

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[3] This map is be available from the British Travel Bookshop in New York, telephone (212) 764-0898.
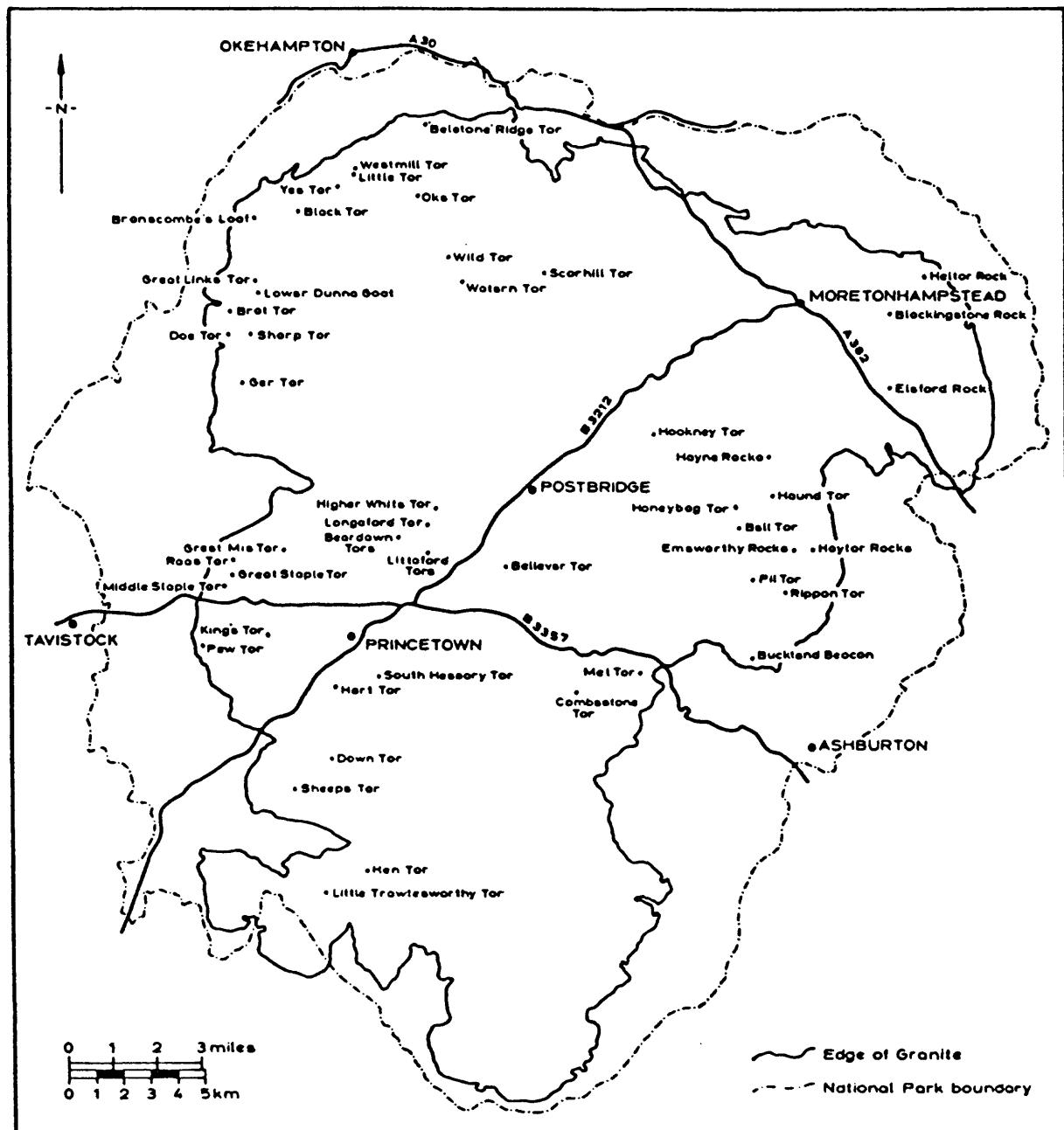
Figure 10: Locations of sample sites in the Dartmoor granite, southwest England. Individual sample sites are not indicated because of overcrowding. All sample sites have names as shown here, however, and these names are given in "Sample Site Description" following the site number.

Figure 11: Primary and secondary joints, Sample Site 0606.

Secondary joint: a shorter joint that usually is confined within blocks defined by primary joints, rarely crossing other joint traces. Hairline fractures without visible movement normal to the plane of the joint are included as secondary joints (Figure 11).

Shelf-like: as in a staircase, a series of low, widely-spaced risers controlled by vertical joints, alternating with broad treads that are controlled by horizontal joints.

Stepped-back ledge: as in a staircase, a series of tall risers controlled by vertical joints, alternating with narrow treads that are controlled by horizontal joints.

Tor: a Cornish word meaning tower that is used to designate rock outcrops in southwest England. A tor must have positive relief.

Vertical joint: a joint that dips between 70 and 90 degrees.

Sample Site Descriptions

Each description begins with a sample site number. The first two digits specify the study area as defined below, and the second two describe the sample site. The code for each of the study areas is:

> East Pioneer Mountains, southwest Montana (01)
> Boulder Batholith satellite plutons, southwest Montana (02)
> The pluton near Maiden Rock and the sill south of Glen,
>   southwest Montana (03)
> Granite Mountains, central Wyoming (04)
> Stillwater River Valley, south-central Montana (05)
> Dartmoor, southwest England (06)

The next entry gives the geographic location of the site. For the sites in the United States, the description includes latitude and longitude to the nearest five seconds and section, township and range. For the sites in England, the location is given by an eight-digit grid coordinate; the name of the tor is also provided. Elevation and the name of the topographic map upon which each site is located is next provided. This is followed by a description of the outcrop where joint spacings were measured, the type of joint(s) controlling the outcrop, rock type, rock texture and landform. Formal names for the plutons are from the cited published literature; rock type determined by the authors using the Streckeisen classification (1973) is given between parentheses if it disagrees with the formal designation. Rock texture was determined from hand specimen and outcrop. The rocks were classified as porphyritic or nonporphyritic, and nonporphyritic rocks were further described as equigranular or nonequigranular. The landform types identified in these study areas are pinnacle, dome, valleybottom, spur, valleyside and summit. These terms refer to the shape or topographic position of the measured outcrop as determined from topographic maps. Additional information that is study-area dependent is explained at the appropriate point.

1. East Pioneer Mountains, southwest Montana. Geologic formation names are from Zen (1988), Pearson and Zen (1985) and Snee (1978). Some of the sites are glaciated and others are not; this information is indicated in the description.

0101 45 27 20 112 50 55; NE1/4, SW1/4, section 28, T. 4 S., R. 10 W.; elevation 6440 feet; Twin Adams Mountain; large pinnacle east of road northwest of Cow Camp; vertical joint control; Uphill Creek Granodiorite; equigranular; pinnacle landform; unglaciated

0102 45 38 40 112 58 50; unsurveyed; elevation approximately 9578 feet; Vipond Park; bouldery, castellated outcrop at and near top of peak; dipping joint control; Clifford Creek Granite; porphyritic; summit landform; glaciated

0103 45 26 50 112 50 15; NE1/4, SW1/4 section 28, T.4 S., R. 10 W.; elevation 6440 feet; Twin Adams Mountain; the base of sample site 0101, offset slightly to the east in open, south-facing ledges; horizontal joint control; Uphill Creek Granodiorite; equigranular, valleyside landform, unglaciated

0104 45 26 50 112 50 15; E1/2, NE1/4 section 33, T. 4 S., R. 10 W.; elevation 6300 feet; Twin Adams Mountain; east of Cow Camp and south of dry valley, on the southwest side of large hillock; dipping joint control; Uphill Creek Granodiorite; equigranular; pinnacle landform; unglaciated

0105 45 31 05 112 58 10; unsurveyed; elevation approximately 9500 feet; Vipond Park; outcrop above large scree southwest of Tendoy Lake at the base of the cliffs; vertical joint control; Uphill Creek Granodiorite; equigranular; valleyside landform; glaciated

0106 45 31 15 112 57 35; unsurveyed; elevation 9100 feet; Vipond Park; glacially-polished pavement below the basin containing Tendoy Lake, north of the pack trail; dipping joint control; Uphill Creek Granodiorite; porphyritic; valleyside landform; glaciated

0107 45 34 30 112 59 00; unsurveyed; elevation 8840 feet; Vipond Park; small, 3-meter high ledge on the east shore of Lion Lake near the outlet; vertical joint control; Grayling Lake Granite; porphyritic; valleybottom landform; glaciated

0108 45 35 10 112 58 35; unsurveyed; elevation 8600 feet; Vipond Park; small cliff above large xenolith of quartzite in headwall along pack trail to Grayling Lake; vertical joint control; Grayling Lake Granite; valleyside landform; glaciated

0109 45 35 05 112 56 05; unsurveyed; elevation approximately 8700 feet; Vipond Park; large, tent-like cliffs in the cirque west of Granite Mountain, on the west side near its mouth and northwest of Trapper Lake; vertical joint control; Grayling Lake Granite (granodiorite); porphyritic; valleyside landform; glaciated

0110   45 34 35   112 56 10; unsurveyed; elevation 8800 feet; Vipond Park; the outcrop is the small headwall at timber line in the cirque west of Granite Mountain; dipping joint control; Grayling Lake Granite (granodiorite); equigranular; valleybottom landform; glaciated

0111   45 36 45   112 53 50; unsurveyed; elevation 8230 feet; Vipond Park; 30-meter high cliffs forming the valley-wall above large felsenmeer south of Trapper Lake in the Hecla area; vertical joint control; Trapper Tonalite; equigranular; valleyside landform, glaciated

0112   45 36 00   112 53 30; SW1/4, SW1/4, section 6, T. 3 S., R. 10 W., elevation 7900 feet; Vipond Park; large, glacially-polished, flat pavement south of Trapper Creek, south of the Trapper Creek road, due east of the Hecla basin; vertical joint control; Quadrant Quartzite; summit landform; glaciated

0113   45 36 15   112 53 55; unsurveyed; elevation 7840 feet, Vipond Park; large, rough vertical outcrops north of Trapper Creek, north of the Trapper Creek road, due east of Hecla basin; vertical joint control; Quadrant Quartzite; valleyside landform; glaciated

0114   45 41 40   112 45 45; N1/2, section 6, T. 2 S., R. 9 W.; elevation 5400 feet; Vipond Park; cliff on north side of road along lower Canyon Creek, near North Central Mine; vertical joint control; Quadrant Quartzite; spur landform; unglaciated

0115   45 33 45   112 53 20; SE1/4, NW1/4, section 19, T. 3 S., R. 10 W.; elevation 8840 feet; Vipond Park; castellated outcrops on west summit of Brown's Peak; vertical joint control; Grayling Lake Granite; equigranular; summit landform; unglaciated

0116   45 33 45   112 53 00; SW1/4, SW1/4, section 19, T. 3 S., R. 10 W.; elevation 8840 feet; Vipond Park; small, rounded pinnacle on east summit of Brown's Peak; dipping joint control; Grayling Lake Granite; summit landform; unglaciated

0117   45 29 00   112 53 10; S1/2, section 18, T. 4 S., R. 10 W.; elevation 7181 feet (BM); Torrey Mountain; blasting-modified road cut at very sharp bend on Willow Creek road; control by vertical and horizontal joints combined; Uphill Creek Granodiorite; porphyritic; spur landform; glaciated

0118   45 25 05   112 51 15; SW1/4, NW1/4, section 9, T. 5 S., R. 10 W.; elevation 6420 feet (BM); Twin Adams Mountain; stepped-back, 8-meter high ledges above road cut near Birch Creek Guard Station; vertical joint control; Tonalite of Torrey Mountain (granodiorite); porphyritic; valleyside landform; unglaciated

0119   45 25 00   112 51 15; SW1/4, NW1/4, section 9, T. 5 S., R. 10 W.; elevation approximately 6420 feet; Twin Adams Mountain; rotund pinnacle at edge of woods above and east of the road and site 0118; horizontal joint control; Tonalite of Torrey Mountain (granodiorite); porphyritic; pinnacle landform; unglaciated

0120 45 35 50 112 57 10; unsurveyed; elevation 9430 feet; Vipond Park; top of the large, west-facing ledge above Lion Creek, just off the crest of the northwest spur of Keokirk Mountain; vertical joint control; Keokirk Quartz Diorite; equigranular; spur landform; glaciated

0121 45 35 15 112 56 60; unsurveyed; elevation 9938 feet; Vipond Park; large, castellated outcrop above timberline at the top of Barbour Hill; vertical joint control; Grayling Lake Granite; equigranular; summit landform; glaciated

0122 45 25 40 112 54 40; unsurveyed; elevation 7240 feet; Torrey Mountain; large, tent-like outcrop north of jeep track west of Dinner Station Campground, about 1 km west of BM 7132 north of Birch Creek; dipping joint control; Uphill Creek Granodiorite; equigranular; spur landform; glaciated

0123 45 25 40 112 54 45; unsurveyed; elevation approximately 7280 feet; Torrey Mountain; tent-like outcrop immediately north of sample site 0122; dipping joint control; Uphill Creek Granodiorite; equigranular; valleyside landform; glaciated

0124 45 31 35 112 50 00; SW1/4, SW1/4, section 34, T. 3 S., R. 10 W.; elevation approximately 7070 feet; Vipond Park; base of south-facing cliff of pink granite containing numerous pegmatites and aplites above Browne's Lake; vertical joint control; Granite of Browne's Lake; equigranular; valleyside landform; glaciated

0125 45 31 30 112 50 05; SW1/4, SW1/4, section 34, T. 3 S., R. 10 W.; elevation 6970-7020 feet; Vipond Park; along a series of 15-meter high cliffs leading down from sample site 0124 toward the road; vertical joint control; Granite of Browne's Lake; equigranular; valleyside landform; glaciated

0126 45 27 20 112 50 55; NE1/4, SW1/4, section 28, T. 4 S., R. 10 W.; elevation 6440 feet; Twin Adams Mountain; north side of base of sample site 0101 northwest of Cow Camp; vertical joint control; Uphill Creek Granodiorite; equigranular; valleyside landform; unglaciated

0127 45 27 50 112 52 25; NW1/4, section 32, T.4 S., R. 10 W.; elevation 7290 feet; Twin Adams Mountain; large slabby outcrop in woods above and northeast of Bond Lake, north of dam; vertical joint control; Tonalite of Torrey Mountain (granite); equigranular; pinnacle landform; unglaciated

0128 45 27 55 112 52 25; NW1/4, section 32, T. 4 S., R. 10 W.; elevation 7300 feet; Twin Adams Mountain; broken, blocky outcrop north of sample site 0127; dipping joint control; Tonalite of Torrey Mountain (granite); equigranular; pinnacle landform; unglaciated

0129 45 26 50 112 52 35; NW1/4, section 32, T. 4 S., R. 10 W.; elevation 7200 feet; Twin Adams Mountain; large, long block north of Bond Lake; vertical joint control; Tonalite of Torrey Mountain (granodiorite); nonequigranular; pinnacle landform; unglaciated

0130   45 36 05   112 53 05; SW1/4, SE1/4, section 7, T. 3 S., R. 10 W.; elevation 8300 feet; Vipond Park; inside wall of gully on the north side of the cirque about 1.5 km east of Granite Lake near the contact between pluton and country rock; dipping joint control; Trapper Tonalite (granodiorite); equigranular; valleyside landform; glaciated

0131   45 35 05   112 53 05; NE1/4, NW1/4, section 18, T. 3 S., R. 10 W.; elevation 8300 feet; Vipond Park; south-facing, stepped-back ledges about 300 meters further west into the cirque from sample site 0130; dipping joint control; Trapper Tonalite (granodiorite); equigranular; valleyside landform; glaciated

0132   45 25 45   112 54 05; unsurveyed; elevation 7120 feet; Torrey Mountain; large, tent-like outcrop north of jeep track east of Dinner Station Campground, south of Birch Creek; control by vertical and horizontal joints combined; Uphill Creek Granodiorite (granite); equigranular; valleyside landform; glaciated

0133   45 34 50   112 55 25; unsurveyed; elevation 8650 feet; Vipond Park; 3-meter high ledge on east side of cirque west of Granite Mountain in lightly wooded area; dipping joint control; Grayling Lake Granite (granodiorite); nonequigranular; valleyside landform; glaciated

0134   45 34 50   112 55 25; unsurveyed; elevation 8750 feet; Vipond Park; steeply-sloping, glacially-polished, pavement-type outcrop directly above sample site 0133, at the edge of a large open felsenmeer, above timberline; dipping joint control; Grayling Lake Granite (granodiorite); nonequigranular; valleyside landform; glaciated

0135   45 34 50   112 55 30; unsurveyed; elevation 8700 feet; Vipond Park; large sloping ledge just below sample site 0134; dipping joint control; Grayling Lake Granite; nonequigranular; valleyside landform; glaciated

0136   45 34 40   112 58 55; unsurveyed; elevation 8800 feet; Vipond Park; steeply-sloping, glacially-polished, pavement-type outcrop near timberline at the top of the steep slope southeast of Grayling Lake; vertical joint control; Grayling Lake Granite (granodiorite); nonequigranular; spur landform; glaciated

0137   45 34 40   112 58 50; unsurveyed; elevation approximately 8750 feet; Vipond Park; steeply-sloping, glacially-polished, pavement-type outcrop exposed by rock slide on the north side of the ridge between Grayling Lake and Vera Lake; dipping joint control; Grayling Lake Granite (granodiorite); equigranular; valleyside landform; glaciated

0138   45 34 35   112 00 15; unsurveyed; elevation 8860 feet; Maurice Mountain; base of the large cliff at the top of the talus on the south shore of Crescent Lake, directly below the ridge extending down from the 10,060-foot peak to lake level; vertical joint control; Grayling Lake Granite; equigranular; valleyside landform; glaciated

0139 45 34 40 113 59 55; unsurveyed; elevation 8850 feet; Vipond Park; sloping ledges in the wooded area east of and above the pack trail along the east shore of Crescent Lake; dipping joint control; Grayling Lake Granite; equigranular; valleyside landform; glaciated

2. Boulder Batholith satellite plutons, southwest Montana. Geological nomenclature is according to Zinter (1982) for the Big Hole Gorge sites and according to Smedes and others (1988) for the Humbug Spires area. These sample sites are all unglaciated.

0201 45 46 45 112 52 15; NW1/4, SW1/4, section 5, T. 1 S., R. 10 W.; elevation 5500 feet; Dewey; blasted road cut 1 km west of Dewey in Big Hole Gorge; hornblendite; porphyritic; valleyside landform

0202 45 56 40 112 50 10; NE1/4, SE1/4, section 4, T. 1 S., R. 10 W.; elevation 5490 feet; Dewey; blasted road cut near the west end of Big Hole Gorge east of Dewey on the south side of the road; quartz monzonite; equigranular; valleyside landform

0203 45 46 20 112 39 50; NE1/4, NW1/4, section 12, T. 1 S., R. 9 W.; elevation 6420 feet; Butte South; east side and at the base of a large spire in a wooded area northeast of the clearing that in 1983 contained the ruins of a cabin; vertical joint control; Granodiorite of the Moose Creek pluton; porphyritic; pinnacle landform

0204 45 46 15 112 39 50; NE1/4, NW1/4, section 12, T. 1 S., R. 9 W.; elevation 6400 feet; Butte South; southeast of sample site 0203, a large sloping exposure southeast of the small southwest-flowing creek; dipping joint control; Granodiorite of the Moose Creek pluton (granite); dome landform

0205 45 46 14 112 39 50; NE1/4, NW1/4, section 12, T. 1 S., R. 9 W.; elevation 6400 feet; Butte South; small outcrop immediately north of sample site 0204; vertical joint control; Granodiorite of the Moose Creek pluton (granite); equigranular; pinnacle landform

3. Pluton near Maiden Rock and the sill south of Glen, southwest Montana. These sample sites are not glaciated.

0301 45 25 55 112 38 45; SW1/4, NW1/4, section 6, T. 5 S., R. 8 W; elevation 5080 feet; Glen; tonalite; large sill west of U.S. Highway 91 between Glen and Dillon; vertical joint control; porphyritic; valleyside landform

0302 45 39 55 112 42 00; SW1/4, NE1/4, section 15, T. 2 S., R. 9 W.; elevation 5320 feet; Melrose; low tree-capped ledge in a field west of the jeep track to Maiden Rock fishing access, and just north of the rock buttress crossed by the road; vertical joint control; granodiorite; nonequigranular; spur landform

0303 45 39 50 112 41 55; boundary between SW1/4, NE1/4 and NW1/4, SE1/4, section 15, T. 2 S., R. 9 W.; elevation 5260 feet; Melrose; rock buttress south of sample site 0302, beneath the power line as it crosses the jeep track; vertical joint control; granodiorite; equigranular; valleyside landform

4. Granite Mountains, central Wyoming. All sample sites are granite and are not glaciated. [Data on rock texture is not provided for sample sites 0408 through 0415 because these samples have not yet been processed.]

0401 42 32 25 107 25 20; NW1/4, SW1/4, section 30, T. 30 N., R. 88 W.; elevation 6530 feet; Lone Mountain; large, stepped-back ledges of granite southeast of elevation point 6537 and south of BM 6569; vertical joint control; equigranular; valleyside landform

0402 42 32 35 107 25 55; SW1/4, NE1/4, section 25, T. 30 N., R. 89 W.; elevation 6760 feet; Lone Mountain; stepped-back ledges in massive rock on a spur of the 6961-foot hill; this hill is on the flank of a dome at the end of the jeep track leading north from elevation point 6544 which is located between BM 6365 and BM 6569; horizontal joint control; equigranular; spur landform

0403 42 31 55 107 25 15; NW1/4, NW1/4, section 31, T. 30 N., R. 88 W.; elevation 6520 feet; Lone Mountain; stepped-back, 10-meter high cliffs on promontory north of the track through Beef Gap; joint control by horizontal and vertical joints combined; equigranular; spur landform

0404 42 27 15 107 32 35; NE1/4, SE1/4, section 25, T. 29 N., R. 90 W.; elevation 6360 feet; Split Rock; steep to vertical face on the slope leading to the top of Cranner Rock from the west; horizontal joint control; equigranular; dome landform

0405 42 30 10 107 32 45; SE1/4, NW1/4, section 12, T. 29 N., R. 90 W.; elevation 6540 feet, Lankin Dome; a large pavement-like step on the flank of an elongate dome; horizontal joints control; equigranular; valleyside landform

0406 42 28 55 107 26 15; SE1/4, SW1/4, section 13, T. 29 W., R. 89 W.; elevation 6180 feet; Bucklin Reservoir; broken ledges in a shelf-like area on the side of a spur near an Oregon Trail marker; there is a 10-meter wide mafic dike nearby; vertical joint control; nonequigranular; spur landform

0407 42 28 50 107 30 50; SE1/4, SW1/4, section 17, T. 29 N., R. 89 W.; elevation 6180 feet; Split Rock; very large stepped-back, pavement-type outcrop on a prominent spur on the east side of Split Rock; horizontal joint control; equigranular; spur landform

0408 42 30 30 107 37 35; SW1/4, SE1/4, section 5, T. 29 N., R. 90 W.; elevation 6300 feet; Black Rock Gap; irregular, broken, pavement-type outcrop on small north-facing rock terrace; vertical joint control; spur landform

0409 42 31 50 107 30 15; W1/2, NE1/4, section 32, T. 30 N., R. 89 W.; elevation 6760 feet; Lankin Dome; pavement-type outcrop immediately above valley floor on a northwest-facing spur on the east side of Miller Pocket; horizontal joint control; valleyside landform

0410 42 33 25 107 26 55; NW1/4, SE1/4, section 23, T. 30 N., R. 89 W.; elevation 6940 feet; Lone Mountain; broken, irregular, pavement-type outcrop on the north side of the 7224-foot hill slightly above road level; vertical joint control; spur landform

0411 42 30 50 107 37 10; NE1/4, SW1/4, section 6, T. 29 N., R. 90 W.; elevation 6400 feet; Black Rock Gap; along a ridge crest south of Jamerman Rock (from the rock that looks like an elephant from the south) eastward and up to the 6510-foot summit just east of the prominent and conspicuous logan stone; joint control by vertical and horizontal joints combined; summit landform

0412 42 30 10 107 40 05; NW1/4, SE1/4, section 12, T. 29 N., R. 91 W.; elevation 6460 feet; Black Rock Gap; "staircase" outcrop above a rock platform near BM 6510 adjacent to and north of the graded road; horizontal joint control; valleyside landform

0413 42 30 55 107 38 55; SW1/4, NE1/4, section 6 T. 29 N., R. 90 W.; elevation 6200-6500 feet; Black Rock Gap; east slope of Jamerman Rock from base to crest; horizontal joint control; dome landform

0414 42 31 00 107 29 45; SE1/4, SW1/4, section 4, T. 29 N., R. 89 W.; elevation 6390 feet; Lone Mountain; combination of ledges and pavements on the south side of the jeep track delimiting the valley side; horizontal joint control; valleyside landform

0415 42 27 20 107 32 25; W1/2, section 30, T. 29 N., R. 90 W.; elevation 6260 feet; Split Rock; combination of cliffs and pavement-type outcrop on the steep southeast side of Cranner Rock; joint control by vertical and horizontal joints combined; valleyside landform

5. Stillwater River Valley, south-central Montana. All sites are glaciated.

0501 45 22 45 109 52 25; SE1/4, SE1/4, section 21, T. 5 S., R. 15 E.; elevation 5050 feet; Mt. Wood; a large, sloping, pavement-type outcrop just off the highway on the east-facing spur of a prominent, cliff-bound hill; no joint control of landform noted; coarse-grained quartz monzonite (granite); nonequigranular; spur landform

0502 45 22 40 109 52 30; SW1/4, SE1/4, section 21, T. 5 S., R. 15 E.; elevation 5100 feet; Mt. Wood; hillside ledges in woods above sample site 0501; no joint control of landform noted; coarse-grained quartz monzonite (granite); nonequigranular; valleyside landform

0503 45 22 10 109 53 10; NW1/4, SW1/4, section 28, T. 5 S., R. 15 E.; elevation 5080 feet; Mt. Wood; low ledges in the field just west of road; dipping or vertical joint control; medium-grained quartz monzonite (granodiorite); equigranular; valleyside landform

0504 45 22 15 109 53 10; NW1/4, SW1/4, section 28, T. 5 S., R. 15 E.; elevation 5125 feet; Mt. Wood; small, steeply-dipping ledges on hillside above and south of sample site 0503 in open pasture; vertical joint control; medium-grained quartz monzonite (granodiorite); equigranular; valleyside landform

6. Dartmoor, southwest England. All sample site names are shown on the Ordnance Survey map unless otherwise indicated. All sites are granite and none are glaciated. The number of megacrysts was determined in the field using a standard, folding, botanist's quadrat (1/2 meter sides). The quadrat was laid on a typical rock surface and megacrysts longer than one inch (2 1/2 cm) within the quadrat were counted. Relative relief was determined from topographic maps and is the vertical distance between the outcrop and the nearest important stream. This stream must be within 800 meters of the outcrop and is usually named on the map.

0601 Honeybag Tor; 72857878; elevation 420 meters; Widecombe in the Moor, SX 77 (1st series); the north end of the northern outcrop in a group of medium-sized outcrops on a conical mound; horizontal joint control; porphyritic (22 megacrysts); valleyside landform; 140 meters relative relief

0602 Bell Tor; 73057785; elevation 400 meters; Widecombe in the Moor, SX 77 (1st series); the south face of a massive outcrop at the south end of a spur; vertical joint control; porphyritic (23 megacrysts); spur landform; 50 meters relative relief

0603 Yes Tor; 58139010; elevation 610 meters; Okehampton, SX 49/59 (2nd series); the south side of the blocky outcrop at the crest of a conical hill; control by vertical and horizontal joints combined; porphyritic (11 megacrysts); summit landform; 70 meters relative relief

0604 Little Tor (Hemery, 1983); 58809065; elevation 520 meters; Okehampton, SX 49/59 (2nd series); a small lamellar outcrop in the saddle south of West Mill Tor; horizontal joint control; porphyritic (no megacrysts longer than 2 1/2 cm); summit landform; 100 meters relative relief

0605 West Mill Tor; 58789098; elevation 540 meters; Okehampton, SX 49/59 (2nd series); the coarse-grained part of the south end of the east side of the blocky outcrop forming a conical hill; vertical joint control; porphyritic (5 megacrysts); summit landform; 70 meters relative relief

0606 Great Staple Tor; 54237605; elevation 455 meters; Princetown, SX 57 (1st series); the angular stack (Figure 11) at the north end of the large, eastern outcrop; control by vertical and horizontal joints combined; porphyritic (23 megacrysts); pinnacle landform; 110 meters relative relief

0607   Great Staple Tor; 54287600; elevation 450 meters; Princetown, SX 57 (1st series); at the south end of the west side of the large, eastern outcrop; vertical joint control; porphyritic (23 megacrysts); summit landform; 110 meters relative relief

0608   Hound Tor; 74287903; elevation 380 meters; Widecombe in the Moor, SX 77 (1st series); the south side of the northern castellated outcrop; vertical joint control; porphyritic (22 megacrysts); summit landform; 160 meters relative relief

0609   Hound Tor; 74237893; elevation 400 meters; Widecombe in the Moor, SX 77 (1st series); the south side of the main, southern castellated outcrop; control by vertical and horizontal joints combined; porphyritic (15 megacrysts); summit landform; 160 meters relative relief

0610   Hound Tor; 74257890; elevation 390 meters; Widecombe in the Moor, SX 77 (1st series); a small, angular, blocky outlier southeast of the main outcrop; horizontal joint control; porphyritic (10 megacrysts); summit landform; 160 meters relative relief

0611   Blackingstone Rock; 78638558; elevation 355 meters; Moretonhampstead and Chagford, SX 68/78 (2nd series); the entire south side of the outcrop; horizontal joint control; porphyritic (22 megacrysts); valleyside landform; 40 meters relative relief

0612   Heltor; 79988705; elevation 312 meters; Moretonhampstead and Chagford, SX 68/78 (2nd series); the east side of the outcrop; horizontal joint control; porphyritic (32 megacrysts); summit landform; 80 meters relative relief

0613   Elsford Rock; 78638300; elevation 290 meters; Moretonhampstead and Chagford, SX 68/78 (2nd series); a long, low outcrop on a slope — the upper surface of the outcrop nearly parallels the slope; horizontal joint control; porphyritic (14 megacrysts); valleyside landform; 150 meters relative relief

0614   Emsworthy Rocks (Hemery, 1983); 74937700; elevation 385 meters; Widecombe in the Moor, SX 77 (1st series); the middle of the south side of the long, low rib-like outcrop north of Saddle Tor that trends normal to the main ridge; horizontal joint control; porphyritic (17 megacrysts); spur landform; 60 meters relative relief

0615   South Hessary Tor; 59707235; elevation 450 meters; Princetown, SX 57 (1st series); the south and east sides of the west outcrop; control by vertical and horizontal joints combined; porphyritic (4 megacrysts); summit landform; 50 meters relative relief

0616   Combestone Tor; 67057185; elevation 356 meters; Two Bridges, SX 67 (1st series); the west side of the center outcrop in the group of outcrops south of the West Dart River; control by vertical and horizontal joints combined; porphyritic (4 megacrysts); summit landform; 130 meters relative relief

0617 Scorhill Tor; 65858710; elevation 380 meters; Moretonhampstead and Chagford, SX 68/78 (2nd series); the east side of the long, low, flat outcrop that extends down the slope leading to the River Teign; horizontal joint control; porphyritic (4 megacrysts); valleyside landform; 40 meters relative relief

0618 Hayne Rocks (Hemery, 1983); 74188040; elevation 385 meters; Moretonhampstead and Chagford, SX 68/78 (2nd series); the west side of the large outcrop at the northern end of the ridge; control by vertical and horizontal joints combined; porphyritic (24 megacrysts); summit landform; 120 meters relative relief

0619 Pil Tor; 73507598; elevation 420 meters; Widecombe in the Moor, SX 77 (1st series); the south side of the northern outcrop; horizontal joint control; porphyritic (16 megacrysts); summit landform; 190 meters relative relief

0620 Pil Tor; 73537593; elevation 420 meters; Widecombe in the Moor, SX 77 (1st series); the south side of the southern outcrop; horizontal joint control; porphyritic (16 megacrysts); summit landform; 190 meters relative relief

0621 Hookney Tor; 69888128; elevation 495 meters; Moretonhampstead and Chagford, SX 68/78 (2nd series); the eastern outcrop; horizontal joint control; porphyritic (19 megacrysts); summit landform; 120 relative relief

0622 Bellever Tor; 64457643; elevation 443 meters; Two Bridges, SX 67 (1st series); the east and south faces of the western outcrop at the top of the hill; horizontal joint control; porphyritic (1 megacryst); summit landform; 90 meters relative relief

0623 Belstone Ridge Tor[4]; 61439263; elevation 410-420 meters; Belstone and Cheriton Bishop, SX 69/79 (2nd series); the long, narrow, north-trending outcrop at the north end of the ridge due south of Nine Stones; control by vertical and horizontal joints combined; porphyritic (4 megacrysts); spur landform; 120 meters relative relief

0624 Roos Tor; 54357663; elevation 450 meters; Princetown, SX 57 (1st series); the northeast side of the central outcrop below the flag pole; vertical joint control; porphyritic (13 megacrysts); summit landform; 140 meters relative relief

0625 Middle Staple Tor; 54107560; elevation 431 meters; Princetown, SX 57 (1st series); the east side of the outcrop; vertical joint control; porphyritic (4 megacrysts); summit landform; 120 meters relative relief

0626 Littaford Tors; 61587715; elevation 466 meters; Two Bridges, SX 67 (1st series); the west side of the main outcrop; control by vertical and

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[4] This is Ehlen's name for an unnamed outcrop on the Ordnance Survey map.

horizontal joints combined; porphyritic (2 megacrysts); spur landform; 100 meters relative relief

0627 Branscombe's Loaf; 55408913; elevation 532 meters; Lydford, SX 48/58 (2nd series); the east-southeast side of this lamellar outcrop; horizontal joint control; porphyritic (11 megacrysts); summit landform; 180 meters relative relief

0628 Lower Dunna Goat; 55758635; elevation 550 meters; Lydford, SX 48/58 (2nd series); the west side of the outcrop; horizontal joint control; equigranular; valleyside landform; 30 meters relative relief

0629 West Mill Tor; 57789095; elevation 540 meters; Okehampton, SX 49/59 (2nd series); the fine-grained part of the south end of the east side of the outcrop; vertical joint control; equigranular; summit landform; 70 meters relative relief

0630 Hen Tor; 59356528; elevation 414 meters; Yelverton, SX 56 (1st series); the west side of the eastern-most, large outlier of the outcrop; control by vertical and horizontal joints combined; equigranular; valleyside landform; 110 meters relative relief

0631 Little Trowlesworthy Tor; 57706460; elevation 330 meters; Yelverton, SX 56 (1st series); the north side of the blocky, ridge-like outcrop; vertical joint control; equigranular; spur landform; 80 meters relative relief

0632 Higher White Tor; 62007860; elevation 527 meters; Two Bridges, SX 67 (1st series); the west side of the outcrop near the crest of the hill; horizontal joint control; porphyritic (12 megacrysts); summit landform; 120 meters relative relief

0633 Longaford Tor; 61587795; elevation 507 meters; Two Bridges, SX 67 (1st series); a ledge high on the west side of this large conical outcrop; control by vertical and horizontal joints combined; porphyritic (6 megacrysts); summit landform; 120 meters relative relief

0634 Haytor Rocks; 75887713; elevation 450 meters; Widecombe in the Moor, SX 77 (1st series); the east outcrop; control by vertical and horizontal joints combined; porphyritic (44 megacrysts); summit landform; 100 meters relative relief

0635 Haytor Rocks; 75707710; elevation 420 meters; Widecombe in the Moor, SX 77 (1st series); the fine-grained part of the northwest side of the western outcrop; vertical joint control; equigranular; summit landform; 110 meters relative relief

0636 Pew Tor; 53257343; elevation 310 meters; Princetown, SX 57 (1st series); the south side of the largest outcrop in a group of rock rings surrounding grassy areas; control by vertical and horizontal joints combined; porphyritic (3 megacrysts); summit landform; 130 meters relative relief

0637   Hart Tor; 58107200; elevation 390 meters; Princetown, SX 57 (1st series); the south side of the main, steeply-sloping outcrop; horizontal joint control; porphyritic (3 megacrysts); valleyside outcrop; 40 meters relative relief

0638   Sheeps Tor; 56656820; elevation 350 meters; Yelverton, SX 56 (1st series); the south-southwest side of the northwest outlier on the crest of the hill; control by vertical and horizontal joints combined; porphyritic (33 megacrysts); summit landform; 60 meters relative relief

0639   Sheeps Tor; 56556830; elevation 350 meters; Yelverton, SX 56 (1st series); the north end of the massive, east-southeast facing main outcrop above and to the north of the large dike in the center; control by vertical and horizontal joints combined; porphyritic (30 megacrysts); summit landform; 130 meters relative relief

0640   Great Links Tor; 55088675; elevation 586 meters (BM); Lydford, SX 48/58 (2nd series); the northwestern-most block of the outcrop, below the Ordnance Survey pillar; horizontal joint control; porphyritic (16 megacrysts); summit landform; 230 meters relative relief

0641   Brat Tor; 53958560; elevation 450 meters; Lydford, SX 48/58 (2nd series); the west side of the main outcrop, below the cross; horizontal joint control; porphyritic (12 megacrysts); spur landform; 150 meters relative relief

0642   Wild Tor; 62308765; elevation 531 meters; Moretonhampstead and Chagford, SX 68/78 (2nd series); the west side of the western-most outcrop; control by vertical and horizontal joints combined; porphyritic (4 megacrysts); spur landform; 80 meters relative relief

0643   Watern Tor; 62938675; elevation 530 meters; Moretonhampstead and Chagford, SX 68/78 (2nd series); the north side of the larger lamellar outcrop; horizontal joint control; equigranular; spur landform; 120 meters relative relief

0644   Beardown Tors; 60457773; elevation 507 meters; Two Bridges, SX 67 (1st series); the west side of the western outcrop of the northern tor; control by vertical and horizontal joints combined; porphyritic (3 megacrysts); summit landform; 80 meters relative relief

0645   Beardown Tors; 60557740; elevation 511 meters; Two Bridges, SX 67 (1st series); the northeast face (below the flag pole) of the main outcrop of the eastern tor; control by vertical and horizontal joints combined; porphyritic (2 megacrysts); summit landform; 110 meters relative relief

0646   Great Mis Tor; 56257690; elevation 535 meters; Princetown, SX 57 (1st series); the west side of the main outcrop; vertical joint control; porphyritic (18 megacrysts); summit landform; 200 meters relative relief

0647   Great Mis Tor; 56107700; elevation 520 meters; Princetown, SX 57 (1st series); the east and south sides of the northwest outlier on the hill

crest; vertical joint control; porphyritic (8 megacrysts); summit landform; 160 meters relative relief

0648   Black Tor; 56708943; elevation 485 meters; Lydford, SX 48/58 (2nd series); the south and west faces of the middle outcrop; horizontal joint control; porphyritic (4 megacrysts); valleyside landform; 100 meters relative relief

0649   Mel Tor; 69357263; elevation 346 meters; Two Bridges, SX 67 (1st series); the west side of the low, ridge-like outcrop nearest Bel Tor Corner; control by vertical and horizontal joints combined; porphyritic (7 megacrysts); spur landform; 100 meters relative relief

0650   Ger Tor; 54658310; elevation 445 meters; Lydford, SX 48/58 (2nd series); the west side of a block in the center of the outcrop; control by vertical and horizontal joints combined; porphyritic (5 megacrysts); spur landform; 110 meters relative relief

0651   King's Tor; 55657385; elevation 400 meters; Princetown, SX 57 (1st series); the south side of the main outcrop; control by vertical and horizontal joints combined; porphyritic (5 megacrysts); summit landform; 190 meters relative relief

0652   Oke Tor; 61159015; elevation 460 meters; Belstone and Cheriton Bishop, SX 69/79 (2nd series); the north end of the long, ridge-like outcrop along the crest of the hill; control by vertical and horizontal joints combined; equigranular; summit landform; 110 meters relative relief

0653   Oke Tor; 61289005; elevation 465 meters; Moretonhampstead and Chagford, SX 68/78 (2nd series); the east side towards the south end of the long, ridge-like outcrop on the crest of the hill; control by vertical and horizontal joints combined; equigranular; summit landform; 110 meters relative relief

0654   Down Tor; 58056938; elevation 366 meters; Yelverton, SX 56 (1st series); the north side of the large crevice in the main outcrop; control by vertical and horizontal joints combined; porphyritic (22 megacrysts); summit landform; 130 meters relative relief

0655   Rippon Tor; 74657560; elevation 473 meters (BM); Widecombe in the Moor, SX 77 (1st series); the south side of the largest outcrop on the crest of the hill; control by vertical and horizontal joints combined; porphyritic (41 megacrysts); summit landform; 110 meters relative relief

0656   Buckland Beacon; 73507310; elevation 380 meters; Widecombe in the Moor, SX 77 (1st series); the west and south sides of the outcrop where the Ten Commandments Stones are located; horizontal joint control; porphyritic (21 megacrysts); spur landform; 290 meters relative relief

0657   Sharp Tor; 55058485; elevation 510 meters; Lydford, SX 48/58 (2nd series); the east side of the outcrop; horizontal joint control; porphy-

ritic (no megacrysts longer than 2 1/2 cm); valleyside landform; 130 meters relative relief

0658   Doe Tor; 54208485; elevation 25 meters; Lydford, SX 48/58 (2nd series); the north side of the central part of the outcrop; horizontal joint control; porphyritic (no megacrysts longer than 2 1/2 cm); spur landform; 110 meters relative relief

Modal Analyses

The procedures used for measuring grain size in this study are described in Ehlen and Zen (1985) and Ehlen (in prep); there is no standard procedure.   In most cases, cut slabs, rather than thin sections, were used for both modal analyses and grain size measurements, because many of the rocks are very coarse grained and/or strongly megacrystic.   Thin sections were used for finer-grained rocks, i.e. those having mean grain size less than 1 mm.   750 grains per sample were measured.   The slabs and thin sections were stained so that the potassium feldspar could be easily distinguished from plagioclase (Bailey and Stevens, 1960).   The major minerals were identified when measured.   All other minerals, including mafic, accessory and secondary minerals, were classed as "other" except where otherwise specified.   These minerals are typically very fine grained, and rarely exceed 0.5 mm in length, which was the smallest increment measured on the slabs.   The modal and grain size data are given in Appendix 1.

Joint Spacing Data

The joint spacing measurements are presented as hardcopy (Appendix 1) as well as on the accompanying IBM-compatible disk in ASCII format.   In both formats, the first number (a five-digit number) on the top line of every entry, is the study site/sample site number.   The first four digits of this number are defined on p. 15, above.   The fifth digit is the number of the joint set.   For example the number 06243 identifies study area 6 (Dartmoor), sample site 24, and the third joint set measured at that site.   The second entry is dip, the third is the direction of dip and the last entry is average strike for the joint set.   Dip direction is coded as follows: 0 = vertical, 1 = N, 2 = NE, 3 = E, 4 = SE, 5 = S, 6 = SW, 7 = W and 8 = NW. Next comes a sequence of numbers, one or more lines long, that give the distances between successive joints (i.e. joint spacings) as measured in the field.   Primary joints are indicated with a prefix "p."   This sequence of numbers is followed by another sequence between curly brackets, which represents the spacings between primary joints, which are also sequential.

Outcrop selection depended on size and accessibility; initially, most joint sets in each outcrop were measured.   As experience was gained, the number of sets and the number of joints per set needed to characterize an outcrop was determined with statistical analysis in mind.   The number of sets and the number of joints in each set thus varies considerably.   For example, on Dartmoor, the last area where measurements were made, an outcrop was considered for measurement only if there were a minimum of 12

joints per set for each joint set spanning the entire outcrop. Vertical, horizontal and dipping (inclined) joint sets were measured. Joint sets in addition to those measured, that contained too few joints, were usually present. Except in three cases, only natural outcrops were used; no measurements were taken in quarries because of the possible presence of blasting-induced fractures (Piteau, 1970; ISRM, 1978). The three exceptions were road cuts modified by blasting, sites 0117, 0201 and 0202, where obviously blasting-induced fractures were excluded.

Spacings were measured between successive joints longer than about 10 cm. in every set that had enough joints. Spacing measurements were made normal to strike, usually on continuous outcrop. Measurements were taken in centimeters using a folding meter stick, i.e. a "carpenter's rule." The joints in each set were measured sequentially from one end of the exposure to the other for vertical joints and from top to bottom (or vice versa) for horizontal joints. When a primary joint was encountered, it was indicated by underlining in the field notes and by a "p" in this report. The distances between primary joints were determined later by summing the secondary spacings between them.

The number of sample sites and the numbers of joint spacing measurements made in each study area are as follows:

	Number of Sample Sites	Total Number of Measurements	Number of Primary Joint Spacings	Number of Secondary Joint Spacings
Pioneer Batholith:	39	8364	1481	6883
Boulder Batholith satellites:	5	729	140	589
Maiden Rock/Glen sill:	3	611	84	527
Granite Mountains:	15	4267	562	3705
Stillwater Valley:	4	1084	107	977
Dartmoor:	58	7514	1300	6214
TOTAL:	121	22,569	3674	18,895

Descriptive data were also collected at each outcrop. In addition to those discussed above, these included: outcrop size; apparent grain size; rock fabric, if any, for groundmass or megacrysts; whether the joints were open or closed; whether or not the mineral grains were cut by joints or veins; which kind of joints controlled the landform; the degree of weathering; whether or not there was offset in the plane of the joint; whether the joints were filled by minerals, and if so, which mineral; direction of measurement; the presence of additional joint sets; and any other information that was thought pertinent or interesting. Tourmaline-filled joints are common in the Dartmoor outcrops; such occurrences are noted in Appendix 2.

References

Bailey, E.H. and Stevens, R.E., 1960, Selective staining of K-feldspar and plagioclase on rock slabs and thin sections: American Mineralogist, v. 45, p. 1020-1025.

Butler, J.R., 1966, Geologic evolution of the Beartooth Mountains, Montana and Wyoming. Part 6. Cathedral Peak area, Montana: Geological Society of America Bulletin, v. 77, p. 45-64.

Darbyshire, D.P.F., and Shepherd, T.J., 1985, Chronology of granite magmatism and associated mineralization, SW England: Journal of the Geological Society of London, v. 142, p. 1159-1177.

Ehlen, Judy, 1990, Fractures in Rocks: an annotated bibliography: Fort Belvoir, Virginia, U.S. Army Engineer Topographic Laboratories, ETL-0550, 40 p.

_____, in prep, Geomorphic, petrographic and structural relations in the Dartmoor Granite, Southwest England: Ph.D thesis, University of Birmingham, Birmingham, England.

Ehlen, Judy and Zen, E-an, 1986, Petrographic factors affecting jointing in the Banded Series, Stillwater Complex, Montana: Journal of Geology, v. 94, p. 575-584.

Engelder, Terry, 1987, Joints and shear fractures in rock: In Fracture Mechanics of Rocks, edited by B.K. Atkinson, London, Academic Press Inc., pp 27-69.

Fraser, G.D., 1973, Geology of the western part of the Melrose 7 1/2-minute topographic quadrangle, Beaverhead County, Montana: manuscript map.

Hemery, Eric, 1983, High Dartmoor, Land and People: London, Robert Hale, 1073 p.

International Society for Rock Mechanics Commission on Standardization of Laboratory and Field Tests (ISRM), 1978, Suggested methods for the quantitative description of discontinuities in rock masses: International Journal of Rock Mechanics and Mining Sciences and Geomechanics Abstracts, v. 15, p. 319-368.

Page, N.J. and Nokleberg, W.J., 1974, Geologic map of the Stillwater Complex, Montana: U.S. Geological Survey, Miscellaneous Investigations Series, Map I-797.

Page, N.J., Zientek, M.L., Lipin, B.R., Raedeke, L.D., Wooden, J.L., Turner, A.R., Loferski, P.J., Foose, M.P., Moring, B.C. and Ryan, M.P., 1985, Geology of the Stillwater complex exposed in the Mountain View area and on the west side of the Stillwater Canyon: In The Stillwater Complex, Montana: Geology and Guide, edited by G.K. Czamanske and M.L. Zientek, Montana Bureau of Mines and Geology Special Publication No. 92, p. 147-209.

Pearson, R.C. and Zen, E-an, 1985, Geologic map of the eastern Pioneer Mountains, Beaverhead County, Montana, scale 1:50,000: U.S. Geological Survey Miscellaneous Field Studies Map MF-1806-A, 1 sheet with text.

Piteau, D.R., 1970, Geological factors significant to the stability of slopes cut in rock: In Open Pit Mines, Proceedings of the Symposium on the Theoretical Background to the Planning of Open Pit Mines with Special Reference to Slope Stability (Johannesburg, South Africa), edited by P.W.J. Rensburg, The South African Institute of Mining and Metallurgy, p. 33-54.

Pollard, D.D. and Aydin, Atilla, 1988, Progress in understanding jointing over the past century: Geological Society of America Bulletin, v. 100, p. 1181-1204.

Smedes, H.W., Klepper, M.R. and Tilling, R.I., 1988, Preliminary map of plutonic units of the Boulder Batholith, southwestern Montana, scale 1:200,000: U.S. Geological Survey, Open-File Report OF 88-0283, 1 sheet.

Snee, L.W., 1978, Petrography, K-Ar ages, and field relations of the igneous rocks of part of the Pioneer batholith, southwestern Montana: M.S. thesis, Ohio State University, Columbus, Ohio, 110 p.

Streckeisen, A.L., 1973, Plutonic rocks: classification and nomenclature recommended by the IUGS subcommission on the systematics of igneous rocks: Geotimes, v. 18, no. 10, p. 26-30.

Stuckless, J.S., Bunker, C.M., Bush, C.A., Doering, W.P. and Scott, J.H., 1977, Geochemical and petrological studies of a uraniferous granite from the Granite Mountains, Wyoming: Journal of Research, U.S. Geological Survey, v. 5, p. 61-81.

Zen, E-an, 1988, Bedrock geology of the Vipond Park 15-minute, Stine Mountain 7 1/2-minute, and Maurice Mountain 7 1/2-minute quadrangles, Pioneer Mountains, Beaverhead County, Montana: U.S. Geological Survey Bulletin 1625, 49 p.

Zinter, G.G., 1982, The geology and petrology of the Big Hole Canyon pluton, Silverbow and Beaverhead Counties, Montana: Master's thesis, State University of New York at Buffalo, 88 p.

Appendix 1: Modal Data

The following abbreviations are used as column headings in the tables be-
low. Grain size is given in millimeters. The procedures for determining
these variables are given in Ehlen and Zen (1986) and Ehlen (in prep).

        MRGS - mean rock grain size
        MQUA - mean quartz grain size
        MKSP - mean potassium feldspar grain size
        MPLG - mean plagioclase grain size
        MHB   - mean hornblende grain size
        PQUA - percent quartz
        PKSP - percent potassium feldspar
        PPLG - percent plagioclase
        PTM   - percent tourmaline
        PHB   - percent hornblende
        POTH - percent "other" minerals

Table 1: East Pioneer Mountains, southwest Montana[5]

Sample Site	MRGS	MQUA	MKSP	MPLG	PQUA	PKSP	PPLG	POTH
0101	1.17	1.35	0.80	1.50	21.9	22.9	37.3	17.9
0102	0.75	0.74	0.79	0.73	28.0	39.5	30.9	0.6
0103	1.26	1.29	1.02	1.59	21.3	28.6	35.2	14.9
0104	1.52	1.56	1.21	2.03	20.8	22.7	34.1	22.4
0105	1.62	2.01	1.41	1.81	20.7	22.5	34.4	22.4
0106	1.49	1.66	1.30	1.82	20.9	18.8	37.1	23.2
0107	1.68	2.52	1.18	2.07	18.8	22.7	33.5	25.0
0108			– – – no sample – – –					
0109	1.66	2.54	1.18	1.95	18.0	27.3	31.9	22.8
0110	1.71	2.04	1.28	2.32	20.9	22.8	32.7	23.6
0111	1.15	0.85	0.84	1.43	21.7	5.9	42.0	30.4
0115	2.42	2.70	2.34	2.81	29.6	25.0	32.4	13.0
0116			– – – no sample – – –					
0117	1.33	1.37	0.92	1.42	25.3	17.4	41.6	15.7
0118	0.20	0.10	NA	0.40	68.4	NA	19.0	12.6
0119	0.10	0.10	0.10	0.20	55.7	9.7	24.8	9.8
0120	0.20	0.10	0.30	0.20	27.7	8.6	26.2	37.5
0121	2.68	2.52	3.85	2.87	29.7	19.4	35.9	15.0
0122/23	1.23	1.29	0.90	0.82	25.0	26.8	28.4	19.8
0124/25	1.86	2.48	1.96	2.12	23.1	26.2	23.1	27.6
0126			– – – no sample – – –					
0127	1.29	1.41	1.04	1.79	23.5	30.3	32.0	14.2
0128	1.22	1.25	1.06	1.80	23.5	30.4	31.7	14.4
0129	0.31	0.29	0.25	0.51	44.5	25.6	24.2	5.7
0130	0.90	0.79	0.72	1.20	21.5	8.0	39.2	31.3
0131	0.96	0.81	0.75	1.32	23.5	7.1	41.5	27.9
0132	1.09	1.16	1.14	1.41	28.0	21.4	29.8	20.8
0133	1.42	2.20	0.70	1.88	17.6	24.5	29.8	28.1
0134	1.65	2.38	1.52	1.91	22.3	21.8	33.6	22.3
0135	1.95	2.59	2.11	2.25	28.8	18.9	28.4	23.9
0136	1.94	2.96	1.55	2.37	23.5	16.8	29.6	30.1
0137	1.64	2.31	1.39	1.94	25.8	19.9	31.0	23.3
0138	2.16	3.04	2.12	2.57	25.4	24.7	35.8	14.1
0139	2.18	2.89	2.19	2.66	28.8	23.9	33.5	13.8

[5] Grain size was not determined for samples 12, 13 and 14 which are quartzite

Table 2: Boulder Batholith satellite plutons, southwest Montana

Sample Site	MRGS	MQUA	MKSP	MPLG	MHB	PQUA	PKSP	PPLG	PHB	POTH
0201	0.23	NA	NA	0.30	0.30	NA	NA	30.6	50.9	18.5
0202	0.18	0.10	0.20	0.20	0.30	23.1	16.1	23.6	21.1	16.1
0203	0.21	0.20	0.16	0.31	NA	28.9	20.2	34.0	NA	16.9
0204				- - - no sample - - -						
0205	1.55	2.03	1.54	1.85	NA	24.7	24.5	34.4	NA	16.4

Table 3: Pluton near Maiden Rock and the sill south of Glen,
southwest Montana

Sample Site	MRGS	MQUA	MKSP	MPLG	MHB	PQUA	PKSP	PPLG	PHB	POTH
0301	0.20	0.10	0.10	0.40	0.20	56.3	5.2	26.8	4.1	7.6
0302	0.34	0.40	0.40	0.36	NA	30.1	16.1	45.0	NA	8.8
0303	0.24	0.26	0.19	0.35	NA	35.8	18.4	38.5	NA	7.3

Table 4: Granite Mountains, central Wyoming[6]

Sample Site	MRGS	MQUA	MKSP	MPLG	PQUA	PKSP	PPLG	POTH
0401	1.26	1.61	1.55	1.20	31.0	38.8	27.2	2.9
0402	1.20	1.07	1.80	1.01	35.9	44.1	19.2	0.8
0403	1.54	1.77	2.07	1.43	34.1	36.6	28.7	0.6
0404	1.73	2.02	2.22	1.75	26.7	34.8	28.7	9.8
0405	1.45	1.41	2.85	1.70	30.0	27.3	22.9	19.8
0406	1.92	2.55	2.10	2.39	34.7	26.4	35.3	3.6
0407	1.51	1.62	2.13	1.54	28.2	28.8	26.6	16.4
0408	1.89	2.21	2.61	1.93	31.4	28.0	25.3	15.3

Table 5: Stillwater River Valley, south-central Montana

Sample Site	MRGS	MQUA	MKSP	MPLG	PQUA	PKSP	PPLG	POTH
0501	2.07	2.71	2.52	1.99	28.3	26.3	27.4	18.0
0502	2.22	2.66	2.83	2.47	28.8	27.0	29.6	14.6
0503	1.18	1.19	0.86	1.89	34.0	13.2	39.7	13.1
0504	1.27	1.46	1.07	1.68	30.4	15.6	36.3	17.7

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[6] Modal analyses and grain size measurements are not yet complete for samples 9-15.

Table 6:   Dartmoor, southwest England

Sample Site	MRGS	MQUA	MKSP	MPLG	PQUA	PKSP	PPLG	PIM	POTH
0601	2.68	2.91	2.90	3.15	31.2	26.6	25.6	11.3	5.3
0602	2.55	2.72	2.61	2.79	35.3	29.6	24.5	4.5	6.1
0603	1.42	1.26	1.81	1.18	35.2	35.8	23.1	4.7	1.2
0604	1.45	1.55	1.62	1.23	32.7	36.5	21.8	6.0	3.0
0605	2.00	1.98	2.40	1.99	33.4	34.3	19.1	8.1	5.1
0606/07	2.34	1.83	3.05	3.69	34.1	41.7	7.9	8.4	7.9
0608	1.64	1.39	1.65	2.43	24.0	25.1	27.0	4.6	19.3
0609	1.28	1.24	1.42	1.60	35.1	27.5	20.5	10.5	6.4
0610	1.06	0.93	1.06	1.72	34.7	34.5	14.0	8.0	8.8
0611	1.61	1.93	1.53	2.12	27.9	27.7	21.1	8.1	15.2
0612	1.46	1.45	1.71	1.25	36.7	39.6	11.2	7.8	4.7
0613	1.87	2.00	2.08	2.32	31.2	31.7	17.5	12.3	7.3
0614	1.83	1.87	2.42	1.94	32.5	25.5	21.3	10.1	10.6
0615	1.67	1.67	2.03	1.35	38.0	38.2	9.4	9.4	5.0
0616	1.56	1.78	1.53	1.71	33.3	34.5	19.6	9.1	3.5
0617	1.48	1.31	1.78	1.97	33.3	32.2	13.6	12.9	8.0
0618	1.60	1.61	1.63	2.28	31.8	29.6	18.7	7.6	12.3
0619/20	1.99	2.31	2.26	2.33	29.2	30.8	18.1	14.7	7.2
0621	1.35	1.14	1.47	2.00	33.1	26.3	20.8	8.8	11.0
0622	1.84	1.81	2.23	1.70	36.4	36.8	13.8	9.2	3.8
0623	1.49	1.64	1.55	1.62	30.6	29.0	20.7	15.4	4.3
0624	2.27	2.21	2.70	3.17	32.0	30.9	16.0	14.3	6.8
0625	1.53	1.46	1.85	1.53	35.9	38.3	10.5	9.5	5.8
0626	1.53	1.32	1.49	2.57	35.6	28.9	17.5	14.2	3.8
0627	1.36	1.37	1.61	1.27	34.1	32.1	17.6	13.6	2.6
0628	1.48	1.63	1.81	1.16	31.3	33.6	20.6	11.6	2.9
0629	0.85	0.74	0.99	0.84	37.9	39.6	18.1	1.3	3.1
0630	1.56	1.59	2.09	1.23	38.1	29.4	16.6	9.5	6.4
0631	2.40	3.16	2.72	1.87	30.4	30.0	25.7	5.5	8.4
0632	1.33	1.26	1.55	1.39	34.0	31.1	20.2	11.1	3.6
0633	1.95	2.07	2.83	1.61	32.3	27.1	18.2	17.6	4.8
0634	1.96	2.36	1.89	2.54	29.3	23.2	25.1	14.2	8.2
0635	0.67	0.77	0.64	0.63	39.1	38.0	16.5	2.9	3.5
0636	1.71	1.83	1.98	1.83	33.7	28.8	20.4	11.7	5.4
0637	2.04	2.21	2.78	1.98	35.7	25.9	15.6	17.5	5.3
0638	1.08	0.71	1.5	1.44	34.4	38.9	11.6	9.7	5.4
0639	1.46	1.64	1.47	1.92	30.7	28.5	17.6	13.7	9.5
0640	1.36	1.26	1.39	2.14	33.1	33.2	15.5	12.6	5.6
0641	1.67	1.69	1.78	2.21	34.0	31.3	16.1	14.4	4.2
0642	1.19	0.96	1.37	1.47	36.2	32.1	21.4	6.0	4.3
0643	1.13	1.18	1.27	1.05	31.1	34.9	23.5	7.0	3.5
0644	1.41	1.52	1.44	2.26	31.4	33.8	13.4	15.4	6.0
0645	1.69	1.60	2.17	1.55	36.2	37.4	11.2	10.0	5.2
0646	1.38	1.37	1.42	1.92	35.8	30.2	15.0	12.9	6.1

Sample Site	MRGS	MQUA	MKSP	MPLG	PQUA	PKSP	PPLG	PIM	POTH
0647	1.61	1.77	1.77	1.67	33.5	33.5	16.1	12.5	4.4
0648	1.36	1.36	1.28	1.87	35.6	34.9	16.5	8.9	4.1
0649	2.05	2.28	2.64	1.69	34.3	29.1	20.9	9.4	6.3
0650	1.31	1.34	1.50	1.25	34.1	34.1	18.0	7.8	6.0
0651	1.42	1.48	1.67	1.50	37.0	33.5	16.6	10.8	2.1
0652/53	1.98	2.40	2.56	1.60	25.8	28.9	28.3	9.0	8.0
0654	2.19	2.62	2.51	2.40	30.7	29.7	17.7	10.4	11.5
0655	1.19	1.10	1.25	1.57	31.7	31.5	22.3	9.3	5.2
0656	1.41	1.42	1.70	1.58	30.2	25.8	26.5	12.9	4.6
0657	1.33	1.30	1.65	1.15	37.2	38.8	14.1	4.3	5.6
0658	1.15	1.06	1.38	0.95	36.0	34.4	17.5	7.2	4.9

Appendix 2

Joint Spacing Data

APPENDIX 2   DATA ON JOINT SPACING

The first five digit number is the sample site and joint set (see text for explanation). The next three columns are respectively the dip, the dip direction, and the azimuthal strike. The full set of spacing data is given next; spacings ending in primary joints are preceded by the letter "p". An asterisk * at the start of a data set signifies that the measurement began at an identified primary joint. The calculated data set for spacings between successive primary joints is given between brackets {}. To aid the eye, every five measurements are separated by a "/".

1. East Pioneer Mountains, southwest Montana. Suffix "s" means sulfide or iron stain observed on joint surface; "q" means quartz vein in joint; and "a" means aplite or pegmatite in joint. A few joint sets contain a sequence of entries all having an "a" suffix; such sequences mean that the joints occur in a pegmatite or aplite the width of which spans the sequence.

01011 10 8 50

    10 22 p20 19 50/ 26 75 36 24 65/ 44 41 48 25 p70/ p18 73 65 134 p27/
    197 92

    {523 18 299}

01012 90 0 75

    110 20 12 5 56/ 2 21 2 39 21/ 15 32 18 10 30/ 69 p51 101 27 30/ 5 17
    23 6 10/ 7 9 5 8 6/ 4 7 3 6 8/ 5 11 7 5 4/ 3 7 9 9 7/ 8 8 12 5 13/ 7
    14 9 3 4/ 8 12 p3 6 5/ 6 17 47 6 21/ 6 18 22 8 20/ 21 24 23 23 4/ 6 2
    32 11 p6/ 7 30 34 14 p150/ p33

    {455 334 235 33}

01013 75 2 355

    * 2 3 4 6 3/ 5 4 3 6 9/ 4 7 5 4 3/ 5 4 7 7 p8/ 2 2 3 2 4/ 3 5 3 4 4/ 6
    5 4 5 6/ 4 4 3 2 3/ 4 2 p4 4 4/ 2 4 2 2 4/ 3 9 2 6 4/ 4 2 7 7 4/ 5 2 5
    p4 4/ p4 3 4 4 4/ 4 3 2 4 3/ 3 3 3 4 6/ 4 4 5 4 3/ 5 5 4 1 2/ p4 2 6 4
    4/ 3 p4 5 3 p8/ 8 6 11 3 5/ 6 2 6 3 2/ p10 3 8 2 4/ 4 6 3 6 4/ 5 16 6
    3 11 6/ 6 12 2 6 6/ 9 6 7 3 5/ 3 4 9 4 6/ 4 12 3 4 3/ 4 7 2 7 5/ 6 9
    17 13 4/ 10 9 5 2 4/ p3 8 6 8 2/ 2 6 2 2 3/ 5 2 4 4 3/ 6 3 p5 3 3/ 2 7
    7 p6

    {100 84 92 8 91/ 23 16 62 299 89/ 28}

01021 50 7 350

    {93 106 60 40 91/ 35 35 12 17 50/ 101 81 124}

01022 35 1 305

{33 17 17 22 20/ 15 17 17 12}

01023 50 2 330

{152 33 60 43 20/ 33 91 48 30}

01024 75 1 90

{43 10 139 111 147/}

01025 30 2 80

{114 121 50 12}

01026 30 7 0

{12 99 43 55}

01027 40 7 10

* 33 22 33 175 7/ 5 7 2 5 2/ 5 p5 7 2 2/ 5 10 5 p20 5/ 2 5 7 10 10/ 7
12 7 p25 5/ 12 12 5 7 10/ 7 10 p10 7 p10/ 7 17 20 2 p7/ 7 5 5 7 7/ p12
12 5 7

{304 53 91 78 22/ 48 88}

01028 70 3 345

{27 27 25 7 5/ 7 7 10 7 17/ 12 15}

01029 10 6 315

{45 17 20 22 7/ 7 6 6 5 20/ 38}

01031 85 3 355

* 5 5 17 10 2/ 2 5 2 10 18/ 12 10 10 10 7/ p7 5 10 7 5/ 12 5 p10 5 10/
17 15 5 p22

{132 53 76}

01032 15 5 280

* p24 15 5 15 p25/ 7 15 15 15 20/ 17 7 15 15 17/ 15 7 7 12 7/ 10 22 10
17 17/

{24 60}

01033 80 3 10

* p7 12 10 10 5/ 45 7 7 10 12/ 5 5 p5 5 15/ 20 5 17 12 30/ 22 12 17 15
12/ 5 p7 7 35 10/ 7 10 12 10 15/ 15 10 p12

{7 127 195 154}

01034 10 8 30

* 5 7 7 12 7/ p15 10 10 25 15/ 12 12 10 7 p5/ 7 5 12 20 10/ 12 15 17
12 12/ 7 5 5 12 12/ 27 5 12 5 7/ 12 5 p12 33 25/ 7 7

{53 104 254}

01035 30 2 335

{60 50}

01041 80 8 75

* p71 p149 38 55 58/ 45 p48 38 50 p27/ p53 p50 50 p38 p25/ 10 p15 7 33
p236/ 53 81

{71 149 246 116 53/ 50 88 25 25 276/}

01042 45 4 10

* p63 p116 p119 p91 p78/ 45 27 40 p76 p160/ 173

{63 116 119 91 78/ 188 160}

01043 45 8 35

{63 93 60 106}

01044 15 8 70

* p63 27 22 p81

{63 132}

01051 90 0 45

* p190 10 15 19 27/ p17 p33 p93 p60

{190 88 33 93 60/}

01052 90 0 20

* 5 5 5 5 5/ 7 7 p17 17 40/ 22 86 22 55 p142/ 99 33 7 5 7/ 12 7 p10
p99 p27/ 17 7 p17 2 2/ p12 12 20 10 12/ 25 10 20 12 22/ 7 7 7 2 2/ p22
p119 p116 71 30/ 15 27 53 p48 15/ 35 154 20 63 12/ 33 35 10 10 17/ 7
10 7 p45 p12/ p88 p10 p45 p170 p157/ p63 p43 p48 10 33/

{55 388 180 99 27/ 43 17 198 119 116/ 246 480 12 88 10/ 45 170 157 63
43/ 48}

01053 45 8 75

    50 50 66 63 55/ 50

01054 90 0 0

    * p60 p7 p81 p106 88/ p27 p86 p45 p35 p53 /p45 p33

    {60 7 81 106 115/ 86 45 35 53 45/ 33}

01055 40 2 310

    {68 78 73 129 12/ 119 101 127 165}

01056 15 5 280

    15 15 17 7 7/ 35 27 35 50 10/ 7 17 12 7 7/ 15 5 5 27 68/ 15 30

01061 75 7 20

    * p116 p81 p96 p137 p88/ p111 p152 p30 p27 p30/ 22 7 p40 35 15/ 22 38
    5 5 10/ p59 15 10 7 7/ 60 7 15 17 p40/ 63 p76 15 99 190/ 15 17 68 63
    93/ p111 p53 57 p20 p10/

    {116 81 96 137 88/ 111 152 30 27 304/ 71 185 182 139 675/ 134 246 25}

01062 40 2 320

    * p107 p17 43 25 p22/ p50 p127 p76 2 p73/ 60 23 27 22 p48/ 60 p60

    {107 17 91 50 127/ 76 93 182 121}

01063 65 6 335

    * p81 66 p33 p101 p355/ p25 p50 p180 p55 p93/ p139 p58 p182 p233 99/
    25 20 30 35 12/ 10 7 147 p43 27/ 35 17 p38 53 50/ 25 45 p177 22 p43/
    91 12 p25 22 20/ p7 p132

    {81 99 101 355 25/ 50 180 55 93 139/ 58 182 233 431 119/ 353 56 129 50
    132/}

01064 90 0 70

    {27 121 393 55 68/ 106 71}

01071 85 1 90

    {81 78 182 147 111/}

01072 75 7 355

* p60 p40 30 p15 p30/ p27 15 15 20 p7/ 15 20 12 10 7/ p5 17 15 5 p15/ 5 30 10 p50

{60 40 45 30 27/ 58 68 53 96}

01073 55 4 45

* p83 99 55 p20 p99/ 10 7

{83 175 99}

01081 80 3 20

* 17 27 12 p10 p45/ 5 7 12 7 15/ 2 p22 10 7 2/ 7 22 22 p40 15/ 33 17 p142 p132 33/ 35

{114 73 114 208 132/}

01082 40 6 315

{276 129 81 20 66/ 86 137}

01083 40 8 85

* p111 p111 12 7 7/ 15 40 p7 144 43/ 15 p25

{111 111 91 228}

01091 90 0 0

* 45 p25 10 5 5/ 2 p7 12 p20 5/ 15 p25 22 22 25/ 20 5 20 p33 27/ 15 17 5 2 5/ p12 30 20 63 p60/ 12 10 p43 17

{70 30 33 43 149/ 86 175 66}

01092 40 6 280

* 182 p63 104 p86 p78/ p177 p88 124 30 p83/ 134 p76 35 22 p124/ p284 20 10 p50 101/ 15 p12 p68 p71 p58/ p96 p55 86 58 35/ p17 30 96 13 p81/

{246 190 78 177 88/ 238 210 182 284 81/ 129 68 71 58 96/ 55 198 223}

01093 40 2 280

{114 17 5 304 266/ 170 218 22 20 71/ 99 12 55}

01094 25 6 75

* 71 p33 p27 p43 22/ 43 p27 30 p15 40/ p22

{104 27 43 93 45/ 63}

01095   55 8 60

  * p53 7 5 20 p25/ 5 5 10 p7 p12/ 7 101

  {53 58 27 12}

01096   40 1 75

  * 218 p15 5 p58 p106/ 76 p114a p294 p238

  {233 63 106 190 294/ 238}

01097   40 5 90

  * p30 p119 p242 35 p238/ p236

  {30 119 242 274 236/}

01098   65 1 330

  * p182 10 p35 7 81/ p27 76

  {182 45 116}

01101   55 1 275

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7 15 p7 4 8/ 10 9 p29 p65 24/ 7 4 54

(60 65)

01304   25 4 65

11 24 7 2 2/ 2 1 45 25 30/ p33 32 32 78 18/ 54 14 p30 2 14/ 44 40 p33 20 40/ p80

(258 133 140)

01311   90 0 330

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(121 23 15 37 220/ 87 132 98 85 168/ 64 27 66 65 32/ 20 243 192)

01312   50 8 65

119 10 p22 p19 p63/ 21 30 p8 15 82/ 10 64 138 p26 15/ 6 23 75 p39 143/ 40 15 50 34 24/ 50 p55

(19 63 59 335 158/ 411)

01321   80 3 0

* 84 8 42 42 p18/ 13 13 21 9 11/ 11 4 8 7 p10/ 27 6 8 17 10/ p10 p60 p14 5 8/ 15 3 21 4 6/ 5 p8 6 3 5/ p9 7 15 3 2/ 19 4 p17 7 4/ 6 p18 2 3 6/ 27 p14 18 17 50/ 45 57 19 p15 10/ 58 46 p3 2 3/ 23 p29 3 6 36/ 50 p4 4 3 8/ 14 3 7 p6 4/ 3 8 21 7 6/ 6 p11 8 14 p5/ 8 5 14 17 11/ 3 8 14 53 55/ 22 48 57 5 11/ 13 14 12 p20 29/ p5 12 5 21 5/ 3 7 5 35 5/ 6 1 1 4 10/ p5 3 2 5 7/ 2 2 3 p3 5/ 9 3 5 7 16/ 7 11 10 4 5/ 5 p3 3 4 6/ 2 7 p12 9 6/ 10 12 8 p7/ 5 13 5 2 p4/ 5 8 4 13 9/ 7 7 6 10 5/ 10 11 10 10 6/ 10 9 3 8 5/ 7 10 5 6 5/ 4 4 p6 2 p7/ 2 p11 5 4 4/ 2 6 6 14 p18/ 9 11 15 10 3/ p20 2 10 13 6/ 6 13 9 p9 3/ 7 5 6 5 5/ 6 p7 10 6 3/ p20 5 7 13 2/ 26 8 10 12 10/ 17 9 8 11 22/ 4 8 p6 13 6/ p19 9 6 12 11/ 9 2 12 p2 6/ 6 2 20 4 p17/ 18 15 16 p18 5/ 3 8 13 11 p10/ 6 17 9 2 3/ 2 2 p4 8 9/ 20 7 6 10 18/ 2 4 p15 5 18/ 16 12 7 6 p5/ 7 7 p12 4 19/ 13 18 9 7 p2/ 8 20 22 13 10/ 9 6 13 8 10/ 4 2 9 7 28/ 8 p6 6 4 7/ 23 p5 6 13 p13/ 5 5 7 15 7/ 10 9 7 8 4/ 6 7 9 15 5/ 9 4 4 p10 10/ 9 12

(194 107 78 60 14/ 75 23 67 35 52/ 221 117 57 99 45/ 66 27 390 34 135/ 27 90 34 61 29/ 205 9 13 59 68/ 68 46 39 178 38/ 63 55 67 50 45/ 99 69 26 72 183/ 45 32 236)

01322   45 8 35

100 71 15 150 22/ p44 p41 50 8 10/ p15 13 p7 31 p25/ 56 8 34 10 24/

p13 19 p9 p47 5/ 36 10 p19 33 4/ 2 p12 11 15 p43

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01323 30 8 35

8 14 14 39 49/ 68 p122 p50 12 14/ 179 7 10 12 20/

{50}

01331 45 4 80

p75 312 116 347 337/ p175 p400 115 p230 126/ 240 p83 p190

{1287 400 345 449 190/}

01332 80 4 80

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26 7 33 10 5/ 22 18 15 85 p18/ 35 p280 36 p20 p8/ p54 40 10 9 22/ p6
10 15 40 15/ 12 p9 34 p18 15/ 102 85 70

{302 31 285 522 335/ 315 56 8 54 87/ 101 52}

01333 82 4 10

* 12 2 11 13 16/ 2 9 123 32 6/ 4 41 115 66 100/ 25 85 20 p13 55/ 10 34
6 2 4/ p7 3 18 p210 40/ 7 31 2 5 30/ p118 58 34 54 52/ 19 6 6 p8 30/ 3
60 15 6 10/ p46 52 p17 13 60/ 32 18 24 23 p30/ 128 28 p8 74 140/ 188
157 94 p200 33/ 6 6 72 4 2/ 4 14 4 p10 10/ 27 32 3 p11 7/ 6 p10 5 11
19/ 36 6 2 5 2/ 4 5 3 6 2/ p5 2 p14 10 2/ 16 4 6 5 7/ 9 3 6 9 38/ 12
10 p7 2 11/4 p2 2 1 79/ 102 5 p28 16 9/ 8 3 48 53 18/ p4 10 3 7 13/ 34
6 2 3 5/ p9 7 5 4 5/ 2 5 5 3 6/ 3

{701 118 231 233 237/ 170 69 200 164 853/ 155 83 23 111 16/ 144 17 217
159 92}

01334 50 8 70

* 6 4 32 21 p21/ p26 16 26 p120 p24/ 4 56 67 150 p22/ 13 90 p85

{84 26 162 24 299/ 188}

01335 40 5 280

p28 p59 40 49 6/ 5 12 30 54 22/ 4 7 54 47 17/ 6 30 23

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42 p50/ p20 13 14 160 p38/ 40 p23 p25 p120 15/ p480

{84 140 165 275 195/ 20 225 63 25 120/ 495}

01342 55 6 275

* p50 103 p168 100 p11/ p55 p185 p87 8 20/ 11 5 p13 p110 93/ 78 40 p54 p90 70/ p90 p320 175 56 14/ 38 64 63 p200 37/ 54

{50 271 111 55 185/ 87 57 110 265 90/ 160 320 610}

01343 70 1 90

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{682}

01344 85 2 330

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{24 128 26 82 6/ 118 907 22 212}

01351 50 2 280

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01353 80 3 355

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42 14 3/ 10 20 3 9 p30 8 19 50 11 30/ 7 105 p17 8 10/ p12 9 8 27 16/
48 7 38 30

{94 166 15 188 172/ 132 149 1353 131 247/ 30}

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30/ 72 p162 3 4 61/ p38 p205 p180 p50

{97 91 146 196 64/ 245 112 734 106 205/ 180 50}

01362 45 1 295

* p200 22 42 130 p144/ 150 50 22 180 30/ p35 100 p400 p125

{200 338 467 500 125}

01363 90 0 360

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40/ 14 11 2 5 p85/ 25 4 2 2 3/ 8 5 8 2 8/ 7 2 3 52 4/ 7 3 9 2 3/ 7 5
16 65 10/ 65 40 5 32 40/ 24 p100 20 49 34/ 4 10 15 12 18/ 7 p20 5 44
34/ p6 9 6 8 14/ 8 5 45 9 19/ 5 14 10 p15 27/ 19 4 p31 14 5/ 10 6 8 p4
17/ 4 p32 7 10 p10/ 26 22 32 p6 48/ p43

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01364 90 0 35

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{873}

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* 297 40 p38 205 220/ p50 11 20 p360 52/ 10 51 15 p15 137/ 20 p132 p70
p140 p70/ 30 113 33 p58 30/ 120 200 p260 50 p100/ 40 20 10 p13 p150/
p470 172 p287 80 p84/ 54 p79 225 p190

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415}

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100/

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p118 20 17 19/ 10 56 40 43 23/ 24 6 8 p5 18/ 13 6 7 10 6/ 5 2 13 p56
22/ 8 33 p32 6 8/ 2 4 2 15 27/ 6 4 5 3 4/ 4 p16 25 13 7/ 6 21 33 30
25/ 29 39 13 5 15/ 8 11 2 3 6/ 3 5 9 p13 8/ 6 7 12 4 9/ 4 7 5 11 4/ 4
8 9 7 4/ 5 48 20 6 9/ 29 19 13 8 8/ 7 13 8 13 9/ 12 7 p25 5 33/ 12 p14
25 40 65/ 10 3 9 3 7/ 24 34 11 20 3/ 8 19 5 11 7/ 15 28 17 19 7/ p20
30 11 17 17/ 10 6 43 20 27/ 8 4 14 4 35/ 10 10 53 13 11/ 3 17 p28 28
20/ 11 7 p38 6 2/ 5 7 5 18 3/ 2 7 28 p2 5/ 3 30 13 10 6/ 14 20

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4/ p62 6 18 8 34/ 11 4 32 19 28/ 14 25 50 11 p7/ 22 56 11 p8 47/ 6 3
10 5 6/ 6s 12 2 3s 4s/ 8 6 2 6 3/ 14 p12 2 12 p7/ 3 7 p4 7 85/ p26 16
4 5 4/ 5 6 15 p340 22/ 12 98 287 10 7/ 14 3 p21 16 15/ 7 p5 4 4 5/ p20
3 3 3 9/ 4 3 2 3 p7/ 10 16 p26 3 3/ 9 p5 11 p9 16/ 15 3 8 19 4/ p2 4
28 25 78/ 2 p28 3 4 2/ 3 8 7 2 p10/ 7 8 6 15 9/ 6 6 p10 16 20/ 4 5 22
24 5/ 20 2 5 2 4/ 6 p5 p30 3 16/ 2 1 1 6 4/ 16 13 3 9 5/ 23 14 p7 16
2/ 6 6 4 2 3/ 9 p4 17 11 28/ 5 10 p4 5 p5/ 5 16 4 16 32/ 16 68

{224 232 824 30 488/ 267 97 145 21 14/ 118 395 474 43 33/ 37 52 23 20
67/ 165 39 67 140 30/ 126 52 75 10}

01382 70 8 60

* 17 p15 8 p20 3/ 11 3 2 1 3/ 25 p5 10 8 p15/ 3 3 29 p6 34/ 15 p3 3 5
4/ 4 4 16 2 12/ 4 8 p15

{22 28 52 33 41/ 52 77}

01383 20 5 90

116a 26 13 35 9/ 70a 34a 30a 29 90a/ 124 26a 205a 168a 10a/ 120 167a
67a 41a 106a/ 163a 20a 90a 143a

01391 90 0 75

* 12 3 14 9 23/ 20 38 50 30 p24/ 18 6 14 39 64/ 204 29 p140 78 7/ 80
137 p425 4 3/ 68 4 4 2 p6/ p15 177 29 117 13/ 343 6 p216 p12 p16/ 32
13 6 p11 p130/ 23 p7 14 p4 p20/ 4 4 47 p4 20/ p3 18 p10 3 7/ p20 9 p4
21 33/ 59 p23 57 16 7/ p9 p40 13 3 11/ 4

{223 514 729 91 15/ 901 12 16 62 130/ 30 18 20 59 23/ 28 30 13 136 89/
40}

01392 40 5 90

* 64 p168 60 p8 9/ 40 p13 15 p15 5/ 5 10 3 10 5/ 7 43 24 p7 p70/ 13 10
12 17 5/ 10 14 p10 10 24/ 40 p136a 30 37 32/ 100 200 p320 480 p80/ p63

18 2 11 5/ 37 7 14 p34 p170/ p103

{232 68 62 30 119/ 70 91 210 719 560/ 63 128 170 103}

01393   40 7 360

    * 6 9 18 6 p41/ p50 10 p21 p43 p110

{80 50 31 43 110/}

01394   50 3 345

    * 5 9 5 p17 p28/ 17 9 7 7 6/ 20 13 5 4 2/ 6 7 6 2 12/ 5 5 7 2 3/ 4 3 13 p4 14/ p5 7 7 p10 9/ 7 6 6 10 4/ 8

{36 28 169 19 24/}

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2. Boulder Batholith satellite plutons, southwest Montana

02011 75 4 5

    20 p7 27 7 7/ 2 p15 5 63 5/ p12 p99 53 40 38/ 27 p5 22 66 5/

    {58 85 99 163}

02012 50 8 75

    27 33 40 25 p15/ 22 81 53 p12 p127/ 27 7 50

    {168 127}

02013 90 0 80

    12 5 15 15 7/ p33 17 20 12 33/ 27 p15 p21 p55 43/ p45 20 30 p20 p27/ 7
    5 27 5 20/ 63 p38 5 22 86/ 7 p10 12 15 33/

    {124 21 55 88 70/ 27 165 130}

02014 50 6 345

    25 17 2 10 10/ 10 2 10 12 5/ 45 p76 12 7 p12/ p46 p216

    {31 46 216}

02015 5 5 90

    5 p25 10 60 22/ 12 10 10 30 10/ 20 22 12 7 20/ p17 15 27 35 10

    {262}

02016 90 0 320

    5 7 p25 12 2/ 35 p5 7 35 p71/ 2 2 p81 12 15/ p20 7 45 27 22/ p27 12 5
    p12 7/ 48 7 5 10 2/ p2 p63

    {54 113 85 47 128/ 29 81 63}

02021 85 2 300

    p15 5 p30 7 p25/ p42 30 p30 p30 5/ 27 p25 11 18 p25/ p3 p46 10 p5 33/
    p17 p33 p22 30 33/ p68 15 p20 p86 2/ 5

    {35 32 42 60 30/ 57 54 3 46 15/ 50 33 22 131 35/ 86}

02022 70 4 40

    7 20 48 5 27/ 78 68 15 25 17/ 48 88 15 27 15/ 7 12 12 17 17/ 10 40 38
    55 40/ 12 27 5 30 25/ 15 17 7 25 30/ 25 12 12 12 2/ 5 5 5 3 5/ 7 76 43
    25 22/ 55 91 10 33 12/ 20 7 15 17 3/ 12 17 12 5 5/ 2 7 27 106 27

02023   20 8 80

p48 p60 38 p33 190/ p20 p13 p134 40 p20/

{60 71 210 13 134/ 60}

02024   65 8 35

p25 27 p27 30 p5/ p71 p23 40 p35 15/ 22 p27 88 p25 30/ 63 30 17 27 p20/ 30 33 20 p22 p69/

{54 35 71 23 75/ 64 107 187 105 69/}

02031   90 0 285

102 2 p35 40 70/ 8 5 70 31 20/ 68 8 5 6 p35/ 34 12 16 p80 2/ 4 5 11 24 p30/ 3 5 4 p9 30/ 43 p42 p133 32 p47/ 7 9 13 53 12/ 12 104 p170 90 7/ 9 10 38 40 28/ p9 47

{366 142 76 21 115/ 133 79 380 231}

02032   88 6 350

* 16 17 18 35 p133/ 25 p45 8 6 17/ 4 4 p16 45 34/ p3 4 3 2 5/ p103 31 101 5 7/ 8 4 p7 4 8/ 3 5 p6 37 6/ 16 2 5 p8 5/ 7 5 2 4 p10/ 26 27 40 p27 11/ 11 6 8 11 p3/ 10 5 9 10 p5/ 3 3 18 10 6/ 27 p13 10 10 9/ 12 7 p20 6 p11/ 40 37 9 24 7/ 29 7 6 13 11/ 4 44 9 14 10/ p33 p30 15 p15 7/ 16 14 8 7 3/ 11 20 20 43 5/ 6 7 18 23 3/ 4 3 2 3 p4/ 15 6 9 p16 30/ 45 10

{219 70 55 82 117/ 163 26 74 33 120/ 50 39 80 68 17/ 290 30 30 227 46/}

02033   15 4 65

* 16 16 32 20 94/ 70 67 59 p96

{470}

02041   50 4 310

* 8 19 13 24 15/ 53 p60 38 21 34/ 47 35 30 40 p30/ 62 5 p76 60 p50/ 150 p50 70 119 14/ 20 43 46 10 p60/ 14 48 57 p24 37/ 23 18 28 42 50/ 34 p15 165 60 4/ 5 18 25 10 4/ 35 p26 p60 40 10/ 30 9 p6 22 15/ 17 p23 53 p340

{192 285 143 110 200/ 322 143 247 352 60/ 95 77 393}

02042   90 0 60

* p700 130 p180 355 70/ p12 600 400 p240 600/ 64 p200 p687 100 18/ 11

42 40 40 p13/ 37 p135 27 58 265/ 250 310 160 193 13/ 20 20

{700 310 437 1240 864/ 687 264 172}

02051 80 4 300

* 15 40 4 35 34/ p10 60 70 48 p50/ 20 22 6 p65 13/ 6 14 6 14 18/ p10
p64 32 13 22/ 18 p9 3 13 18/ 17 p5 2 3 6/ 2 p15 3 6 2/ p36 3 18 15 13/
18 p10 15 5 4/ p13 4 4 3 7/ p35 5 p19 15 p12/ 8 p22 12 4 3/ 5 12 6 p8
9/ p10

{138 228 113 81 64/ 94 56 28 47 77/ 37 53 24 27 30/ 50 19}

02052 75 2 280

* 33 44 10 p52 33/ 40 31 19 p5 p102/ p100 p120 p70 48 p150/

{139 127 102 100 120/ 70 198}

02053 25 4 50

150 45 34 87 75/ 14

3. Pluton near Maiden Rock and sill south of Glen, southwest Montana

03011 75 3 5

   2 1 2 1 2/ 2 5 2 3 2/ 2 1 1 3 2/ 2 5 3 5 3/ 2 p2 1 1 1/ 1 2 2 2 1/ 1 2
   1 1 1/ 2 1 1 1 2/ 1 1 2 2 2/ 3 1 2 3 3/ 2 2 2 1 2/ p1 3 1 2 3/ 25 3 3
   2 3/ 3 3 2 6 2/ 1 3 3 1 1/ 3 2 1 2 2/ 1 1 2 2 2/ 2 1 1 3 3/ 2 3 5 2 2/
   2 3 2 6 2/ 3 2 1 5 3/ 2 2 2 3 p12/ 2 3 7 p5 p30/ p30 p13 p58 p33

   {66 66 16 30 30/ 13 58 33}

03012 90 0 275

   p135 152 p38 81 142/ p30 p41 30 p60 p76/ p279

   {190 253 41 90 76/ 279}

03013 15 8 70

   p86 27 15 8 9/ 2 58 12 5 10/ 15 p38 p46 p61 p66/ 27 p50 83 60 17/ p20
   22 7 5

   {199 46 61 66 77/ 180}

03021 70 8 75

   * 5 4 4 5 4/ 2 p3 p11 6 6/ 4 11 5 5 3/ p6 4 8 5 6/ 4 p3 7 9 4/ p5 6 12
   7 4/ 3 6 7 p9 3/ 6 7 5 10 7/ 18 4 p6 3 2/ 6 5 7 2 2/

   {27 11 46 30 25/ 54 66}

03022 67 6 325

   * 18 76 10 22 6/ 44 25 8 41 26/ 20 30 50 48 37/ 38 4 3 p12 p7/ 3 36 11
   5 45/ 40 18 6 9 28/ p31 36 p80 11 26/ p8 39 p4 4 3/ 12 15 p44 30 33/
   p4 3 4 3 10/ 4 2 18 5 7/ 2 3 3 3 22/ 6 p8 9 p9 p36/ 4 22 20 p9 6/ 5 40
   17 34 p3/ 4 14 28 23 5/ 16 p9 2 27 p16/ p54 9 4 18 7/ p4 12 8 12 12/
   12 18 p20 16 12/ 10 16 5 33 p29/ 17 4 19 p7 38/ 12 29 7 7 12/ 8 p8 24
   p27 13/ 8 13 3 12 p12/ 35 10 37 46

   {518 7 232 116 45/ 43 78 67 103 18/ 36 55 105 99 45/ 54 42 94 121 47/
   121 51 61}

03023 60 2 20

   * 4 6 5 5 6/ 18 5 3 6 4/ 5 8 p35 3 6/ 8 4 6 9 p18/ 16 11 14 4 7/ 7 2 4
   22 p3/ p17 7 4 17 8/ p21 18 5 12 9/ 7 5 5 p10

   {110 54 90 17 57/ 71}

03024 45 4 50

p14 20 12 2 5/ 6 p2 p9 31 6/ 7 p26 11 4 5/ 5 p5 4 13 15/ 9 7 12 18 2/
9 10 5 11 7/ 5 p7 33 7 27/ p17

{61 9 124 30 134/ 84}

03031   90 0 80

6 5 5 5 4/ 5 5 5 6 6/ 8 4 10 8 5/ 9 7 4 6 10/ 6 7 20 4 p9/ 8 9 6 11
11/ 17 1 38 9 7/ 7 p17 12 5 2/ p4 2 7 7 7/ 10 4 8 18 12/ 7 6 17 12 6/
p10 5 5 4 2/ 3 p4 5 11 11/ 5 5 p5 8 7/ 8 5 3 5 11/ 7 5 p6 18 p9/ 6 5 7
9 p24/ 36

{141 23 133 23 42/ 65 27 51}

03032   75 8 25

p5 p26 3 10 25/ 13 73 p7 15 24/ 16 7 12 p13 p35/ 28 8 p20 5 8/ p9 8 7
9 5/ 3 2 6 2

{26 131 87 35 56/ 22}

03033   30 4 20

* 14 p50 p51 19 10/ 19 p23 p32 20 9/ 13 7 8 p14 12/ 8 28 p20 43 47/ 38
11 16 p28 p48/ 38 23

{54 51 71 32 71/ 68 183 48}

4. Granite Mountains, central Wyoming

04011 80 7 5

    12 p11 17 14 13/ 4 p17 20 15 14/ 38 24 p28 220 100/ 7 11 10 28 152/ p9
100 169 381 5/ 103 65

    (65 134 537)

04012 70 2 340

    42 1 3 2 p80/ p77 23 18 3 p39/ 5 4 5 p29 p33/ 55 p55 68 p160 50/ 34 35
20 p40 22/ 37 46 20 7 5/ 5 2 13 24 8/ 10 p13 16 6 10/ p9 39 15 p40
p60/ 22 29

    (77 83 43 33 110/ 228 179 212 41 94/ 60)

04013 80 5 90

    49 59 p40 51 22/ 48 24 37 59 28/ p43 25 29 p168 44/ p213 p86 19 10 20/
28 8 13 13 160/ 108 62 11 9 66/ p64 130 250 p110 157/ 200 85 p84 p63

    (312 222 257 86 591/ 490 526 63)

04021 82 4 55

    87 p5 6 6 58/ p10 6 75 15 67/ 5 5 8 5 14/ 4 20 35 26 7/ p5 17 3 p2
p41/ 15 p30 13 4 6/ 28 6 11 21 11/ p12 15 11 10 10/ 30 30 11 19 16/ 4
18 6 17 19/ p27 26 13 19 32/ 31 2 14 15 15/ 12 6 p25 32 28/ 40 38 12
p100 60/ 6 13 29 22 p17/ 23 11 38 7 p34/ 8 24 24 p49 20/ p82 39 12 23
p145/ 50 36 p186 102

    (80 297 22 41 45/ 112 228 210 250 147/ 113 105 102 219 272/)

04022 90 0 330

    13 p21 59 9 p8/ 12 26 20 16 p5/ p76 186 13 p13 102/ 6 p21 62 185 p76/
165 p54 68 24 192/ 124 p126 50 69 58/ 182 p43

    (76 79 76 212 129/ 323 219 534 402)

04023 14 8 10

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1 p3 1/ 1 12 1 1 1/ p2 7 15 5 5/ 4 p11 32 15 10/ 4 5 8 15 p22/ 12 13
p64 13

    (50 105 77 19 47/ 111 89)

04031 80 6 310

    49 151 26 22 9/ 7 11 30 p29 p42/ p53 p37 p59 p37 142/ 44 8 16 23 p106/

54 28 40 15 p39/ 120 50 9 28 16/ 15 51 24 22 21/ 14 4 8 26 30/ 44 p121
83 45 144/ 33 16 16 13 p51/ p23 20 13 28 54/ 82 p33 p51 14 30/ 7 p28
13 53 57/ 35 37 7 p153 p80/ p45 p96 26 20 9/ 16 p16 34 p11 14/ 17 21 3
32 8/ 24 p64 p74 90 p13/ 34 11 58 p18 190/ p42

(42 53 37 59 37/ 339 176 603 401 23/ 230 51 79 355 80/ 45 96 87 45
183/ 74 103 121 232)

04032 70 5 90

60 p107 48 60 p30/ 36 26 p44 20 34/ p36 34 57 p18 62/ p140 67 42 109
17/ 7 122 26 59 p77/ 71 9 p87 91 61/ 23 25 23 17 80/ 49 124 32 21 20/
44 54 9 45

(138 106 90 109 202/ 526 167)

04033 10 8 65

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p37 14/ p23 18 50 p36 30/ 17 20 15 13 p25/ p39 11 7 8 15/ p37 23 16 90

(9 13 26 93 47/ 123 137 104 107 39/ 78)

04041 90 0 330

22 10 16 7 10/ 10 p10 5 p17 28/ 31 24 12 30 10/ 17 p13 18 15 13/ 24 16
17 16 p18/ 20 p15 p77 24 p33/ 7 8 18 18 p38/ 70 p76 44 10 33/ p68 6 31
4 5/ 20 p13 10 15 16/ p50 5 5 26 7/ 28 7 20 14 23/ p77 43 6 49 p35/ 30
19 p34 p85 31/ 19 p32 104 72 p24/ 17 12 p13 23 8/ 14 20 19 34

(22 165 137 35 77/ 57 89 146 155 79/ 91 212 133 83 85/ 82 200 42)

04042 0 0 0

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p13 40 52/ p46 90 74 35 34/

(147 52 48 46 163/ 13 138)

04051 90 0 335

200 78 40 p10 100/ 8 10 153 47 52/ 104 430 113 118 360/ 45 40 p19 56
90/ p410 55 35 200 240/ 176 197 p177 p160 203/ 22 28 52 18 24/ 366 340
6 9 93/ 170 p470 p50 270 14/ 90 140 52 114 216/ 17 63 16 p18 653/ 130
142 50 166 p75/ 231 186 54 68 p156/ 420 115 p896 9

(1649 556 1080 160 1801/ 50 1010 1216 695 1431/)

04052 90 0 90

47 40 15 22 p414/ 7 42 8 51 118/ 157 200 73 p64 365/ p4 6 14 18 13/
600 55 245 156

{720 369}

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9 13/ p20 7 p11 13 p20/ p30 40 p56 p32 p18/ p11 p12 p12

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04054 35 8 80

16 7 4 p3 4/ 14 8 p15 5 10/ 5 2 6 3 p20/ 15 10 8 5 3/ 2 p7 10 3 18/
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04055 90 0 350

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132 173 p5 27 200/ p225 414 102 p222

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04061 20 7 5

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{150 281 84}

04062 90 1 90

* 17 12 10 6 4/ 2 8 6 4 5/ 5 3 14 4 11/ 9 3 4 6 3/ 10 5 6 2 3/ 8 p13 8
6 5/ 5 10 3 2 3/ 3 3 17 3 p15/ 5 p112 69 4 11/ 3 6 2 5 5/ 4 11 1 11 9/
9 p14 6 9 13/ 6 75 24 15 22/ 6 p16 3 7 6/ 19 3 1 2 3/ 2 38 10 2 9/ 12
4 7 15 23/ p24 4 14 p28 15/ 6 7 7 p14 25/ 6 7 2 10 31/ 14 15 16 p10
16/ 6 7 38 p7 6/ 5 6 4 9 p15/ 3 4 10 13 16/ 25 p3 8 24 p19/ 45 28 12
42 p30/ 14 9 16 3 22/ p28 2 3 2 5/ 14 13 7 19 3/ 4 1 p3 34 17/ 6 3 8 3
2/ p12

{183 83 117 194 164/ 190 46 49 136 74/ 45 819 51 157 89/ 86 85}

04063 90 0 360

72 26 78 20 34/ 26 p84 39 8 20/ 7 27 6 p29 p40/ p25 17 6 p9 102/ p31
23 67 20 15/ 13 8 13 8 22/ p30 69 27 p50 77/ 40 44 51 5 12/ 8 10 21 14
19/ 13 29 p15 44 120/ 45 15 16 7 p18/ 30 10 p6 5 3/ 4 42

{136 40 25 32 133/ 219 146 358 215 46}

04071 20 8 20

204 55 p1533 p554 410/ p130 p1745 280 31 p190/ p400 1081 p1100 62 54/
864 20 p400 883 p855/ 193 p120 37 416 p400/ 10 280 72 p1000 p1367/
2758 p250 p1620 1792

{554 540 1745 501 400/ 2181 1400 1738 313 853/ 1362 1367 3008 1620}

04072 30 4 20

282 420 129 314 380/ p50 17 30 10 27/ 209 271 35 23 28/ 44 p66 1350
642 38/ 188 263 47 157 48/ p177 173 604 476 64/ 369 512 404 2961 p77/
180 150 46 135 705/ 18 61 p80 385 25/ 18 16 13 324 296/ 121 677 150 36
36/ 46 52 113 24 9/ 42 28 13 33 87/ 53 63 152 79 66/ 204 p146 p1091
650 622/ 280 p366

{760 3010 5640 1375 3309/ 1091 1918}

04073 90 0 45

660 400 500 p310 p840/ p1400 p712 770 p400 40/ p42 p125 140 1460 1800/
800 25 1565 160 2000/ 350 80 p50

{840 1400 712 1170 82/ 125 8430}

04074 90 0 300

760 p140 600 140 p78/ 480 450 p585 270 140/ p2080 15 7 18 22/ 29 14
p27 200 37/ 55 p44 p370 p1234 80/ 140

{818 1545 2490 132 336/ 370 1234}

NOTE. Original data sheets lost for the Granite Mountain stations 04081
through 04153; the following data sets are for primary joints only.

04081 75 4 50

{47 90 90 38 334/ 62 100 827 175 823/ 139 357 411 546 550/ 14 22 75
539 541/ 85 98 45 31 49/ 33 70 105 97 84/ 60 111 98 64}

04082 85 1 295

{136 170 68 28 232/ 387 260 127 101 387/ 92 152 68 205 38/ 151 105 256
316}

04083 75 6 65

{354 907 391 466 664/ 743 587 579 857}

04091 80 8 50

{231 25 110 225 106/ 47 114 310 246 91/196 269 117}

04092   85 6 320

    {62 470 328 227 713/}

04093   80 6 340

    {295 470 164 406 493/ 274 404 34}

04094   85 4 80

    {62 85 59 23}

04095   5 6 280

    {17 11 6 96 69/ 69 118 98 57 53/ 74 118 87 29 53/ 51 26}

04101   85 4 15

    {120 268 957 106 86/ 41 49 433 420 140/ 584 268 139 458 116/ 126 210 201 243}

04102   80 2 340

    {318 267 6 282 94/ 316 148 34 30 162/ 155 623 93 225 617/}

04103   90 0 295

    {691 664 84 54 344/ 407 144 657}

04104   80 5 310

    {304 287 145 340 220/ 104 79 453 256 187/ 76}

04111   90 0 305

    {17 153 36 75 22/ 137 32 24 110 423/ 183 65 22 395 92/ 160}

04112   10 8 30

    no primaries

04113   85 8 35

    {38 93 177 203 122/ 916 50}

04121   10 2 290

    {322 180 215 110 70/ 15 57 411 51 12/ 114 103 81 52 64/ 40 53 71 96 55/ 138 46 86 97 82/ 188 205}

04122   80 4 50

{62 58 43 108 92/ 93 84}

04123   75 2 275

{72 513 150 104 554/ 565 305 161 430 502/ 87}

04131   75 8 55

{600 2275 8803 1085 888/ 4971 4106 627 2888 1143/ 1143 681 1813}

04132   90 0 290

{179 97 179 285 572/ 194 4347 359 564 2019/ 7775}

04133   25 4 75

{292 22 90 51 23/ 183 195 283 100 70/ 78 220 47}

04141   90 0 355

{556 406 674 472 1023/ 977 358 1281 282 876/ 209 312 95 198 550/ 296 217 111 454}

04142   85 6 280

{175 2264 176 2709 2049/ 896}

04143   15 8 75

{181 181 110 146 419/ 185}

04151   85 6 330

{634 85 291 1246 469/ 1630 550 963 698}

04152   5 6 70

{850 663 268 97 209/ 263 313 38 40 32/ 827}

04153   85 1 70

{226 630 703}

END OF LOST DATA SHEETS.

5. Stillwater River Valley, Montana

05011 75 8 50

    100 14 p5 4 2/ 25 p6 7 9 p11/ 68 9 88 26 29/ 9 5 15 66 20/ 39 4 13 24
    8/ 14 3 3 3 8/ 4 6 8 10 6/ 10 13 7 10 10/ 12 6 5 2 2/ 21 21 p12 4 3/ 3
    4 14 6 10/ 4 7 p6 5 15/ 19 30 5 9 p23/ 3 5 8 3 2/ 6 14 5 10 17/ 4 4 4
    6 3/ 13 p3 9 4 6/ 5 8 1 3 3/ 3 4 14 p29 8/ 8 9 6 10 p14/ 7 2 4 4 5/ 12
    13 p7 9 4/ 4 p8 13 16 4/ 6 10 5 3 5/ 6 10 9 12 16/ 3 5 8 9 8/ p6 14 7
    8 5/ 16 3 20 p7 11/ 22 17 3 3 1/ 2 21 9 15 20/ p6 3 9 3 3/ 6 6 5 8 14/
    8 38 18 14 36/ p11 14 16 11 14/ p12

    {37 27 619 61 106/ 110 87 55 54 25/ 154 80 130 179 67/}

05012 63 6 305

    * 8 7 p3 3 32/ 16 14 4 3 4/ p2 7 4 p5 3/ 2 3 4 4 3/ 3 2 3 p9 16/ 12 p6
    p10 5 11/ 3 7 3 1 5/ p13 2 6 p6 8/ 74 8 44 5 8/ p5 5 17 17 21/ 17 5 32
    p22 22/ p29 3 6 4 4/ 7 8 4 2 3/ 2 3 77 36 31/ 13 31 29 10 13/ 2 24 p14
    16 7/ 63 p21 24 12 4/ 22 37 24 p33 15/ 8 12 p80 34 33/ 30 14 26 37 24/
    14 5 5 4 3/ 6 4 7 2 1/ 1 1 4 4 5/ 4 3 3 12 5/ 4 5 2 6 6/ 6 4 3 5 5/ 1
    4 4 7 12/ 13 8 7 3 10/ 4 4 8 2 4/ 4 4 4 6 6/ 10 10 6 6 22/

    {18 78 16 36 34/ 10 48 14 224 136/ 51 326 107 156 115/}

05013 62 5 85

    53 70 67 15 33/ 20 10 10 5 23/ 29 14 9 12 19/ 59 84 19 16 257/ 39 80
    17 68

05014 45 4 310

    76 73 p240 95 44/ 82 p60 40 18 p20/ 10 6 5 10 5/ 8 5 5 10 6/ 10 6 9 5
    12/ 6

    {281 78}

05021 90 0 30

    * 28 25 44 10 6/ 14 p112 53 176 48/ 18 30 p40 50 46/ 65 15 29 15 17/ 7
    5 9 59 40/ 4 2 4 3 9/ 5 3 4 16 4/ 6 5 3 2 6/ 8 4 8 3 12/ 2 1 28 p21
    p29/ 3 30

    {239 365 510 29}

05022 90 0 320

    5 14 57 4 p26/ p28 14 28 p30 10/ 7 5 8 16 10/ 32 12 22 28 22/ 35 43 71
    2 5/ 14 18 36 35 34/ 10 21 58 21 24/ 15 p40 23 6 41/ 23 8 9 6 6/ 8 p22
    38 p105 9/ 8 47 115 23 50/ 19 23 20

    {28 72 654 152 143/}

05023   75 8 75

* 12 p12 6 22 25/ 35 6 p8 37 p10/ 9 15 20 38 19/ 7 4 16 8 p15/ 29 18
33 21 22/ 20 19 13 9 8/ 7 6 15 8 30/ 17 15 10 6 18/ 9 13 10 11 49/ 11
p20 13 6 5/ p60 25 38 5 8/ 6 p11 12 130 29/ 16 20 11 20 20/ 5 p18 20
13 34/ 13 32 24 18 9/ 10 5 14 16 p24/ p25 12 26 14 27/ 10 6 p11 16 17/
6 8 p8 3 2/ 3 10 5 12 2/ 2 2 7 3 10/ 6 4 11 12 13/ 15 8 10 4 p11/ 19
10 9 12 9/ 27 7 8 p10 7/ 10 7 14 5 9/ p19 10 7 4 10/ 11 40 36 p97 66/
14 p16 p65 18 28/ 74 37 8 8 3/ 14 7 3 18 8/

{24 102 47 151 446/ 84 93 281 232 25/ 106 55 155 111 71/ 215 96 65}

05031   70 6 300

p7 2 6 5 2/ 8 3 3 p10 6/ 15 4 2 1 9/ 9 3 12 p8 5/ 19 p2 3 5 5/ 31 p4 7
1 1/ 17 16 5 1 3/ 6 7 p15 3 2/ 3 2 2 p2 p17/ 12 5 9 20 2/ p5 18 3 6
p4/4 3 12 3 13/ 11 6 62 18 5/

{39 69 26 48 79/ 14 17 53 31}

05032   82 4 60

* 4 5 2 2 3/ 3 3 p5 8 7/ 3 4 2 2 p10/ 5 9 6 6 p5/ 4 6 5 4 8/ 2 4 1 2
3/ 3 2 5 6 9/ 8 1 3 5 6/ 8 6 9 6 7/ 10 8 6 8 8/ 12 5 4 2 p22/ 2 9 3 5
20/ 32 p8 3

{27 36 31 208 79/}

05033   24 4 50

1 2 p5 3 p22/ 8 8 4 5 5/ 10 5 5 15 16/ 12 10 14 p20 10/ 4 4 17 10 3/
24 9 18 8 8/ 9 2 5 11 p6/ p14 5 16 13 12/ 5 13 3 3 15/ 4 3 6 15 8/ 6

{25 137 148 14}

05034   40 4 10

4 4 3 4 4/ 5 2 2 4 6/ 6 5 13 3 4/ 2 4 19 5 7/ 4 p10 5 3 6/ 7 5 2 p7 5/
4 8 2 4 5/ 4 4 4 3 4/ 4 5 p9

{35 65}

05041   70 6 310

* 10 8 14 5 p10/ 4 2 p6 21 p8/ p12 4 p2 14 p16/ 13 p10 4 p20 p7/ 8 p31
11 14 16/ p4 37 10 2 2/ 5 12 p32 4 2/ 3 10 11 11 6/ 16 p8 11 2 3/ 3 7
9 p53 7/ 11 10 45 37 p10/ 6 5 8 p45 16/ 15 9 17 p3 37/ 51 20 6 4 3/ 5
16 p8 4 47/ 3 12 4 8 p5

{47 12 29 12 6/ 30 23 24 7 39/ 45 100 71 88 120/ 64 60 150 83}

05042   85 4 20

* 5 p6 6 8 p2/ 15 p17 p20 6 5/ 11 7 10 p21 12/ 30 5 5 2 4/ p14 8 3 2
4/ 12 8 2 1 3/ 3 4 11 2 3/ 3 4 p3 26 5/ 6 17 3 2 3/ 3 4 2 3 2/ 3 3 2 5

{11 16 32 20 60/ 72 68}

05043   60 4 15

* 117 p16 7 6 p3/ 16 4 p19 2 5/ p18 2 6 11 7/ 9 5 p23 p12 4/ 3 16 3 3
3/ 3 5 7 14 3/ 4 2 2 3 2/ 2 4 3 2 4/ 2 3 8 3 5/ 5 3 3 2 p3/ 3 8 p14 3
4/ p21 22 p29 21 23/ 62 p54 5 12 6/ 28 17 7 4 2/ 3 3 5 5 p4/ 27 12 23
24 20/ 12 7 2 10 3/ 2 7 8 8 22/ 8 1 3 6 2/ 7 30 7 7 2/ 3 14 p12

{133 16 39 25 58/ 12 129 25 28 51/ 160 101 289}

05044   30 2 305

20 4 p11 8 2/ 1 1 7 4 2/ 1 3 2 1 p7/ 7 1 1 2 7/ 2 4 11 14 4/ 15 3 3
p12 3/ 6 14 19 4 5/ 4 24 7 17 8/ 5 8 13 3 p3/ 87 11 7 8 6/ p8 11 15 7
10/ 10 2 8 9 9/ 9 4 2 19 14/ p18 7 11 14 22/ 35

{39 86 124 127 147/}

6. Dartmoor, southwest England

NOTE: The suffix "t" (shown only in the full data set) indicates that the
joint is filled by tourmaline; similarly the suffix "q" indicates that the
joint is filled by quartz.

06011 15 1 270

    p14 p30 p17 p34 20/ p22 14 10 19 8/ 21 14 p11 p28 p21/ 14 p12 p20 10
    p3/ p14 30 p25 p16 18/ 9 p11 p20 p31

    {30 17 34 42 97/ 28 21 26 20 13/ 14 55 16 38 20/ 31}

06012 75 6 275

    p110 p39 48 p75 p20/ p21 40 p83 94 59/ p132 37 p100 22 p65/ 63 p72 p97
    25 p132/ p28 11 p36 p101 p97/ 62 p46 111 94 101/ p205 p169 40 p114
    p38/ p43 36 154 p96 14/

    {39 123 20 21 123/ 285 137 87 135 97/ 157 28 47 101 97/ 108 511 169
    154 38/ 43 286}

06021 80 8 70

    20 189 376 p6 p200/ 217 57 p22 p35 p70/ p170 30 71 10 p13/ 62 p96 39
    p55 22/ 16 p30 p10 28 15/ 22 p12

    {200 296 35 70 170/ 124 158 94 68 10/ 77}

06022 75 6 330

    61 16 73 278 60/ 39 25 63 39 46/ 79 20 p23 10 36/ 66 98 p102 75 112/
    31 108 p12 9 114/ 37 15 8 10 12/ 21 15 20 p42

    {312 338 303}

06023 25 4 60

    23 16 p14 3 23/ 19 9 13 1 20/ p20 11 2 3 6/ 31 12 7 12 11/ 13 p20 8 3
    p9/ 10 7 p13 p18 9/ p14 10 p4 10 p7/ 21 p14 10 p20 p20/

    {108 119 20 30 18/ 23 14 17 35 30/ 20}

06031 15 4 45

    * 10 p12 14 44 20/ 19 p12 18 p26 p28/ 13 9 7 10 p31/ 17 10 p16 10 6/
    p14 7 p8 18 5/ p10 15 11 7 p18/ 11 4 6 p24 26/ 8 p24 p8 16 p5/ 24 5 6
    p10 13/ p25 p30 11 13 42/ p24 96

    {22 109 44 28 70/ 43 30 15 33 51/ 45 58 8 21 44/ 38 30 89}

06032 90 0 20

* 28 60 p160 27 29/ p110 19 29 40 p30/ 55 p70 p110 17 120/ p27 57 p26
9 p5/ 42 p127 22 35 200/ p180 14 31 36 14/ 86 20 46 40

(248 166 118 125 110/ 164 83 14 169 437/)

06033 80 2 350

* 20 10 p87 p50 8/ 7 14 20 15 10/ 3 p6 p42 5 p53/ 10 14 14 20 p4/

(107 50 83 42 58/ 62)

06034 90 0 315

* 18 7 7 6 30/ p68 p92 53 37 10/ 20 40 53 158 9/ p54 60

(136 92 434)

06041 5 6 355

p11 9 p4 7 12/ p7 8 6 8 9/ 5 p6 16 p8 8/ 10 p12 5 6 6/ 7 p11 15 6 4/
p6 p9 10 p6 12/ p9 15 p12 p8 p10/ p8

(13 26 42 24 30/ 35 31 9 16 21/ 27 8 10 8)

06042 85 2 280

* 166 p64 p363 p113 p130/ p135 p100

(230 363 113 130 135/ 100)

06043 80 2 350

* p303 10 p15 p18 p6/ p26 p66

(303 25 18 6 26/ 66)

06051 90 0 290

* 64 p48 33 90 p13/ p27 52 60 32 p20/ 25t 84 p18 33 56t/ p19 45 8 p67
62/ p33t p26t p64t 63t p17t/ 11 p13 9 280t p9/ 20 12 p65 p151 74t/
p271

(112 136 27 164 127/ 108 120 95 26 64/ 80 24 298 97 151/ 345)

06052 90 0 10

* p200 p47 43 17 12/ p7 2 5 9 p9/ 108 20 16

(200 47 79 25)

06053 10 6 300

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    * p55 20 18 37 p36/ p47 50 12 9 19/ p13 33 12 p13 74/ p24 8 15 p54 6/
    19 p46 12 8 4/ 68 p30

    {55 111 47 103 58/ 98 77 71 122}
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06061 10 6 330

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    * 15 15 10 p34 3/ 12 10 28 4 10/ 4 p6 14 5 p4/ 14 14 13 4 9/ 6 p16 9
    16 p15/ 11 11 7 4 p16/ 5 4 8 10 7/ 9 12 p12 7 5/ 9 5 3 10 p19/ 10 13 6
    p14 p25/

    {74 77 23 76 39/ 49 67 58 43 45/}
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06062 85 4 80

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    * 33 44 p5 16 30/ 20 113 p7 7 5/ 15 27 p200

    {82 186 254}
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06063 90 0 315

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    * 70 59 p65 37 p9/ 10 46 24 p11 6/ 29 38 20 4 28/ 17 17 12 12 2/ 3 5
    p9

    {194 46 91 202}
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06064 80 4 25

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    * 54 p56 53 10 24/ 46 38 35 42 28/ 36 49 28 24 p25/

    {110 438}
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06071 10 5 270

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    * 18 8 5 p9 11/ 7 p12 12 p15 13/ 9 7 p11 p24 p26/ 9 9 5 13 p14/ 6 5 9
    7 7/ 6 p7 3 4 11/ 9 p30 p10 9 10/ 11 14 p14 9 5/ 4 5 6 p12 3/ 2 3 4 6
    7/ 4 5 5 7 6/ p6 7 8 p5 4/ p5 12 35 15 29/

    {40 30 27 40 24/ 26 50 47 57 10/ 58 41 58 20 9/}
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06072 70 2 335

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    * 152 5 p15 92 21/ p42 21 p93 78 98/ 95 18 30 64 p80/ 10 32 49 p65 44/
    72 p70 5 122 36/

    {172 155 114 463 156/ 186}
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06073 90 0 80

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    * 2 4 6 8 p56/ 84 73 213 p5 68/ 4 57 236 120 22/ p135 28 p200 600 400/
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{76 375 642 228}

06081 70 6 280

* p254 11 11 p1061 15/ 5 11 55 p24 13/ 90 p10 p35 65 p31/ 65 p170 36 p40 10/ p50 p54

{254 1083 110 113 35/ 96 235 76 60 54/}

06082 75 6 340

* 146 p39 p120 6 7/ p14 103 44 104 40/ p24 30 35 80 66/ 47 40 7 16 100/ p69 42 p11 p8 12/ 43 11 p11 15 9/ 74 38 12 13 p27/ 11 p7 p10 12 p31/ 13 p72 p59 10 34/ 331 95 40 29 p14/ 45 38 19 58 p64/

{185 120 27 315 490/ 53 8 74 188 18/ 10 43 85 59 553/ 224}

06083 15 4 60

* p30 10 12 p27 18/ p13 p34 8 p69 21/ 16 p20 24 27 p25/ 19 33 p12 14 27/ 2 29 6 p13 4/ 8 5 5 12 p44/ 25 50 15 42 p26/ 12 8 5 11

{30 49 31 34 77/ 57 76 64 91 78/ 158}

06084 20 6 350

* 5 8 8 12 12/ 4 5 5 p4 10/ 15 p11 14 p10 10/ 5 4 4 4 p5/ 6 28 12 19 4/ 16 5 10 11 3/ 9 10 8 p7 13/ 6 6

{61 36 24 32 148/}

06091 80 6 355

* 14 4 37 6 148/ 47 23 159 p5 258/ 37 p125 p11 190 172/ 96 21 p33 155 p25/

{443 420 11 512 180/}

06092 80 8 85

* 225 74 p65 p32 171/ p187 110 2 13 3/ 60 5 9 132 33/ 70 13 12

{364 32 358}

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p23 21 p16 10 p14/ 2 3 1 3 4/ p4 19 7 17 9/ 6 3 20 19 3/ 24 5 p3 6 6/ 18 24 16 p40 p28/ p20

{60 24 17 135 110/ 28 20}

06094 5 4 45

4 7 4 7 14/ 13 14 12 2 5/ 3 p7 19 7 10/ 4 7 9 6 8/ 15 21 19 25 19/ 25
22 25 8 18/ p10 6 15 36 8/ 8 11 12 75 p24/ 3 1 5 3 1/ 3 3 2 3 30/ 20
28 p16 29 p15/ 16 13 12 13 p6/

{277 195 118 44 60/}

06095 22 4 10

* 15 12 26 13 21/ 22 2 1 8 4/ 6 11 8 19 11/ 12 p7 6 31 60/ 5 p16 21 10
p12/ 15 20 8 17 9/ 27 13 4 15

{198 118 43}

06101 90 0 85

* p120 60 108 58 p38/ 45 92 56 37 18/ 27 100 68

{120 264}

06102 80 4 40

* 275 27 114 40 39/ 13 16 25 18 p25/ 4 8 10 15 19/ 15 7 14 11 p13/ p40
36 29 18 20/ 15 22 24 44 55/ 38 p34 p25

{592 116 40 335 25}

06103 16 2 45

4 8 11 9 9/ p3 24 18 20 7/ 5 3 11 20 5/ p16 36 15 10

{129}

06104 4 6 345

* 10 4 18 p10 8/ 11 42 p18 6 4/ 6 5 20 15 11/ p34 22 10 p25 14/ 9 9 18
7 11/ 5 10 5

{42 79 101 57}

06111 85 6 330

* p1300 90 p37 780 p60/ p500 39 p85 135 p850/ 33 36 105 44 p335/ 90
p166

{1300 127 840 500 124/ 985 553 256}

06112 6 6 340

* 19 12 15 13 15/ 9 18 25 12 28/ 16 22 15 19 22/ 13 p14 20 32 14/ 9 11
p8 19 3/ 5 28 16 7 8/ 28 p11 11 13 p9/ p8 13 5 7 2/ 4 7 4 p18 10/ 5 16
24 13 11/ 13 p5 20 16 38/ 23 7 8 16 14/ 8 9 12 22 p5/ 4 22 p5 5 7/ 21

28 31 34 30/ 11 p20 24 20 19/ 6 p22 38 p19

(287 94 125 33 8/ 60 97 198 31 197/ 91 57)

06121 75 6 275

* 14 77 73 90 62/ p114 95 172 64 670/ 347 p40 39 2 4/ 2 p10 75 p292 136/ 150

(430 1388 57 367)

06122 20 6 355

* 24 9 14 21 9/ 25 9 4 p9 25/ 21 23 25 23 19/ 8 8 11 11 10/ 19 10 7 6 20/ p24 49 13 p17 13/ 6 9 16 25 16/ 9 26 14 5 9/ p9 9 18 8 p7/ 15 13 6 11 9/ p16 16 15 11 p4/ 10 13 p6

(124 270 79 157 42/ 70 46 29)

06131 85 4 40

* 85 210 p175 p90 80/ 20 p120 36 p340 p310/ p350 p500 110 p310 255/ p150 p150 p335 p120

(470 90 220 376 310/ 350 500 420 405 150/ 355 120)

06132 90 0 340

* 108 76 125 23 80/ 110 110 100 160 170/ 83 200 p84 160 53/ p253 25 4 8 89/ 16 110 p300 p150 100/ p200 200 p195 72 73/ 360 395

(1429 466 552 150 300/ 395)

06133 7 8 10

* 11 12 12 13 9/ 7 6 5 5 8/ p8 18 5 7 12/ 10 9 19 9 6/ p8 16 16 15 p6/ 16 12 p14 31 12/ 12 4 8 5 8/ p8 14 18 4 6/ 8 10 p5 9 3/ 8 7 p2 23 p7/ 9 13 18 11 p5/ 12 p10

(96 102 53 42 57/ 65 29 30 56 22)

06141 75 2 310

* 132 177 380 100 62/ 265 95 43 48 p53/

(1355)

06142 80 2 345

* 251 10 24 18 p44/ 35 20 105 234 30/ 7 12 33 21 138/ 288 21 70 236 219/ 106 82 77 185 598/ p14 55 112 130 126/ 102 38 p94 476 p260/ p125

{347 2531 657 736 125}

06143   10 8 35

   * 20 8 5 10 12/ 21 5 11 11 23/ 10 13 11 15 23/ 25 9 16 14 10/ p13 13
11 19 17/ p13 p53 16 12 13/ 25 18 16 17 p27/ 44 37 8 11 p20/ 6 8 18 16
4/ 8 p7

{285 73 53 144 120/ 67}

06151   84 4 80

   98 p104 12t 43t 53t/ 21 47 112 54 p200/ 63 131 37 p68 2/ 15 15 p33

{542 299 65}

06152   76 8 80

   54 55 18 53 55/ 5 3 5 14 p19/ 64 72 p27 p18 113/ p140 6 5 69 95/ 5 6
p12 77

{163 18 253 198}

06153   76 2 340

   32 62 83 p72 82/ 6 6 10 p23 11/ 3 54 23 44 4/ 20 46 10 16 119/ 10 p20
116 27 6/

{127 380}

06154   18 6 285

   10 14 27 8 6/ 10 15 7 10 p11/ 15 33 30 17 12/ p25 14 28 9 13/ 25 7 3 3
10/ 4 9 5 7 p14/ 7 8 7 4 6/ p9 17 10 4 p7/ 27 15 p2

{132 151 45 38 44}

06161   84 6 295

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p16/

{273 78 175 120 213/ 233}

06162   90 0 85

   * 107 p72 95 77 60/ 400 20 21 20 p33/

{179 726}

06163   5 8 75

24 18 18 12 p11/ 5 p16 26 6 29/ 10 8 p20 10 6/ 8 12 13 8 4/ 15 p4 2 10
4/ p9 9 5 12 8/ 15 9 p19

(21 99 80 25 77/)

06164   90 0 30

* p56 23 10 92 p100/ 64 p36 p115 p200

(56 225 100 115 200/)

06171 90 0 5

* 74 24 16 6 6/ 15 25 4 8 10/ p22 31 20 22 10/ 5 24 2 p22 6/ 16 4 39 6
23/ 7 9 6 36 1/ 3 2 3 31 p22/ 6 20 20 16 5/ 3 9 3 p44 9/ 19 20 22 p12
14/ 30 70 32 4 7/ 6 3 p14

(210 136 214 126 82/ 180)

06172   80 8 65

* 40 14 47 p267 100/ 30 p133 p135 29 75/ 167 52 p20 p45 24/ 50 80 21
11 10/ 20 p10 69 51 12/ 200 24 p200

(368 263 135 343 45/ 226 556)

06173   13 4 65

6 9 7 8 6/ 4 7 p6 7 8/ 7 6 p10 9 8/ 7 5 6 10 11/ 4 5 4 7 p12/ 9 4 p11
13 16/ p18 13 4 8 12/ 13 12 5 5 5/ 6 7 p8 12 p8/ 13 5 p3

(38 88 24 50 98/ 20 21)

06181   82 2 345

* 48 51 163 13 25/ 14 100 9 p118 110/ p150 180 p245 70 10/ 4 60 p100

(541 170 425 244)

06182   89 4 70

* 34 85 p38 97 88/ 52 28 18 34 54/ 16 40 28 9 p38/ 20 35 93 p66 56/ 76
54 90 p30 p110/ 92 p113 24 34 p107/ p58 20 p114 87 147/ p70 60 28 66
p59/ 112 130 46 84 p10/ p184 15 30 18 p20/ 83 p15 400 59 p40/ 134 67
p70

(157 502 214 306 110/ 205 165 58 134 304/ 213 382 184 83 98/ 499 271)

06183   14 4 60

11 74 11 23 p11/ 37 25 21 26 36/ p43 29 15 7 16/ p12 p60 30 8 p11/ 20
13 5 8 6/ 12 18 4 5 p8/ 7 7 22 23 18/ 10 5 p5 32 7/ 2 4 20 p20

{188 79 60 49 99/ 77 85}

06191 82 2 275

* 27 31 64 23 p29/ p34 18 55 4 15/ 16 p20 p80 118 14/ 34 40

{174 34 128 80}

06192 78 2 355

p60 87 p25 78 31/ p53 18 50 p54 3/ 38 p42 p90 50 29/ 7 130 85 206 70/
p50 50 67 68 p100/ 192 p303 38 35 72/ 128 300

{112 162 122 83 90/ 627 285 495}

06193 73 4 60

* p800 55 p45 39 p300/ p289 100

{800 100 339 289}

06194 3 4 25

23 6 5 5 13/ p4 28 7 10 p20/ 22 9 5 9 7/ 5 9 11 8 p12/ 13 4 11 13 6/ 5
13 p8 20 16/ 10 7 14 8 7/ 4 3 p3 16 8/ 12 p8 10 7 11/ 14 5 10 p10 7/
12 p2 17 16 19/ 9 4 5 8 p6/

{65 97 73 92 44/ 67 21 84}

06201 82 8 50

* 44 23 3 33 17/ 4 17 20 24 24/ 47 p22 5 59 18/ 23 43 9 26 68/ 38 14
p22 12 p76/ p62 21 p64 p57 23/ p9 25 15 p15 13/ p16

{278 325 88 62 85/ 57 32 55 29}

06202 82 2 325

* 110 100 400 30 p64/ 22 5 p74 10 14/ 54 p84 20 157 118/ 115 151 180
109 29/ 215 p185 472 94

{704 101 162 1279}

06203 83 8 10

* 36 200 p298 198 473/ 40 p218 62 p20 90

{534 929 82}

06204 6 6 355

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06213　90 0 330

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06232 83 6 350

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06241 80 2 310

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06261   80 6 280

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06271   88 1 270

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06322   79 2 315

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06331   82 6 335

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06521 88 6 290

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06532 78 8 75

* p78t 5 p183 225 211/ 128 26 4 132 3/ p3 65 16 2 4/ 36 p54 523 p15 195/ p144 26 11 297 p9/ 690 p200

{78 188 732 177 538/ 339 343 890}

06533 3 4 30

* 36 28 p50 45 42/ 13 17 p22 33 24/ 32 27 4 7 12/ p5 54 21 p14 21/ 23 13 10 p13 20/ 42 p12 22 p19

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* 200 100 p85 11 14/ 10 p15 p40 142 6/ 7 46 p45 6 11/ 36 28 4 9 9/ 13 p9 4 10 10/ 57 p12 46 48 29/ 57 209 110 35 20/ p133 45 99 p243 128/ p90

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06542 5 6 325

p26 55 p77 33 35/ p24 39 11 8 12/ 15 7 5 9 19/ 15 10 11 8 7/ 3 9 8 p20

22/ 13 5 8 9 p7/ 9 4 3 3 p7/ 12 6 10 7 5/ 4 9 p4

(132 92 216 64 26/ 57)

06551   83 4 45

* 23 3 8 17 2/ 2 17 34 25 78/ 52 27 22t 25t 26t/ 62t 19 100 p50 65/
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110 98 79 6 14/ p225

(592 301 691 758)

06552   5 8 30

* 13 9 12 7 20/ 9 p16 19 32 p15/ 5 5 5 6 9/ 5 6 9 p8 17/ p15 12 10 17
10/ 13 6 3 p14 11/ 9 7 3 16 14/ 11 9 4 p3

(86 66 58 32 85/ 87)

06553   89 6 330

* 14 9 5 4 9/ 8 10 p15 35 10/ 10 p14 7 16 5/ 8 19 14 31 94t/ p51 79 15
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(74 69 245 183)

06561   83 2 335

* 20 15 98 49 63/ 60 p27 115 500 47/ 14 10 p153 26 3/ 13 339

(332 839)

06562   60 2 305

29 10 p14 10 7/ p26 5t 6 p24 9/ p54 27 16 27 29t/ 13 18t p16 29t 8t/ 9
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06563   3 7 0

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p14 3t 6 28 6/ 8 29 39 27 4/ 12 3 p21 21 125/ p7 41 14 34 28/ p32 40
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06573 3 7 0

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{77 59 64 25 54/ 60 101 26 34 40/}

06581 80 2 290

* 36 16 9 11 16/ 19 150 50 p53 46/ 82 32 p21 p118 8/ 5 5 7t 18 43/ 19
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{360 121 118 521 66/ 156 289 71 207}

06582 89 8 70

p13 117 11 103 p16/ 81 p23 114 p36t 2/ 8 12t 98 p20 74/ 38 p68 64 57t
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06583 7 4 80

7 12 4 6 11/ 9 p15 20 5 3/ 8 6 11 p8 4/ 6 3 5 4 4/ 9 14 p12 14 10/ 15
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