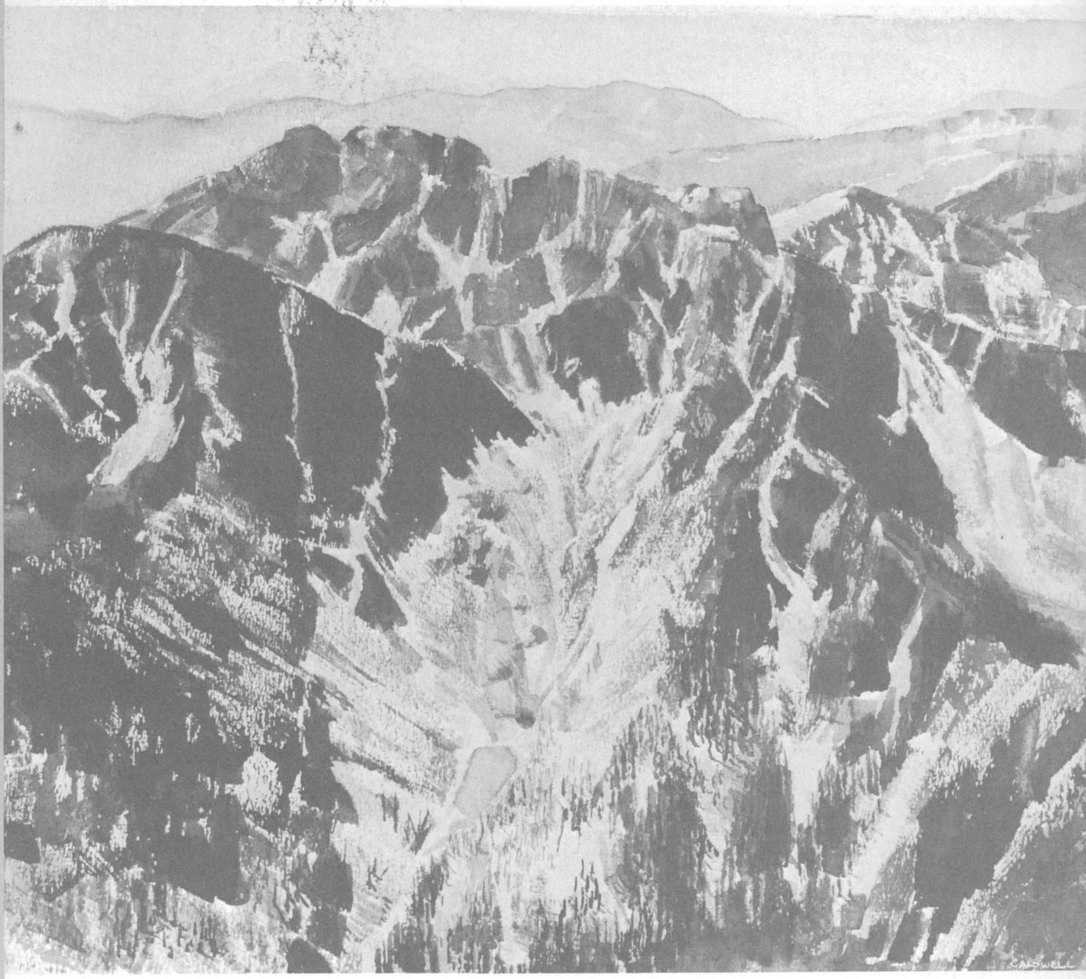
STUDIES RELATED TO WILDERNESS
PRIMITIVE AREAS



SALMON-TRINITY ALPS, CALIFORNIA

GEOLOGICAL SURVEY BULLETIN 1371-B

Hotz and others—SALMON-TRINITY ALPS PRIMITIVE AREA, CALIF.—Geological Survey Bulletin 1371-B

MINERAL RESOURCES OF THE SALMON-TRINITY ALPS PRIMITIVE AREA, CALIFORNIA

View southward across the main ridge of the Trinity Alps. Thompson Peak, altitude 9,002 feet, the highest point in the Trinity Alps, is in the left-middle ground. A vestigial body of glacier ice, Grizzly glacieret, and a small neoglacial moraine (Sharp, 1960, p. 321) can be seen below Thompson Peak. Light-colored granitic rocks of the Canyon Peak pluton are in the center and left of the photograph; dark rocks of the Salmon Hornblende Schist are on the right.

Mineral Resources of the Salmon-Trinity Alps Primitive Area, California

By PRESTON E. HOTZ, U.S. GEOLOGICAL SURVEY, *and* HORACE K. THURBER, LAWRENCE Y. MARKS, *and* ROBERT K. EVANS, U.S. BUREAU OF MINES

With a section on AN AEROMAGNETIC SURVEY AND INTERPRETATION

By ANDREW GRISCOM, U.S. GEOLOGICAL SURVEY

STUDIES RELATED TO WILDERNESS—PRIMITIVE AREAS

GEOLOGICAL SURVEY BULLETIN 1371-B

An evaluation of the mineral potential of the area

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STUDIES RELATED TO WILDERNESS

PRIMITIVE AREAS

In accordance with the provisions of the Wilderness Act (Public Law 88-577, September 3, 1964) and the Conference Report on Senate bill 4, 88th Congress, the U.S. Geological Survey and the U.S. Bureau of Mines are making mineral surveys of wilderness and primitive areas. Areas officially designated as "Wilderness," "wild," or "canoe" when the act was passed were incorporated into the National Wilderness Preservation System. Areas classed as "primitive" were not included in the Wilderness System, but the act provides that each primitive area be studied for its suitability for incorporation into the Wilderness System. The mineral surveys constitute one aspect of the suitability studies. This bulletin reports the results of a mineral survey in the Salmon-Trinity Alps Primitive Area, California. The area discussed in the report includes the primitive area, as defined, and a contiguous tract that may come under discussion when the area is considered for wilderness status.

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MINERAL RESOURCES OF THE SALMON-TRINITY ALPS PRIMITIVE AREA, CALIFORNIA

By PRESTON E. HOTZ, U.S. Geological Survey, and HORACE K. THURBER, LAWRENCE Y. MARKS, and ROBERT E. EVANS, U.S. Bureau of Mines

SUMMARY

A mineral survey of the Salmon-Trinity Alps Primitive Area and vicinity in the southern Klamath Mountains, northern California, was made in 1968, 1969, and 1970 by the U.S. Geological Survey and the U.S. Bureau of Mines. An aeromagnetic survey of the area was made by the U.S. Geological Survey in 1969. The area studied consists of approximately 450 square miles of the officially designated primitive area, plus an additional 118 square miles in adjoining areas. The fieldwork was accomplished by several hundred miles of traverses on foot. A helicopter was used to supply base camps and to transport personnel. Approximately 80 man-months was spent in field investigations.

The mineral survey consisted of reconnaissance geologic mapping, a geochemical sampling program, studies of known mineral occurrences including lode mines, prospects, and placer deposits, and determination of mineral production. Stream-sediment samples were collected from all the principal streams and most tributaries. Panned-concentrate samples of streambed material were also collected, at regular intervals, to check for heavy minerals. All the representative rock types were sampled, and in addition stained or altered samples were collected from contacts, joints, fractures, shear zones, and material that showed any indication of mineralization. Quartz veins in natural exposures and in accessible mines and prospects were sampled, as well as the dumps of many mines and prospects. More than 2,100 samples were analyzed by semiquantitative spectrographic, atomic absorption, and colorimetric methods. Approximately 290 samples from veins were tested by fire-assay and chemical-assay methods. Over 270 samples from placer claims and gravel deposits were tested by amalgamation to determine recoverable gold content.

Geologically, the area includes two lithologic belts. On the west is the western Paleozoic and Triassic belt underlain by fine-grained metasedimentary rocks and mafic to intermediate metavolcanic rocks. In the central part of the

area the Salmon Hornblende Schist and the Abrams Mica Schist, whose metamorphic age is approximately 380 million years (Devonian), occupy a plate of rocks which has been thrust westward over rocks of the western Paleozoic and Triassic belt. Windows in the thrust plate expose metamorphosed rocks of the western Paleozoic and Triassic belt. In the eastern part of the area a large body of serpentinized ultramafic rock is thrust westward over the Salmon and Abrams Formations. Belts and lenticular bodies of serpentinite also occur along faults in the western Paleozoic and Triassic belt. Plutonic rocks of Jurassic age ranging in composition from gabbro and diorite to granodiorite occur throughout the area. Medium-sized to large plutons of quartz diorite and granodiorite are abundant in the eastern part of the area, where glaciation of some of the closely jointed granitic bodies has resulted in spectacular alpine scenery.

The study area is in a part of the Klamath Mountains where gold has been extensively sought and mined from both lode and placer deposits. Recorded production from lode deposits in the area totaled slightly over 152,900 ounces, approximately $5,350,000 at today's base price of $35 per ounce. The largest producers were the Globe mine in the Dedrick–Canyon Creek district, with a recorded production of more than $3,980,000, and the Alaska mine in the East Fork district, which reportedly produced approximately $600,000 in gold. The greatest concentration of mines is in the Mary Blaine Mountain–Old Denny district, where a total of approximately $500,000 in gold was produced. The most important mine, the Boomer, produced approximately $136,000. The Dorleska mine, south of Coffee Creek, is an old property from which about $310,000 worth of gold has been produced. Numerous small mines and prospects, scattered throughout the study area, have produced less than $100,000 in gold at the base price of $35 per ounce, and many have yielded less than a few thousand dollars. All the lode mines have been idle for more than 30 years, but some exploration and development have recently been carried on at the Globe and some small mines in the Coffee Creek area. Globe and Dorleska are economically marginal deposits, but the other lode gold deposits cannot be profitably mined now or in the foreseeable future.

Significant but smaller production is recorded from placer mines within the study area. The recorded production totals approximately 16,200 ounces, worth $567,000 at the present price of gold. This total is believed to be low because much of early day placer production was not recorded. The principal placer mines have been the Bayles and King hydraulic mine in Rattlesnake Creek, the Nash placers in Coffee Creek, and the Holland placers in East Fork Coffee Creek. Placer mining is currently confined to one- or two-man operations on some of the streams and recreational prospecting by summer visitors to the study area. Limited, small-scale placer operations are probably feasible.

Deposits of other metals of interest in the study area include silver, copper, mercury, and chromium. A small amount of silver production has been recorded (approximately $60,000) as a refining product of gold ore. Copper minerals occur in minor quantities in many of the gold veins, and a few minor copper prospects are known, but no copper has been mined commercially in the study area. A few flasks of quicksilver have been produced from the Cinnabar mine in the Mary Blaine Mountain–Old Denny district, the only known significant deposit of mercury in the area. A small amount of chromite has been produced, but no extensive deposits are known.

Small quantities of copper, lead, zinc, silver, and mercury were detected in many of the samples collected for the geochemical study, and anomalously high quantities were found in some places, most commonly in the western part of the area. Patterns of samples containing anomalous copper, lead, and silver indicate that further exploration might result in the discovery of mineral deposits in the vicinity of Soldier Creek and the East Fork New River. A fault zone on the upper East Fork New River, where samples contained anomalous quantities of lead, silver, molybdenum, zinc, and mercury, may warrant further prospecting. A mineralized fault zone is exposed on the South Fork Whites Creek, where samples are enriched in copper, lead, silver, and molybdenum and trace amounts of lead. Small amounts of coarse placer gold have been found near there in recent years. Samples containing gold and anomalous amounts of copper were obtained throughout the drainage of the North Fork Trinity River and in the vicinity of the McClaron and Alaska mines, where there may be other small undiscovered mineralized veins, but it is doubtful if this part of the area has any important mineral potential.

Bismuth occurs in several samples from the northwestern part of the area, in the vicinity of the Salmon Summit mine. The metal is restricted to this region, where it probably is uniquely associated with the gold mineralization.

In the eastern half of the study area, anomalous quantities of metals are found in very few samples, and these are from widely scattered localities. The presence of gold, however, has long been recognized, particularly in the Coffee Creek drainage. A weakly mineralized north-south-trending zone may extend from Stuart Fork into the drainage of Caribou Creek, as the distribution of samples containing molybdenum, silver, and lead suggests.

The study area has no potential for combustible fuels. Granitic rock for decorative stone is plentiful, and sand and gravel could be produced from the area. Limestone is also fairly abundant in the western part of the region. These commodities are, however, more accessible elsewhere at localities closer to markets.

INTRODUCTION

The Salmon-Trinity Alps Primitive Area is in northern California and includes parts of Trinity and Siskiyou Counties and parts of the Shasta-Trinity and Klamath National Forests (fig. 1). The officially designated primitive area includes approximately 450 square miles (288,000 acres). An additional 118 square miles (75,520 acres) was studied at the request of the U.S. Forest Service. The total area investigated is about 568 square miles (363,520 acres).

The area is in the southern part of the Klamath Mountains geologic province, an elongate north-trending mountainous region in northwestern California and southwestern Oregon which embraces several poorly defined individual ranges. The Salmon Mountains, Trinity Alps, and Scott Mountains are included within the study area. The Salmon Mountains, in the northwestern part of the region, form the high divide between the Trinity River drainage on the south and the South Fork Salmon River and its tributaries on the north. In the northeastern part of the area the Scott Mountains form the divide between the Trinity and Scott River drainages. Trinity Alps is the name given to the rugged terrain

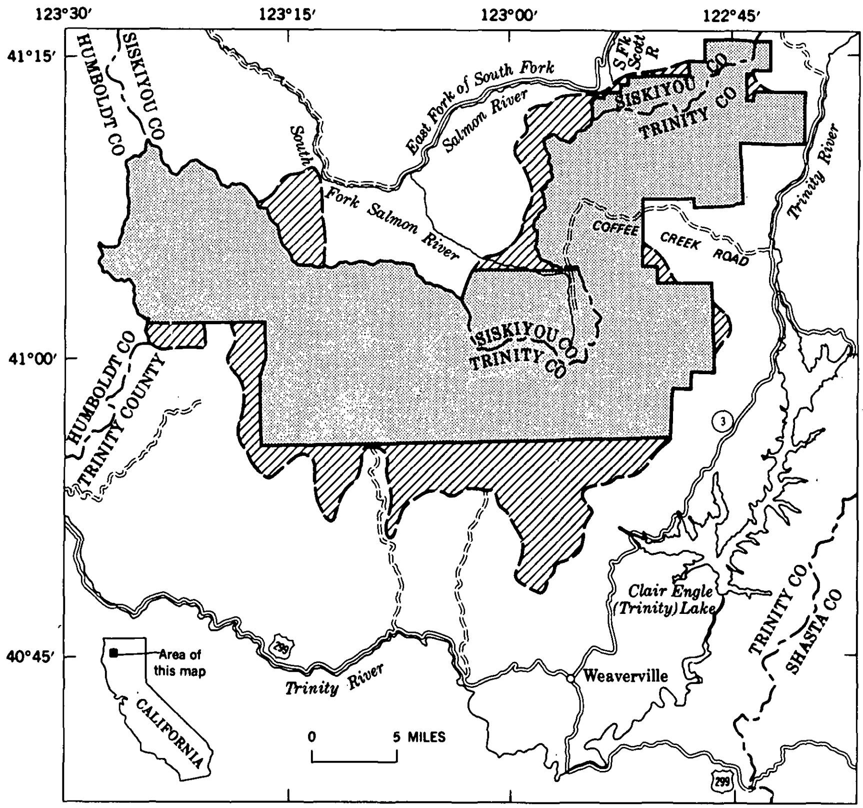

FIGURE 1.—Location of the Salmon-Trinity Alps Primitive Area (shaded) and additional areas studied (line pattern).

in the central part of the region. Other prominent ridges and persistent divides, generally trending north-south, also individually named, are shown on plate 1.

Drainage in the western three-fourths of the area is mainly southward and tributary to the Trinity River, a major westward-flowing stream south of the study area. Many southeast-flowing streams drain the eastern part of the study area, finally emptying into Clair Engle (Trinity) Lake. The major stream in the northeastern part of the area, also in the Trinity River drainage, is Coffee Creek, which commences as a north-flowing stream and, after a right-angle bend, flows eastward, augmented at frequent intervals by many major tributaries from the north and south. The upper part of Coffee Creek valley is a fine example of stream capture by the South Fork Salmon River which, in its first 4½ miles, flows northward in the southern extension of Coffee Creek valley, then turns abruptly west and plunges through a spectacular water gap. The extreme northeastern part of the study area, north of the Scott Mountains divide, is drained by many small tributaries of the Scott River and the East Fork of the South Fork Salmon River.

The many stream valleys and intervening ridges contribute to the extremely dissected, rugged aspect of the region. The relief is great, with deep, steep-sided, narrow-bottomed canyons and sharp ridges. The relief between ridge and stream in many parts of the area is 2,000–3,000 feet. Maximum relief is in the Trinity Alps, where the vertical distance between ridge crests and valley bottoms is 3,000–4,000 feet. The highest point, Thompson Peak in the Trinity Alps, is 9,002 feet high (frontispiece) ; the lowest point, at the junction of Virgin and Slide Creeks, is approximately 2,000 feet.

The most spectacular part of the area is in the rugged glacial terrain of the Trinity Alps (fig. 2), where Pleistocene glaciers carved many typical U-shaped valleys, created beautiful lake-filled rock basins at the heads of the valleys, and formed sawtooth

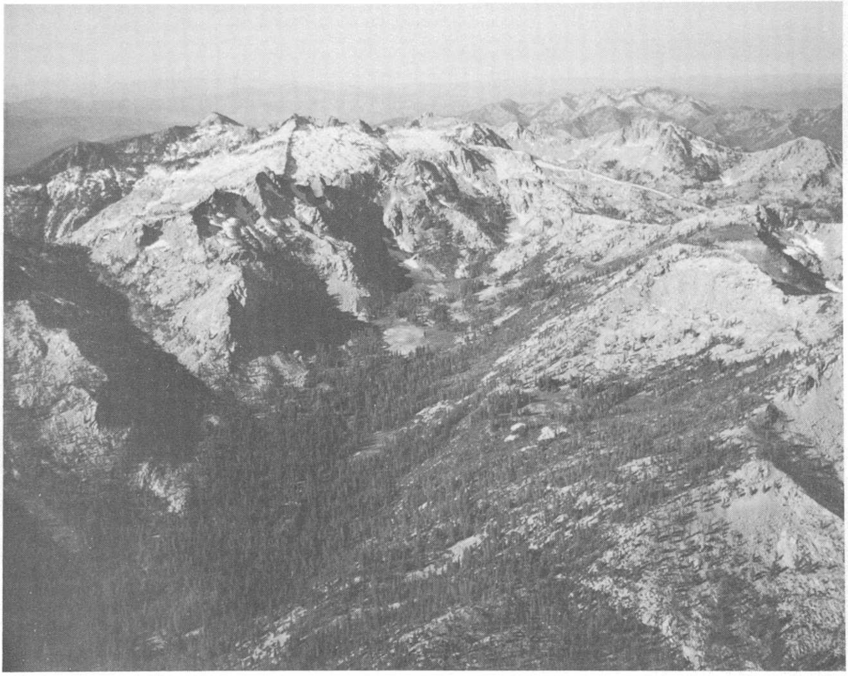

FIGURE 2. — View southward over Bear Basin, a glaciated tributary of Swift Creek. The foreground and middle ground are underlain by ultramafic rocks. The snowy ridge and peak at upper left are part of the Gibson Peak granitic pluton.

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ridges, matterhorn peaks, areas of ice-scoured bedrock, moraines, meadows, and other scenic alpine features (fig. 3). Two small vestigial glaciers remain. One is at the head of Grizzly Creek on the north side of Thompson Peak (frontispiece). The other is in a cirque on the north side of an unnamed peak (8,966 feet) on Sawtooth Ridge, 0.6 mile east of Thompson Peak. The upper parts of valleys in the northeast part of the study area, particularly on

FIGURE 3. — View northeastward from the glaciated head of Stuart Fork. Emerald Lake (above) and Sapphire Lake (below) are in the center, and the U-shaped valley of Stuart Fork is in the upper right. Note Sawtooth Ridge on the left of the valley. The volcanic peak of Mount Shasta is on the skyline.

the north side of the Scott Mountains, are also glaciated and offer scenic areas of relatively easy access.

The area is heavily timbered, except for the higher glaciated terrain in which bedrock has been scoured by ice (fig. 4). Oak, laurel (or bay), maple, madrone, and other deciduous trees grow on the lower slopes. Pine, fir, cedar, spruce, and other evergreens grow at higher elevations and predominate above 4,000 feet. Many south-facing slopes, especially in burned-over areas, are covered with dense growths of manzanita, scrub oak, and other forms of brush.

The climate of the study area is moderate, although in detail it varies widely, depending on altitude. At Weaverville, a few miles southeast, the average July temperature is 71°F; the maximum daily summertime temperature is often in the 90's. The average temperature in January is 37°F; the daily minimum is well below freezing. Precipitation at Weaverville averages 36 inches of rainfall, most of it during late fall, winter, and early spring; snowfall averages 27 inches, with much more at higher elevations.

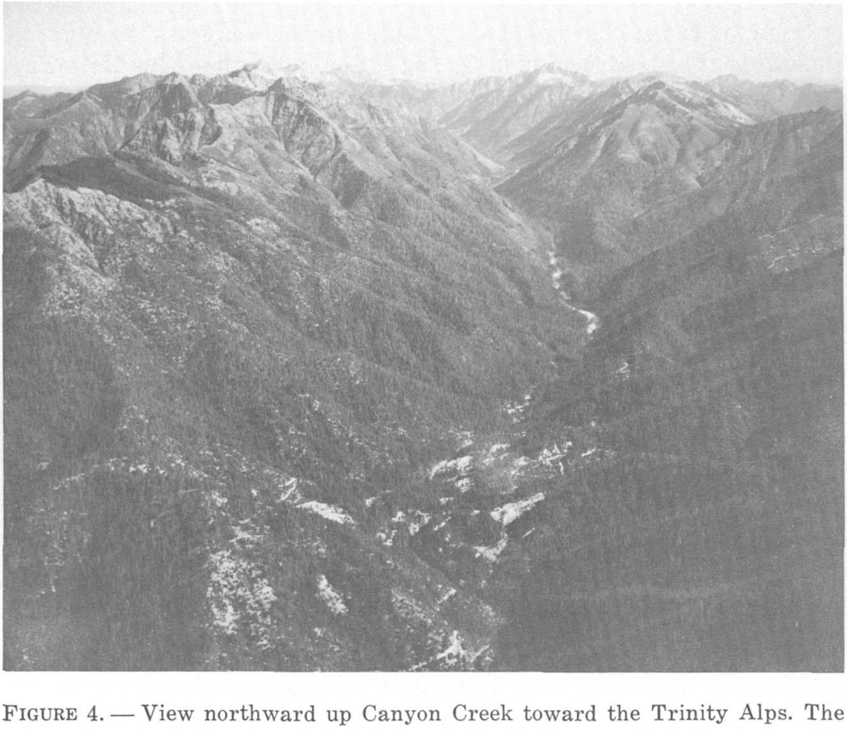

FIGURE 4. — View northward up Canyon Creek toward the Trinity Alps. The lower part of the picture is south of the study area but illustrates the rugged wooded terrain that is typical of the southern and western parts of the region. The road to the Globe mine is visible on the right.

The study area is accessible by several roads (fig. 1). On the south, access roads from State Highway 299 extend to the New River country, via Denny, and reach Hobo Gulch camp on the North Fork Trinity River, and Ripstein Camp on Canyon Creek. On the east, Highway 3 along the west side of Clair Engle (Trinity) Lake and the Trinity River affords access to trail heads on Stuart Fork, the East Fork Stuart Fork, and Swift Creek. A good road up Coffee Creek provides access to many trails north and south of Coffee Creek. The Coffee Creek road extends to Big Flat, where the Caribou Lake country and the head of Union Creek can be reached by good trails. Several good dirt roads extend to the north boundary of the primitive area from a paved road that extends from Callahan to Cecilville on the South Fork Salmon River. Maintained Forest Service trails from road ends cross the area, usually following major streams, except where the trails cross major divides. The trails can be traveled on foot or horseback most of the year, except in the high country, where they are covered by snow during the winter.

PREVIOUS STUDIES

Some of the earliest geologic studies in the Klamath Mountains, including that part occupied by the Salmon-Trinity Alps Primitive Area, were by Hershey (1901, 1903), who also reported on gold deposits in what is now the eastern part of the study area (Hershey, 1899, 1900). Gold deposits in the eastern part of the area were also discussed by MacDonald (1913). Brown (1916) and Averill (1941) briefly described mineral deposits, chiefly gold, in all parts of the study area. Aside from work on the fringes of the area by Hinds (1932, 1933, 1935), no substantive geologic studies were made until after modern base maps became available in the 1950's. Irwin (1960) described the results of geologic reconnaissance in the southern Klamath Mountains and northern Coast Ranges. The study area was included in the geologic map accompanying that report. The most recent mapping of the complex geology in the central and eastern parts of the study area have been studies of the Helena quadrangle (Cox, 1967), parts of the Trinity Dam and Coffee Creek quadrangles (Davis and others, 1965), and the Cecilville quadrangle (Davis, 1968). The area examined is included in geologic maps compiled by Strand (1962, 1963) for the Redding and Weed sheets of the Geologic Map of California. The most recent geologic summary of the region is by Irwin (1966). The geologic environment in which lode deposits of gold occur in the Klamath Mountains has been summarized by Hotz (1971).

PRESENT INVESTIGATION AND ACKNOWLEDGMENTS

Investigations in the study area by the U.S. Geological Survey were made during the field seasons of 1968, 1969, and 1970. In 1968 the investigations were made by W. P. Pratt and D. P. Cox, assisted by D. Elley and W. C. Wickboldt; in 1969 by P. E. Hotz and D. P. Cox, assisted by C. R. Bacon, D. M. Hitchcock, and L. E. Catton; and in 1970 by P. E. Hotz, assisted by T. C. Herman, J. C. Matti, and M. H. Allen. An aeromagnetic survey of the area was made by the U.S. Geological Survey in 1970.

Approximately 23 man-months was spent in field investigations. The fieldwork was accomplished by several hundred miles of foot traverses through the area. Extensive use was made of a helicopter to supply base camps and to transport personnel.

Fieldwork by the U.S. Geological Survey included reconnaissance geologic mapping, which consisted of new mapping in the western one-fourth of the area by Pratt and Cox in 1968, and checking and updating existing maps in the rest of the area during 1969 and 1970. Many of the prospects and abandoned mines were also visited and studied. The major effort, however, was the collection of samples for a geochemical survey of the study area. Stream-sediment samples and panned concentrates were taken at regular intervals from nearly all the principal streams. All the common rock types were sampled, including those with visible alteration and evidence of possible mineralization. More than 2,000 samples of all kinds were collected and analyzed by spectrographic, atomic absorption, and colorimetric methods. Most of the samples were analyzed in Geological Survey mobile laboratories under the direction of C. L. Whittington; some were analyzed in laboratories of the U.S. Geological Survey in Denver, Colo. Data from aeromagnetic survey were interpreted by Andrew Griscom, U.S. Geological Survey.

Investigations by the Bureau of Mines were concerned mainly with the economic aspects of the mineral resources in and adjacent to the study area. Information was obtained from the records of the U.S. Forest Service and the records of Trinity County in Weaverville, Siskiyou County in Yreka, and Humboldt County in Eureka, which were examined for the locations of patented and unpatented mining claims. Data on mineral production were compiled from U.S. Bureau of Mines records and from various reports of the California Division of Mines and Geology.

Fieldwork by U.S. Bureau of Mines personnel was conducted in the mining districts and mineralized areas in and near the study area during the summers of 1968, 1969, and 1970. In 1968, investigations were made by H. K. Thurber, Paul V. Fillo, and James L.

Miller. During the 1969 field season, the studies were conducted by Thurber, Robert K. Evans, and Lawrence Y. Marks. The remainder of the study area was examined by Thurber, Marks, and Evans, assisted by Donald Sanders. Approximately 57 man-months was spent by Bureau of Mines personnel in field investigations.

The objective of the investigation was to determine the nature and extent of mineral resources in the study area and its potential for economic production. A thorough study was made of all known mines and prospects and of their relationship to the geologic setting, and an extensive search was made for potentially mineralized areas and for undiscovered mineral resources.

The mineral appraisal of the Salmon-Trinity Alps Primitive Area has benefited from the cooperation of many local residents, resort operators, mine owners, and county officials. Particularly helpful in the work were Mr. Henry Carter, Mr. George Jorstad, Mr. and Mrs. Gilbert Gates, Mr. Warren Gilzean, Mr. and Mrs. M. L. Benoist, Mr. Grover Ladd, Mrs. Margaret Desch, Mrs. Gertrude Whitton Barrett, and Mr. Robert J. Muir. The work could not have been carried forward with dispatch without the cooperation and assistance of U.S. Forest Service personnel in the various district ranger offices. Both routine and emergency radio communication was very efficiently handled by Mrs. Betty Carlson of the Bonanza King Lookout and Mrs. Rita Maupin of the Weaver Bally Lookout. Mr. Burt Train of Redding Air Service and his pilots greatly expedited examination work in remote areas by supplying prompt and efficient helicopter service to the field crews as required.

GEOLOGY

SETTING

The Salmon-Trinity Alps Primitive Area embraces two informally designated geologic subprovinces or lithic belts of the Klamath Mountains (Irwin, 1960, p. 16, 21; pl. 1): (1) On the west, the western Paleozoic and Triassic belt, and (2) on the east, the central metamorphic belt. These two belts occupy three-quarters of the area; the eastern quarter is underlain by a large body of ultramafic rock and several granitic plutons. Lithologic units and most of the principal faults and folds in the western and central subprovinces strike north-south. The contact between the western Paleozoic and Triassic belt and the central metamorphic belt is a thrust fault of regional extent, and the central metamorphic belt is on the westward-directed upper plate. The large ultramafic body in the eastern part of the area is believed to have been thrust westward over rocks of the central metamorphic belt. Granitic plutons intrude rocks of both belts and the eastern ultramafic body.

Dike rocks, mostly oriented in an east-west direction, are abundant throughout the area. The region has been extensively dissected by eroding streams, and the higher parts have been carved by glacial ice.

WESTERN PALEOZOIC AND TRIASSIC BELT

The western part of the area is underlain by an assemblage of metavolcanic and metasedimentary rocks which includes several lithologic units whose stratigraphic and structural relationships are in doubt. The belt includes rocks to which formational names have been given in different parts of the Klamath Mountains in California and Oregon; however, because of their uncertain relationships, Irwin (1960) assigned them to one subdivision, which he called the western Paleozoic and Triassic belt. The western Paleozoic and Triassic belt in the study area (pl. 1) is part of a broad continuous north-south-trending terrane throughout the Klamath Mountains province.

In the study area, metasedimentary rocks of the western Paleozoic and Triassic belt consist mostly of metachert and fine-grained slaty to phyllitic and schistose rocks formed by the metamorphism of fine-grained detrital sediments. Fine-grained metavolcanic rocks are interbedded with the metasedimentary rocks. Lenticular, discontinuous bodies of metamorphosed limestone (marble) are widely distributed throughout the belt.

The metacherts are commonly thin bedded. Layers of very fine grained to microscopic quartzite, an inch or less to as much as 4 inches thick, alternate rhythmically with thinner partings of commonly slaty argillaceous material. The siliceous beds are gray to greenish gray, less commonly reddish brown; the argillaceous partings are dark gray to black. Many exposures show complex tight folding in the rhythmically bedded metachert.

Argillite, slate, phyllite, and fine-grained schist are plentiful in the western half of the western Paleozoic and Triassic belt encompassed by the study area. Generally, these are very fine grained rocks whose constituents are only visible under the microscope. Commonly the rocks have a poor to moderately well defined cleavage, and cleavage surfaces have a silky sheen imparted by finely divided mica. Original bedding is indistinct or obliterated by penetrative metamorphic foliation. Microscopic examination of these rocks shows them to be composed of fine-grained quartz, commonly some untwinned albite, fine-grained colorless mica, and variable minor amounts of chlorite and actinolite. Gray to black translucent to opaque submicroscopic dust is abundant in some of the very fine grained rocks.

Marble, formed by the recrystallization of limestone, ranges from massive to moderately well bedded and from fine grained to coarsely crystalline. Generally, it is relatively pure, but some contains knots and lenses of chert and variable amounts of volcanic debris. Although some of it has a distinctly fetid odor when freshly broken, organic remains are almost never apparent.

The metavolcanic rocks are greenish gray to black, and fine grained to microcrystalline. Many are apparently massive and structureless, but faint to obvious pillow structures can be seen in some exposures. Some of the rocks have recognizable porphyritic textures, with small subequant phenocrysts of greenish amphibole, pseudomorphs of pyroxene, and less commonly with phenocrysts of unaltered pyroxene. Others are amygdaloidal, with calcite-filled cavities. The more soluble carbonate amygdules are leached out, and so weathered exposures have a vesicular appearance. Some of the metavolcanic rocks are obviously fragmental volcanic breccias; these commonly contain fragments and interstitial fillings of recrystallized limestone. Under the microscope thin sections of metavolcanic rocks reveal sodic plagioclase (albite to sodic andesine) intergrown with pale-green actinolitic amphibole and chlorite. Relict clinopyroxene (augite) occurs in some of the phenocrysts. Common minor accessories are epidote and (or) clinozoisite, fine-grained sphene or leucoxene, and magnetite or magnetite-ilmenite. The rocks probably were originally of basaltic composition; some were undoubtedly spilites.

Rocks of the western Paleozoic and Triassic belt have been regionally metamorphosed under the relatively low-grade conditions of the greenschist metamorphic facies. In this area this facies is typified by incipient recrystallization of the volcanic rocks, with the formation of new minerals but without destruction of the essential features of the original fabric and structure of the rocks, and development of microcrystalline quartzite and micaceous phyllite from the original chert and mudstone. Adjacent to some of the intrusive bodies, for example, in the western part of the area near the Ironside Mountain pluton, some of the metasedimentary rocks are coarser grained, owing to contact metamorphism, and the rocks are brownish to purplish because of the development of biotite. Metavolcanic rocks are locally metamorphosed to amphibolite adjacent to some of the intrusive bodies. Lawsonite-glaucophane schist, typical of the blueschist facies, occurs in the eastern part of the subprovince in scattered outcrops along Limestone Ridge adjacent to the thrust fault contact with rocks of the central metamorphic belt.

Metasedimentary and metavolcanic rocks which underlie a thrust plate of Salmon and Abrams Formations are exposed in the core of isoclinal antiforms in the valley of the Stuart Fork Trinity River and near Caribou Lake, in the upper part of the valley of the South Fork Salmon River, and in upper Coffee Creek (pl. 1). These rocks, called the Stuart Fork Formation by Davis and Lipman (1962), are correlated with rocks of the western Paleozoic and Triassic belt (Davis, 1968, p. 915). The metasedimentary rocks include complexly folded phyllitic to schistose micaceous quartzite and some interbedded graphitic quartz-mica phyllite. Scattered lenses of marble are also present. Minor amounts of fine-grained greenstone and foliated actinolitic schist interfinger with the siliceous rocks. Adjacent to the plutons southwest of Caribou Lake, the mafic rocks are metamorphosed to hornblende hornfels. The highly deformed and recrystallized character of the metasedimentary rocks is attributed to shearing by westward thrusting of the plate bearing Salmon and Abrams Formations over rocks of the western Paleozoic and Triassic belt (Davis, 1968, p. 915).

The age of rocks in the western Paleozoic and Triassic belt is only approximately known. Some poorly preserved fossil remains of crinoids and corals were found in a few places in the study area. Small collections from limestone lenses on Fawn Creek and Eagle Creek indicate middle or late Paleozoic age (C. W. Merriam, written commun., 1969). Age determinations on fossils from elsewhere in the belt range from middle and late Paleozoic to Triassic (Irwin, 1966, p. 21–24). Isotopic ages obtained on the highly deformed rocks below the thrust plate of Salmon and Abrams Formations range from 133 to 150 m.y. (million years) and suggest that metamorphism occurred during the Jurassic (Lanphere and others, 1968).

CENTRAL METAMORPHIC BELT

Rocks of the central metamorphic belt are divisible into two units: the Salmon Hornblende Schist and the Abrams Mica Schist (pl. 1). The Salmon Hornblende Schist occurs mainly in the region between the North and Stuart Forks of the Trinity River, and also in a smaller area west and northwest of Big Flat at the head of Coffee Creek. A narrow belt of the Salmon crops out east of Stuart Fork and east and north of the upper part of Coffee Creek in conjunction with the Abrams, which occupies a narrow zone adjacent to the west boundary of the eastern ultramafic body. The Abrams also occurs in a small area near the county-line ridge in the headwaters of the North Fork Trinity River.

The Salmon Hornblende Schist is a rather uniform dark fine-grained well-foliated hornblende-epidote-albite schist formed by metamorphism of what were probably mafic igneous rocks. The foliation is defined by a cleavage parallel to well-oriented hornblende prisms and by light-colored quartzo-feldspathic and epidote-rich layers. A pervasive lineation is made apparent by weakly to strongly oriented hornblende prisms in the foliation plane (Davis and others, 1965, p. 943). The Abrams Mica Schist, composed predominantly of metasedimentary rocks, includes quartz-mica schists, calcareous schists and impure marble, and intercalated amphibolite.

The Salmon and Abrams Formations constitute a metamorphosed generally coextensive sequence that overlies metamorphosed rocks of the western Paleozoic and Triassic belt on a folded thrust sheet. Valid stratigraphic evidence of the age of the Salmon and Abrams Formations is lacking. They may be metamorphosed equivalents of Paleozoic rocks in the eastern Klamath belt (Irwin, 1966, p. 21; Lanphere and others, 1968, p. 1034). A rubidium-strontium age of 380 m.y. (Devonian) was obtained (Lanphere and others, 1968, p. 1034) for initial metamorphism of the Abrams Mica Schist.

GABBRO

Gabbro is a fairly common type of plutonic igneous rock in the area and occurs in several different ways.

In the western Paleozoic and Triassic belt a sill-like north-trending body of gabbro 0.2 to 1 mile wide extends from southeast of Thurston Peaks to the Salmon Mountain divide and into the Plummer Creek drainage, a distance of about 18 miles, and it extends south of the area studied for another 4 miles (Cox, 1967). The body intrudes diabase and metavolcanic rocks and is intruded by a granitic pluton in the vicinity of Dees Peak and Mary Blaine Mountain. Its relationship with the serpentinite belt to the east is not clear, but Cox (1967) noted that to the south of the Helena quadrangle the gabbro was cut off by the North Fork fault zone, in which the serpentinite belt occurs. A smaller, lenticular body of gabbro, bounded by faults and surrounded by metasedimentary rocks, trends northeastward from Virgin Creek Buttes. Typically, the gabbro in the western Paleozoic and Triassic belt is considerably to thoroughly altered. It is medium to fine grained; some rocks have a hypidiomorphic-granular texture, with clearly distinguishable intergrown feldspar and dark-green to black hornblende and augite; others are composed of splotchy masses of greenish fibrous amphibole with intervening areas of gray chalky feldspar. In many exposures the gabbro obviously is strongly fractured, and in some places, for example, in upper Slide Creek near the Boomer mine, it is intensely sheared and crisscrossed by a myriad of white veinlets of clinozoisite.

Gabbro is associated with some of the granitic plutons. Hornblende gabbro occurs as a border facies in some places, but masses of hypersthene-hornblende gabbro and augite-hornblende gabbro are also found well within dioritic parts of some composite plutons, as at Gibson Peak (Lipman, 1963).

Two large masses of gabbro in the northeastern part of the study area are enclosed in the large body of ultramafic rocks (pl. 1). Gabbro in these masses is very heterogeneous, ranging from fine grained to pegmatitic, with hornblende crystals several inches long and coarse interstitial gray plagioclase. In places the bodies are obviously layered, with streaky coarse-grained layers alternating with medium- to fine-grained material. The rock commonly is composed of subhedral to euhedral crystals of grayish-brown pyroxene rimmed by black hornblende and irregular interstitial masses of anhedral plagioclase. Locally, the rock grades into pyroxenite. In contrast to gabbro in the western Paleozoic and Triassic belt, the gabbro of these bodies in the ultramafic rock is "cleaner" and unaltered. Potassium-argon age determinations of hornblende from these gabbros gave apparent ages ranging from 333 ± 16 to 439 ± 18 m.y. (Lanphere and others, 1968, p. 1043). These gabbros, which are probably syntectonic with the enclosing serpentinite, were possibly crystalline prior to emplacement of the ultramafic body.

GRANITIC ROCKS

Granitic rocks occur throughout the study area. They range in composition from diorite to granodiorite and intrude rocks of the two lithologic belts and the large ultramafic body in the eastern part of the area (pl. 1).

Several scattered small plutons of granitic rock intrude rocks of the western Paleozoic and Triassic belt. They tend to be subcircular to slightly elongate in plan and are mostly dioritic in composition but range from hornblende gabbro to quartz diorite. The east edge of a large pluton, the Ironside Mountain batholith, is partly enclosed by the west boundary of the study area. This pluton is poorly known, but limited sampling (Lanphere and others, 1968, p. 1038) indicates that it is a mafic body of unusual composition compared with other Klamath Mountains plutons. Its predominant rock types are pyroxene diorite and syenodiorite. Two age measurements of 165 m.y. and 167 m.y. (Lanphere and others, 1968, p. 1038) indicate that the Ironside Mountain pluton is older than the granitic plutons in the east-central and eastern parts of the study area.

Several large and a few small granitic plutons crop out in the east-central and eastern parts of the study area, where they intrude rocks of the central metamorphic belt and the large ultramafic body. The larger bodies are composite or zoned (Davis and others, 1965, p. 962). Their outer parts are mafic—gabbro, diorite, and quartz diorite—while their central, commonly younger, parts are composed of quartz diorite, granodiorite and, typically, trondhjemite or rocks with trondhjemitic affiliation. Trondhjemite is a light-colored granitic rock in which sodic plagioclase is the predominant feldspar and potassium feldspar is scarce or absent. The Caribou Mountain pluton consists almost entirely of trondhjemite (Davis and others, 1965, p. 962).

The eastern plutons commonly have a moderately well defined roughly concentric planar foliation. Mostly, the exposed bodies are elongate north-south parallel to the regional structural trend. Bedding and foliation of the country rocks are deflected around the plutons. Only the small Gibson Peak pluton is oriented east-west, across the regional strike. Some of the most rugged, scenic parts of the Trinity Alps are in areas underlain by granitic plutons where erosion, guided by prominent joint systems, has formed deep, steep-walled canyons separated by narrow serrate divides.

Potassium-argon age determinations of hornblende and biotite from some of the plutons in the eastern part of the area range from 127 m.y. to 136 m.y. (Lanphere and others, 1968).

ULTRAMAFIC ROCKS

The ultramafic rocks consist mostly of serpentinized peridotite (a rock originally composed of olivine and enstatite) and small amounts of serpentinized dunite (a rock made up almost entirely of olivine). Both are commonly called serpentine or serpentinite by geologist and layman alike. The serpentinites are green to nearly black rocks which weather to shades of brown. Where strongly sheared, as they commonly are along fault zones, they form pale-green to bluish-green flaky masses cut by innumerable braided shiny slip surfaces. This rock is sometimes called "slickentite" by prospectors. The unsheared rock forms massive strongly jointed outcrops. Weathered surfaces of serpentinized peridotite are commonly rough owing to crystals of enstatite which protrude from their more readily weathered serpentinized matrix; in contrast, exposed surfaces of serpentinized dunite are smooth. Pyroxenite and hornblende are relatively uncommon in the study area.

As the name implies, the serpentinites are composed predominantly of serpentine minerals, which have formed by alteration of original olivine. The serpentinites may, however, also contain highly variable amounts of unaltered olivine and pyroxene, accompanied by small, scattered grains of chromite. In a few places, where the original rock is only partly serpentinized, original olivine is the predominant constituent, and the rock has a light-colored glassy appearance on freshly broken surfaces. Where undisturbed by later shearing, the ultramafic rocks have in some places a prominent foliation and compositional layering which have been interpreted (Davis and others, 1965, p. 961) as primary structures formed by flowage of the igneous rock.

Two narrow, persistent north-south-trending belts of serpentinite occur in the eastern part of the western Paleozoic and Triassic belt (pl. 1). They are believed to occupy major eastward-dipping fault zones (Cox, 1967; Davis, 1968, p. 918) east and west of the unit composed predominantly of metavolcanic rocks, diabase, and gabbro, and separate it on either side from areas underlain predominantly by sedimentary rocks. The eastern fault has been named the North Fork fault, the western one, the Twin Sisters fault (Cox, 1967). A few other smaller lenticular bodies of serpentinite bounded by faults occur in the western Paleozoic and Triassic belt. Near the northwest boundary of the study area, four thin slivers of serpentinite occur along a sinuous eastward-dipping fault in metasedimentary rocks.

Ultramafic rocks in the eastern part of the area (pl. 1) are part of a large body that has been interpreted by Irwin and Lipman (1962) to be a folded sheet that separates rocks of the central metamorphic belt from Paleozoic rocks in the eastern Klamath Mountains, beyond the limits of the study area. A thin septum of metamorphic rocks which are correlated with the Abrams Mica Schist is enclosed by the ultramafic body near its west border from Coffee Creek southward to the vicinity of Granite Peak. Serpentinized peridotite is the predominant rock type; dunite and pyroxenite are subordinate. Gently dipping planar structures are visible at many places, and sharp folds are evident locally. Fine-grained foliated to schistose serpentinite crops out along the edge of the ultramafic sheet adjacent to the contact with rocks of the central metamorphic belt. Unlike the sheared serpentinites, these rocks are hard, with a metamorphic fabric due to recrystallization.

DIKE ROCKS

Dikes are plentiful in the study area, but, except for a conspicuous dacite porphyry southeast of Preachers Peak near the Dorleska mine, they are too small and discontinuous to be shown on the geologic map (pl. 1). They range from about 1 foot to several tens of feet in thickness, but most commonly are from approximately 5 to 25 feet thick. Most have not been followed along strike, so their lengths are uncertain. Most commonly the dikes have an east-west orientation at right angles to the structural trend of the enclosing rocks. Recorded strikes range from N. 60° W. to N. 65°

E., and most dips are steep, ranging from vertical to 60° north or south. A few gently inclined bodies with dips as low as 15° to 30° were also observed.

Three varieties of dike rock are most commonly seen. Two of these are dark "mafic" types, the other is a light-colored "felsic" porphyry. The most common dark variety is gray to dark-gray very fine grained nonporphyritic to porphyritic andesite. Phenocrysts are mainly plagioclase, less commonly pale-green hornblende. The microscopic groundmass is composed of euhedral to subhedral plagioclase and pale-brown to pale-green hornblende. These dike rocks commonly are altered in varying degrees and contain epidote-clinozoisite and chlorite.

Somewhat less common but nonetheless abundant are gray fine-grained nonporphyritic hornblende diorite dikes that appear brown on weathered surfaces. Abundant acicular hornblende is clearly visible with a hand lens. The principal components, euhedral brown hornblende and subhedral to anhedral plagioclase, can be distinguished under the microscope. Small amounts of colorless pyroxene occur in some specimens, and a few pyroxene grains contain small rounded grains of quartz.

The felsic porphyry is light gray and porphyritic, with conspicuous phenocrysts of euhedral zoned plagioclase in a fine-grained equigranular groundmass. Some quartz occurs as lobate to rounded phenocrysts. Pale-green chloritized hornblende and chlorite pseudomorphs of hornblende also occur as less abundant phenocrysts. The groundmass is composed of anhedral grains of altered plagioclase and chlorite, and small amounts of potassium feldspar, quartz, and epidote-clinozoisite. In the field, the term dacite porphyry was applied to these rocks. They are probably the same as "birdseye" porphyry, a term used by prospectors and miners and mentioned in earlier reports on the area.

Other dikes include gabbro and metagabbro, diabase, and aplite. Previous reports on this general region commonly mention the occurrence of lamprophyre dikes, a term that seemingly was used at times indiscriminately for dark fine-grained rocks. No lamprophyres were recognized for certain during this study, although some of the dikes of hornblende diorite may be equivalent to the lamprophyres of other authors.

UNCONSOLIDATED DEPOSITS

Unconsolidated deposits in the Salmon-Trinity Alps area are of Pleistocene and Holocene ages. Pleistocene deposits include glacial detritus, debris flows, and stream terrace deposits. Deposits of Holocene age include alluvium along stream courses, talus, and slope wash on the valley sides. The unconsolidated deposits shown on the geologic map (pl. 1) are not distinguished as to age or type. Most are Pleistocene glacial deposits.

PLEISTOCENE DEPOSITS

Deposits of glacial origin are plentiful in the eastern half of the area where glaciers once occupied the upper parts of most valleys. Sharp (1960) recognized four episodes of Pleistocene glaciation in the Trinity Alps. The three youngest are probably of Wisconsin age, and the oldest is presumably pre-Wisconsin. The major glaciated areas are in the drainages of Coffee, Swift, and Canyon Creeks and the Stuart Fork. Less extensive areas of glaciation are in the drainages of the South Fork Salmon River, East Fork Stuart Fork, Rush Creek, and North Fork Trinity River. Small glaciers also occupied the uppermost parts of several small streams tributary to the Scott River and East Fork of the South Fork Salmon River on the north side of the Scott Mountain divide. Material deposited during the glacial episodes includes till, sand and gravel, and coarse bouldery lateral and terminal moraines.

A special kind of deposit seen at a few places where serpentinite is the principal bedrock is a cementlike material which Sharp (1960, p. 332) called debris flow. The debris flows formed at the snouts of glaciers that carried principally serpentinite detritus and moved like mudflows down the valleys. Boulders and smaller stones are firmly embedded in a greenish-gray matrix of silt and clay. Faint stratification can be distinguished dipping gently downvalley, and imbrication of cobbles and boulders can be seen in places. Remnants of debris flows, which may have attained a thickness of 500 feet in Deer Creek, are plastered on the walls of that canyon, and another remnant approximately 300 feet thick forms a prominent ridge called Cement Banks between East and West Boulder Creeks north of the Scott Mountain divide. Sharp (1960, p. 333) also reported remnants of debris flows on lower Swift Creek.

A small rock glacier, composed of serpentinite blocks as much as 10 feet long, occurs on the south side of Red Rock Mountain at the head of Sunrise Creek, a tributary of Swift Creek. Its blunt-nosed form, with longitudinal ridges that join concentrically near its distal end, distinguish it from the usual talus slopes seen elsewhere. It would not be surprising to find other rock glaciers in the Trinity Alps, but none were seen.

Many of the Pleistocene stream terrace deposits, or terrace gravels, were mined for their placer gold. The terrace deposits are unconsolidated stream-deposited sand and gravel overlying a rock surface in the bottom of the valleys, but standing above the level of the present stream. Most deposits range from approximately 5 to 15 or 20 feet in thickness, and some are more than 100 feet wide, although most are probably no more than 25–50 feet wide from inner edge to valley wall. At most places there are only one or two obvious terraces, which may stand from 10 to 25 feet above the stream. Sharp (1960, p. 335), however, recognized six terrace levels in lower Canyon Creek, whose bedrock surfaces ranged from 10 to 300 feet above the present stream.

HOLOCENE DEPOSITS

The sand and gravel over which the present streams flow are derived in part from older stream terrace deposits in which the streams are incised, in part from previous glacial deposits, and in part from debris from the adjacent slopes and derived by erosion of bedrock along the stream courses. Some gold is found in the modern alluvium, derived in part from erosion of the terrace gravels and in part from wash from the adjacent slopes and erosion of bedrock along the stream channel.

Undoubtedly, the most extensive Holocene deposit is the debris commonly called colluvium or slope wash that mantles many of the slopes throughout the area. These deposits, composed of angular fragments of bedrock as much as 10 inches to a foot across loosely bonded by soil and vegetative material, are as much as 15–25 feet thick. The colluvium gradually creeps and washes down the slopes into the streams and in places overlaps the stream terrace deposits.

Talus piles composed of coarse rock fragments accumulate below cliffs and steep bedrock slopes throughout the area.

STRUCTURE

The distribution of lithologic units in the study area reflects the fundamental structural features of the region. In general terms, rocks of the western Paleozoic and Triassic belt underlie a thrust plate occupied by rocks of the central metamorphic belt, while the ultramafic body in the eastern part of the area is interpreted as part of a large tabular peridotitic mass separating the central metamorphic belt from a higher plate of Paleozoic rocks that lies east of the study area. The peridotite is the lower part of the eastern plate and was thrust westward over the rocks of the central metamorphic belt.

Structural details within the western Paleozoic and Triassic belt are poorly known. Primary bedding is preserved and readily recognized in the metasedimentary rocks, and original pillow structures and layering are identifiable in some of the metavolcanic rocks. Strikes are predominantly northward; dips are both east and west and usually moderate to steep. Small-scale folds are common, with axial planes steeply inclined, most commonly to the east. At many places the rocks have obviously been subjected to intense shearing and cataclasis, which has resulted in pronounced lithologic intermixing.

As previously mentioned, two major north-south-trending faults or fault zones in the western Paleozoic and Triassic belt are marked by two parallel bands of serpentinite. The easternmost one is the North Fork fault; the western one, the Twin Sisters fault (Cox, 1967, p. 54). The North Fork fault is estimated to dip eastward from 25° to 75°; the Twin Sisters fault, from 40° to 50° east (Cox, 1967, p. 54; Davis, 1968, p. 918). The Twin Sisters fault separates metasedimentary rocks on the west from metavolcanic rocks and diabase on the east. The southern part of the North Fork fault is the boundary between an eastern band of metasedimentary rocks and the belt of metavolcanic rocks, but northward the fault transgresses westward into the metavolcanic unit. South of the study area the two faults converge and cut out the metavolcanic rocks.

Rocks of the Salmon and Abrams Formations in the thrust plate of the central metamorphic belt have a well-developed foliation and lineation, and no primary textures and structures are preserved. The rocks are complexly folded, with axial planes of folds commonly inclined eastward. The fold axes plunge gently to moderately north-northwest and south-southwest. Rocks of the Abrams Mica Schist overlying the Salmon Hornblende Schist are preserved in a synform in the northwestern part of the central metamorphic belt. The contact between rocks of the central metamorphic belt and the western Paleozoic and Triassic belt is a thrust fault with the more highly metamorphosed rocks of the central metamorphic belt in the upper plate. The thrust fault is folded, and rocks of the western Paleozoic and Triassic belt are exposed in a window eroded in a north-trending antiform in the vicinity of Stuart Fork and northward. The window terminates against an east-west normal fault, the Browns Meadow fault, bringing the Salmon Hornblende Schist against highly deformed rocks of the western Paleozoic and Triassic unit. A smaller window in the upper plate occurs in upper Coffee Creek in the vicinity of Adams Creek.

The contact of the eastern ultramafic body dips steeply east for most of its length. At many places within the ultramafic body, planar structures shown by mineral foliation and compositional layering are interpreted as due to lamellar flowage in a crystalline mass during emplacement (Davis and others, 1965, p. 961). Near the margins of the body, the planar structures parallel the contact

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with rocks of the central metamorphic belt. Subsequent shearing and folding have modified the original structures. Shear zones are marked by zones of soft slickensided serpentinite. Earlier planar structures have been folded locally. The two narrow subparallel belts of the Abrams Mica Schist north and south of Gibson Peak mark the limbs of an isoclinal antiform within the ultramafic body (Lipman, 1964, p. 218).

Most of the granitic plutons in the eastern part of the area have a moderately well defined primary magmatic planar foliation, as well as radial and concentric cross joints formed at a later stage during emplacement of the plutons (Davis and others, 1965, p. 963). The plutons are also cut by a set of generally east-west late joints, some of them very close spaced, which guided much of the erosion that resulted in some of the jagged, sharp ridge crests in the Trinity Alps.

MINERAL RESOURCES APPRAISAL

HISTORY AND PRODUCTION

The Klamath Mountains province has a long history of mineral production, beginning in 1848 with the discovery of placer gold in Clear Creek, Shasta County, by Major Pearson B. Reading soon after the discovery of gold in the Sierra Nevada. The chief metal produced has been gold, and the province ranks second in the amount mined in California; however, it never attained the importance of the Sierra Nevada as a gold-producing region. Other metallic commodities that have been produced from the Klamath Mountains of California (Albers, 1966) are copper, zinc, pyrite, lead, silver, chromite, quicksilver, iron, platinum, and manganese. Nonmetallic products include limestone (for cement), sand, gravel, building stone, and crushed rock. No combustible fuels are known within the Klamath Mountains, except for small quantities of lignite in continental sediments of Tertiary age preserved in downfaulted blocks (Irwin, 1960, p. 46, 78).

The study area is in the midst of a region where gold has been sought extensively and mined from both lode and placer deposits. Major Reading's discovery of gold on the Trinity River in July 1848 stimulated prospecting in the streams of the Trinity River drainage, including the parts of the streams now included within the study area boundaries. The "quartz" or lode mines were first located in the early 1880's, starting in areas close to the established villages and stage roads.

Estimated gold production from Trinity County, in which most of the study area is situated, is $75 million (Clark, 1970, table 3, p. 9). Recorded production from lode deposits in and immediately adjacent to the study area totals approximately $5,350,000. Placers have a smaller recorded gold production, on the order of $567,000 or approximately 10 percent of the total production. Not all placer gold produced in the study area was recorded, because the unrefined product—nuggets or "dust"—was commonly traded for goods. Most small placer mines were loosely run operations in which accounting was nonexistent. An additional 20 to 30 percent in value of gold may have been produced but not recorded.

The gold mining history in Trinity County parallels that of the rest of the Klamath Mountains. This applies to the county's major underground mines, such as the Globe-Chloride group and the Dorleska mine, and to the larger and easily reached placer deposits as well. After the early discoveries, production reached a peak around the turn of the century, then gradually declined until 1934, when the industry was stimulated by an increase in the price of gold from $20.67 to $35 an ounce. In general, production again peaked from 1937 through 1942. The onset of World War II and consequent rising costs, loss of manpower, and War Production Board Order L–208 forced most of the operations to close. The end of World War II and the rescinding of Order L–208 in 1945 resulted in a temporary increase in production, chiefly from placers, but with continued increase in mining costs, gold mining again declined. In contrast, production from the more remote deposits within the study area was highest between 1900 and 1914 and declined until the early 1920's, with only sporadic activity at individual mines after that time.

Production of other minerals in the study area has been small. Approximately $60,000 in silver was produced as a byproduct from the refining of gold ores, and a few flasks of quicksilver have been recovered from one property. Copper minerals occur in minor quantities in the lode gold deposits, and a few copper prospects are known in or near the area. Byproduct copper production has been small. Some showings of chromite are known, but no production is recorded.

GEOCHEMICAL STUDIES

The main objective of the geochemical study was to identify areas that possibly contain undiscovered or concealed mineral deposits which might be economically exploited in the future. More than 2,100 samples, including 1,311 stream-sediment samples, 479 panned concentrates of stream sediments, and 357 rock samples, were collected, analyzed, and evaluated in terms of their metal content and geologic environment. The sample locations are shown on plate 2.

SAMPLING AND ANALYTICAL PROCEDURES

Sediment samples were taken from all the major streams and their tributaries. An effort was made to collect the samples at intervals of 2,000 feet in the main streams and tributaries and within 1 mile of the head of short branches or at their junction with larger streams. Wherever possible, the finest grained sediment free of visible organic debris was collected. The samples were collected in $4\frac{1}{2} \times 6$ inch sand sample bags; the volume of sediment averaged approximately 30 cm^3. At approximately 1-mile intervals along main streams and tributaries, and on minor streams a short distance above their mouths, sand and gravel collected near or on bedrock in natural riffles or behind and beneath stream boulders were panned and the heavy-mineral concentrate was saved.

Samples were collected of all representative rock types. In addition to fresh, unaltered material, samples of bleached and iron-stained zones along contacts, joints, fractures, and shear zones were collected. Quartz veins in natural exposures and in prospect pits were sampled, and vein material and altered rocks were collected from the dumps of many of the mines and prospects, which were inaccessible owing to caving.

The samples were dried, pulverized, and analyzed by semiquantitative spectrographic, atomic absorption, and colorimetric methods similar to those described by Ward, Lakin, Canney and others (1963). Semiquantitative six-step spectrographic analyses for 30 elements were made on all samples. The spectrographic analyses are within 30 to 60 percent of the correct value. Unconcentrated sediment samples were analyzed for citrate extractable copper (CxCu of table 1) and heavy metals (CxHM of table 1), which include copper, lead, zinc, and cobalt, reported as equivalent zinc, to determine the quantity of weakly held metals adsorbed from stream water by the clay fraction of the sediment. The sediments were also analyzed for copper and zinc by atomic absorption methods (Ward and others, 1969). The panned concentrates and rock samples were analyzed for gold by atomic absorption methods. Analyses for mercury by instrumental methods were also performed on rock samples. The spectrographic and chemical analyses were made in mobile field laboratories and at the U.S. Geological Survey laboratories in Denver, Colo. The analytical data are reported (table 1) in parts per million (ppm). For the reader's convenience, table 2 is included, showing the conversion of parts per million to percent and to ounces per ton and vice versa.

TABLE 2. — *Conversion of parts per million to percent and to ounces per ton and vice versa*

[Conversion factors: 1 lb avoirdupois=14.583 ounces troy; 1 ppm=0.0001 percent=0.0291667 ounce troy per short ton=1 gram per metric ton; 1 ounce per ton (Au or Ag) =34.286 ppm= 0.0034286 percent]

Parts per million to percent to ounces per ton			Ounces per ton to percent to parts per million		
Ppm	Percent	Ounces per ton	Ounces per ton	Percent	Ppm
0.01	0.000001	0.0003	0.01	0.00003	0.3
.02	.000002	.0006	.02	.00007	.7
.05	.000005	.0015	.05	.00017	1.7
.10	.00001	.003	.10	.00034	3.4
.20	.00002	.006	.20	.00069	6.9
.30	.00003	.009	.30	.00103	10.3
.40	.00004	.012	.40	.00137	13.7
.50	.00005	.015	.50	.00171	17.1
.60	.00006	.017	.60	.00206	20.6
.70	.00007	.020	.70	.00240	24.0
.80	.00008	.023	.80	.00274	27.4
.90	.00009	.026	.90	.00309	30.9
1.0	.0001	.029	1.0	.00343	34.3
10.0	.001	.292	10.0	.03429	342.9
20.0	.002	.583	20.0	.06857	685.7
50.0	.005	1.458	50.0	.17143	1,714.0
100.0	.01	2.917	100.0	.34286	3,429.0
500.0	.05	14.583	500.0	1.71	17,143.0
1,000.0	.10	29.167	1,000.0	3.43	34,286.0
10,000.0	1.00	291.667	10,000.0	34.29	342,857.0

EVALUATION OF SAMPLE DATA

The diversity of rock types in the study area requires that the geochemical data be considered in the context of the geological environment from which the samples were collected. Therefore, the analytical results are evaluated on the basis of four areas whose geology in terms of source rocks is relatively uniform. From west to east these are (pl. 2) : area I, the drainage systems of New River and Plummer Creek, which are underlain by rocks of the western Paleozoic and Triassic belt; area II, the drainage system of the North Fork Trinity River and the East Fork of the North Fork, underlain by rocks of the western Paleozoic and Triassic belt and the central metamorphic belt; area III, encompassing several drainages in which rocks of the central metamorphic belt are intruded by granitic plutons; and area IV, covering several drainages where ultramafic and granitic rocks predominate. For convenience in handling the large volume of sample data, the principal areas are subdivided into smaller, arbitrarily defined subareas which encompass sample groups of approximately equal size, or minor geographical units, or both, and which may or may not contain similar source rocks. Subarea divisions are shown in figures 5 through 11 and on plate 2, and analytical results of samples are identified by subarea in table 1.

Data from stream-sediment samples are useful for detecting areas in which the source rocks may contain mineral deposits. Anomalous quantities of a metal in the sediments may signal the occurrence of bedrock that contains important amounts of that metal. Anomalous values for elements in stream-sediment samples were selected by plotting cumulative frequency curves of the analytical data on log normal probability paper to determine the range and geometric median of the values (Tennant and White, 1959; Lepeltier, 1969). The higher values for which there was a sharp upward inflection in the curves were regarded as anomalous. Where there was no clear upward inflection, the upper 5 percent was considered anomalous.

Selection of threshold values for elements in rock samples is highly subjective because of the selective method of sampling. After inspection of the analytical data, values were chosen which seemed reasonable in terms of the element under consideration, the nature of the sample, and the rock type involved.

The distribution of several elements was selected for investigation because of the possible economic potential or usefulness of these elements as indicators of undiscovered mineral deposits. Figures 5–11 show the distribution of stream-sediment and rock samples containing anomalous amounts of gold, silver, copper, zinc, lead, mercury, and molybdenum.

All sediment and rock samples containing quantities of gold detectable by atomic absorption methods are regarded as anomalous (fig. 5). Because gold occurs in the form of discrete particles, the samples may not be representative of the material sampled, for the same reason, the laboratory subsample may not necessarily be representative of the bulk sample. The atomic absorption method of analysis is, however, a reliable measure of the gold content of the subsample. Many of the rock samples containing gold are from veins in abandoned mines and prospects or from their dumps. Some are from veins and fractures in rocks where there has been no previous mining or exploration, but the amount of gold in these samples is only a few hundredths of a part per million.

The lower limit of determination for silver by semiquantitative spectrographic methods is 0.5 ppm. Most of the samples did not contain detectable silver; some that did contain detectable amounts contained less than the limit of determination. A few samples contained 0.5 ppm or more silver, and these are considered anomalous (fig. 6).

Data from the cold extraction test (CxCu) were used for determination of anomalous copper values, because the consistently high values obtained by the spectrographic method tend to mask weak anomalies. The threshold value for copper in stream sediments is 8 ppm in areas I and II, 5 ppm in area III, and 2 ppm in area IV. Spectrographic values of 150 ppm or greater in rock samples are considered anomalous (fig. 7).

Because the lower detection limit for zinc is a high value (200 ppm by spectrographic methods), any determinable zinc in stream-sediment and rock samples is considered anomalous (fig. 8).

Lead occurs in most stream-sediment samples in amounts determinable by semiquantitative spectrographic methods (lower limit 10 ppm). It is determinable in many bedrock samples; in many others it is detectable but below the limit of determination; and in some none is detected. The threshold value chosen for lead in sediment samples is 20 ppm, for rock samples 15 ppm (fig. 9).

All bedrock samples were analyzed for mercury. Most contain trace amounts, but only values greater than 0.75 ppm are considered anomalous (fig. 10).

Molybdenum is so rare in stream-sediment or rock samples from the Salmon-Trinity Alps area that all detectable amounts (5 ppm or more) are considered anomalous (fig. 11).

GEOCHEMICAL PATTERNS

Stream-sediment and rock samples that contain anomalous amounts of several metals are more abundant from the western half of the study area, especially west of Limestone Ridge (area I), than from the eastern half. The values are generally only slightly above background levels, or slightly anomalous. Many of the anomalous samples are unevenly distributed and make no consistent pattern, but in a few areas samples with metal contents noticeably above background are clustered together.

One of these areas is in the northern parts of subareas A and C, in the headwaters of Virgin Creek and Eightmile Creek. Some sediment samples from this area contain barely anomalous amounts of citrate-extractable copper, and rock samples contain barely to distinctly anomalous amounts of copper, silver, and molybdenum. Moreover, most rock samples from the upper Virgin Creek drainage contain detectable bismuth. The upper Virgin Creek area, extending to the county-line ridge, is the site of several small gold mines and prospects.

On the west edge of the study area, subareas B and E, samples from the Soldier Creek drainage and, to a lesser extent, from the drainages of Sixmile and Fawn Creeks contain copper, lead, zinc, silver, molybdenum, and mercury in higher than background amounts. Copper and lead anomalies are the most common. Lead, especially, is consistently above the upper limit for background,

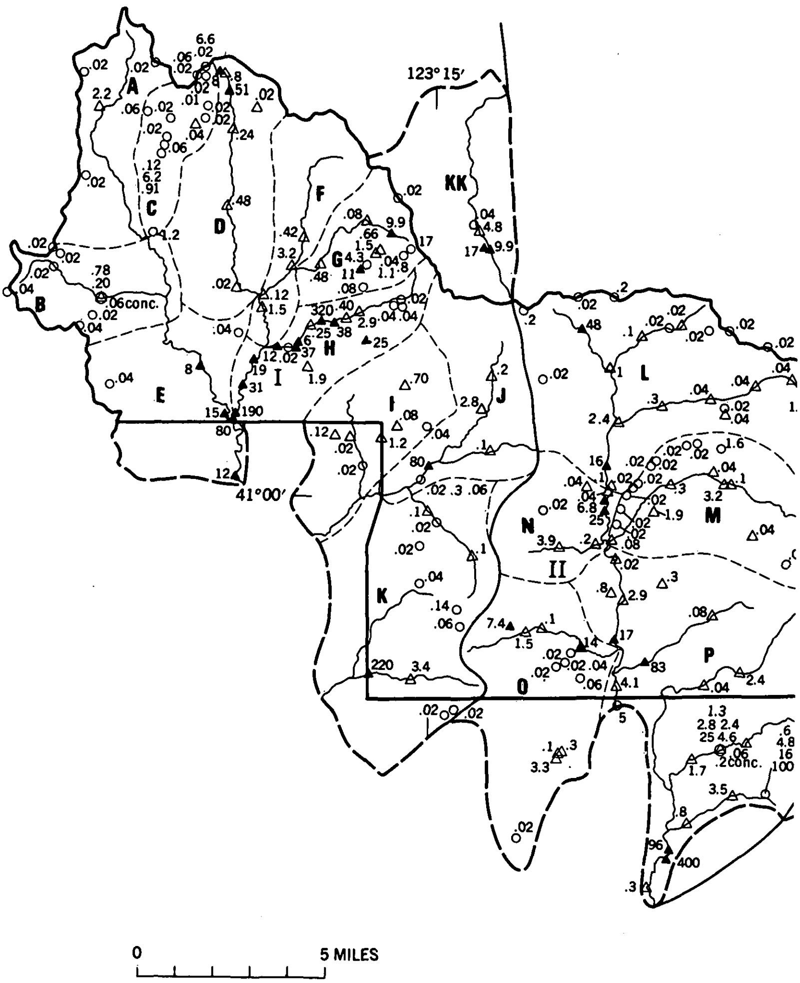
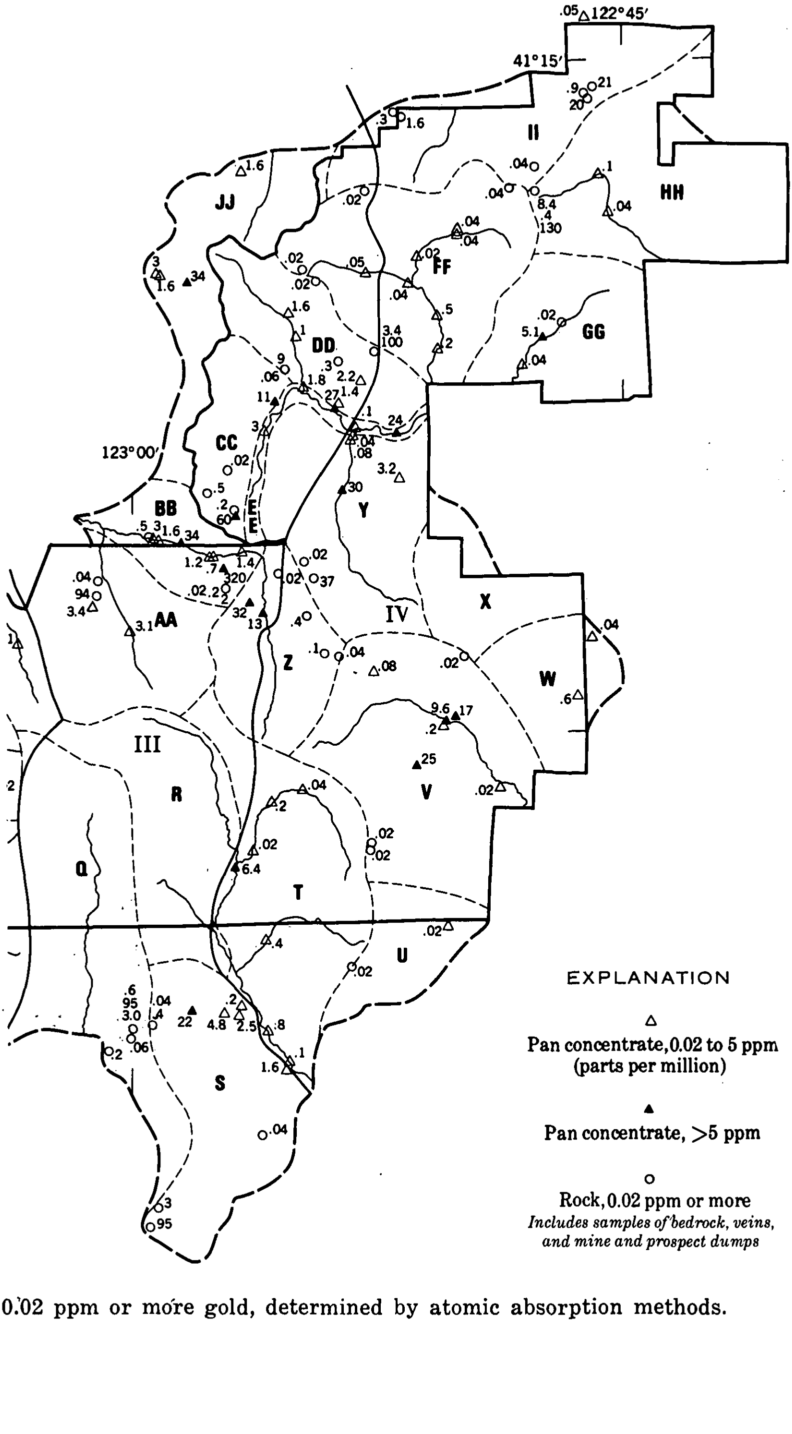


FIGURE 5. — Locations of pan concentrate and rock samples containing



0.02 ppm or more gold, determined by atomic absorption methods.

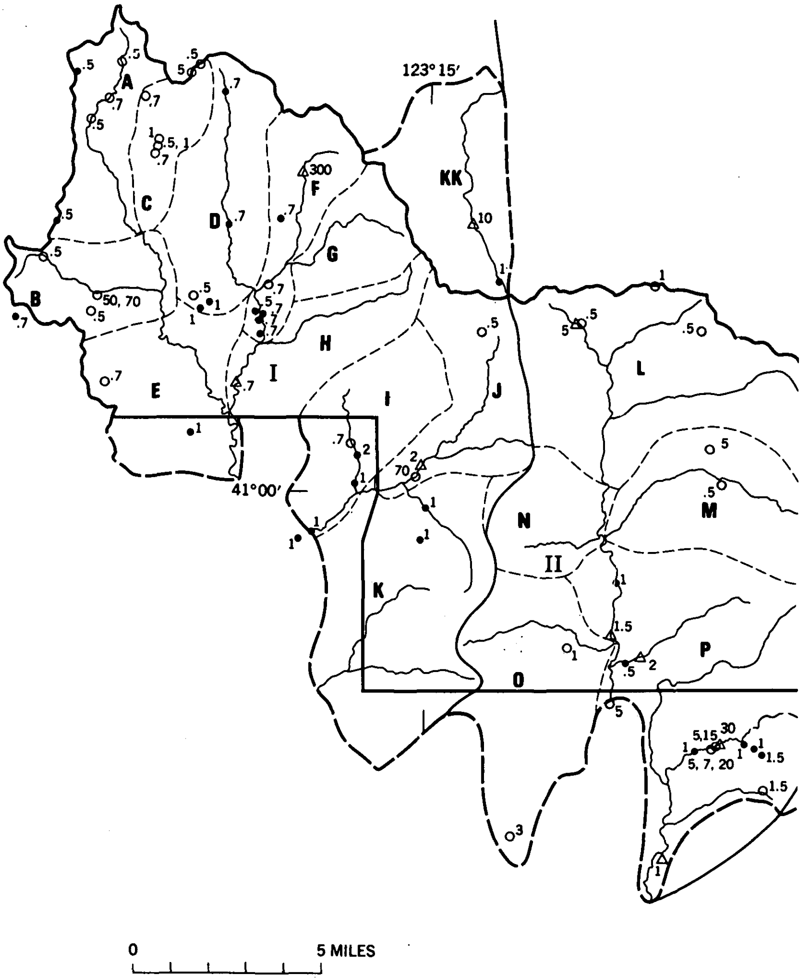
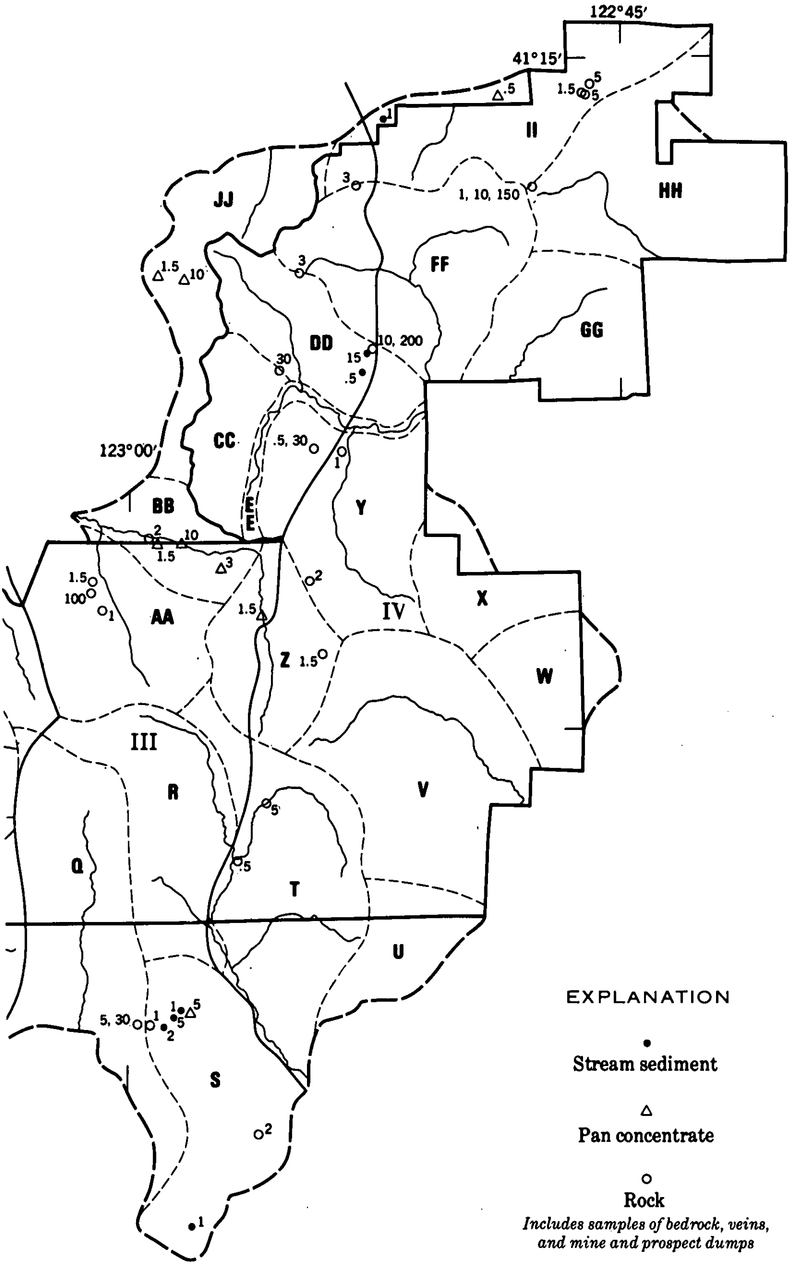


FIGURE 6. — Locations of samples



containing 0.5 ppm or more silver.

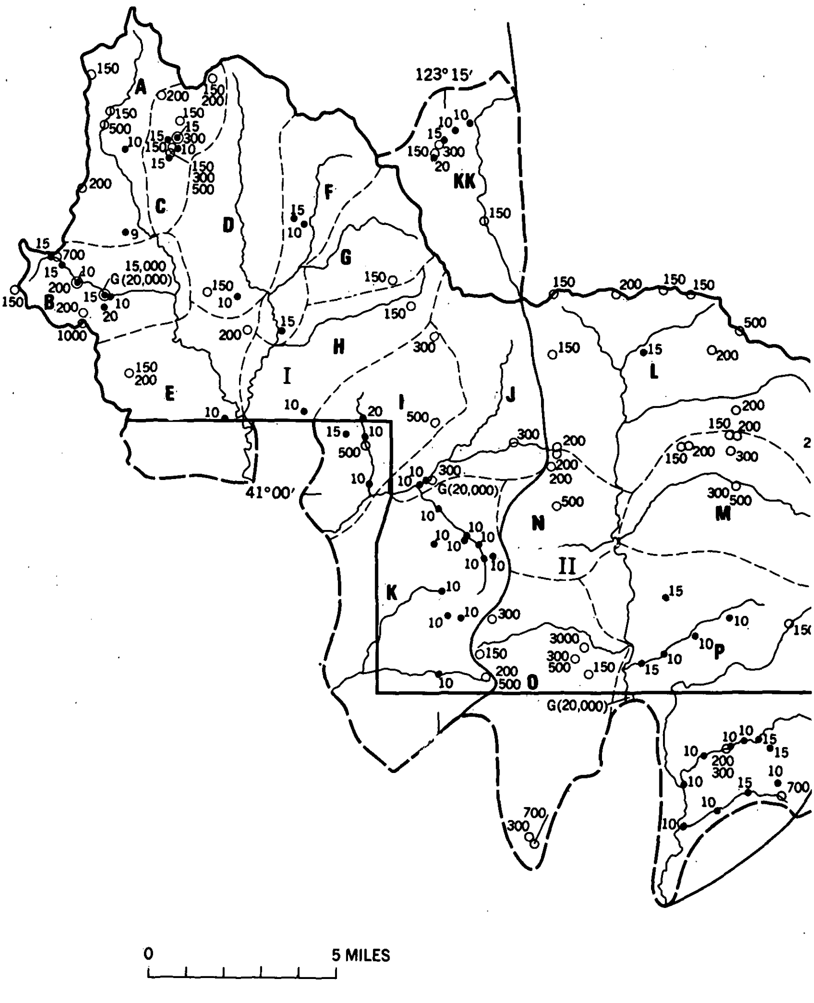
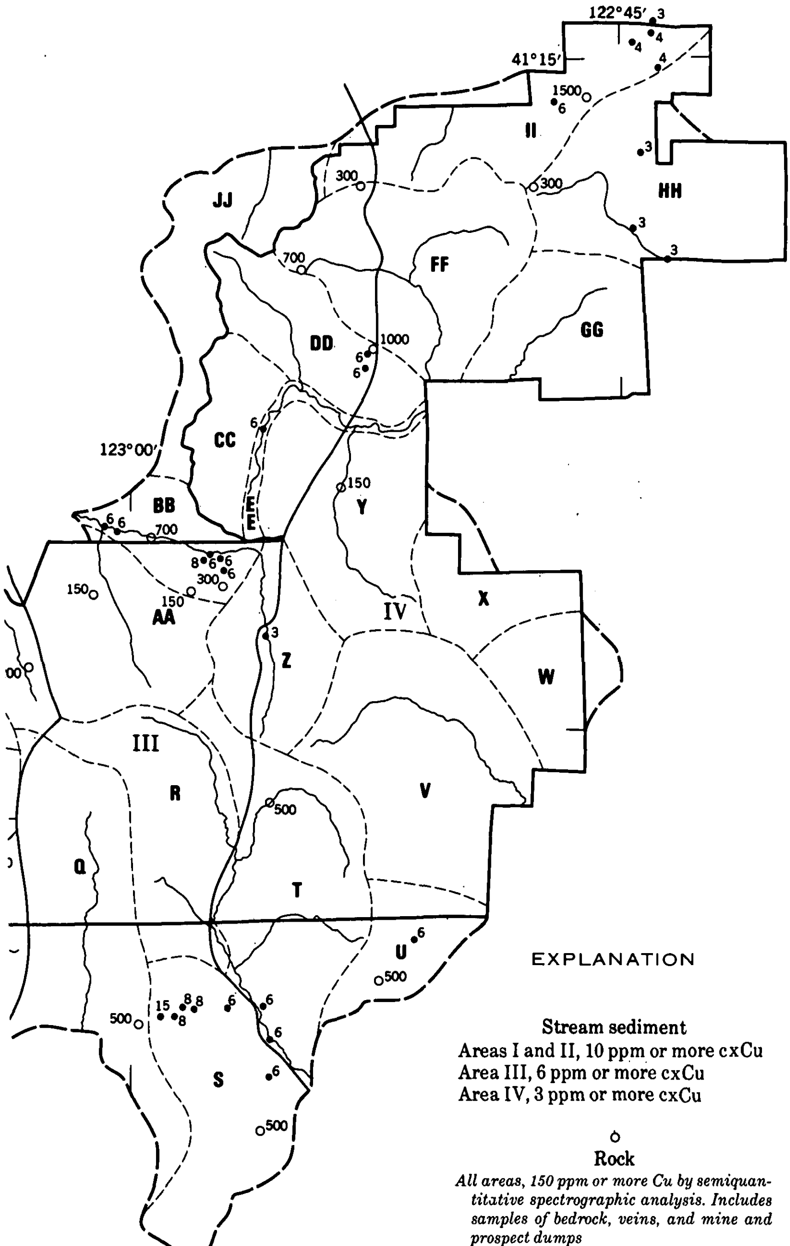


FIGURE 7.—Locations of stream-sediment samples containing 3 ppm or more determined by semiquantitative



citrate-soluble copper, and rock samples containing 150 ppm or more copper, spectrographic analysis.

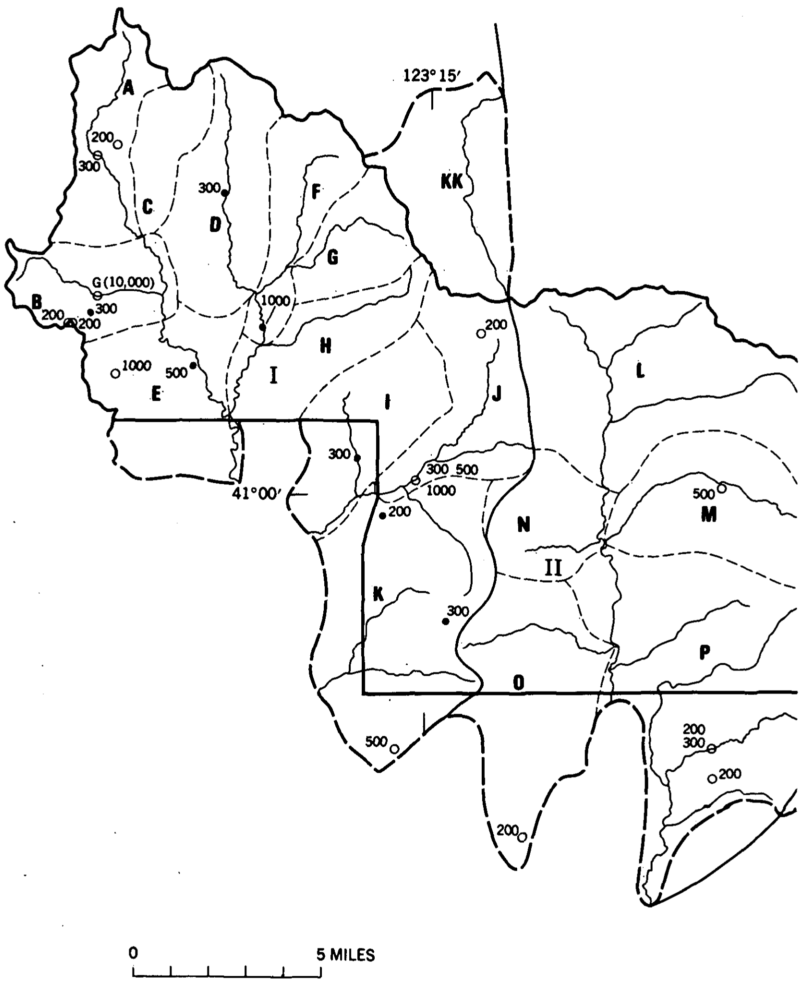
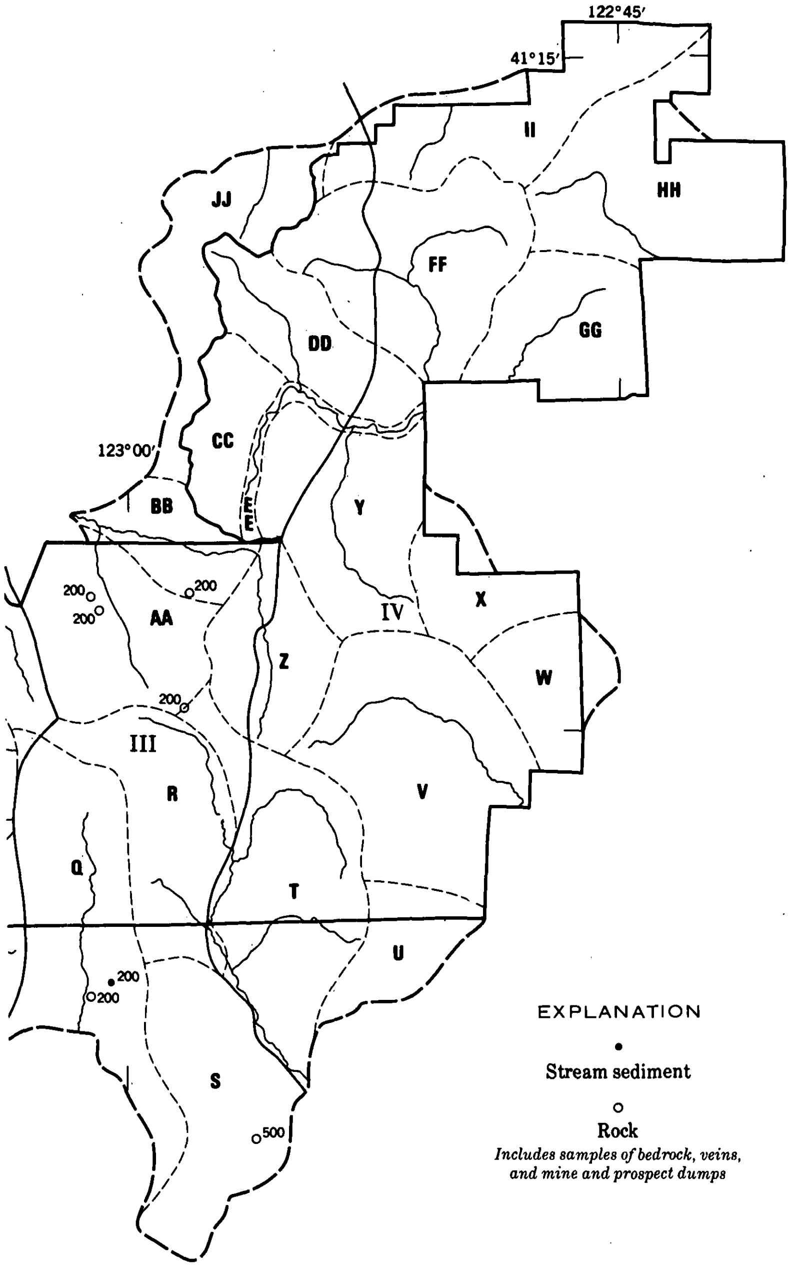


FIGURE 8. — Locations of samples



containing 200 ppm or more zinc.

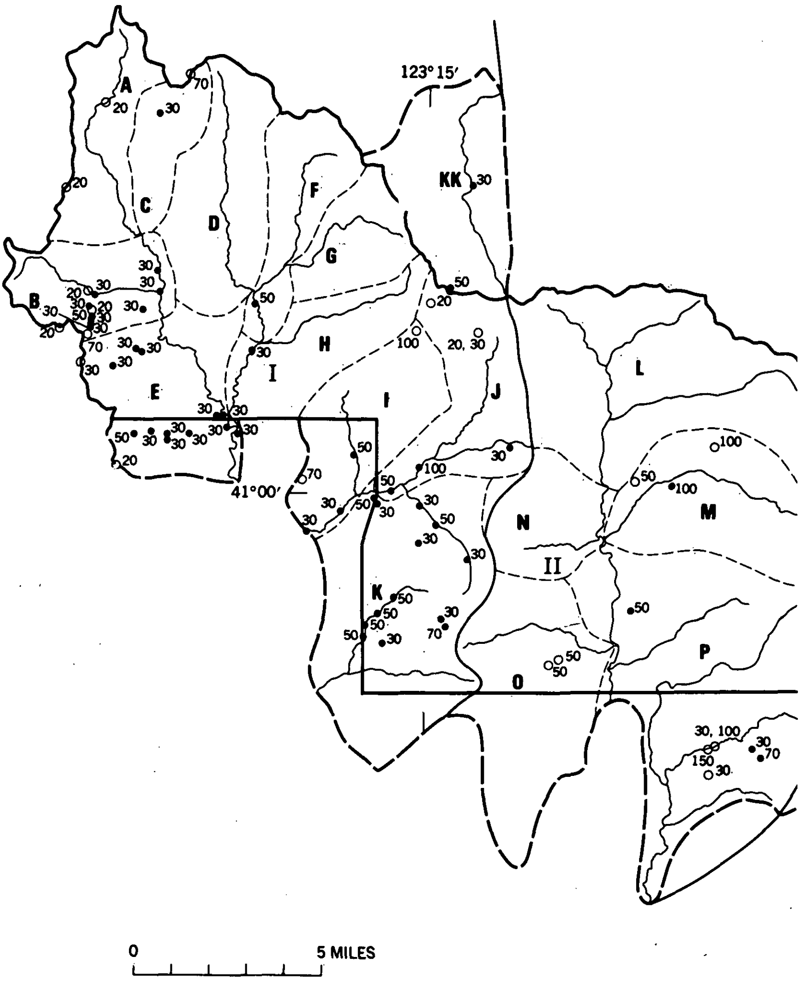
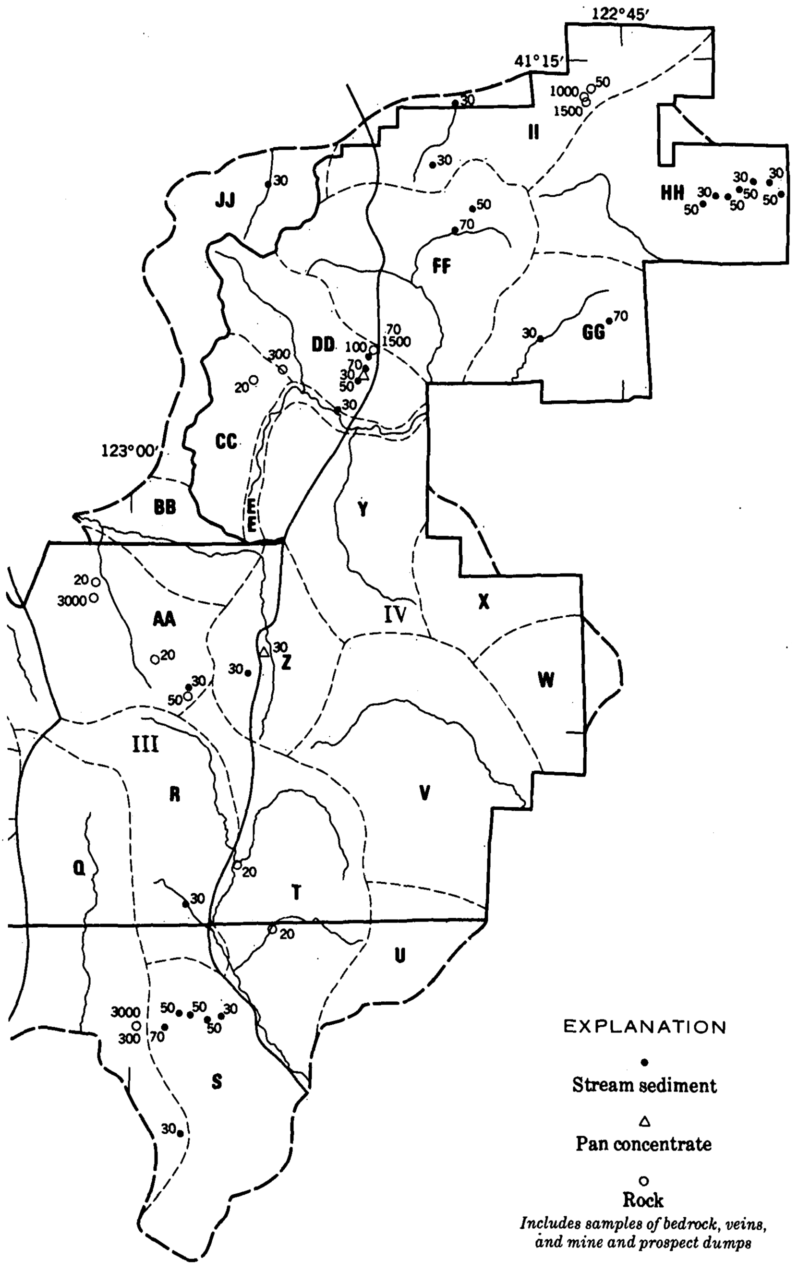


FIGURE 9. — Locations of stream-sediment and pan-concentrate containing 20



samples containing 30 ppm or more lead and rock samples
ppm or more lead.

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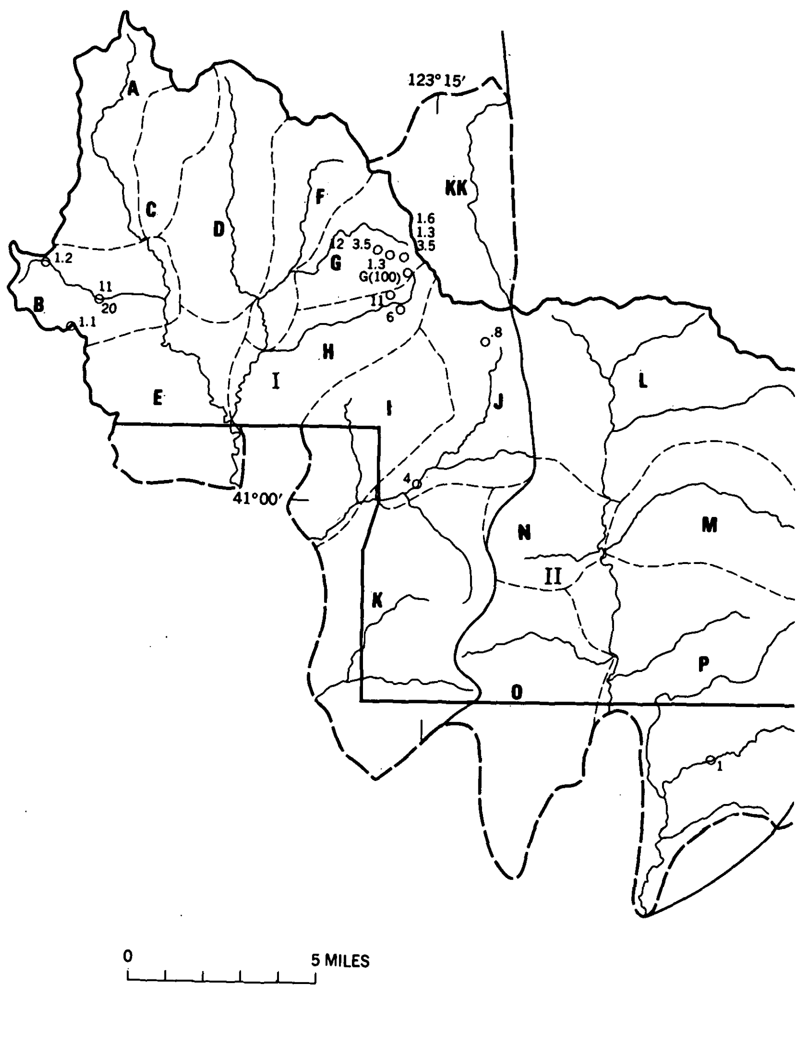
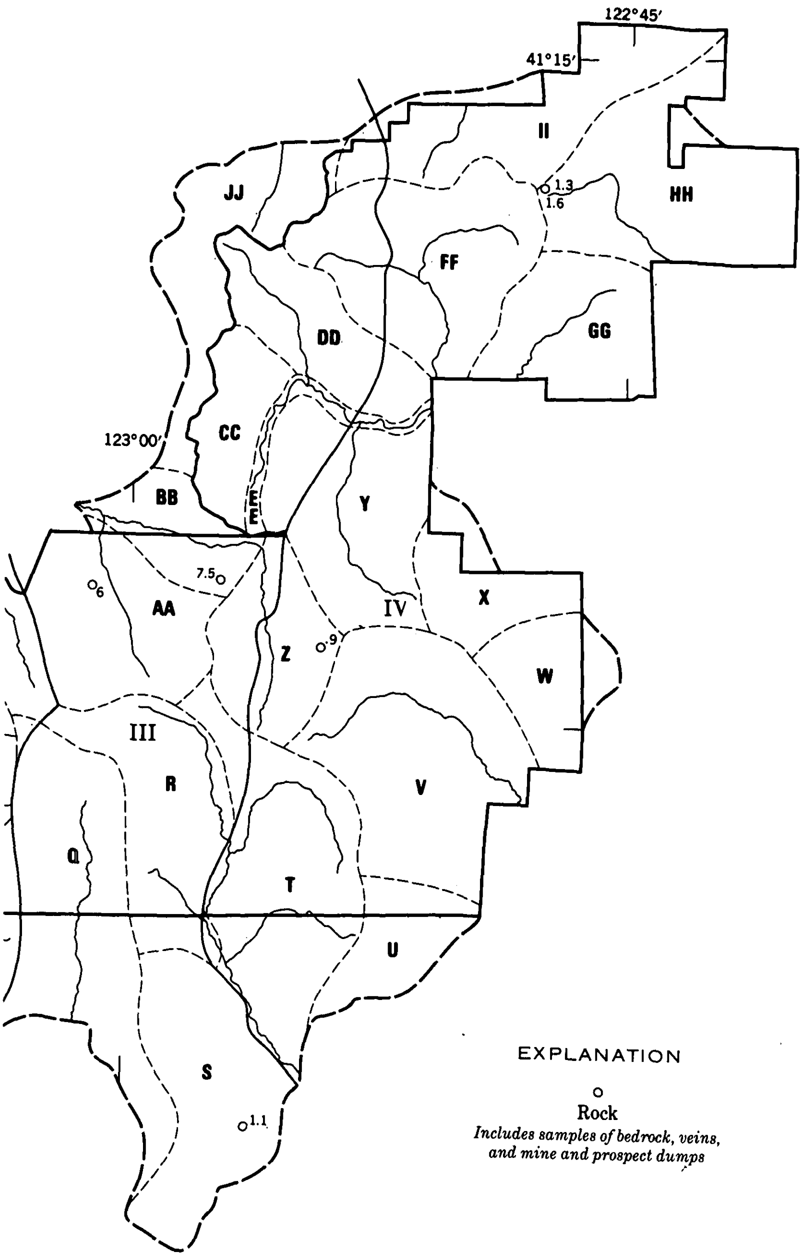


FIGURE 10. — Locations of rock samples



containing 0.8 ppm or more mercury.

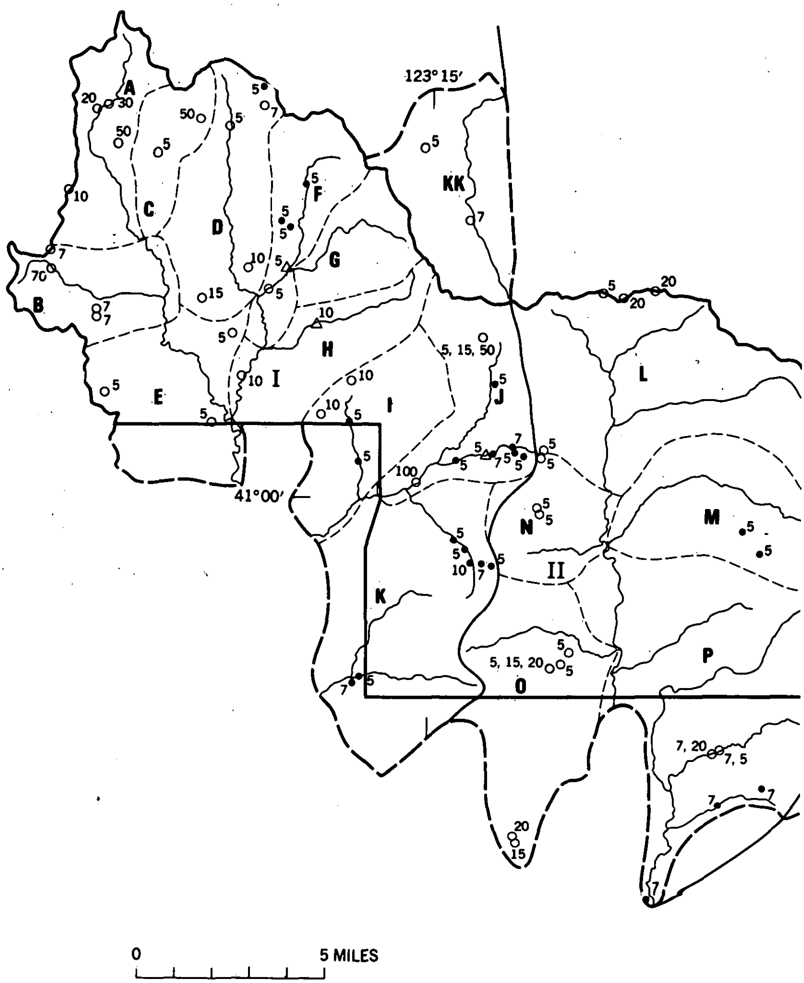
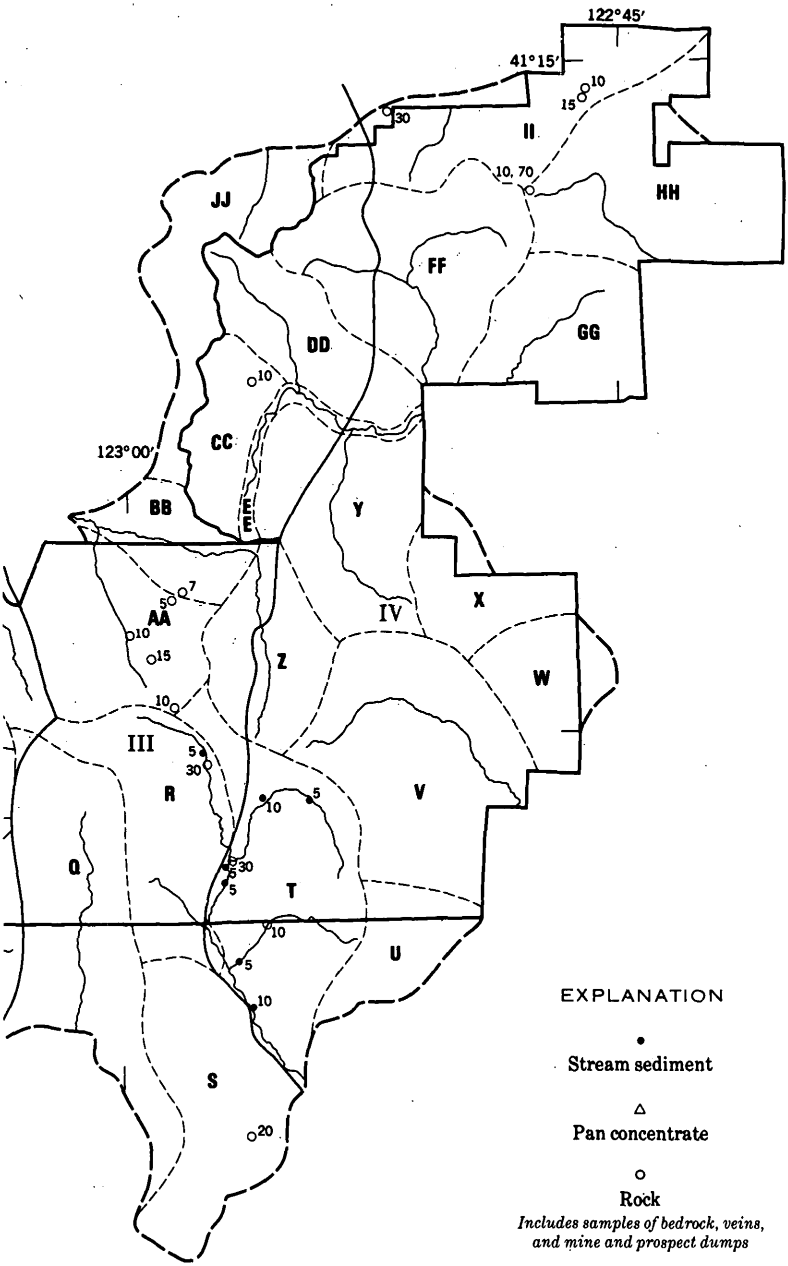


FIGURE 11. — Locations of samples



containing 5 ppm or more molybdenum.

although barely so, in samples from along Sixmile and Fawn Creeks and an unnamed south tributary of Soldier Creek. No lead minerals were seen in the rock samples, and only two iron oxide-stained specimens containing a little pyrite showed any evidence of mineralization. The others were fine-grained quartzite and quartz mica schist that are common rock types in this part of the area. Rock samples which yielded anomalous amounts of the other metals are from fractures and brecciated zones stained with iron oxide, usually in siliceous metasedimentary rocks, commonly accompanied by some visible pyrite and, in one or two places, traces of chalcopyrite. On Soldier Creek, at the junction with a short unnamed creek flowing from the south, pyritiferous boulders were found from which samples (B24, B25, table 1) rich in copper and zinc were obtained. Copper and zinc were also reported in samples B48 and B49 (table 1) from prospect trenches near Lipps Camp on the ridge south of Soldier Creek. Trace amounts of gold occur in rock samples from the Soldier Creek area, but only one pan concentrate contained gold. The sampling indicates that further prospecting south of Soldier Creek might reveal small localized concentrations of base metals and silver. A belt of copper mineralization with several prospects lies south of the study area boundary adjacent to the east contact of the Ironside Mountain pluton.

In the southwestern part of the study area, samples from the East Fork New River and its tributaries, the South Fork of the East Fork, Pony Creek, and Cabin Creek, and an unnamed branch of Devils Canyon (subareas I, J, and K) block out an area, possibly two, in which copper and lead, and to a lesser extent silver, molybdenum, and zinc, are slightly anomalous. Most of the samples are stream sediments. Pan concentrates commonly were found to contain gold, although generally less than 5 ppm. The only known surficial mineralization is the small Salyer prospect for copper on the East Fork New River (subarea J). Other small mineralized zones may have contributed metals to the stream sediments, but no obvious ones were discovered during the fieldwork.

Rock samples from an exposure on the upper East Fork New River (J13–J15, table 1) contained lead, silver, molybdenum, zinc, and mercury in amounts greater than the upper background limits of these metals. The samples are from a fault zone that strikes N. 30° E. and dips 55° SE. marked by 3 feet of sheared black graphitic gouge in metasedimentary rocks. Pyrite occurs in clusters of cubes and flattened lenses. Chert is discolored with white and red streaks for about 300 feet downstream from the fault, and a sample (J16, table 1) of orange-weathering altered chert contained 700 ppm arsenic, which is unusual because arsenic was rarely detected in samples from the study area. No extensions of this mineralized zone were discovered.

Rock samples from a mineralized zone on the South Fork Whites Creek (Nugget Creek) (O34–O39, table 1) are enriched in copper, lead, silver, and molybdenum. The samples also contained trace amounts of gold, and 14 ppm gold was determined from a pan concentrate (O40, table 1) obtained downstream from this zone. The samples were obtained from a fault zone in metavolcanic rocks exposed in the streambed. The fault strikes N. 35°–40° W. and is vertical in some places and dips steeply southwest in others. It contains a coarse breccia cemented by calcite. Quartz and pyrite veinlets cut the breccia, and quartz and calcite veinlets accompanied by pyrite cut the footwall on the northeast side of the fault. A few flakes of gold were seen in the pan concentrates, and prospectors found several fairly large nuggets in 1970.

Samples containing gold and anomalous amounts of copper are rather evenly distributed throughout the drainage area of the North Fork Trinity River, although samples containing anomalous amounts of other metals are few and distributed sporadically. Stream sediments in subarea P contain slightly anomalous amounts of copper. Some samples from along two of these streams, East Branch and Yellow Jacket Creek, contained anomalous amounts of lead, silver, and molybdenum. Rock samples from the McClaron and Alaska mines also contained anomalous amounts of these metals, plus zinc. Other small undiscovered mineralized veins in this area may have contributed anomalous values to the sediment samples, but the area is not believed to have a significant mineral potential.

Aside from a few places mentioned in the foregoing discussion on specific metals, there are no localities in the eastern half of the study area where metals other than gold have been concentrated. Gold occurs in many samples from the northeastern part of the area, which, however, has been recognized as a gold-producing district for many years.

A faint indication of mineralization along a narrow zone in the eastern part of the study area is given by rock samples from subareas T, R, and AA. The zone trends approximately N. 30° E., from subarea T, parallel to the upper part of Stuart Fork, over Sawtooth Ridge, into the heart of the Trinity Alps in Caribou Lake basin and the drainage of Caribou Creek. It parallels the narrow belt of metamorphosed sedimentary and volcanic rocks that lies between the eastern ultramafic-plutonic rock complex and the Salmon Hornblende Schist, and continues northward as a narrow septum between the Caribou Mountain and Canyon Creek plutons. The possibility that this is a mineralized zone is suggested by the distribution of samples with small to moderate amounts of molybdenum and a few samples containing silver and anomalous amounts of lead. Toward the south end of this belt, a fault is exposed at the trail crossing of Deer Creek near its confluence with the Stuart Fork. The fault strikes northeast and dips 45° SE. and is within micaceous quartzite. A wide zone of black carbonaceous gouge with lenses of quartz lies in the hanging wall, from which a sample (T16, table 1) containing molybdenum, silver, and lead was obtained. A similar faulted zone on Deep Creek (T37, table 1) contains lead and molybdenum. Molybdenum also occurs in sheared altered siliceous schist exposed on the Stuart Fork trail at locality R7 (table 1). Samples from subarea AA north of Sawtooth Ridge that contain anomalous amounts of molybdenum (4, 7, 23, table 1), silver (9, 12, table 1), zinc (9, 23, table 1) and lead (4, 12, 21, table 1) possibly indicate an extension of mineralization to the northwest. A prospect at AA11, in the Salmon Hornblende Schist, on a quartz vein striking N. 55° E., yielded samples with anomalous amounts of silver, lead, zinc, copper, mercury, and bismuth, in addition to gold.

AN AEROMAGNETIC SURVEY AND INTERPRETATION

By ANDREW GRISCOM, U.S. Geological Survey

An aeromagnetic survey of the Salmon-Trinity Alps Primitive Area was flown by the U.S. Geological Survey in 1970 along east-west lines spaced 1 mile apart, at a barometric elevation of 8,500 feet. The area surveyed is between lat 40°55′ N. and 41°18′ N. and between long 122°40′ W. and 123°30′ W. The resulting aeromagnetic map thus extends some miles east and north of the study area. Compilation scale was 1:62,500, with contour intervals of 20 and 100 gammas, and publication scale (pl. 1) is 1:125,000.

Physical properties have not been measured on samples from this area, but such data are not necessary for the purposes of the discussion. The interpretation of various features on the aeromagnetic map is briefly described in the following paragraphs.

The local topographic relief is as much as 2,000 to 3,000 feet, particularly in the Trinity Alps near the southeast corner of the map. Where an area of high relief is underlain by magnetic rocks, a local magnetic anomaly will be generated by the topography. On this map, magnetic anomalies caused by topography are superimposed upon even larger magnetic anomalies generated by the underlying magnetic rocks that extend to significant depths below the surface. Thus, the topographic anomalies amplify but do not complicate the map interpretation. Such anomalies are observed near the center of the study area, where they are associated with the subcircular Canyon Creek pluton. A sharp magnetic high (2,224 gammas) located over Sawtooth Mountain is caused by topography. In addition, the linear north-south magnetic high along the west edge of the pluton follows a high topographic ridge, indicating that the sharp top of the magnetic feature is a topographic anomaly, while the broader lower part of the anomaly indicates that the western border rocks of the pluton have a somewhat higher magnetic susceptibility than the central rocks.

The magnetic anomalies and patterns of the aeromagnetic map are very closely related to geologic features and are all caused by igneous rocks. In general, the anomalies form a series of north-south belts across the map area. These belts are discussed below from east to west.

The most prominent magnetic anomalies on the aeromagnetic map are located east of long 122°55′ W. and appear as north-south-trending magnetic highs which are associated with the large areas of ultramafic rocks. The large closed magnetic lows in this same area are associated with younger plutons of quartz diorite and diorite which evidently possess very weak to negligible magnetic susceptibilities. The largest magnetic high is found at the south edge of the map at long 122°53′ W. and has a local amplitude of about 2,000 gammas. The sharp high at the crest of this anomaly is clearly a topographic effect caused by the proximity of magnetic rocks to the airborne magnetometer. Anomalies of 2,000 gammas are often found at these heights above ultramafic rocks, and there is no reason to suppose that the anomaly may have economic significance. This conclusion also applies to the other smaller magnetic anomalies associated with these ultramafic rocks. At lat 41°10′ N. the north-south magnetic high over the belt of ultramafic rocks is interrupted by a pronounced magnetic low which trends approximately northeast, joining a large subcircular magnetic low over quartz diorite to the east with a linear magnetic low over metamorphic rocks west of the magnetic high. This interruption in the magnetic high is rather unexpected, and the original data have been examined in search of a position or compilation error. No error was detected, and the interruption of the magnetic high is tentatively ascribed to the nonmagnetic younger diorite intrusions, which almost completely interrupt the ultramafic body at this location. The west contact of the ultramafic rocks dips to the east. South of the interruption, this eastward dip is confirmed by the location of the west slope of the aeromagnetic anomaly which, because of the dip direction, does not extend very far to the west of this west contact. North of the interruption, however, the magnetic anomaly over the ultramafic rocks (3,085 gamma maximum) has a very different shape. Here the west side of the anomaly slopes gently down to the west for several miles and indicates that the west contact dips west.

Magnetic anomalies over the central metamorphic belt are associated with the series of subcircular quartz diorite plutons that are crudely concordant with the surrounding metamorphic rocks. The anomalies indicate that the contacts of these plutons generally dip outward and that some of the plutons are probably connected at moderate depth. Judging by the magnetic anomalies, these connected plutons appear to form two larger en echelon masses which strike northeast and are separated from each other by the large magnetic minimum which strikes northeast across the central metamorphic belt. Some of the local sharp magnetic highs over these masses are topographic effects, as previously mentioned.

The two belts of serpentinite which strike north-south in the western half of the area have linear north-south magnetic anomalies associated with them. Computer simulation of east-west magnetic profiles across these belts indicates magnetic susceptibilities of 0.002–0.004 emu/cm^3 (electromagnetic units per cubic centimeter) for the serpentinite. These values are typical for serpentinites studied elsewhere. The computer results also show that the two belts are probably connected at depths of only a few thousand feet. The structure may therefore be a synform. Four small granitic plutons are associated with the eastern serpentinite belt, and four closed magnetic highs (2,126, 2,011, 2,231, and 2,037 gammas) are associated with these plutons. The anomaly of 2,011 gammas is probably caused by the small granitic pluton. The other anomalies do not coincide exactly with the granitic outcrops, so that it is difficult to decide whether granite or serpentinite causes these three anomalies. Perhaps metamorphism of the serpentinite by these younger plutons has made the serpentinite more magnetic near the contacts with the granitic rocks.

At the extreme west edge of the area covered in the aeromagnetic survey, a prominent linear magnetic high is associated with a large granitic pluton which strikes N. 20° W. Only a small part of this pluton is included within the study area. The linear magnetic low paralleling this magnetic high on its east side is a polarization low caused by the inclination of the earth's field and is a normal feature associated with the northeast side of steeply dipping magnetic rock masses in the Western United States. The steep eastern gradient of the magnetic high should be located approximately over the east contact of this pluton but instead is about 0.7 mile to the west, either because a belt of eastern border rocks of the pluton is nonmagnetic or because the rock unit has remanent magnetization in a direction significantly different from that of the present earth's field. This direction would most likely strike approximately toward the northeast and have a relatively small inclination downward.

The area covered by the aeromagnetic survey extends north and west of the study area because of the occurrence of gold on the tributaries of the Salmon River. There appears to be no relationship between these occurrences and the aeromagnetic pattern in this area, which is rather flat and featureless. At the east end of the study area, a large reentrant in the boundary corresponds with gold occurrences in the drainage area of lower Coffee Creek. This area is associated with a large magnetic minimum which is caused by a diorite pluton about 6 miles in diameter.

MINERAL COMMODITIES

The principal known mineral commodities in the study area are gold, silver, mercury, copper, and chromite. There are numerous occurrences of other commodities, but none appear to be of potential commercial value. Lode and placer gold deposits are scattered through the study area. Silver was produced as a byproduct of gold ores.

GOLD

Gold, the principal mineral commodity of the Salmon-Trinity Alps study area, is widely distributed (fig. 5) but was detected in more samples from the western half of the area than the eastern. It has been produced from both lode and alluvial deposits. Lode deposits occur throughout the area, as witnessed by the many abandoned mines and prospects. Along many streams, terrace deposits and channel gravel were worked for placer gold.

Lode deposits of gold occur in a wide variety of rock types in the study area and are not restricted to any particular geologic subprovince. They are, however, uncommon within the granitic plutons or most bodies of ultramafic rock, although several deposits occur at or near the contacts between granitic plutons or ultramafic bodies and surrounding country rocks.

The principal localities or districts within the study area where gold has been produced from lode deposits are, from west to east (fig. 12), the upper Virgin Creek area, including the Salmon Summit (or Summit) mine; the Mary Blaine Mountain–Old Denny district in the headwaters of Slide and Eagle Creeks (also known as the New River–Denny district), which includes the Boomer mine (or Mountain Boomer) and several other abandoned mines; the East Fork district, which includes the McClaron and Alaska

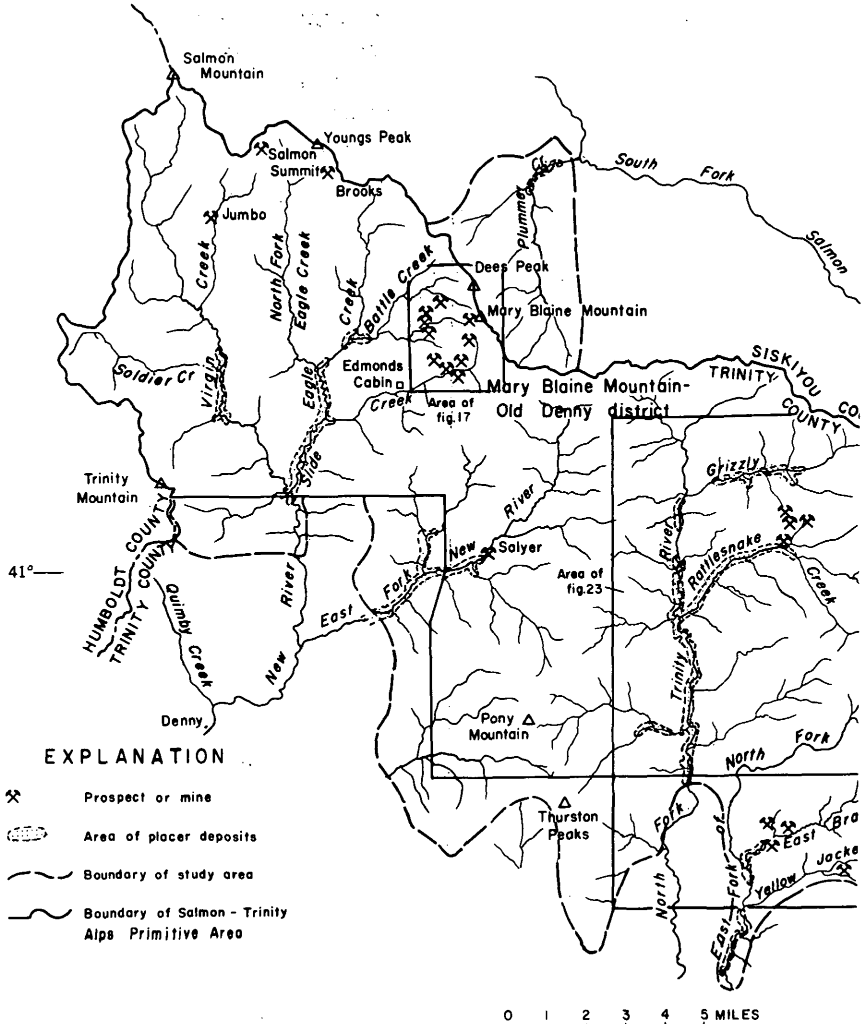
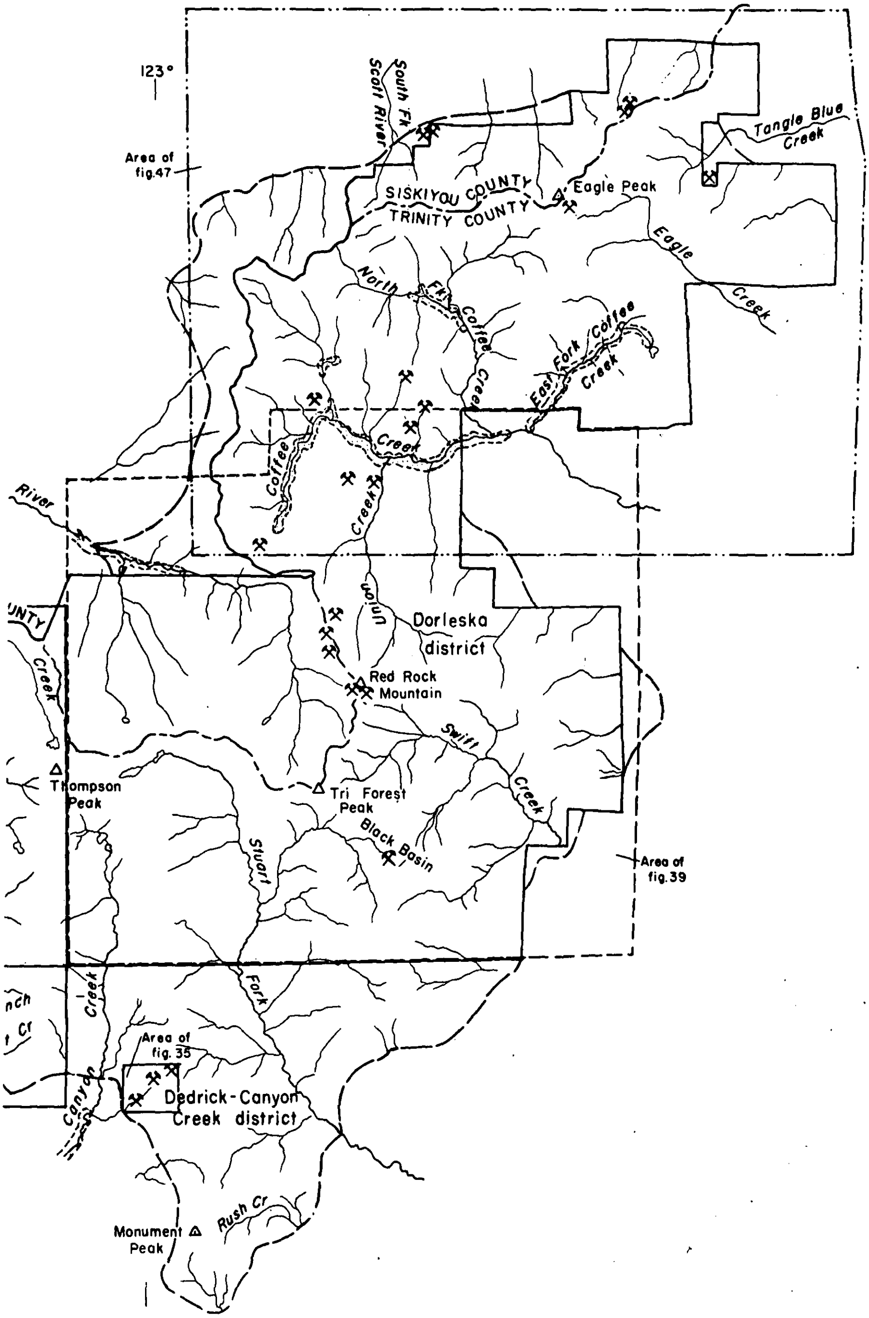


FIGURE 12. — Mines,



prospects, and placer deposits.

groups of mines on East Branch and Yellow Jacket Creeks; the Globe-Chloride group, part of the larger Dedrick–Canyon Creek district; the Dorleska district, including the Dorleska, Yellow Rose, and LeRoy mines and several prospects; the Coffee Creek district, comprising several small mines distributed over a fairly large area in the Coffee Creek drainage; and several scattered deposits in the northeastern part of the study area which can be regarded as belonging to the Callahan district, including the Loftus, Eagle Peak or Shasta View, Klatt, and Grand National (or Tangle Blue) mines.

Most of the gold produced from lode deposits has come from quartz veins and shear zones with which quartz is usually associated. The gold is very fine grained and rarely visible to the unaided eye. It occurs in two forms: native metal or free gold in the quartz, and associated with other sulfide minerals, mainly pyrite. Gold tellurides have been reported from some veins, but none were seen during this investigation. Many of the gold lodes are closely associated with dike rocks. Virtually every variety of dike occurs with the veins, although andesitic varieties and dacite or "birdseye" porphyry are perhaps most common. Gold-bearing veins commonly occur along the contact of dikes with country rock and, less commonly, within dikes. Some dikes are themselves mineralized. The genetic relationship of the dikes to the deposits is difficult to assess. Although the dikes themselves may not have introduced metallizing solutions, they are, however, indicative of subjacent igneous activity, which probably was responsible for the movement of gold-bearing solutions into and through the rocks. Undoubtedly, in many places dikes have controlled the location of veins because their contacts with the country rock, being actual or potential surfaces of discontinuity, afforded channelways for the mineralizing solutions.

An unknown but probably considerable amount of gold has been produced from small localized concentrations near the surface. These small relatively high grade deposits of free gold with little gangue, apparently with little or no lateral or vertical continuity, are commonly referred to as pocket deposits. Many of the shallow pits throughout the study area may have been dug to exploit such deposits.

The potential of the lode deposits is unknown because the underground workings of most of the mines are inaccessible, and the veins cannot be examined and sampled. Reserves of unmined gold undoubtedly remain in the many abandoned mines, but only the Globe-Chloride and Dorleska can be regarded as potentially important under existing or foreseeable economic conditions.

Placer gold has been produced mainly from stream terrace gravels in the bottom of the valleys. Most of the better deposits have been mined out, but auriferous bench gravels remain in a few places. The principal areas of placer deposits are the Nash placers on upper Coffee Creek and deposits on the North Fork Trinity River and tributaries. Gold can still be found in the modern sediments of many streams, and pan concentrates commonly contain measurable amounts. The values reported have a wide range, and undoubtedly gold can still be obtained from stream gravels and a few unworked terrace deposits, but there are probably no deposits that can be profitably exploited in the foreseeable future.

SILVER, LEAD, AND ZINC

Only a small amount of silver, approximately $60,000, has been produced from the study area. From 1880 to 1957 approximately $210,000 in silver was produced from Trinity County as a by-product from refining of gold and copper recovered from placer, lode gold, and copper mines (O'Brien, 1965, p. 49). Lead and zinc have not been produced from the study area, as far as is known.

No silver minerals were seen in any of the samples. Small amounts of galena, the common sulfide of lead, were identified in a few samples, but no zinc minerals.

The most obvious clustering of samples containing lead is in subareas B, E, and the drainages of the East Fork New River in subareas I, J, and K, and branches of Devils Canyon in subarea K (fig. 9). The samples in subareas B and E possibly reflect the belt of weak mineralization in the vicinity of the county-line ridge. Samples from subareas I, J, and K also contained anomalous copper values (fig. 7). All anomalous sample groups in areas II, III, and IV are small and can be related to known gold mineralization, except for the string of samples on Bear Creek, subarea HH, which contain amounts slightly above background. Anomalous quantities of other metals were not recognized in samples from Bear Creek.

The source of all sediments and rock samples with detectable silver (greater than 0.5 ppm) is shown in figure 6. Most samples with anomalous silver contents were collected in the western part of the study area. Rock samples containing silver are more common than sediment samples, and many are from gold mines and prospects. Silver anomalies are not clustered as clearly as copper and lead anomalies, but clustering is recognizable nevertheless and correlates moderately well with lead and copper anomalies.

The distribution of stream-sediment and rock samples containing anomalous quantities of lead is shown in figure 9. Most of the former are from the western part of the study area (area I), in streams of the New River drainage system. A few minor lead anomalies are found to the east, in areas III and IV. Rock samples with anomalous lead are less common and scattered fairly evenly over the entire study area. Most of the samples, both sediments and rocks, contain only slightly more lead than the background level and are regarded as only slightly anomalous.

A few isolated sediment and rock samples containing anomalous quantities of zinc came from localities scattered over the western part of the study area (fig. 8). There is, however, a slight clustering of zinc-anomalous samples in subarea B south of Soldier Creek, where samples with anomalous lead, copper, and silver were also obtained. Two samples (24, 25) from a pyritiferous boulder in Soldier Creek contained more than 10,000 ppm zinc. Anomalous zinc also was reported in rock samples (56, 58, 67, subarea J) from the Salyer copper prospect on East Fork New River.

COPPER

Many of the gold veins contain a little copper, chiefly chalcopyrite, but none has been produced in the study area. A few minor concentrations of copper-bearing minerals have been prospected. All samples collected during the course of the geochemical sampling program were analyzed for copper, and, although some contained anomalous amounts, no deposits of economic importance were discovered.

The distribution of stream-sediment and rock samples containing anomalous amounts of copper is shown in figure 7. The background for copper in stream sediments of areas I and II is higher than for areas III and IV, which reflects the generally higher copper content of the metavolcanic and metasedimentary rocks in the western half of the study area, compared with the eastern half, where granitic plutons and ultramafic rocks predominate. Stream sediments with anomalous copper contents are most common in the western half of the study area (areas I and II). Samples from most streams in the eastern part of the area contain less than the threshold value, with the exception of Owens Creek in subarea S, the South Fork Salmon River, subarea BB, and Hardscrabble Creek in subarea DD. Rock samples containing anomalous amounts of copper are also more plentiful in the western area than in the eastern. Most rock samples with above average copper content have no visible copper minerals. Some come from rusty fractures in both metasedimentary and metavolcanic rock, and some from shears and quartz veinlets in which small amounts of pyrite may be visible. Some are from mafic dikes which have no obvious copper mineralization. Localities 56 and 57, subarea J, are at the

Salyer prospect, where small amounts of chalcopyrite were observed.

The cluster of samples in subarea C in the upper part of Virgin Creek marks a place where there is considerable evidence of mineralization. At several places, rusty-weathering fractures and quartz veinlets containing pyrite were observed. Some of the rock samples are from veins and fault zones at the Summit and Jumbo mines, from which small amounts of gold were produced.

Another group of samples with anomalous copper contents comes from Soldier Creek in subarea B. Rock sample 53 is a composite chip sample of fresh granitic rock from the Ironside Mountain pluton. Samples 46 and 60 are from iron oxide-stained zones in quartz biotite schist and phyllite, sample 75 is from a pyritiferous mafic dike, and sample 48 is from an iron oxide-stained shear zone exposed in an exploratory bulldozer cut from which an unweathered specimen of pyrite-bearing garnetiferous skarn was obtained. Sample 24 was from a stream boulder of fine-grained chlorite semischist containing abundant pyrite and some chalcopyrite. The source of the mineralized boulder was not found but possibly is somewhere on the steep slopes to the south, below the ridge where several exploratory bulldozer cuts have been made. This general area may be the northern extension of a zone of several copper prospects west of the county-line ridge, outside the study area.

A group of samples, both stream sediments and rock, in subareas I, J, K, and O have higher than average copper contents. The area is underlain predominantly by metavolcanic rocks, diabase, and serpentinite, and these rocks generally show no indication of copper mineralization. Rock samples showing anomalous amounts of copper were from iron-stained fractures and breccia zones. Samples 37–39 in subarea O are from pyritic breccia zones in greenstone. Samples 56 and 57, subarea J, come from the Salyer copper prospect on the East Fork New River. The numerous stream-sediment samples with anomalous copper may be indicative of rather extensive weak copper mineralization in the area, localized along many minor veins, fractures, and breccia zones; however, there is no indication of any copper deposit of commercial importance.

Many samples from streams in subarea P, where bedrock is the Salmon Hornblende Schist, contain anomalous amounts of copper. A series of bedrock samples taken along the ridge between the two southernmost streams (East Branch and Yellow Jacket Creeks) contained no anomalous amounts of copper, but samples from dumps at the McClaron and Alaska gold mines (55, 58, and 80) contained amounts in excess of background level. Copper in the stream sediments may have come from gold veins in the area.

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Anomalous copper contents of sediments from subarea S are related to mineralization at the Globe mine at the head of Owens Creek. Copper anomalies in subareas BB and DD may also be related to mineralization (gold) in the drainages of South Fork Salmon River and Hardscrabble Creek, respectively.

MERCURY

A few flasks of mercury (quicksilver) have been produced from the Cinnabar mine. This is the only known mercury deposit in the study area, although Averill (1941, p. 72) mentioned that the New River district contains several quicksilver prospects. The Cinnabar mine is in serpentinite near a contact with fine-grained gabbro or diabase on the southwest side of Mary Blaine Mountain, near the head of Slide Creek. Cinnabar was not found elsewhere in the study area, although a few samples contained anomalous amounts of mercury. All rock samples and a few stream-sediment samples were analyzed for mercury, and trace amounts were found in all. The locations of rock samples containing more than 0.8 ppm or more mercury are shown in figure 10.

A conspicuous group of rock samples containing anomalous amounts of mercury was collected in subarea G (28, 30, 31, 34, 38, and 40) in the vicinity of Mary Blaine Mountain, an area in which there are several small gold mines. These samples are from veins at gold prospects and from shear zones in bedrock. Sample 32, with its high (greater than 100 ppm) mercury content, is from the Cinnabar mine. Sample H6, a random sample of iron oxide-stained metavolcanic rock, sample H16 from the dump of the Boomer mine, and sample J15 from a mineralized zone on East Fork New River, probably should be included with the group of mercury-bearing samples from Mary Blaine Mountain.

In subarea B, samples with anomalous amounts of mercury (24, 25, 28, and 60) are from an area in which other anomalies were recorded, including copper, zinc, and silver. A few isolated mercury-rich samples were collected elsewhere in the study area. All except the one in subarea S are from mines and prospects. Sample S28, from an exposure of slightly altered amphibole schist cut by quartz veinlets, also contains above average amounts of gold, silver, zinc, and molybdenum.

Further exploration at the Cinnabar mine might result in the discovery of sufficient ore for small-scale production; otherwise, the mercury potential of the study area is insignificant.

CHROMIUM AND NICKEL

In some parts of the Klamath Mountains, economic deposits of chromium and nickel occur in ultramafic rocks, but there is virtually no chance of finding these in the study area, despite an abundance of ultramafic rocks. Chromite, the chromium mineral, is a common minor accessory in peridotite and dunite and the serpentinites derived from these rocks, but does not occur in economic concentrations in the study area. Small chromite occurrences of no economic importance have been found on the crest of Scott Mountain at the head of the right fork of Saloon Creek in NW¼ sec. 35, T. 39 N., R. 9 W., and in sec. 14, T. 38 N., R. 8 W., at the head of a branch of Tangle Blue Creek (Ripple Creek).

Nickel, a common constituent of ultramafic rocks, commonly averages 0.25 to 0.30 percent, but it is locked up in the structure of the rock minerals. Elsewhere in the Klamath Mountains some lateritic soils derived from the weathering of ultramafic rocks contain as much as 1 to 1.5 percent nickel, and deposits of the green nickel silicate, garnierite, have been found in economic quantities. In the study area, green films and veinlets of garnierite are occasionally found in ultramafic rocks, as well as a few small patches of red lateritic soil that is rich in nickel, but none are of any economic value.

Background levels for nickel and chromium are high throughout the area. Sediment samples from some streams contain quantities far in excess of background levels, but these anomalies are not indicative of economic deposits. All streams from which these samples were collected drain areas of ultramafic rocks.

OTHER COMMODITIES

Samples containing detectable molybdenum (greater than 5 ppm) were collected from localities shown in figure 11. Most contained less than 20 ppm, so molybdenum here is of interest mainly as an indicator of mineralization, rather than as a mineral resource. No molybdenum minerals were seen. As molybdenum is one of the most mobile elements, anomalous amounts in stream sediment may be indicative of mineralization in a drainage system. In the study area there is a fair correlation between samples that contain molybdenum and those that contain silver, lead, or copper. More samples containing molybdenum were collected from the western half of the area than the eastern.

Localities of molybdenum-bearing samples are fairly well scattered in area I. No areas or drainages clearly anomalous in the metal are apparent, except possibly the upper part of the South Fork of the East Fork New River and Cabin Creek. Two small groups of rock samples from subareas O and P contain lead, silver, anomalous copper, and gold as well as molybdenum. Over the rest of the area, localities of molybdenum-bearing samples are few and scattered.

Arsenic was reported in seven rock samples but not in any stream sediments. Although of no economic value here, it is important nonetheless as an indicator of mineralization. The arsenic in samples G52, Q32, Q33, and Y18 (table 1) is accompanied by gold, silver, copper, and lead. These four samples are from mines; the others are from previously unexplored localities. J16 (table 1) is from an exposure where samples also contained silver, molybdenum, lead, and zinc. J44 (table 1) also contained copper in quantities above background values, and K70 (table 1) contained considerable arsenic but not unusual amounts of other metals.

Bismuth was detected (greater than 10 ppm) only in the few rock samples listed in the footnotes of table 1. All but three of these cluster in the headwater region of Virgin Creek, subarea C, and delineate a bismuth anomaly. This area, intruded by small granitic plutons and known to be mineralized, is also the site of several small gold mines and prospects.

Cadmium was detected in only three samples. Two of these, which are also high in copper and zinc, are from pyritiferous boulders (B24, B25, table 1); the third, a sediment sample (K24, table 1), also contains considerable zinc.

Tungsten is very rare, detected in only four samples. One (DD38, table 1), from the dump of the Hardscrabble mine, also contained gold and silver. The other three were stream sediments (FF50, FF51, table 1) and a stream-sediment concentrate (II56, table 1) without unusual quantities of other metals.

Tin was found in five stream-sediment samples (G26, I26, Q5, Z22, KK31). It was not found in any other samples from the study area, so its origin is suspect. The samples were collected from sites that may have been contaminated by debris from campsites or old mining communities.

Small amounts of scandium and yttrium, most commonly only a few tens of parts per million, were detected spectrographically in all samples. Concentrations of 100 ppm or more are rare and most commonly found in pan concentrates, mainly in samples from subareas P and S. Probably the scandium is contained in ferromagnesian minerals (pyroxene and amphibole) and the yttrium in zircon, sphene, and apatite (Rankama and Sahama, 1950, p. 508-531). Lanthanum is present in smaller amounts and is below the sensitivity limit or not detectable in many samples. A few samples, mostly pan concentrates, contain 100 ppm or more. Lanthanum also is likely to be found in the residual minerals, zircon, sphene, and apatite. Rock samples containing anomalously high amounts of scandium, yttrium, and lanthanum are scanty and are not restricted to areas from which pan concentrates with anomalous amounts of these metals were collected. The samples enriched in these metals are predominantly rusty, iron oxide stained metavolcanic rocks and amphibolites.

Granitic rock possibly suitable for construction is plentiful, and sand and gravel could be produced from some of the stream deposits and tailings piles from old placer operations, but these materials can be obtained elsewhere more economically and closer to markets. Limestone, although fairly common, occurs in small isolated bodies in remote parts of the area, far from transportation facilities and potential markets, so it cannot be considered a commodity of economic importance. The study area has no potential whatsoever for combustible fuels.

MINING CLAIMS

The locations of patented and unpatented mining claims in and adjacent to the study area were found by a search of the records of Trinity and Siskiyou Counties and of the Forest Service. In addition, published reports were searched to determine the location of many old mines. Many claims recorded in the courthouse could not be found in the field because their location was poorly described or because of the lack of land surveys. In the Mary Blaine Mountain–Old Denny area, for example, the township lines were moved approximately 3 miles as a result of a resurvey of the area around 1960.

Approximately 525 unpatented claims exist within and adjacent to the study area, but not all are currently held. Recent claim locations were found filed on the North Fork Trinity River and along Coffee Creek, easily accessible areas (fig. 12).

Fourteen patented claims are in the north and south Coffee Creek area, and two are in the western part of the study area.

Private land holdings that include mineral rights in the study area are owned mostly by the Southern Pacific Land Co., but small areas that originally belonged to the land company are owned by individuals. Southern Pacific Land Co. lands total approximately 49,000 acres and lie mainly in the Coffee Creek area.

One powersite withdrawal exists on the North Fork Trinity River (described as all United States' lands within half a mile of North Fork Trinity River from the north line of T. 35 N., R. 11 W., to a point 8 miles north). This Federal Power Commission Withdrawal, FPCA No. 608, made May 11, 1925, covers 2,839 acres. It was made under the Act of June 10, 1920, and has not been rescinded. Approximately 15 unpatented placer claims are affected by the powersite withdrawal.

There are no Federal oil and gas leases in or nearby the study area and no minable resource of leasable minerals within the area.

MINES, PROSPECTS, AND MINERALIZED AREAS

Mineralized rocks are widely distributed in the study area, as geochemical sampling by the U.S. Geological Survey indicates, but only gold, silver, and mercury production are recorded. Although most lode production was from relatively few districts, mines are scattered throughout the area (fig. 12). Placer gold deposits are widespread in the streams of the area. One deposit of near-minable-grade mercury ore occurs near the north boundary of the study area.

The locations of samples taken by the U.S. Geological Survey are shown on plate 2. Locations and assay values of U.S. Bureau of Mines samples referred to in the text are shown on illustrations accompanying mine or area descriptions.

The Dedrick–Canyon Creek district, represented by the Globe-Bailey-Chloride group of claims lying astride the study area boundary, is by far the most significant district examined in terms of production and of continuity of mineralization. Reserves of economically marginal ore exist in the district, and exploration will probably continue in this well-known area.

The Mary Blaine Mountain–Old Denny district, in an isolated area near the north boundary of the study area, contains several small mines and prospects active between the 1880's and 1930's. The Boomer, Sherwood, Hunter, Ridgeway, and Uncle Sam mines were active around the turn of the century. Their generally low grade ore values and isolation preclude successful operations at present.

Small lode mines occur in three other areas: on the East Fork of North Fork Trinity River, Coffee Creek, and Rattlesnake Creek. Some production has been recorded from the lode deposits in tributaries of the East Fork of the North Fork Trinity River. The Alaska mine on Yellow Jacket Creek was the largest producer of this area, but ore was also mined from the McClaron mine and the Golden Chest group on the East Branch of the East Fork. The most extensive mine workings in the Coffee Creek area are those of the Dorleska and Yellow Rose mines, which appear to be along a strongly mineralized zone. Significant production has come from the Dorleska and Yellow Rose properties, which were active as late as 1934. Prospects in the headwaters of Rattlesnake Creek are in small isolated deposits, and the recorded production is insignificant.

In the northeast section of the study area, the Klatt and the Tangle Blue mines have had small production. The Tangle Blue has a small reserve of marginal ore, and chances are good that additional resources could be discovered.

Placer deposits (fig. 12), all partly mined, are scattered through the study area. Work is done each year on some of the better ones. The greatest recorded production of placer gold has come from Coffee Creek and from Rattlesnake Creek, a major tributary of the North Fork Trinity River. The placer deposits of Virgin Creek, Slide Creek, Eagle Creek, and the East Fork New River were less extensively mined.

NEW RIVER AREA

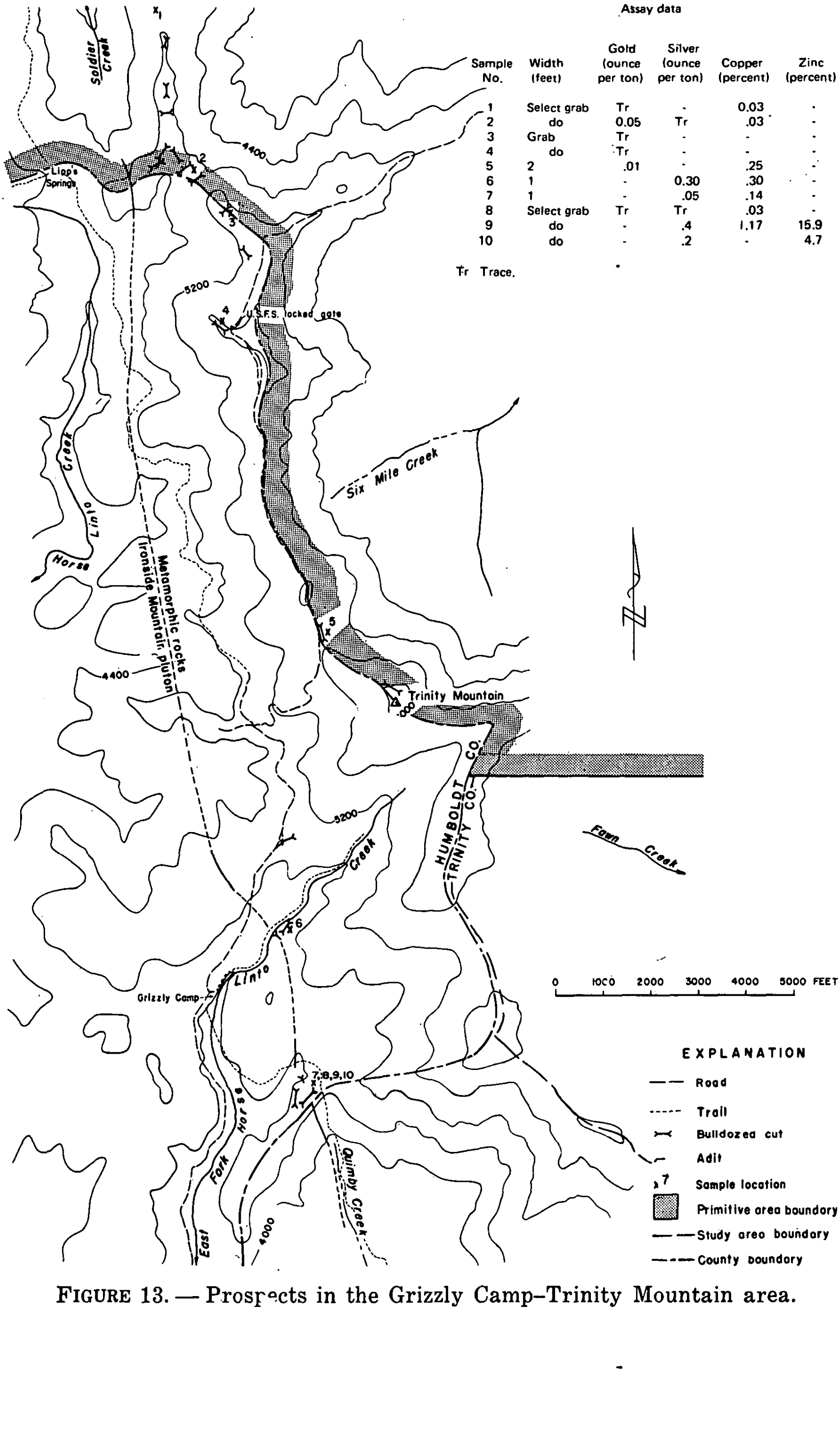
The New River drainage encompasses approximately 25 percent of the study area (fig. 12). Access is by county road through Denny and by well-maintained Forest Service trails into the upper reaches of the various creeks.

The New River basin has been extensively prospected for both placer and lode deposits. Placer mining has been conducted on Virgin Creek, Eagle Creek, Slide Creek, and the East Fork New River and its tributary, Pony Creek. There has been little lode mining except in the Mary Blaine Mountain–Old Denny district on the south and west slopes of Mary Blaine Mountain. None of the lode mines are presently operating, and placer mining is limited to small-scale intermittent bench-placer operations and recreational mining using suction dredges in streams.

GRIZZLY CAMP—TRINITY MOUNTAIN AREA

A 9-mile-long mineralized belt has been explored from near Denny to a point in the study area near the head of Soldier Creek (fig. 13). The belt roughly parallels the contact between the Ironside Mountain pluton and metasedimentary rocks of the western Paleozoic and Triassic belt. Access to the area from California State Highway 299 at Hawkins Bar is by graveled road running northward along the divide between the New River drainage and the East Fork of Horse Linto Creek.

Exploration work within the study area is limited to bulldozer cuts and small pits. Rock coated with malachite and azurite is exposed in the workings, but the copper content is negligible. No definite mineralized structures were seen. Sample 1 (fig. 13), from the ridge crest east of the headwaters of Soldier Creek, is composed of quartz and calcite stringers as much as 2 inches thick. Such stringers are abundant in limestone lenses along the ridge. Sample 2 was taken from a bulldozer cut along a N. 40° W. shear zone. The shear zone extends along a contact between limestone and metavolcanic rock. The vein material is similar to that found at sample site 1. Sample 3 was taken in a bulldozer cut just outside the study area boundary. Material sampled was iron oxide-stained zones within calcareous argillite. Sample 4, taken in an



Assay data

Sample No.	Width (feet)	Gold (ounce per ton)	Silver (ounce per ton)	Copper (percent)	Zinc (percent)
1	Select grab	Tr	-	0.03	-
2	do	0.05	Tr	.03	-
3	Grab	Tr	-	-	-
4	do	Tr	-	-	-
5	2	.01	-	.25	-
6	1	-	0.30	.30	-
7	1	-	.05	.14	-
8	Select grab	Tr	Tr	.03	-
9	do	-	.4	1.17	15.9
10	do	-	.2	-	4.7

Tr Trace.

FIGURE 13. — Prospects in the Grizzly Camp–Trinity Mountain area.

old bulldozer cut, was of quartz fragments along small fractures. Sample 6 was taken from a lens of iron oxide stained sulfides roughly 5 feet thick and 20 feet long. The lens is about three-fourths of a mile outside the study area. This was the only such lens found near the study area. Three select grab samples (8–10) were taken from material excavated by bulldozers on the ridge crest between Horse Linto Creek and Quimby Creek drainages and about three-fourths of a mile outside the study area.

Limestone occurs between Trinity Mountain and Soldier Creek. In addition to its remoteness, it is not continuous enough to be of value.

VIRGIN CREEK AREA

Approximately 50 claims have been located in the Virgin Creek drainage (fig. 12) according to county records; 12 are recorded as lode claims and the remainder as placer claims. Recorded production from both placer and lode mines lying within the drainage totals less than 115 ounces of gold and 30 ounces of silver. None of the mines are believed to have been profitable, and none were operating when visited.

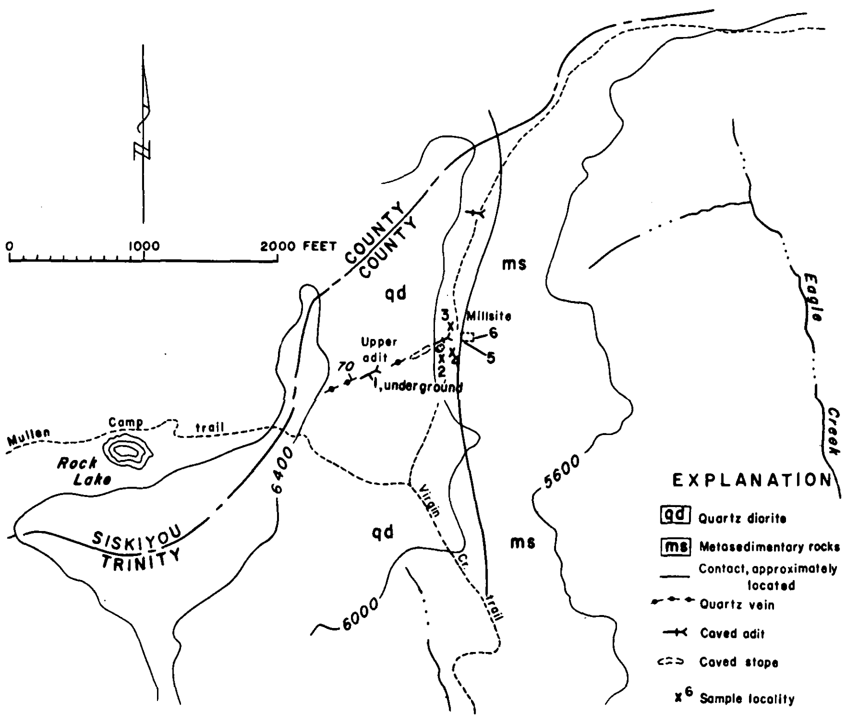
Salmon Summit Mine

Claims of the Salmon Summit group lie adjacent to the Siskiyou-Trinity County line near the north boundary of the study area, partly in the Virgin Creek drainage and partly in the North Fork Eagle Creek drainage. Access to the mine area is by trail from a Forest Service roadhead in Siskiyou County, approximately 3 miles northwest (fig. 14).

Reported production from the Salmon Summit mine, beginning in 1911 and including minor production from mine dumps as late as 1954, totals less than 90 ounces of gold and less than 30 ounces of silver. There has been no recent work in this area.

The Salmon Summit mine area is underlain by a small stocklike pluton of biotite-hornblende quartz diorite that intrudes metasedimentary rocks of the western Paleozoic and Triassic belt. Mineralization apparently is restricted to quartz veins in persistent shear zones in the granitic body; no veins are known in the metasedimentary rocks surrounding the pluton.

Workings observed on the property consist of a main adit at mill level, a caved raise from the mill level adit, a caved stope, and an upper adit approximately 200 feet above the main workings, all apparently on the same vein. Elevation of the mill level is approximately 5,960 feet.



Assay data

Sample No.	Length (feet)	Gold (ounces per ton)	Silver (ounce per ton)
1	0.5	0.58	0.20
2	Grab	.07	.15
3	do	.22	.05
4	do	.23	.17
5	do	1.56	.36
6	do	.97	.24

FIGURE 14. — Salmon Summit mine area.

In the 75-foot-long upper adit, the only accessible working, a highly iron stained and irregular gouge zone with quartz stringers next to the hanging wall was sampled (1, fig. 14). The hanging wall is persistent and strikes S. 62°–72° W. and dips steeply northwest.

Samples were also taken from stockpiles at the collar of a caved raise, the portal of the lower workings, and from the ore bin and ball mill feeder in the remains of the small mill on the property (2–6, fig. 14).

Several samples from the Salmon Summit mine area were also analyzed by spectrographic and atomic absorption methods (table 1). A sample of fresh granitic rock (C8) collected 100 feet or so south of the old millsite at the mine contained 0.02 ppm gold. A composite sample (C10) comprising 7 inches of vein quartz and 2 inches of altered stained granitic rock from exposures on either side of the portal of the main adit contained 0.02 ppm gold and 10 ppm bismuth. A sample (C9) of iron oxide stained gouge from the face of a short adit uphill from the main adit contained 0.1 ppm gold and 200 ppm copper. Analysis of a sample of quartz (C1) collected at an adit approximately 1,000 feet north of the main Summit mine workings showed 6.6 ppm gold, 0.5 ppm silver, and 70 ppm bismuth. Random samples from the dumps of two small prospect pits on the ridge west of the Summit mine contained 0.06 ppm gold and 10 ppm bismuth (C4) and 0.02 ppm gold, 5 ppm silver, 20 ppm bismuth, and 70 ppm lead (C5).

Although the analytical results of samples taken from various parts of the Salmon Summit property indicate that significant gold values do occur in the quartz fractions of the veins, the low average value of the assays plus the narrow width of the veins combined with the inaccessibility of the area indicate that the gold resources existing on the property are not minable. The resources available are estimated to be on the order of 5,000 tons containing about 0.6 ounce of gold per ton.

Jumbo Mine

The Jumbo mine is in a very inaccessible location on Virgin Creek, accessible only by trail from the end of a Forest Service road in Siskiyou County or from a road terminating on the Humboldt-Trinity County line, approximately 8 airline miles southwest (fig. 12).

Although exploratory work on the property was evidently done over many years, no production was recorded. All the workings are caved and inaccessible. A persistent quartz vein in quartz diorite country rock crops out at creek level on both sides of the creek. It strikes N. 40° W. and dips 80°–85° NE. and is 4.2 feet wide at its widest point, near the caved main adit. A 0.4- to 0.6-foot-wide zone on the hanging-wall side is highly mineralized (pyrite) and is soft and vuggy. A sample from this zone assayed a trace of gold and 0.05 ounce of silver per ton. A short adit, apparently driven in the country rock, is located approximately 20 feet downstream and 15 feet in elevation above the caved main adit. No mineralized material was observed near this portal.

Spectrographic analysis (table 1) of a sample of random chips of vein quartz (C38) indicated 0.7 ppm silver, 300 ppm bismuth, and 5 ppm molybdenum. Atomic absorption analysis of this sample revealed 6.2 ppm gold. A selected sample of quartz containing visible sulfides (C39) contained 9.1 ppm gold. A sample (C37) of gouge from the fracture zone in the upper adit contained 0.08 gold by atomic absorption analysis and 150 ppm copper and a trace of bismuth by spectroscopic analysis.

A dike of gray aphanitic rock strikes N. 40° W. and dips 76° SW. approximately 30 feet downstream from the main portal. It contains many irregular quartz veinlets (none large enough to sample) and some inclusions of wallrock. Several small shears and quartz veins were also noted one-third to one-half mile upstream from the Jumbo mine. These shears and veins also contained small amounts of gold, silver, bismuth, and above average amounts of copper (C31, C35, C36, table 1).

Low assay values and the inaccessibility of the mine rule out any possibility of minable reserves.

Placer Deposits

The placer deposits of the Virgin Creek area are mainly bench placers lying from 10 to 30 feet above the present stream level (fig. 15). The present stream flows mainly through a gorge in the steep-sided canyon of Virgin Creek. The gravel bars are a result of rapid downcutting of the stream. Most are narrow, lack well-developed channels, and are only 4–8 feet thick. They contain only a few thousand cubic yards of gravel.

Although there is evidence of numerous small placer operations along the course of the creek, recorded production of gold from Virgin Creek placer deposits amounts to only 22 ounces, from intermittent operations on the Virgin claim in the period 1922–37. Small amounts of gold were probably produced prior to 1922. When the properties were examined, a lessee was conducting large-scale sampling of remnants of gravel bars on the Virgin claim (fig. 16). Only minor amounts of gold were being recovered.

The tenor of samples from the claims along Virgin Creek ranged from nil to $1.55 gold per cubic yard of gravel. Sample 13, which contained the $1.55 value, was from the Langworthy claim. Obtained near bedrock, from the small remnant of gravel, it is anomalous because one small nugget accounted for much of the value.

The size of the gold in samples along Virgin Creek, mainly small specks and flakes, and the well-worn and flat appearance of the particles indicate a considerable distance of transport. Only one particle that could be classified as a nugget was found. The fineness of the gold in this drainage, expressed as parts of gold per thousand parts of metal, was determined by analysis of a composite sample to average 784. The fineness of the silver was 118; the remainder of the total 1,000 parts was base metals and iron. This analysis represented all 23 placer samples taken in the drainage.

The largest bar on the Williams No. 2 claim is estimated to contain 82,000 cubic yards of gravel lying on a bedrock bench from 10 to 20 feet above the existing stream. In part it is an old channel that enters the bar approximately 300 feet from its north boundary, lies close to the east side of the stream valley in the area of an exploratory bulldozer trench, and, near its lower end, returns to the present stream channel. Sample 9 (fig. 15) and 10, unlisted pan samples from the exposed bank of the west edge of the bar, contained less than $0.01 gold per cubic yard.

The low values of gold per cubic yard and the small volumes of gravel remaining in Virgin Creek indicate no workable placer deposits exist.

Samples 23–30 were collected along Fawn Creek to determine whether workable placer deposits occur there. Fawn Creek flows eastward from Trinity Mountain and Fawn Butte into Virgin Creek near the study area boundary, a total distance of about 4 miles (fig. 15). There are no roads or trails, no evidence of mineral exploration or mining, and no recorded production from the drainage. The entire drainage is within a belt of metamorphosed sedimentary rock and slopes are all steep, commonly over 30° on hillsides. As a result, very little waterworn gravel has accumulated. Eighteen pans of gravel from seven carefully selected sample sites averaged $0.15 per cubic yard. No workable deposits exist at this locality.

LOWER SLIDE CREEK AND EAGLE CREEK

New River ends, and Slide and Virgin Creeks begin, 12 miles upstream from Denny (fig. 12). Eagle Creek joins Slide Creek about 2 miles farther upstream. They drain the Mary Blaine Mountain–Old Denny mining district. Bureau of Mines records show production from only one of the placer deposits believed to lie in this part of New River basin, the Boyd placer claims on Emigrant Creek.

A recently constructed logging road west of New River ends about 3 miles south of the study area boundary. Access from the end of the road is limited to a mountain trail.

Clerbus Mae Prospect

Only one occurrence of lode tungsten has been reported within the study area, in the headwaters of Eagle Creek, reportedly in

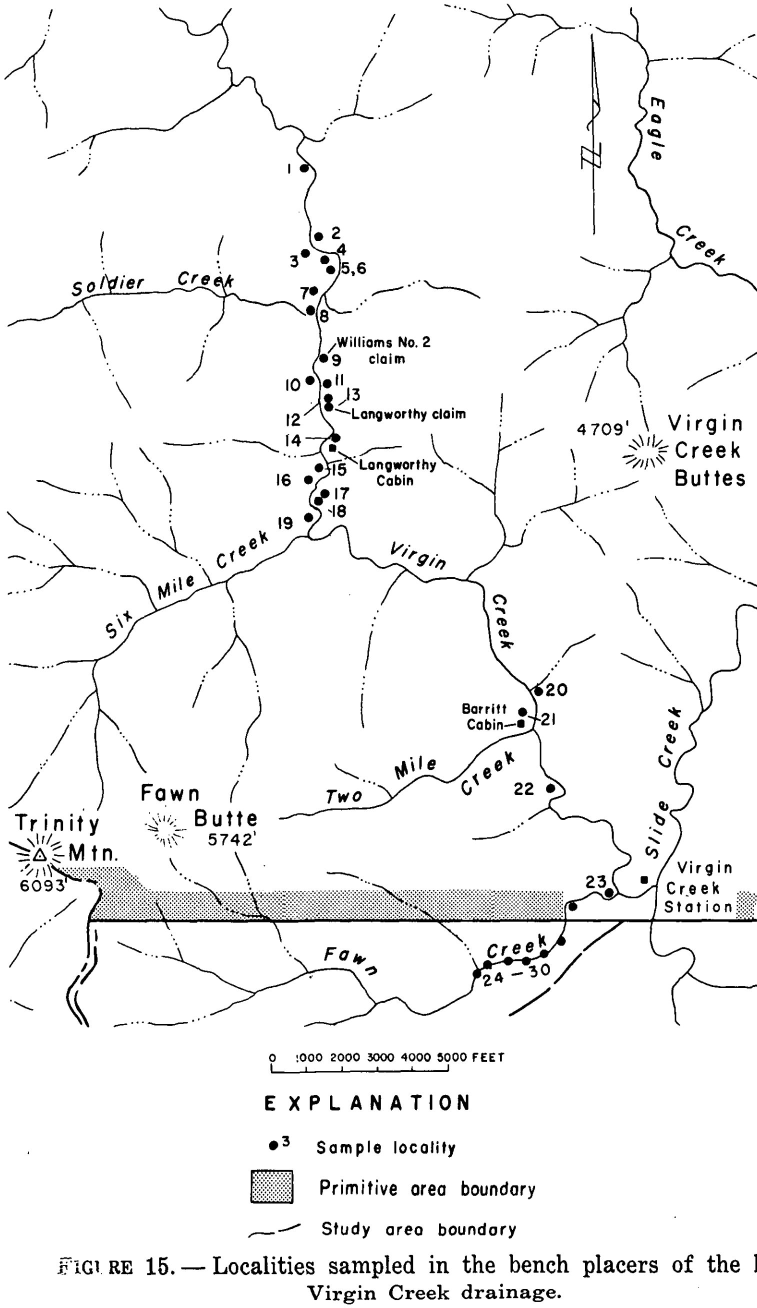


FIGURE 15. — Localities sampled in the bench placers of the lower Virgin Creek drainage.

Assay data

Sample No.	Depth (feet)	Gold (cents per cu yd)	Sample No.	Depth (feet)	Gold (cents per cu yd)
1	3.0	-	16	2.0	-
2	2.0	-	17	2.0	-
3	2.0	-	18	1.5	.5
4	Grab	-	19	1.5	-
5	do	1.8	20	1.5	-
6	1.5	-	21	2.0	-
7	1.5	-	22	1.5	-
8	2.0	2.0	23	1.0	-
9	4.0	.4	24	Grab	47.0
10	2.0	-	25	do	-
11	2.0	-	26	do	-
12	1.5	.2	27	do	Tr
13	1.0	[1]155.3	28	do	Tr
14	1.5	1.6	29	do	-
15	Grab		30	do	65.0

[1]Considered anomalous.
Tr Trace.

unsurveyed sec. 31, T. 9 N., R. 8 E. O'Brien (1943) reported that an 80-foot adit was driven S. 10° W. along a shear zone in diorite where a narrow quartz vein striking S. 80° E. and dipping 60° N. was found and followed for about 40 feet. Scheelite was detected at the hanging-wall contact by fluorescence. Rock along the contact was altered to a depth of a quarter of an inch. A few fluorescent grains were seen at points along a very narrow quartz vein in the footwall. In the outcrop of the veins on the hill above the adit, no scheelite could be found. O'Brien concluded that the scheelite-bearing veins are too narrow and low grade for commercial development. The workings could not be found during the present investigation.

Brooks Mine

The Brooks mine is about a mile S. 30° E. of Youngs Peak in unsurveyed sec. 24, T. 9 N., R. 7 E., at the head of the North Fork Eagle Creek. It is a patented lode mining claim presently owned by the State of California. Bureau of Mines records show that 52 ounces of placer gold was produced from gravel in the stream.

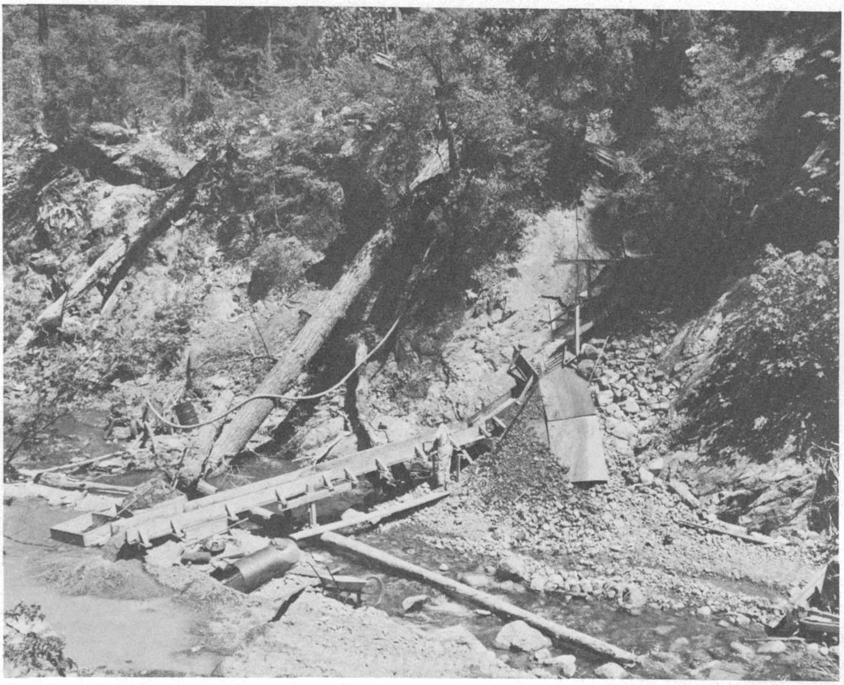


FIGURE 16.—Elevated bedrock bench from which auriferous gravel has been mined and test sluice, Virgin claim. The bench deposit, lying about 20 feet above the present stream, is typical of the placer deposits along Virgin Creek.

Access is by a logging road from Forks of Salmon to the headwaters of the West Fork Knownothing Creek, then by about 5 miles of trail and one-half mile across country to the mine. Soil and vegetative cover are very thick.

The area is underlain by metasedimentary rocks intruded by numerous dikes or sills. A granitic stock crops out about 1,000 feet south of the workings.

A few small scattered diggings were seen; three were caved adits with small dumps. No quartz veins or mineralized structures were visible. A grab sample of pyritiferous quartz from one of the dumps and another from a pile of quartz at a building site contained only traces of gold and silver.

PLACER DEPOSITS

Placer deposits on the section of Slide Creek between Virgin Creek and Eagle Creek have, for all practical purposes, been mined out. The walls of Slide Creek are so steep that few terraces and gravel bars are present. Those that are, range from about 5 to 75 feet above water level. Seven samples were taken in this area, and the best one contained $0.07 in gold per cubic yard.

Near the mouth of Eagle Creek, gravel terraces are about 50 feet above water level; they have been worked for a mile upstream. Battle Creek, a tributary of Eagle Creek, drains the Marysville area. Very little mining was done upstream to the mouth of Battle Creek. Two unmined terraces were found. The first of these is above the confluence of the North Fork Eagle Creek and Eagle Creek. The deposit contains on the order of 100,000 cubic yards of gravel on a bedrock bench roughly 5 feet above the stream. A 2-cubic-foot channel sample, that bottomed on 1 square foot of bedrock, contained $0.56 of gold per cubic yard. This, weighted with samples of lesser value, allows an estimate of average value of $0.28 per cubic yard for this bar.

The second terrace is below the confluence of Battle Creek and Eagle Creek. The Big Bar placer mining claim was staked here in August 1968. The terrace contains approximately 80,000 cubic yards of gravel on a bedrock bench 5–10 feet above the stream. Six channel samples of this terrace were taken. They averaged $0.37 gold per cubic yard. No gold and very little black sand was found in the gravel bars along the stream. These placer deposits are submarginal and could not be mined economically at present.

MARY BLAINE MOUNTAIN—OLD DENNY DISTRICT

The Mary Blaine Mountain–Old Denny district (fig. 17) is on the west and south slope of Mary Blaine Mountain at the head of Battle Creek and Slide Creek, principally in unsurveyed secs. 19 and 30, T. 37 N., R. 12 W., and unsurveyed secs. 4, 8, 9, and 21, T. 8 N., R. 8 E. A number of mines and prospects in this district were active before the turn of the century and sporadically until the 1930's. Exploration was mainly for gold and silver, but one deposit of cinnabar (mercury ore) exists on the south shoulder of the mountain.

Vegetation consists of fairly heavy stands of coniferous trees at lower elevations, thinning as higher elevations are reached and interspersed with dense brush and sparse growth on areas of serpentinite.

Access to the Mary Blaine Mountain area is by good mountain trail approximately 17 miles from a roadhead 9 miles up New River from the post office of Denny.

The gold deposits near Old Denny, Marysville, and White Rock City were discovered around 1883, and the Boomer claim was located in 1884. The district was active until about 1920, when the

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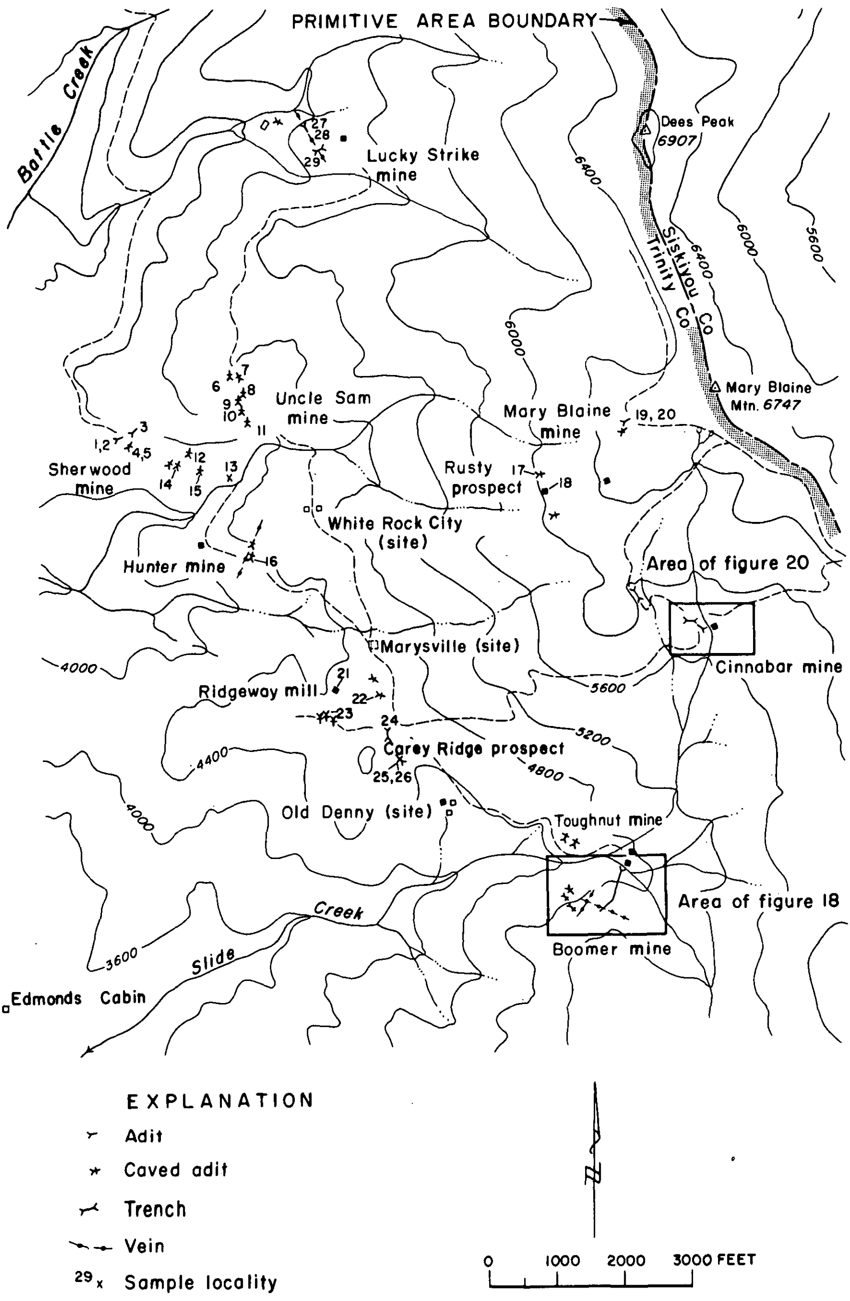


FIGURE 17. — Mines and prospects in the Mary Blaine Mountain–Old Denny district.

Assay data

Sample No.	Length (feet)	Gold (ounces per ton)	Silver (ounces per ton)
1	1.5	Tr	-
2	Grab	0.02	-
3	2.0	Tr	0.05
4	Grab	.15	-
5	do	Tr	.05
6	do	Tr	.05
7	do	.05	.05
8	do	.05	.05
9	do	Tr	-
10	do	-	-
11	do	Tr	-
12	do	.04	-
13	do	Tr	-
14	do	Tr	-
15	do	Tr	-
16	do	.72	.20
17	do	.14	-
18	do (conc.)	8.56	1.08
19	1.0	.28	.05
20	1.0	Tr	-
21	Grab	Tr	-
22	do	Tr	.05
23	do	.36	.21
24	3.0	Tr	-
25	6.0	-	-
26	2.0	-	-
27	1.6	.02	Tr
28	1.0	.17	Tr
29	1.0	.02	-

Tr Trace.
Conc. Concentrate.

town of Old Denny was abandoned. Sporadic production and exploration work on the Boomer mine continued as late as 1940. The district is best known for its lode deposits, but some placer mining was carried on in Slide Creek and the upper reaches of Battle Creek.

The recorded production from the district totals approximately 14,000 ounces of gold and 1,500 ounces of silver, most of it mined before 1900. Activity was greatest between 1890 and 1895. The total value of the production, at $35 per ounce, is around $492,000. After 1900, almost all recorded production was from the Boomer mine, which (except for 1911–20) was active until 1930. The only current activity in the district is the required annual assessment work by two or three claimants.

Most of the workings are inaccessible and, except where noted, samples were obtained from mine dumps, stockpiles, mill bins, and crusher feeders.

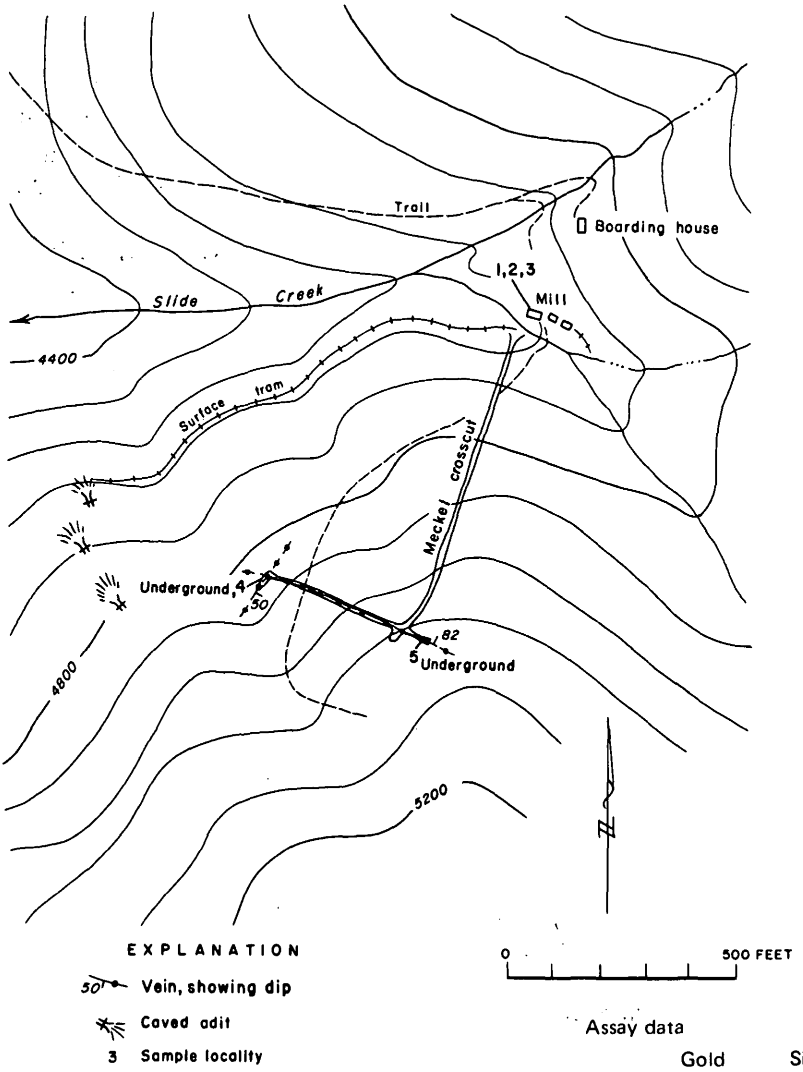
The area is underlain by rocks of the western Paleozoic and Triassic belt, dominantly mafic igneous rocks bounded on the east and west by northwest-trending belts of serpentinite. A small granitic pluton crops out at the summit and northeast side of Mary Blaine Mountain, and four small granitic bodies, alined east-west, are exposed northwest of Old Denny.

The Mary Blaine mine and several prospects on the west side of Mary Blaine Mountain near the summit are in a narrow strip of fine-grained metavolcanic rocks lying between serpentinite on the east and gabbro on the west. Most of the mines and prospects in the Mary Blaine area, including the Boomer, Toughnut, Hunter, Sherwood, and Uncle Sam gold mines, are in metavolcanic rocks and diabase west of the gabbro body, and have a north-northwest linear distribution that suggests some kind of structural control. Several are adjacent to a narrow elongate serpentinite body which may be along a fault zone. Evidence of faulting is apparent in Slide Creek east of Old Denny, where intensely sheared gabbro cut by fine-grained mafic dikes commonly containing pyrite is exposed. The gold mineralization is in quartz veins which are irregular, discontinuous, and frequently vuggy and iron stained to varying degrees.

In view of the low sample values and the remoteness of the area, the deposits of gold in the Mary Blaine Mountain–Old Denny district do not constitute a minable gold reserve under present or foreseeable economic conditions. The assay results from samples of mercury ore from the Cinnabar mine and the widespread distribution of mercury mineralization in that area may justify further systematic prospecting and small-scale exploration on that property.

BOOMER MINE (MOUNTAIN BOOMER)

The Boomer mine (fig. 18) consists of six levels of crosscut adits and drifts (the longest 1,300 feet) spanning approximately 700 feet in elevation. It is reported that some stoping was done on the main vein. Bureau of Mines records indicate that the total production exceeded $136,000, mainly in gold. Most was produced between 1888 and 1901. All but one of the workings, the lowest adit at approximately mill level (indicated as the Meckel crosscut in fig. 18), were caved when examined.



Assay data

Sample No.	Width (feet)	Gold (ounce per ton)	Silver (ounce per ton)
1	Grab	0.43	0.10
2	do	.33	.11
3	do	.12	.05
4	2.8	Tr	-
5	3.3	Tr	.05

Tr Trace.

FIGURE 18. — Workings, Boomer (Mountain Boomer) mine.

The Meckel crosscut follows a discontinuous fracture approximately 640 feet S. 19° W. to the intersection of a strong shear zone. The zone strikes S. 65° E., dips 80° NE., and is partly filled by an irregular quartz vein. It was followed 60 feet eastward and 300 feet westward to the intersection of a highly iron stained gouge-filled fracture, striking S. 35° W. and dipping 50° E., which was followed for 25 feet (fig. 18).

The Boomer mill, on the north bank of Slide Creek, had a battery of three stamps powered by a Pelton wheel, followed either by amalgam plates or blanket tables supplemented by a small-diameter Huntington roller mill followed by Frue vanners (fig. 19). The blacksmith shop adjacent to the mill was extensive, and apparently a snowshed covered the surface tram tracks across the creek and extended at least to the Meckel level.

The three mill samples (1–3, fig. 18) may indicate the grade of the ore mined last in 1913. The veins sampled in the mine are too low grade to be mined economically under present or foreseeable economic conditions.

Toughnut Mine

The Toughnut patented claim is just north of the Boomer property (fig. 17). Recorded production is less than 600 ounces of gold, from a number of small workings in a highly fractured area. Mr. Grover Ladd of New Denny, former owner of the claim, has indicated that mining was difficult and the ore generally moderate to low grade. The last reported production was in 1896.

Sherwood Mine

The Sherwood mine property (fig. 17) is the site of a number of caved adits and surface cuts, with the remains of a small mill. The mill utilized two stamps for crushing and amalgam plates for the recovery of gold but probably operated only during the early years of the mine. Ore produced in later years was transported to the Ridgeway mill (p. 76). Samples were taken from ore piles near the principal adits and mine dumps, some open-pit faces, and the stamp mill feeder. Assay results are tabulated in figure 17 (1–5, 12–15).

The ore minerals apparently are in irregular, discontinuous, iron oxide stained and sometimes vuggy quartz veins and masses in metavolcanic rocks. The mine lies west of a prominent serpentinite mass.

Reported production from the Sherwood property began in 1889 and from that year to 1901 totaled 3,652 ounces of gold and 159 ounces of silver. The production was sporadic after 1901; no sig-

FIGURE 19. — Ruins of Boomer (Mountain Boomer) mill.

nificant amount was reported after 1911. Total output was 4,077 ounces of gold and 201 ounces of silver.

The low assay values obtained from the numerous samples of selected quartz vein material, and the physical characteristics of the veins where observed, indicate that the mine has low potential.

UNCLE SAM MINE

The Uncle Sam mine, a long-abandoned prospect northwest of the Sherwood property, consists of a number of apparently short and caved adits which trace the course of the main mineralized zone in a northerly direction. The zone consists of irregular quartz stringers and masses occurring in the metavolcanics close to the east boundary of a north-south-trending serpentine mass. Rock on the dump is fine-grained metadiabase and, less commonly, hornblende andesite porphyry; both contain a little pyrite.

Two of the select grab samples from the dumps (7, 8, fig. 17) contained minor amounts of gold and silver. The rest contained little or no gold and insignificant amounts of silver.

Lucky Strike Mine

The Lucky Strike mine is on a tributary of Battle Creek, approximately 5,000 feet west of Dees Peak (fig. 17). There is no record of production. The mineralized structure is exposed in the upper 140-foot adit and a shallow trench; the lower adit is caved. An irregular quartz vein that strikes northwest and dips steeply northeast lies mainly on the footwall side of a gouge-filled and altered zone that cuts metavolcanic rocks and hornblende diorite. The metavolcanic rocks and diorite are adjacent to serpentinite. The three samples (27–29, fig. 17) were taken from the quartz vein and altered zone exposed in the adit and the trench. The best sample value was 0.17 ounce of gold per ton.

Hunter Mine

The Hunter mine lies approximately 1,200 feet southwest of White Rock City site, close to the west boundary of a north-south-trending serpentine mass. The ore minerals are in a milky-white somewhat vuggy quartz vein that cuts a dark fine-grained altered diabase. The strike of the vein, from the visible outcrop and the location of the two caved adits, is N. 20° E. The reported production, 198 ounces of gold and 15 ounces of silver, apparently came from this vein. Production was sporadic, beginning in 1892 and ending in about 1905. A select grab sample taken from a stockpile of quartz and pyrite-rich altered rock, on the lower Hunter dump (16, fig. 17), contained 0.72 ounce of gold and 0.20 ounce of silver per ton. A sample (G52, table 1) from a slab of vein material 6 inches wide contained 4.3 ppm gold by atomic absorption and 2,000 ppm arsenic by spectrographic analysis.

Ridgeway Mill Area

The Ridgeway mill, approximately 900 feet southwest of the site of Marysville, was apparently a custom mill for a number of mines in the vicinity, as well as for concentrating ore from the Ridgeway mine. Long since collapsed, its remaining equipment indicates that the ore was crushed in a 10-stamp mill and the concentrate recovered on steam-powered Frue vanners. A road suitable for light trucks extends from the Sherwood mine, past the Hunter mine, to the ore bin site at the Ridgeway mill.

No evidence of any old dumps was found near the millsite; however, reports made during the period of operation of the Ridgeway mine indicate that 400 feet of drifts were driven from a 200-foot inclined shaft (O'Brien, 1965, p. 77). One ore shoot, in diabase country rock, was reported to have been 200 feet long and approximately 1 foot wide. Little production is on record. A grab sample (23, fig. 17) consisting of vuggy quartz, heavily stained with iron oxide, was taken from an ore pile on the westernmost dump of three short adits on Carey Ridge, believed to be on the Ridgeway property. It assayed 0.36 ounce of gold and 0.21 ounce of silver per ton. The veins that remain are apparently narrow, discontinuous stringers in diabase country rock.

HARD TACK MINE

Caved workings found at sample location 22 (fig. 17) are believed to be the Hard Tack mine. At the lowermost of two dumps is a collapsed tram headworks including two bullwheels, 4 and 6 feet in diameter, and two smaller sheaves near a bin. What appears to be a skidroad is evident in the direction of the Ridgeway mill.

The Hard Tack mine reportedly produced 873 ounces of gold over the 9-year period from 1888 through 1897. There was no evidence of an ore pile or quartz-rich material in the bin, so a grab sample (22) was taken from the dump; it assayed only a trace of gold and 0.05 ounce of silver per ton.

RUSTY PROSPECT

The Rusty prospect lies below the Mary Blaine mine on the shoulder of Mary Blaine Mountain, approximately 2,800 feet from the summit. The workings consist of an opencut, a caved adit, and an inclined shaft on a quartz-filled fracture zone striking N. 45° W., dipping 60° NE. There is no record of production.

The Rusty workings are inaccessible, so samples were taken from a dump and bin in a small primitive mill. One, sample 17 (fig. 17), was taken from a pile of iron oxide-stained quartz on the lower dump, the other, sample 18, from what appears to be a concentrate bin in the mill. Sample 18 assayed 8.56 ounces of gold and 1.08 ounces of silver per ton; nevertheless, the deposit is probably small and not a potential gold resource.

MARY BLAINE MINE

The Mary Blaine mine is on the shoulder of Mary Blaine Mountain, approximately 1,500 feet S. 75° W. of the summit, at an altitude of approximately 6,500 feet. The workings consist of one caved shaft, a number of caved adits, and prospect cuts. One adit was open. There is no current activity; the latest affidavit of assessment work was filed in 1954.

Production from the mine, recorded during the years 1895 through 1897, totaled over 435 ounces of gold.

The country rock is fine-grained finely layered metavolcanic rock cut by dikes of fine-grained diabase and porphyritic gabbro. The mineralized zone is close to the west contact of a large body of serpentinite on Mary Blaine Mountain.

Fragments on the dump of the caved shaft consist of metavolcanic rock and sheared serpentinite. In the east wall of the caved shaft, a nearly vertical shear zone 6–18 inches wide in diabase strikes N. 75° W. A sample (G25, table 1) cut across the shear zone contained only a trace of gold.

Atomic absorption analysis of a sample of quartz (G24, table 1) from the dump of a small caved adit approximately 400 feet northeast of the caved shaft at the Mary Blaine mine revealed 17 ppm gold.

The open adit was driven on a 2-foot-wide shear zone containing a 1-foot quartz vein. Sample 20 (fig. 17), a 1-foot chip across the quartz vein at the face of the drift, assayed a trace of gold and no silver. Sample 19, taken across 1 foot of the vein 15 feet from the face, assayed 0.28 ounce of gold and 0.05 ounce of silver per ton.

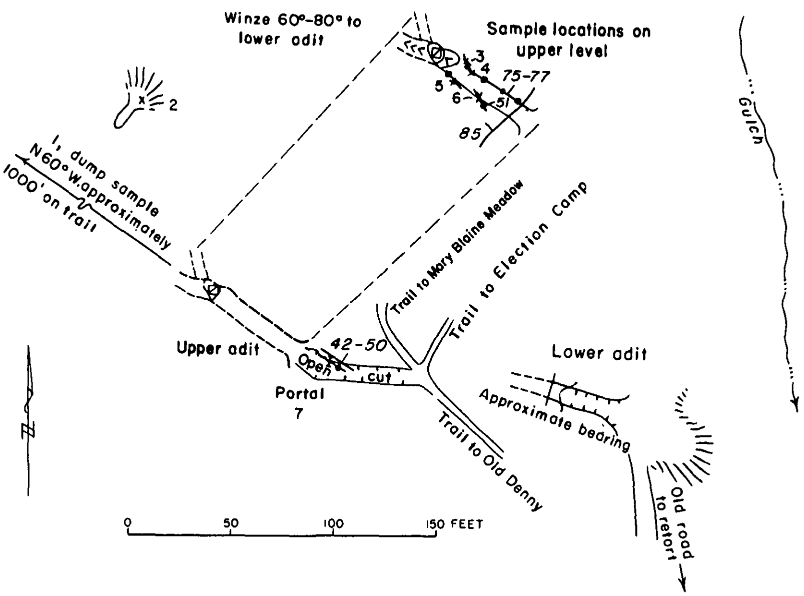
Three caved adits or prospect trenches with small dumps are approximately 500 feet southwest of the Mary Blaine shaft. One, about 20 feet long, is on a shear zone with a 1- to 3-inch-wide quartz vein that strikes N. 30° W. and dips 40° NE. A sample from this vein (G27, table 1) contained 0.04 ppm gold by spectrographic analysis; a sample from another narrow vein striking N. 45° W. and dipping 75° NE., exposed in a nearby cut, contained 1.1 ppm gold and 1.3 ppm mercury. A sample of fine-grained metavolcanic country rock from these prospects (G29, table 1) contained no anomalous amounts of any metal.

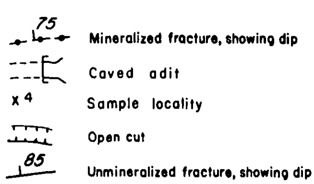
Approximately 100 feet farther south another small caved adit or trench explores a narrow vein or shear zone that strikes N. 45° W. and dips 40° NE. Only the footwall is exposed, which is a brown, iron oxide stained metavolcanic rock that contains some carbonate and scattered sulfide minerals. A sample from the shear zone (G30, table 1) contained 3.5 ppm mercury, but no gold. A sample of quartz (G31, table 1) from the dump of this prospect contained 0.8 ppm gold and 1.6 ppm mercury.

CINNABAR MINE (ESTHER OR BLUE JAY MINE)

The Cinnabar mine is the more highly mineralized of the two mercury prospects in the Mary Blaine Mountain area. The property is on the trail from Mary Blaine Meadow to Old Denny and on the south slope of Mary Blaine Mountain (fig. 17). Although records are meager, 10 flasks of mercury (76 lbs each) are reported to have been produced using a primitive, wood-fired vertical retort. An upper adit was driven from the end of an opencut, with a winze connection to a lower caved adit about 42 feet below (fig. 20).

The country rock consists of highly sheared serpentinite. It is in contact with metavolcanic rocks nearby. In the upper adit a





Assay data

Sample No.	Width (feet)	Mercury (pounds per ton)
1	Grab	0.6
2	do	1.3
3	2.0	11.7
4	2.0	.7
5	6.0	.2
6	Grab	.5
7	2.0	4.6

FIGURE 20. — Workings, Cinnabar mine.

5- to 6-foot-wide steeply dipping shear zone striking approximately N. 55° W. is cut by many iron-stained commonly gouge filled fractures and irregular bodies and veinlets of fine-grained chalcedonic silica and hard silica-carbonate rock. Cinnabar occurs in the silica masses and iron-stained fractures but is not visible in the gouge. Approximately 1,000 feet N. 60° W. from the adits, possibly on an extension of the same fracture zone, a sample from the dump of a prospect pit contained mercury.

Five samples taken in the upper adit (fig. 20) and weighted by width assayed from 0.2 pound to 11.7 pounds mercury per ton, the average being 2.93 pounds per ton. The sample from the dump of the prospect pit contained 0.6 pound mercury per ton.

The Cinnabar deposit has potential as a small-scale mercury producer, if it could be selectively mined and if the mineralized zone is continuous between underground and surface workings. Its resources are estimated to be on the order of 20,000 to 50,000 tons of mineralized material. Further exploration might discover mercury minerals between the adits and the prospect pit to the northwest. The Cinnabar mine and the Carey Ridge mercury prospect in the Old Denny area described below appear to be two separate areas of mercury mineralization.

Carey Ridge Mercury Prospect

The Carey Ridge No. 1 and No. 2 claims were located for mercury in August 1955. The diggings are an opencut on Carey Ridge approximately 100 yards west of the junction of the Old Denny–White Rock City trail, and a short adit, its portal approximately 500 feet south of the trail junction (fig. 17). The adit was driven on a zone of minor irregular fractures in metavolcanic rocks. The fractures contain thin seams of gouge bearing small amounts of cinnabar. No mercury has been produced.

Samples from the adit (25, 26, fig. 17) contained less than minable concentrations of mercury, and a composite sample cut from the walls of the surface trench on Carey Ridge contained none at all. There are no strong fracture zones or altered areas nearby.

Placer Deposits

Placer gold production is recorded from only one deposit in the upper reaches of either Slide Creek or Battle Creek in the Mary Blaine Mountain area. The Boyd placer mining claim on Emigrant Creek, a tributary of Slide Creek near Edmonds Cabin, produced approximately 200 ounces of gold over the 4-year period 1904–7. Evidence of workings in the vicinity of this claim could not be found. Samples were taken, however, at bedrock exposures in other areas where mining evidently had been done in the past or where gravel exposures on the bedrock benches looked favorable for gold deposition. Recoverable gold in these samples was found to be far below values that would be commercially minable. It is believed that no placer gold resources exist in the upper reaches of Battle Creek and Slide Creek.

PLUMMER CREEK AREA

Plummer Creek, a steep, fast-flowing tributary of the South Fork Salmon River, drains the northeast side of the Mary Blaine Mountain–Dees Peak divide (fig. 12). There are no known lode deposits within the part of the drainage included in the study area. However, two prospects, the Skidoo and the Monarch, are in the Methodist Creek drainage about 1½ miles west of the study area. Both prospects explore narrow quartz veins in ultramafic rocks. Vein samples contain from 0.14 to 0.86 ounce gold per ton. Both prospects are probably on the same vein system, which might extend into the study area.

Placer Deposits

The Plummer Creek placer, owned by Robert Vinson, Portola, Calif., is composed of five placer claims near the confluence of Plummer Creek and South Fork Salmon River. Gray Eagle Nos. 1 and 2 and Trident claims are on Plummer Creek, within the study area; Seven Sisters and Ragged Sage claims are on South Fork Salmon River, largely outside the study area. Access to the property is by private cable crossing over South Fork Salmon River near the mouth of Plummer Creek and by 1 mile of foot trail.

This part of Plummer Creek was mined hydraulically for gold. Virtually no bench gravel remains, except for about 100,000 cubic yards of gravel near the mouth of the creek. Mr. Vinson uses a suction dredge coupled with a sluicebox to wash stream channel gravel. Although only a few ounces of gold have been produced during the last 5 years, he has recovered gold nuggets as long as 1 inch.

The limited volume of gravel remaining in the bars indicates that placer deposits in the Plummer Creek drainage could not be mined profitably.

The Maybe So placer claim, owned by Vincent Elliot and Robert Royes of Fork of Salmon, Calif., is in unsurveyed sec. 22, T. 38 N., R. 12 W. The claim is on the northeast side of South Fork Salmon River, about one-half mile outside the study area. The property is reached by a short stretch of road from the Forks of Salmon–Cecilville road.

Placer gold occurs in unmined remnants of previously mined gravel terraces. About 10,000 cubic yards of terrace gravel remain. Two small pits have been excavated recently. A sample, taken on bedrock, contained less than $0.10 per cubic yard in gold.

EAST FORK NEW RIVER

The drainage of the East Fork New River (fig. 21) includes one lode deposit of copper and a number of placer mining claims within the study area. The relatively accessible area along the main stream and major tributaries has been extensively prospected for gold placers, and a significant amount of hydraulic placer mining and gold sluicing has been done in the past, mainly before 1900. The majority of bars are covered by placer claims. The recorded production from placer operations in the East Fork and tributaries totals 310 ounces of gold; an undetermined quantity of byproduct silver was produced. Production was probably greater than that actually recorded.

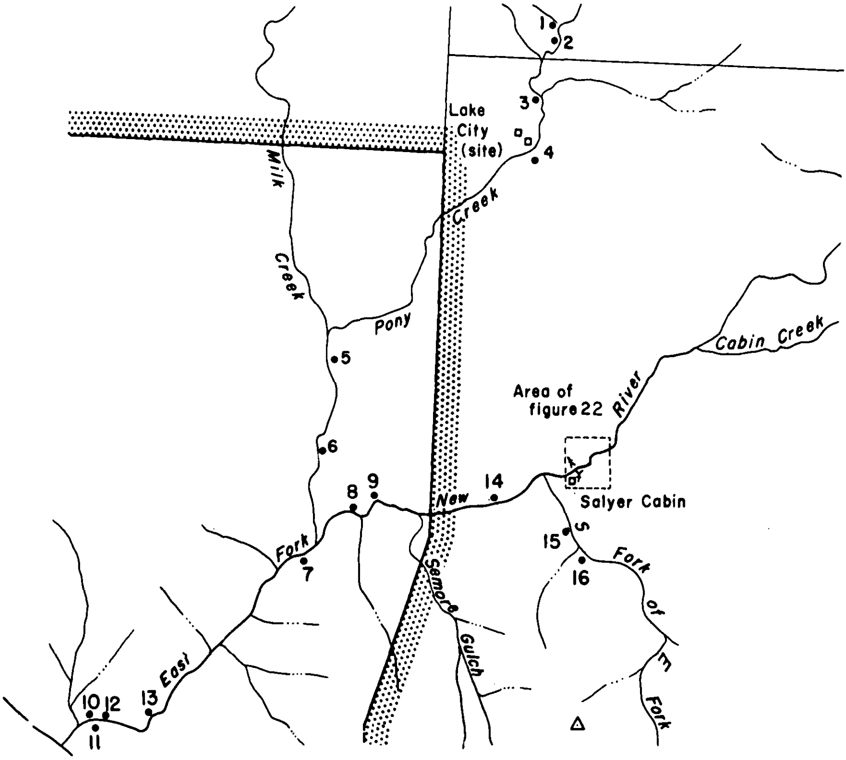
An automobile can be driven to a point about 2½ miles above the mouth of the river. A good trail extends up the East Fork.

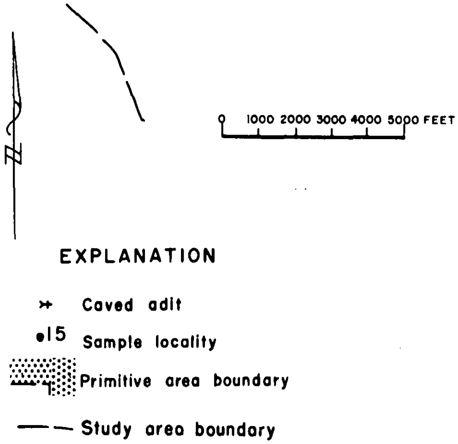
The East Fork New River drains an area underlain by metavolcanic, metasedimentary, and ultramafic rocks. Most bedrock benches along this fork are 10–25 feet above stream level and are overlain by 5–12 feet of gravel. The placers are generally narrow and of limited volume because of the steep canyon walls and moderately steep stream gradients. In some sections of both the East Fork New River and Pony Creek, the stream flows through narrow gorges where there is no gravel. Conditions for small-scale hydraulic mining were ideal except where a large percentage of massive boulders must have made hydraulic mining difficult.

Most samples (fig. 21) were taken from placer gravels lying on exposed bedrock. Some, particularly those collected in the Pony Creek area, were taken from undisturbed banks and did not always reach bedrock. For these, depth to bedrock was estimated. The recoverable gold in the placer samples, determined by amalgamation of concentrates, was far below any economically minable limit.

SALYER COPPER PROSPECT

The only known lode deposit in the East Fork New River area is the Salyer group of claims, the High Grade and Teressa lode claims, and the Mill Site placer claim on East Fork New River (figs. 12, 21). The claims were located in 1945, approximately 5 miles from the end of the East Fork New River road.





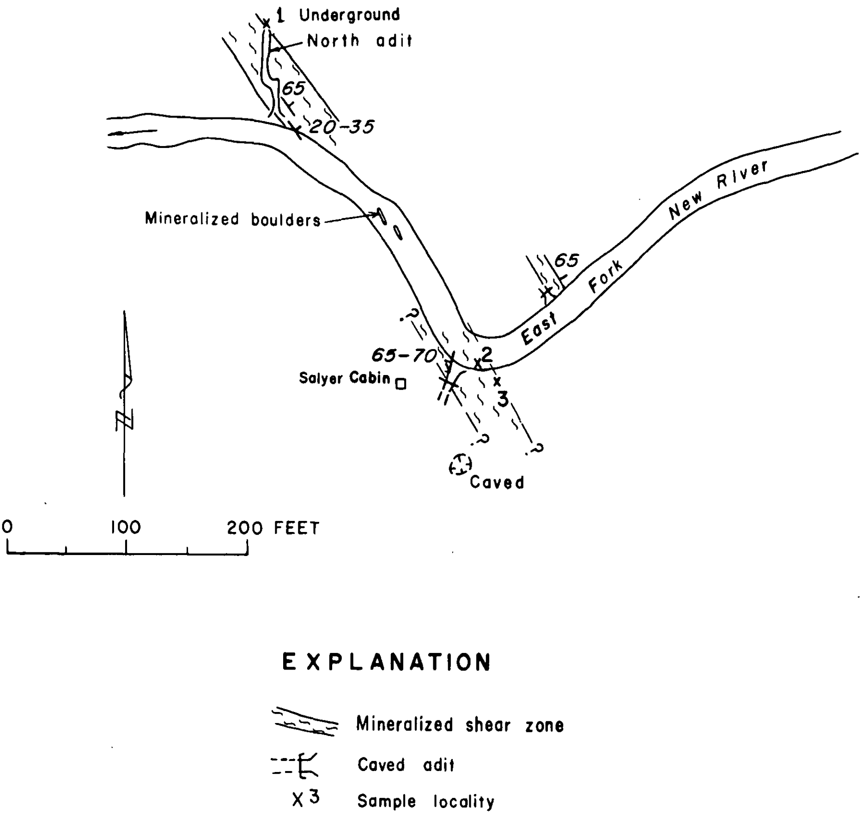
Assay data

Sample No.	Depth (feet)	Gold (cents per cu yd)
1	2.0	1.6
2	1.5	1.4
3	1.5	.3
4	2.3	.1
5	1.5	Tr
6	1.5	.6
7	2.4	-
8	1.5	-
9	1.5	.05
10	2.0	-
11	2.0	2.0
12	3.0	-
13	[1] 1.25	3.0
14	2.5	-
15	1.5	-
16	1.5	.5

[1] Square yards of bedrock.
Tr Trace.

FIGURE 21. — Prospects in the East Fork New River area.

An irregular shear zone as much as 40 feet wide strikes N. 30°–40° W. and dips 20°–65° NE. The shear zone crops out in the banks at river level, and the stream follows the trace of the weakened zone for approximately 300 feet (fig. 22). The country rock is hard fine-grained massive greenstone. In and adjacent to the fractured zone, it is sheared and chloritized. In places relic



Assay data

Sample No.	Length (feet)	Gold (ounce per ton)	Silver (ounce per ton)	Copper (percent)
1	2.0	Tr	0.16	0.4
2	3.3	Tr	.22	.8
3	(placer sample)	Tr		

Tr Trace.

FIGURE 22. — *Salyer copper prospect.*

pillow structures can be seen. Sulfide minerals and quartz occur in lenses and veinlets in the fracture zone. The principal sulfides are pyrite and pyrrhotite. Copper minerals are chiefly chalcopyrite and minor cubanite, with malachite on weathered surfaces.

The workings consist of an adit driven along mineralized planes in the shear zone on the north bank of the river, a caved adit apparently driven on a mineralized stringer on the south bank, and a third short adit driven on a narrow zone 100 feet northeast of the south adit.

The shear zone can be traced 400 feet along strike from the face of the north adit to near the caved south adit. Large boulders of mineralized rock containing pyrite and chalcopyrite lie in the stream approximately halfway between the north and south adits. A 2-foot chip sample across a mineralized section of the north adit (1, fig. 22) assayed 0.4 percent copper and 0.16 ounce silver per ton. A 3-foot chip sample (2, fig. 22) across a mineralized outcrop a few feet east from the south adit portal contained 0.8 percent copper and 0.22 ounce silver per ton. A selected sample (J56, table 1) of pyrite, chalcopyrite, and quartz from the southeast end of the vein at river level contained 70 ppm silver, 100 ppm molybdenum, and 1,000 ppm zinc, by spectrographic analysis, and copper in excess of the upper limit of the analytical method (more than 20,000 ppm). In addition, the sample contained 0.3 ppm gold by atomic absorption analysis and 4 ppm mercury. The copper content of the entire zone is estimated to be less than 0.1 percent; however, a few hundred tons of material containing more than 1 percent copper is probably present.

The other mineralized zone on the north side of the river northeast from the south adit (fig. 22) is only about 13 feet wide and appears to contain less copper.

Gravel was sampled at a point approximately 30 feet east from the portal of the south adit (3, fig. 22). Panning showed no visible gold, but a trace was obtained by amalgamation of the black sand concentrate.

Several samples of veinlets, stained fractures, and bedrock northeast and southwest of the vein (J57–J67, table 1) showed no significant mineralization, and no outcrops or float of mineralized rock or gossan were found on strike of the vein on the slopes north and south of the river. Results of diamond drill-hole exploration by the Cal Op Company, Inc., in 1953 were discouraging (O'Brien, 1965, p. 21).

On the basis of available data, the Salyer deposit does not represent an economically minable copper resource, and the placer gravels do not contain sufficient gold to be mined economically.

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PONY MOUNTAIN AREA

Pony Mountain is on Limestone Ridge between the New River and North Fork Trinity River drainages (fig. 12). Chromite was reported to occur at Ladder Camp, south of Pony Mountain, and at Jake's Lower Camp northwest of Pony Mountain. Access to Ladder Camp is by jeep road by way of Green Mountain. Access to Jake's Lower Camp is by about 2 miles of trail from logging roads on Jim Jam Ridge. The area is underlain by a northwest-trending zone of serpentine, bordered by metasedimentary rocks on the west and metavolcanic rocks on the east. Seven pits were found and sampled. All apparently were excavated to explore for chromite. All but two contained less than 0.05 percent chromium.

NORTH FORK TRINITY RIVER AREA

The North Fork Trinity River is a major drainage which empties into the Trinity River at Helena, 16 miles west of Weaverville. The North Fork flows almost due south and drains a large area of metamorphic rocks. Two major tributaries, Grizzly Creek and Rattlesnake Creek, begin in granitic rocks in the western part of the Trinity Alps and flow westward through metamorphic rocks of the Salmon and Abrams Formations. Shorter tributaries west of the main stream drain areas underlain by serpentinite and metavolcanic and metasedimentary rocks of the western Paleozoic and Triassic belt. The stream has a gradient of about 75 feet per mile.

Access to the study area via the North Fork is by road 18 miles from Helena to a locked Forest Service gate at Hobo Gulch, at the boundary of the study area. A dirt road extends into the study area for about 10 miles to Browns placer mine on Rattlesnake Creek (fig. 23).

There are a few lode gold prospects at the headwaters of Rattlesnake Creek and a quartz crystal claim about one-half mile outside the study area. The quartz crystals were reported to be of "high density and good quality," but none were found in place.

There is no evidence of a major placer mining operation on the section of the North Fork shown in figure 23 and no records of production from any mine except the California Keystone placers, which operated for a short period around 1946 on bench gravels at the mouth of Backbone Creek. There are, however, numerous widely spaced test pits along this 12-mile section of the river.

There are 29 bench deposits between Hobo Gulch and Morrison Cabin bar. Individually, they contain from 5,000 to 200,000 cubic yards of gravel; collectively, they contain a total of about 3 million cubic yards. Width of the bottom of the valley ranges from 40 to

600 feet and averages about 300 feet. The benches average about 200 feet wide, and hillside slopes are about 30°. Tailings disposal has often been a problem because bedrock is often near stream levels. Ten of the deposits were found to be covered by mining claims, four by more than one claim.

Most of the gold obtained by sampling consisted of fine particles (fig. 24). Particles increased in size below Rattlesnake Creek, but none were large enough to be considered "specimen gold." The only samples that contained more than a few cents in gold per cubic yard were taken from the streambed or from crevices in bedrock. Channel samples of bench gravel, taken to bedrock, contained $0.01–$0.29 in gold per cubic yard; weighted average was $0.07 per cubic yard. Bench gravel samples that did not reach bedrock averaged $0.02 per cubic yard. Bench samples from bedrock with little overburden contained as much as $1.79 in gold per cubic yard and averaged $0.29 per cubic yard. Some with little overburden were within the zone of influence of normal spring runoff. Samples of present-day stream gravels contained as much as $14 in gold per cubic yard in small concentrations north of Rooster Flat and on the Lee and B claim south of Rooster Flat. Gold content was sufficient to warrant taking a number of samples to determine the horizontal extent of concentration. In each instance, the horizontal extent of concentration was found to be small; values decreased within a few feet of the site. Concentrations such as these might yield $5 worth of gold in 1 man-day, but they are small and hard to find.

The larger flats along the streams are covered with Douglas-fir and underbrush, obstacles to placer mining.

JORSTAD PLACER (PIPER FLAT)

The Jorstad placer is on Piper Flat, which begins less than one-fourth of a mile downstream from the junction of Grizzly Creek with the North Fork Trinity River (fig. 23). It consists of gravel bars in a relatively wide stream valley and extends at a fairly uniform and gentle gradient approximately 5,000 feet downstream. The present stream is along the west side of the valley in the upstream part of the flat but along the east side in the downstream part. The old stream channel beneath the existing gravel is visible below the Jorstad Cabin, and the junction of the old channel with the existing channel is about half a mile downstream from the cabin. The average thickness of the gravel is estimated to be 8 feet; the thickness may be as much as 12–14 feet above the old channel.

Although there is no recorded production from the Jorstad claims, George Jorstad, the present claimant, has produced small

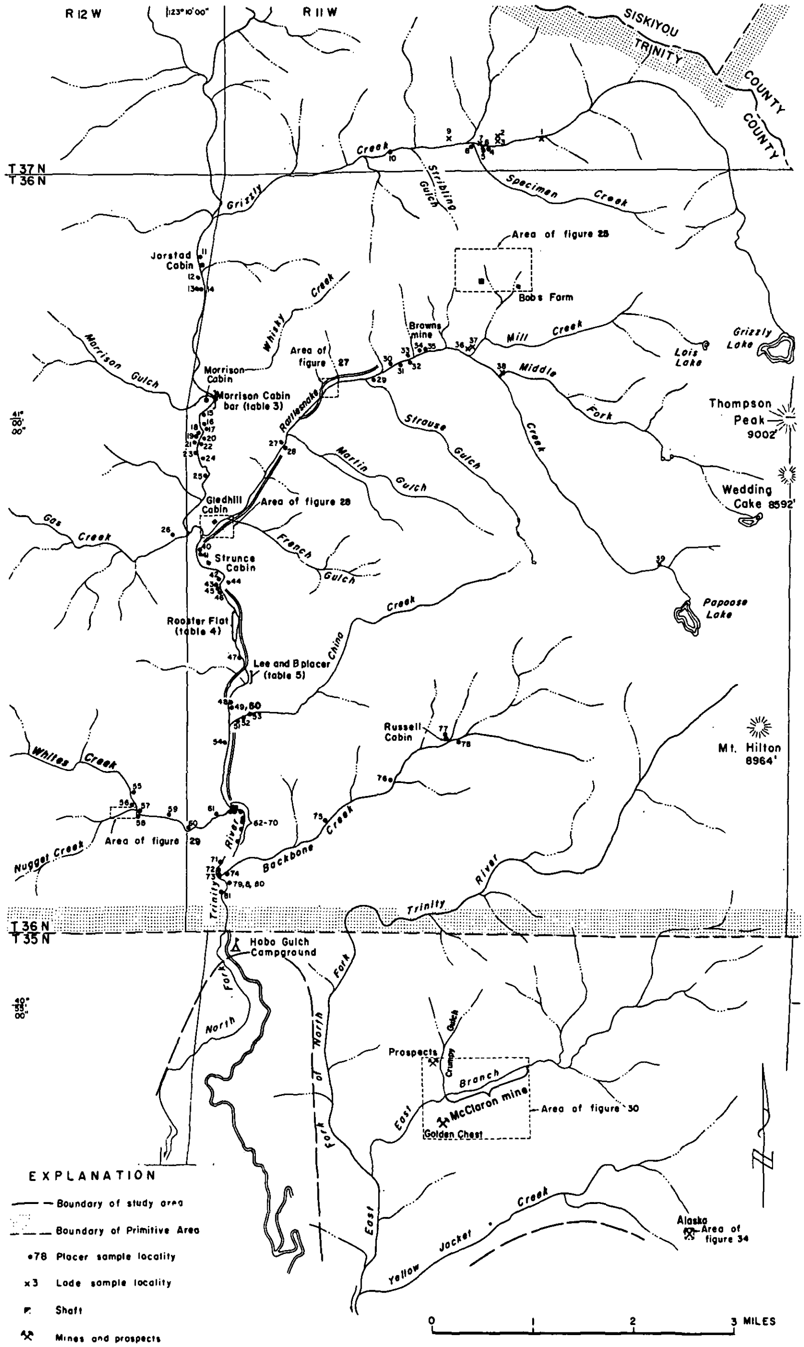


FIGURE 23. — Mines, prospects, and sample

		Assay data		
Sample No.	Depth (feet)	Gold (cents per cubic yard)	Gold (ounce per ton)	Silver (ounce per ton)
1	4.0	0.8	-	-
2	.5	-	Tr	-
3	.5	-	Tr	-
4	2.0	18.0	-	-
5	4.0	2.4	-	-
6	.5	-	Tr	-
7	.5	-	Tr	-
8	.5	-	Tr	-
9	Grab	-	Tr	-
10	1.0	236.0 ($2.36)	-	-
11	2.0	14.9	-	-
12	4.0	1.4	-	-
13	1.7	459.0 ($4.59)	-	-
14	2.7	42.0	-	-
15	3.0	.3	-	-
16	Grab	2.8	-	-
17	1.0	12.2	-	-
18	4.0	6.1	-	-
19	.5	71.4	-	-
20	2.0	-	-	-
21	3.0	1.8	-	-
22	2.0	178.6 ($1.79)	-	-
23	[1] .1	1.2	-	-
24	[1] .1	77.9	-	-
25	[1] .1	Tr	-	-
26	3.0	.2	-	-
27	2.5	Tr	-	-
28	3.5	1.1	-	-
29	([2])	4.7	-	-
30	3.0	8.1	-	-
31	2.5	375.5 ($3.76)	-	-
32	2.5	56.6	-	-
33	2.5	.4	-	-
34	3.0	3.8	-	-
35	2.5	40.1	-	-
36	Grab	-	-	-
37	do	-	.31	.16
38	.5	-	-	-
39	Grab	-	-	-
40	.1	21.3	-	-

See footnotes on following page.

localities in the North Fork Trinity River area.

Assay data

Sample No.	Depth (feet)	Gold (cents per cubic yard)	Gold (ounce per ton)	Silver (ounce per ton)
41	.1	23.2	-	-
42	2.0	.1	-	-
43	.1	.2	-	-
44	3.0	Tr	-	-
45	Grab	1.5	-	-
46	do	.4	-	-
47	do	-	-	-
48	do	1.5	-	-
49	20.0	4.5	-	-
50	[1] 3.5	39.8	-	-
51	.1	121.5 ($1.21)	-	-
52	1.0	.4	-	-
53	1.0	3.0	-	-
54	20.0	2.6	-	-
55	Grab	Tr	-	-
56	do	-	-	-
57	do	-	-	-
58	do	-	-	-
59	do	-	-	-
60	do	-	-	-
61	do	-	-	-
62	do	-	-	-
63	do	-	-	-
64	do	-	-	-
65	do	-	-	-
66	do	-	-	-
67	do	.1	-	-
68	do	-	-	-
69	.1	168.3 ($1.68)	-	-
70	.1	1.7	-	-
71	2.0	3.0		
72	Grab	-	-	-
73	.1	Tr	-	-
74	5.0	18.3	-	-
75	Grab	9.5	-	-
76	do	493.0 ($4.93)	-	-
77	3.0	Tr	-	-
78	Grab	17.8	-	-
79	do	8.4	-	-
80	3.0	-	-	-
81	4.0	-	-	-

[1] Square yards of bedrock sampled to show what gold was deposited on bedrock.

[2] Measured volume of gravel from depression in bedrock of active stream. Depth measurement not significant in this instance.

Tr Trace.

FIGURE 23. — Continued.

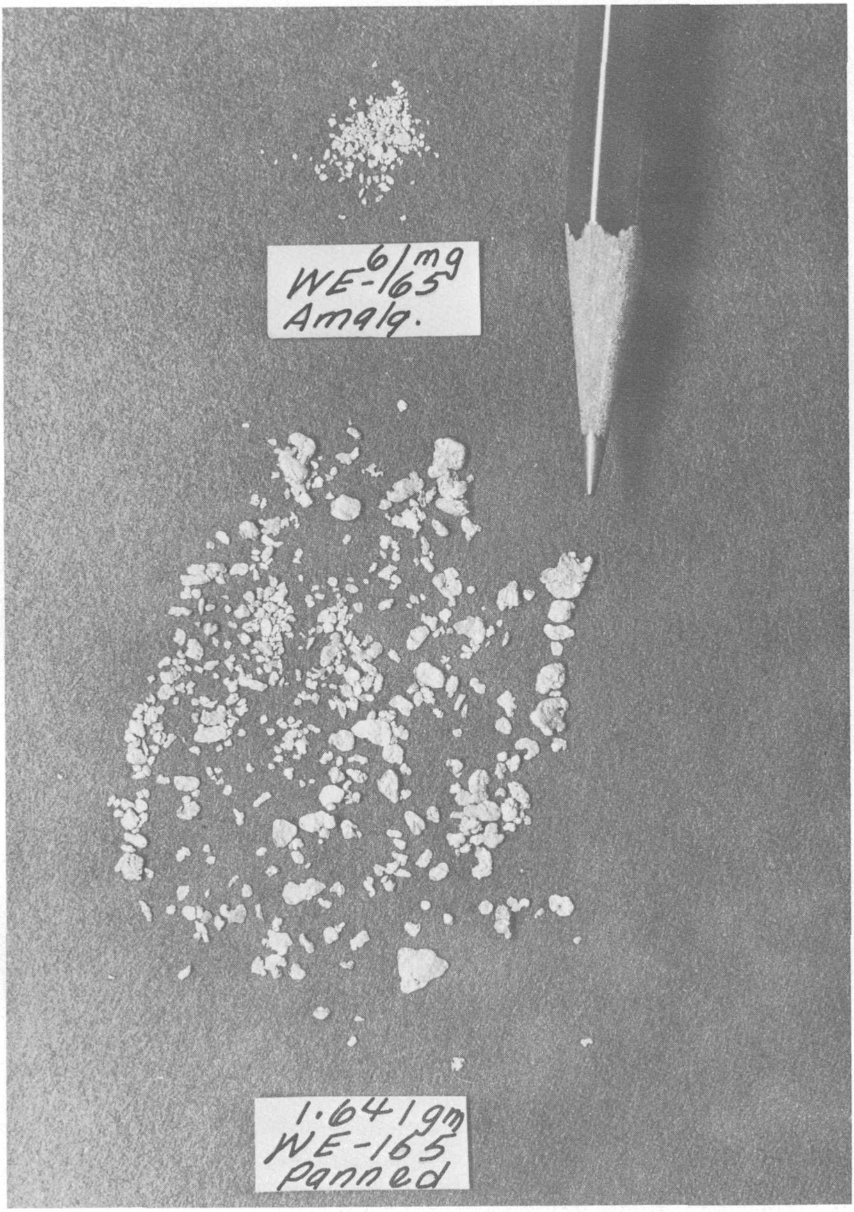


FIGURE 24. — Typical placer gold from North Fork Trinity River.

quantities of placer gold from the property during each mining season since 1934.

Results of sampling indicate that gold is erratically distributed and that the richest gravel occurs at and close to bedrock. Sample results indicate that values in the deposit are higher than the average for the North Fork Trinity River.

Resources of this section of the river are estimated to be one-half million cubic yards of gravel averaging perhaps 10 feet thick. Samples from 2.5 to 4 feet above bedrock averaged $1.29 in gold per cubic yard. Selective placer mining is probably economically feasible.

MORRISON CABIN BAR

Morrison Cabin bar is on the North Fork Trinity River about 6 miles upstream from Hobo Gulch camp (fig. 23). Claims have been worked intermittently for more than 40 years and are now held by Steven R. Heady of Medford, Oreg. The deposit is principally bench gravel on the west side of a bend in the river. Very little evidence of mining was seen, and there is no history of production. Seven channel samples of bench gravel (table 3), all

TABLE 3. — *Assay data, Morrison Cabin bar*

Sample No.	Depth (ft)	Gold (cents per cu yd)
1	12	10
2	Grab	1
3	2.1	2
4	1.6	4
5	1.7	13
6	2.0	29
7	1.8	4

taken to bedrock, contained an average of $0.10 in gold per cubic yard.

Available data indicate that the deposit has very little or no potential as a gold resource.

ROOSTER FLAT

A small deposit of gold-bearing gravel was sampled about 4 miles north of Hobo Gulch camp. The occurrence is across the river and north of Rooster Flat and is not held under mining location (fig. 23). It is typical in size and gold values of present stream gravel under ideal conditions of deposition.

Of the eight samples of gravel taken from the deposit, only sample 3 (table 4) from a small pocket of less than 1 cubic yard, contained a value of consequence. One pan of sample 3 averaged $9 per cubic yard, but the whole averaged $2.80. The deposit is

TABLE 4. — *Assay data, Rooster Flat*
[Tr., Trace]

Sample No.	Type or length (ft)	Gold (cents per cu yd)
1	Bedrock crevice	Nil.
2	do	Tr.
3	Grab	$2.80
4	Grab behind boulder	Nil.
5	do	Tr.
6	Bedrock crevice	Nil.
7	11 (terrace gravels)	11
8	Grab	Nil.

not a potential resource of gold, but the type of concentration is typical of those available for recreational mining.

LEE AND B CLAIM

The Lee and B claim is on the North Fork Trinity River 2½ miles upstream from Hobo Gulch camp (fig. 23). The claim is at a bend in the river where a small concentration of gold was found in stream gravel. The entire bar covers about 1,000 square yards of bedrock surface and contains only a few cubic yards of placer gravel. A tributary stream with accompanying alluvial fan from the west intersects the prospect.

One pan of fine sedimentary material from fractures in bedrock assayed $14 in gold per cubic yard. Two 4-foot channel samples of the shallow bench gravels, including the fractured surface of bedrock, contained $1.45 in gold per cubic yard (table 5). A 20-

TABLE 5. — *Assay data, Lee and B claim*

Sample No.	Type or depth (ft)	Gold (cents per cu yd)
1	Grab, behind boulder	Nil.
2	Grab, segment of bedrock	Do.
3	Grab, present stream gravels	86
4	Grab, below falls	14
5	4, channel	$1.45
6	20, channel	<1
7	Grab, behind boulder	30

foot channel of the alluvial fan material contained less than $0.01 per cubic yard. The resulting average value of all gravel is less than $0.30 per cubic yard, and the deposit is not minable under prevailing economic conditions.

GRIZZLY CREEK AREA

Grizzly Creek begins at a small glacial lake on the north slope of Thompson Peak (fig. 23). It flows northerly parallel to the Trinity-Siskiyou County line for about 3 miles, then westerly about 4 miles to join the North Fork. About 2 miles of this course was intensively worked for placer gold. Access is by about 12 miles of dirt road and trail from the end of the road at Hobo Gulch camp.

Grizzly Creek is a young stream with many small benches 10–20 feet above the creek level, ideally suited to ground sluicing or small-scale hydraulicking. The entire creek bottom bears scars of exploration, but the portions worked intensively are the Molitor mine at the confluence with Specimen Creek and the Lorenz mine near Stribling Gulch. Both these mines passed their peak about the turn of the century. In the area of the Lorenz mine, the bars have been worked to the toe of the slope wash. The Molitor mine was reportedly worked occasionally until the 1940's; no records of production, however, are available.

Specimen Creek, a major tributary of Grizzly Creek, reportedly contained considerable coarse gold. A seven-pan sample of stream gravels contained less than $0.03 in gold per cubic yard. Grizzly Creek reportedly contained little or no gold beyond a point three-fourths mile upstream from the mouth of Specimen Creek. Bedrock in this area consists of Salmon Hornblende Schist and is cut by many quartz veins and pods, some of which contain sulfides, including chalcopyrite. Six veins were sampled in this area, but none contained more than a trace of gold and none contained silver. Remnants of gravel at the Molitor mine generally contain less than $0.10 in gold per cubic yard. The best sample, taken at the trail crossing near the mouth of Specimen Creek, was off bedrock about 4 feet above the creek level. It contained $0.18 per cubic yard.

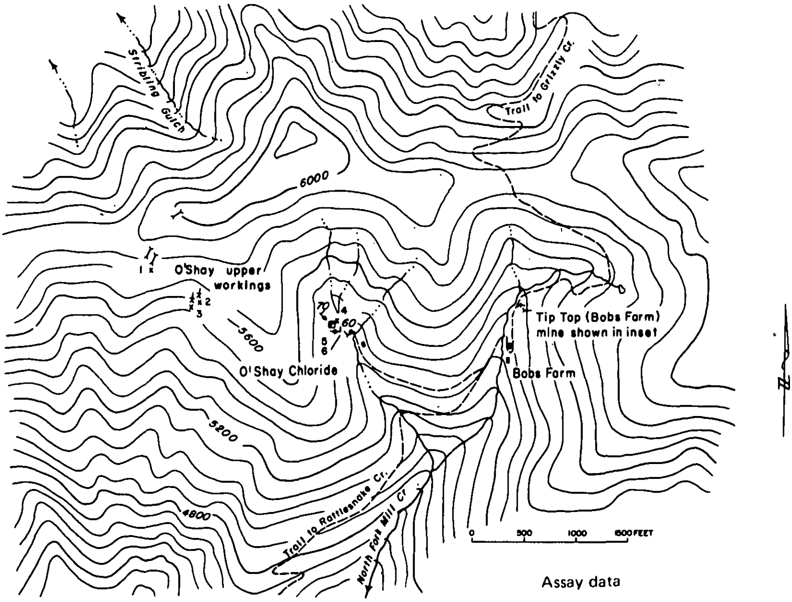
Between the mouth of Specimen Creek and the Lorenz mine all of the bars have been worked out except where covered by an excessive amount of slope wash. The remaining material, including overburden, contains less than $0.10 gold per cubic yard.

A stretch of bedrock near the mouth of Stribling Gulch was evaluated by crevicing (collecting gold from crevices in bedrock). Six "creviced" pans collected at sample site 10 (fig. 23) contained 99.16 milligrams ($0.10) gold.

No gravel or mineralized material of minable grade was found in the Grizzly Creek drainage.

RATTLESNAKE CREEK

The only lode mine locations that could be identified within the area of the main North Fork drainage were on the tributaries of Rattlesnake Creek in the vicinity of Bobs Farm. Workings consist of isolated prospects apparently in unrelated mineralized areas (fig. 25). The major workings are believed to be the old Tip Top (Bobs Farm).



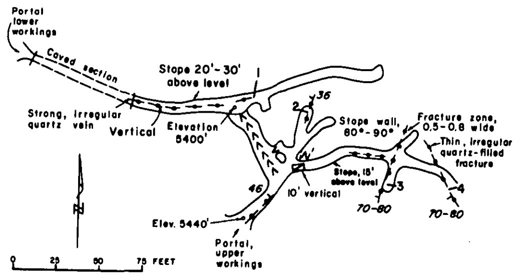
EXPLANATION

- 60 Vein, showing dip
- Shaft
- Adit
- Caved adit
- Trench
- x3 Sample locality

Assay data

Sample No.	Width (feet)	Gold (ounce per ton)	Silver (ounce per ton)
1	Grab	Tr	-
2	do	Tr	-
3	do	Tr	-
4	do	0.94	1.50
5	1.1	.09	-
6	1.5	.02	.05

Tr Trace.



EXPLANATION

- —4 Sample locality
- Inclined raise
- Vertical winze
- 36 Vein, showing dip

Assay data

Sample No.	Width (feet)	Gold (ounce per ton)	Silver (ounce per ton)
1	1.1	0.04	0.14
2	1.1	.005	.01
3	1.4	.005	.05
4	1.1	.01	

FIGURE 25. — Mines and prospects, Bobs Farm area.

The prospects near Bobs Farm are approximately 11 miles by mountain trail from the end of the road at Hobo Gulch camp. The remoteness of the mines, coupled with the low tenor of the rock, indicates that a reserve of minable gold ore does not exist in this area.

Tip Top Mine

The Tip Top workings are adjacent to and above the trail to Grizzly Creek (fig. 25). Recorded production from the Tip Top mine totals 81 ounces of gold and 11 ounces of silver produced between 1907 and 1913.

The deposit was developed through an adit at trail level and another approximately 40 feet higher, connected by a raise (fig. 25). The workings follow numerous quartz veins and fracture zones with no significant trend of mineralization or pattern of fracturing. The irregular quartz veins are generally iron oxide stained and vuggy and usually associated with gouge zones. Stoping was seen in two areas. The larger stope on the lower adit had backs 20 to 30 feet above track level and broke to the surface. The shorter stope was mined approximately 15 feet above the upper level.

The veins (fig. 25) were sampled where they appeared to be most mineralized. Each sample contained gold, but none more than 0.04 ounce per ton. Silver content of three samples ranged from 0.01 to 0.14 ounce per ton.

The fracture zones and quartz veins are very narrow, irregular, and discontinuous. These factors and the low grade of the samples indicate that the Tip Top mine is unlikely to contain significant resources of gold.

O'Shay Chloride (Dan's Chloride)

The O'Shay Chloride prospect is 1,700 feet west of the Tip Top mine (fig. 25) on a trail that leads from the Grizzly Creek trail near Bobs Farm.

The workings consist of a caved vertical shaft, an opencut, and a crosscut adit approximately 60 feet below the collar of the shaft. The adit was driven towards the shaft.

The gold in this area apparently is in highly irregular pods and veinlets of quartz in contorted schist. In the lower adit the vein strikes approximately due west, but a strike of approximately N. 45° W. and a dip of 70° NE., near the collar of the caved shaft, suggests the vein is irregular.

Three samples were taken, one each at the ends of short drifts turned from the crosscut adit (5, 6, fig. 25), and the third from a sorted stockpile on the shaft dump (4, fig. 25). The underground samples contained only trace amounts of gold and silver, but the stockpile grab contained 0.94 ounce of gold and 1.50 ounces silver per ton.

There has been no recorded production from the O'Shay Chloride mine, and no minable reserves exist.

O'Shay Upper Workings

The O'Shay upper workings are at an altitude of 5,600–5,700 feet, approximately 1,400 feet west of the O'Shay Chloride workings (1–3, fig. 25). These consist of two caved adits, both estimated to be about 150 feet long, and two opencuts close to the ridge between Rattlesnake and Grizzly Creeks. Veins were not observed because the workings are caved and overgrown. Samples were taken of quartz-rich material on the dump of one of the trenches (1, fig. 25) and from the quartz fraction on dumps of the two adits (2, 3). All contained only a trace of gold and no silver.

Mill Creek Mill

The ruins of a 5-stamp gold mill were found near the junction of Rattlesnake Creek and Mill Creek (fig. 23). Some of the ore from the Bobs Farm area as well as O'Shay Chloride was probably brought to the mill by aerial tram. Two samples were taken from the mill ruins—one from the collapsed ore bin and one from a tailings pile. The ore bin grab (27, fig. 23) contained 0.31 ounce of gold per ton and 0.16 ounce of silver per ton. The tailings (36, fig. 23) contained only a trace of gold and no silver.

Rattlesnake Creek Placer Deposits (Gordon Mine and Gledhill Prospect)

The placers of Rattlesnake Creek are the most extensively worked deposits in the major tributaries to the North Fork Trinity River. Nearly all of the minable gravel along Rattlesnake Creek from Mill Creek down to the North Fork was worked between 1900 and approximately 1911 (fig. 23). Total production of gold and silver is not well recorded, but the Bayles and King hydraulic mine, the largest operation during that period, one-half mile above Strause Gulch (30–32, fig. 23), produced over 590 ounces of gold and 65 ounces of silver from 1906 through 1911. The extent of its workings indicates that production was probably larger.

The gravel deposits in Rattlesnake Creek lie on bedrock benches at elevations from 8 to as much as 35 feet above the existing stream level (fig. 26).

As a result of the relatively uniform gradient, mining was nearly continuous from the junction of Mill Creek to confluence of Rattlesnake Creek with the North Fork Trinity River. With the exception of the Gordon mine and Gledhill prospect, only a

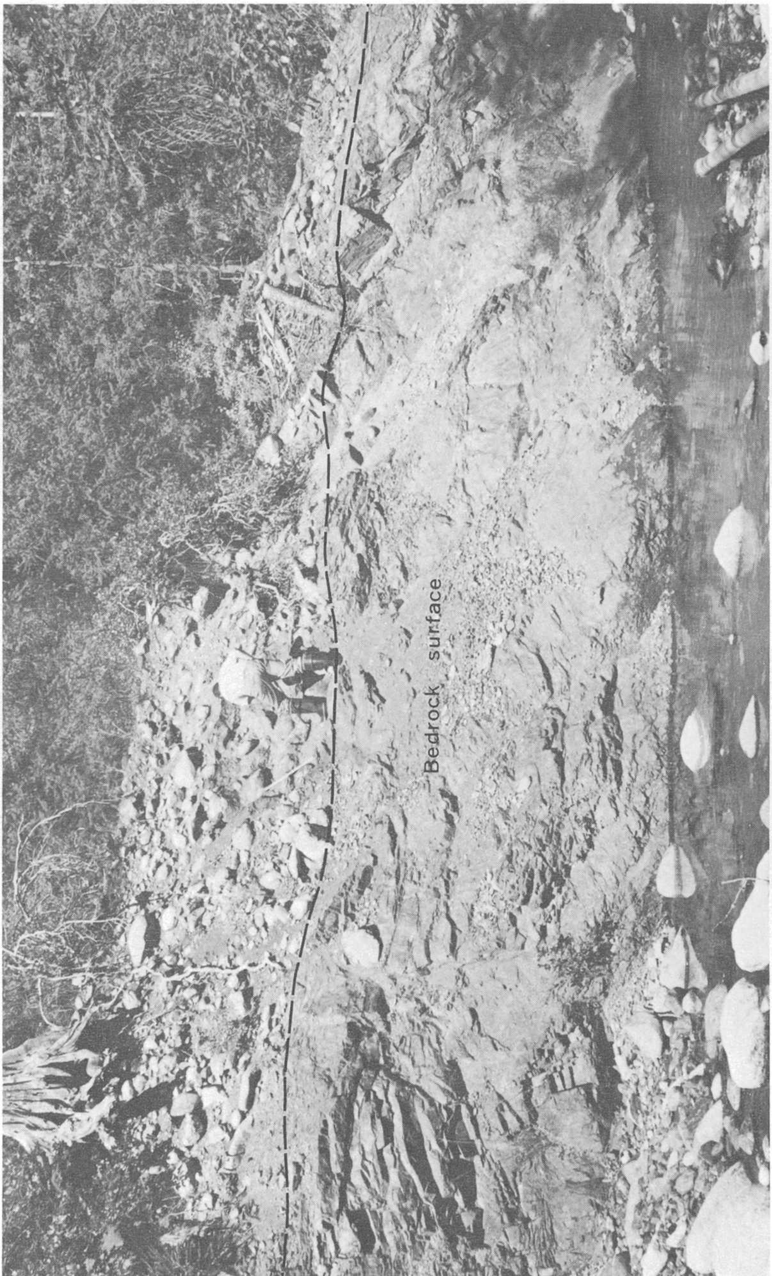


FIGURE 26. — Typical height of bedrock benches above present stream.

few thousand cubic yards of virgin gravel, difficult to mine, remains in the mined areas.

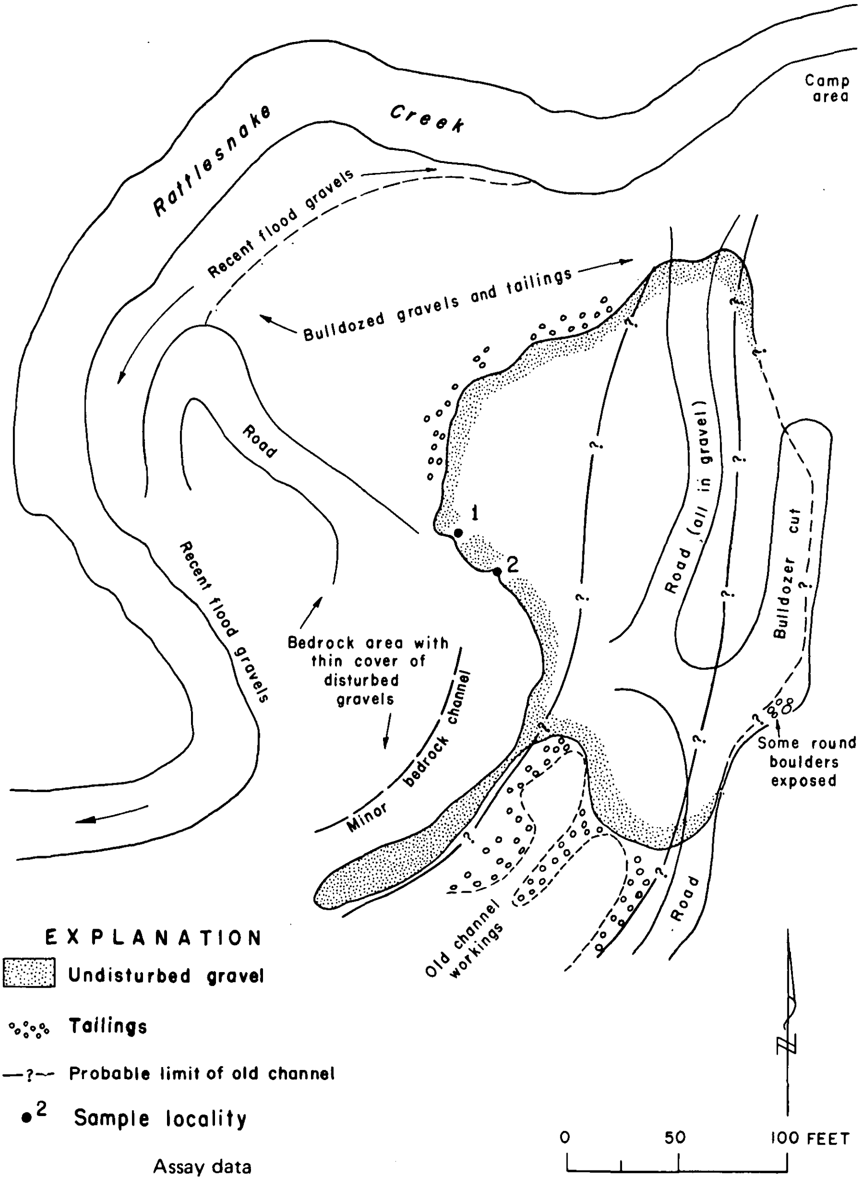
Tailings piles and the remains of mining equipment in the drainage indicate that large boulders were moved by derricks and high-line cables. Only a few of the boulders were so large that the mining had to move around them.

Placer samples were taken directly above bedrock (fig. 28), from recent flood gravel, and generally from places believed to be favorable for gold deposition. Gold content ranged from a few cents to $9.08 per cubic yard. Gravel containing high gold values could probably be found in favorable parts of the present stream channel, but because of the sampling difficulty and the inability to measure the yardage, such gravels were not sampled nor included in the total volume of minable gravels. This high-value gravel would undoubtedly be suitable for recreational prospecting and mining with small-scale suction dredge devices.

The Gordon mine is on the Sunnyside claim, three-fourths mile above Martin Gulch (fig. 27). It has no recorded production. In an area on the claim where recent work has been done, it is estimated that between 12,000 and 15,000 cubic yards of gravel remains with an estimated value of $0.30–$0.50 per cubic yard. This includes the gravel on a bedrock bench and that in a short section of old channel. The gravel on the bench between the old channel and the existing stream is about 8 feet thick and that in the old channel section is between 14 and 18 feet thick. Samples from a minor channel crossing the bench contained $0.43 and $0.61 gold per cubic yard. Low values and limited yardage preclude commercial recovery.

The Gledhill prospect, the largest unmined gravel bar on Rattlesnake Creek, is just upstream of the North Fork (fig. 23). The bar is on the south side of Rattlesnake Creek and is crossed by the road from Hobo Gulch camp. A large bar on the north side of the creek has been mined, but there is no record of production. Judging from the amount of gravel excavated and the values found by sampling the remainder, considerable gold may have been mined from the north bar. Only a few tens of ounces of gold have been produced by Mr. Gledhill, the present claimant.

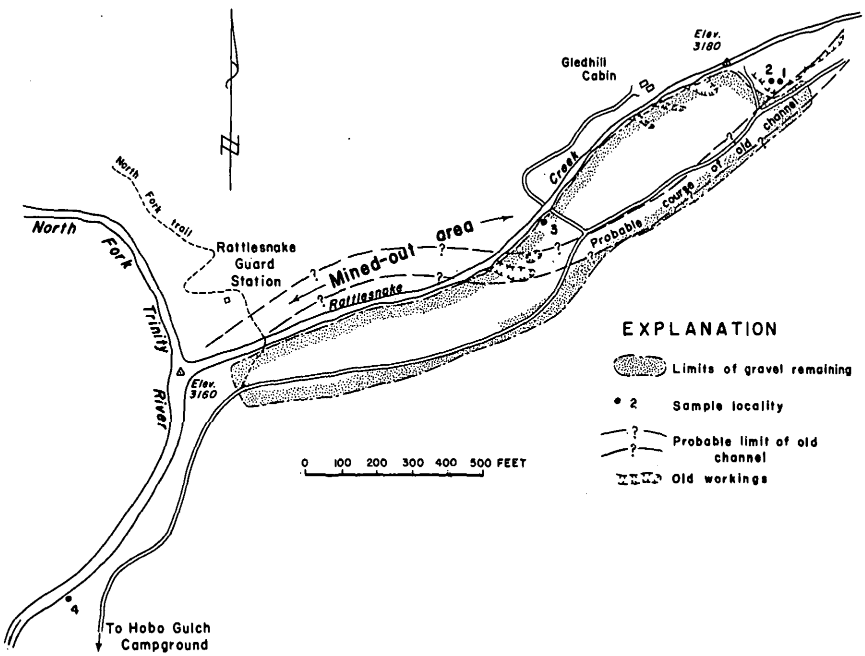
The stream gradient in this lower part of Rattlesnake Creek flattens significantly. The present streambed lies 10–12 feet below the bedrock benches upon which the gravel bars rest. Evidence of old channeling is visible near the sites of samples 1 and 2 (fig. 28). Bedrock seen in the sample pits slopes southeast away from the present stream channel. Old workings from which the samples were taken are mainly of a bedrock bench between the existing



Assay data

Sample No.	Depth (feet)	Gold (cents per cubic yard)
1	3.0	43.3
2	3.0	60.8

FIGURE 27. — Gravel remaining in Gordon mine area.



Assay data

Sample No.	Depth (feet)	Gold (cents per cubic yard)
1,2	[1] 1.5	908.0 ($9.08)
1,2	[2] 4.9	11.6
3	5.5	40.6

[1] Average interval of composite sample measured from bedrock.
[2] Average interval of composite sample measured from top of sample 1.

FIGURE 28. — Gledhill placer prospect, Rattlesnake Creek.

and the old channels. The old workings have not explored the bottom of the old channel. Where exposed, the bedrock appeared to be favorable for placer gold deposition. It is estimated that the gravel averages 10 feet thick in the unmined bar. The gravel contains a large percentage of sand-size material, very little clay, and boulders less than 2 feet in diameter.

Similar sample depth intervals from sites 1 and 2 were combined to determine the relationship of values near bedrock with

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those above. The results show the preponderance of gold on or near bedrock.

Approximately 85,000 cubic yards remains in the south bar. Cursory sample results indicate values between $0.70 and $0.80 gold per cubic yard at best. It is very unlikely that a bar this size would be mined under present economic conditions.

GAS CREEK AREA

Gas Creek is a minor tributary flowing into the North Fork from the west. The rocks in the drainage are apparently unmineralized. Very little evidence of prospecting was found and only a trace of gold was recovered in placer samples (26, fig. 23).

CHINA CREEK AREA

The small accumulation of gravel at the mouth of China Creek has been held under mining location by various people for many years. Evidence for prospecting, if any, has been obliterated by recent storms. A sample on bedrock in the present stream contained over $1 gold per cubic yard. However, the stream bottom is about 4 feet wide, and the alluvium is poorly sorted and contains very little gold (51–53, fig. 23).

WHITES CREEK

Whites Creek empties into the North Fork about 1¼ miles north of Hobo Gulch campground (fig. 23). Rock types in this drainage include granitic rocks, gabbro, ultramafic rocks, and metamorphosed sedimentary and volcanic rocks of the western Paleozoic and Triassic belt.

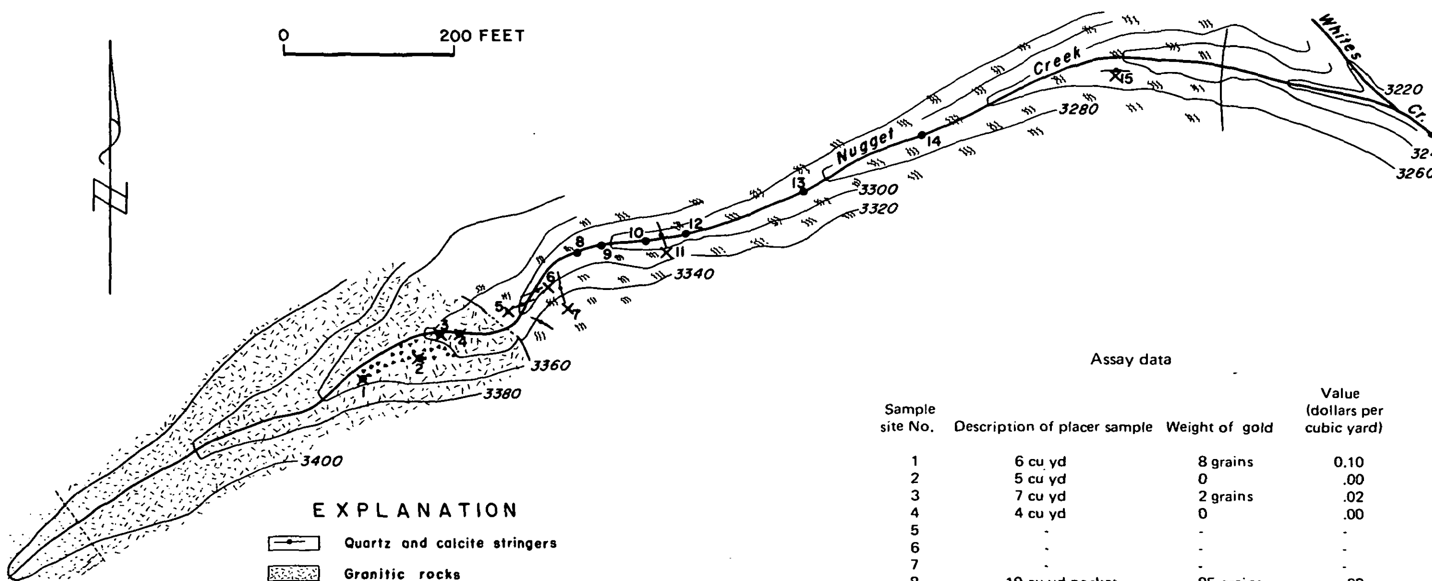
The Whites Creek drainage has no recorded production. It has been extensively prospected and mined to some extent. The gravel here reportedly contains coarse, erratically distributed gold, but the remaining virgin gravel is in a canyon too narrow and too steep to mine economically.

Remnants of high bars exist along the first mile up Whites Creek. They have been worked to a limited extent. The creek bottom is covered with recent flood deposits. Seven samples of this material contained no more than a trace of gold.

NUGGET CREEK PLACER

The Nugget Creek placer claims in unsurveyed sec. 25, T. 36 N., R. 11 W., are on Nugget Creek, a tributary of Whites Creek.

The section of creek explored during 1970 is underlain by ultramafic and metamorphic rocks which, near the west end, are intruded by granitic rocks (fig. 29). The granitic rock is cut by



Assay data

Sample site No.	Description of placer sample	Weight of gold	Value (dollars per cubic yard)
1	6 cu yd	8 grains	0.10
2	5 cu yd	0	.00
3	7 cu yd	2 grains	.02
4	4 cu yd	0	.00
5	-	-	-
6	-	-	-
7	-	-	-
8	10 cu yd pocket	85 grains	.62
9	3 cu yd pocket	720 grains	17.50
10	.039 cu yd pocket	240 grains	[1] 450.00
11	-	-	-
12	20 cu yd pocket	600 grains	2.18
13	35 cu yd pocket	35 grains	.07
14	40 cu yd pocket	25 grains	.04
15	-	-	-

[1] The high value resulted from large particles of gold contained in a small volume of gravel.

FIGURE 29. — Placer and lode deposits of Nugget Creek branch of Whites Creek.

quartz and calcite stringers which extend into the ultramafic rocks. Pyrite is abundant in the area. Eleven samples of these rocks were taken, including material from a breccia zone, pyrite-bearing rock, quartz stringers, and calcite stringers. None contained more than a trace of gold. Spectrographic analysis of samples of brecciated, pyritized metavolcanic rocks (O34–O39, table 1) collected for a distance of about one-half mile upstream from the placer indicates anomalous amounts of copper, lead, and molybdenum, as well as traces of gold.

The bottom of the section of creek being explored by the claimants was 10–20 feet wide with banks over 20 feet high. No gravel bars exist, but small pockets of gravel have developed in potholes in bedrock and at points sheltered from the force of streamflow, and some of these are rich in gold (fig. 29). The claimants mined the pockets with a syphon-type suction dredge and searched for the source of the gold. The abundance of boulders caused many work stoppages, and the source of gold was not discovered during 1970. The placer gold fragments recovered were as much as one-half ounce in weight, contained fragments of quartz and country rock, and were very rough and fragile. Not enough gold was recovered to support the operation.

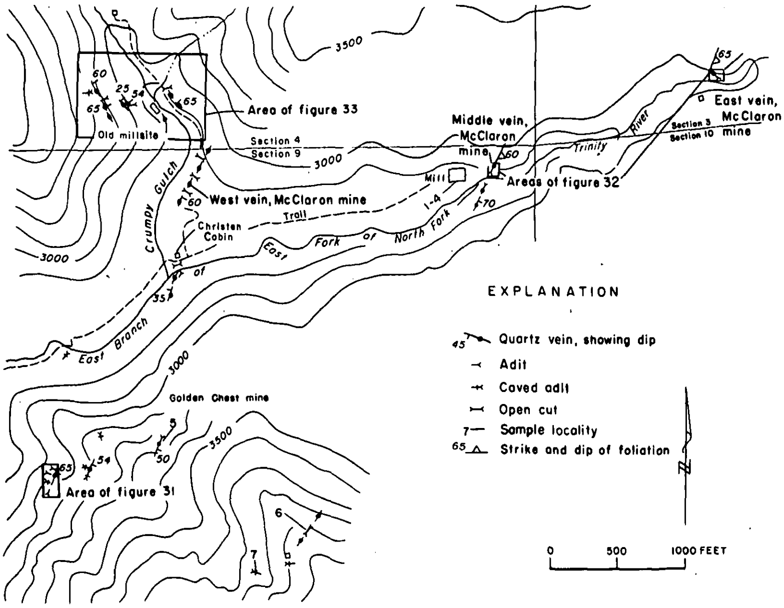
The physical characteristics of the placer gold indicate that it has not traveled far; therefore, the area will probably continue to be explored in an attempt to find the source.

BACKBONE CREEK

Gravel at the mouth of Backbone Creek has been mined on a small scale. Evidence of test pitting and placering was seen along a 3-mile section, but none of the bars was extensively mined. The gravel probably averages less than $0.20 gold per cubic yard.

EAST BRANCH OF EAST FORK OF NORTH FORK TRINITY RIVER AND YELLOW JACKET CREEK

The East Branch and Yellow Jacket Creek are tributaries of the East Fork of the North Fork Trinity River (fig. 23). The mouth of the East Branch is approximately 8 miles north of Helena and is accessible by about 4 miles of poor road from the North Fork road. Lode deposits examined in the East Branch drainage include the McClaron and Golden Chest mines and the Crumpy Gulch prospects (fig. 30). The confluence of Yellow Jacket Creek with the East Fork is approximately 1 mile south of the mouth of the East Branch. The Alaska mine is in the headwaters of Yellow Jacket Creek. The mineralized areas are outside the primitive area but inside the study area.



Assay data

Sample No.	Description	Gold (ounces per ton)	Silver (ounces per ton)
1	From ball mill	0.43	0.60
2	From mill circuit	.25	.10
3	From ore pile	1.15	1.40
4	Specimen from ore pile	5.08	11.0
5	1.5-foot vein	.02	-
6	Grab from open cut	.30	-
7	Stockpile	.03	-

FIGURE 30. — Mines and prospects in East Branch of East Fork of North Fork Trinity River.

Bedrock is predominantly well foliated amphibolite of the Salmon Hornblende Schist. The foliation strikes predominantly north to northeast and dips eastward. Within the amphibolite are many rusty fracture zones and small lenses and pods of barren quartz. Several northerly trending fine-grained mafic dikes also cut the amphibolite. Gold-bearing quartz veins commonly accompanied by sulfides occur along well-defined shear zones in the amphibolite. No regional structural features that might be responsible for localization of mineralization have been recognized.

GOLDEN CHEST MINE

Workings of the Golden Chest mine are in sec. 9, T. 35 N., R. 11 W., about 1 mile by trail from the end of the road at the mouth of the East Branch. Prospecting and development work have been done on several parallel northeast-striking veins in a belt about 2,000 feet wide. Workings on the three western veins are shown in figure 30.

Mining claims were first located at the Golden Chest property in 1887. By 1888, 150 feet of underground workings were reportedly completed, and a mill was under construction. In 1890, a total of 390 feet of underground workings were reported. Mine workings on these claims shut down shortly after 1896, reportedly having produced $200,000 worth of ore.

A total of about 800 feet of drifts and crosscuts were open and examined (fig. 31). These workings explore several parallel quartz veins, which in turn parallel the foliation of the enclosing amphibolite. The veins are as much as 2 feet wide on the surface.

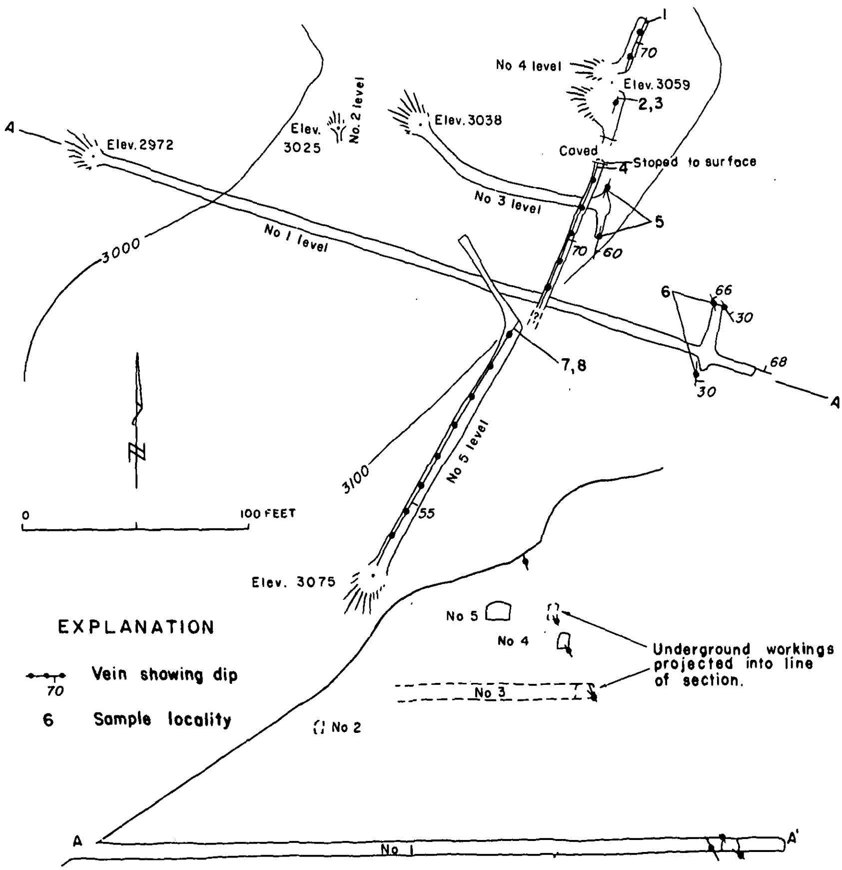
The west vein (fig. 31) decreases in thickness from 18 inches on the surface to 6 inches at 150 feet. At 300 feet the vein splits into three veinlets and some stringers.

A drift on the middle vein, about 250 feet east of the main workings (fig. 30), is caved 30 feet from the portal. Some vein quartz on the dump is 10 inches across, indicating a vein of more than this width in the inaccessible workings. The open part of the drift was driven along a stringer about 2 inches wide.

The east vein is exposed in a 60-foot-long drift. The vein is 2 feet thick at the portal. It pinches out at 30 feet from the portal and then alternately swells and pinches between 18 inches and 4 inches through the remainder of the drift. Sample 5 (fig. 30) was taken from an 18-inch-thick section of the vein.

About one-fourth mile east of the main workings (6, fig. 30) a surface cut exposes a fourth vein. A chip sample of the vein assayed 0.3 ounce gold per ton. A grab sample (7, fig. 30) from a stockpile at the caved portal of a crosscut to the fourth vein, 500 feet southwest from the surface cut, assayed 0.03 ounce gold per ton.

In view of the findings of the present investigation and the history of the property, the Golden Chest mine does not warrant consideration as a potential producer of gold and silver.



Assay data

Sample No.	Width (feet)	Gold (ounce per ton)	Silver (ounce per ton)
1	0.5	0.09	Nil
2	1.5	.20	Do.
3	.5	.09	Do.
4	.5	Tr	Do.
5	.5	.18	Do.
6	.5	.06	Do.
7	1.5	.03	Do.
8	1.0	.06	Do.

Tr Trace.

FIGURE 31. — Golden Chest mine, main workings.

McClaron Mine

The McClaron mine is in secs. 3 and 9, T. 35 N., R. 11 W., on the East Branch. The property is accessible from the mouth of the creek at the East Fork.

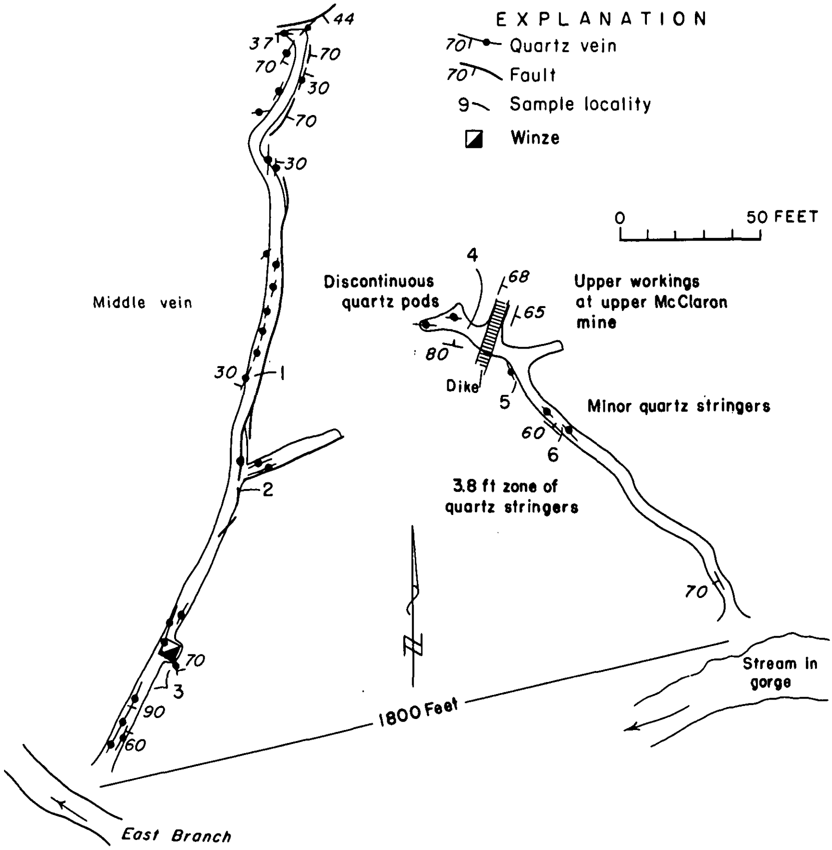
Near the mouth of Crumpy Gulch, near Christen Cabin (fig. 30), the west vein of the McClaron mine strikes N. 20° E. and dips 35° NW. It has been explored by a 65-foot drift driven to the southwest. The vein is 0.6 foot wide at the portal. About 400 feet north of Christen Cabin, a vein with a similar strike has been explored by three opencuts.

The main workings are on the middle vein (figs. 30, 32) approximately 2,500 feet east of Crumpy Gulch. A vein system that crosses the creek is explored by drifts north and south of the creek. A drift 330 feet long was driven on the vein north of the creek (fig. 32), and a drift 150 feet long follows the vein south of the creek. At the portal of the north drift, two quartz veins 6–12 inches wide strike N. 35° E. and dip steeply east to vertical. Along the drift, the vein is discontinuous owing to postmineralization faulting. About 45 feet underground from the portal in the north adit, a winze was sunk at the intersection of two subparallel veins; a 1-foot sample (3, fig. 32) across the vein at this point assayed 1.13 ounces gold per ton and 2.80 ounces silver per ton, the richest sample from the drift.

The south drift (fig. 30) was driven on a shear zone that strikes N. 10° E. and dips 60° E. at the portal. The zone contains a quartz vein 2–8 inches thick. Farther south in the drift, however, the vein is poorly defined.

The wallrocks are fine-grained dark amphibolite whose foliation dips moderately to steeply east. A slight roll in the foliation can be seen which is possibly related to localization of the shear zones and veins. There is no obvious alteration of the amphibolite adjacent to the veins.

Near a dilapidated 5-ton mill approximately 200 feet west of the north adit, a small pile of ore, presumably from these workings, includes milky-white brecciated quartz containing scattered grains of pyrite, chalcopyrite, and possibly chalcocite. Some fragments of quartz have thin selvages of wallrock which contain abundant sulfides. A grab sample from the ore pile assayed 1.15 ounces gold per ton, and a selected specimen assayed 5.08 ounces per ton. Spectrographic and chemical analyses of a sample (P58,



Assay data

Sample No.	Width (feet)	Gold (ounces per ton)	Silver (ounces per ton)	Amalgamation of -100 mesh (ounce of gold)	Amalgamation of -100 mesh (percent recovery)
1	1.0	0.10	0.10	-	-
2	1.3	.13	-	0.0075	5.78
3	1.0	1.13	2.80	.0076	.67
4	1.5	.26	.90	.011	4.24
5	1.6	.12	Tr	.037	30.80
6	3.8	.29	.90	-	-

Tr Trace.

FIGURE 32. — McClaron mine, middle and upper workings, north of East Branch.

table 1) from the ore pile revealed 25 ppm gold, 20 ppm silver, 1 ppm mercury, 300 ppm each of copper and zinc, 150 ppm lead, and 20 ppm molybdenum.

The east vein (upper workings) is approximately 1,800 feet upstream from the middle vein, on the north side of the creek. Here, a drift 150 feet long follows a shear zone that is 1–2 feet wide at the portal and contains some vein quartz (fig. 32). The zone is slightly irregular but strikes generally N. 40° W. and is vertical to steeply west dipping. The fractured zone appears to be on or near a small anticlinal fold in the amphibolite. Along the drift the vein is not well defined, and quartz is limited to stringers and pods. A hornblende-rich dike, parallel to the foliation of the host rocks, is exposed near the face of the drift. Three samples (4–6, fig. 32) were taken from these workings. The average precious-metal content, weighted by width, was 0.24 ounce gold per ton and 0.7 ounce silver per ton. A selected sample (P54, table 1) of milky quartz containing some sulfides was collected from a small pile of vein material near the portal. In addition to 4.6 ppm gold, spectrographic analysis showed the sample to contain 15 ppm silver, 100 ppm lead, 200 ppm zinc, and 5 ppm molybdenum.

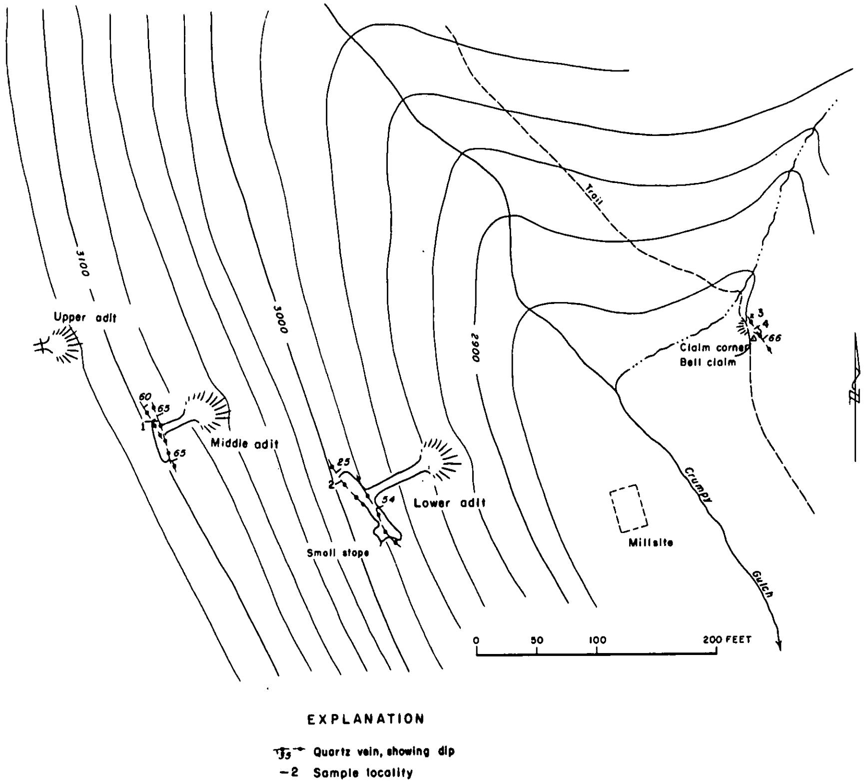
Mineralized material at the McClaron mine is too low grade to be minable at present prices; however, the relatively well defined mineralized fractures and high assays of some vein material will encourage additional prospecting.

Crumpy Gulch Prospects

The principal prospects in the Crumpy Gulch drainage are about 0.3 mile upstream from its junction with East Branch (fig. 30) at altitudes from 2,860 to 3,140 feet. There are three crosscut adits west of the gulch and an opencut east of the gulch. A small primitive mill stood near the bottom of the gulch.

The upper adit is caved. The middle adit (fig. 33) intersects a brecciated zone containing hanging-wall and footwall quartz stringers. The hanging-wall stringer is the stronger and is about 0.5 foot wide. The back of a short drift along the brecciated zone is about 12 feet above the floor, indicating stoping. A sample (1, fig. 33) from the hanging-wall stringer in the northwest end of the drift contained only a trace of gold.

Two distinct quartz stringers were explored by short drifts from the lower adit. Both are highly irregular lenticular masses in a gouge zone; in some places only gouge is present. The northwest drift follows a flat-dipping quartz stringer with a maximum thickness of 0.3 foot. The 40-foot southeast drift follows a stronger



Assay data

Sample No.	Length (feet)	Gold (ounce per ton)	Silver (ounce per ton)
1	3.0	Tr	Nil
2	2.0	0.02	Do.
3	Grab	.17	Do.
4	2.0	.22	Do.

Tr Trace.

FIGURE 33. — Prospects in Crumpy Gulch.

vein that dips 54° NE. The vein was stoped about 14 feet high near the southeast face. A select vein sample (2, fig. 33) from near the face of the northwest drift contained 0.02 ounce gold per ton and no silver.

Irregular, discontinuous low-grade veins exist in the Crumpy Gulch area, but from the exposures seen, none can be economically mined.

ALASKA MINE

The Alaska mine is in sec. 14, T. 35 N., R. 11 W., approximately 2.5 miles southeast of the McClaron mine at an altitude of 4,000 feet on a ridge between the north and south forks of Yellow Jacket Creek, a westerly flowing tributary of the East Fork of the North Fork (fig. 23).

Development consists of two adits and an old mill. The adits are about 5,000 feet by trail up the hillside from an arrastra and old mill at creek level. The old mill consisted of a water-powered 13-foot arrastra and sluiceboxes. A small gasoline-powered jaw crusher and ball mill have replaced the arrastra. The mine reportedly produced $600,000 by 1916 (Brown, 1916, p. 884), but nothing is recorded since that time. Locally, it has the reputation of having produced good "specimen gold." Sporadic interest in reopening the mine has continued to the present.

The area is underlain by the Salmon Hornblende Schist, which has well-developed northerly trending foliation planes.

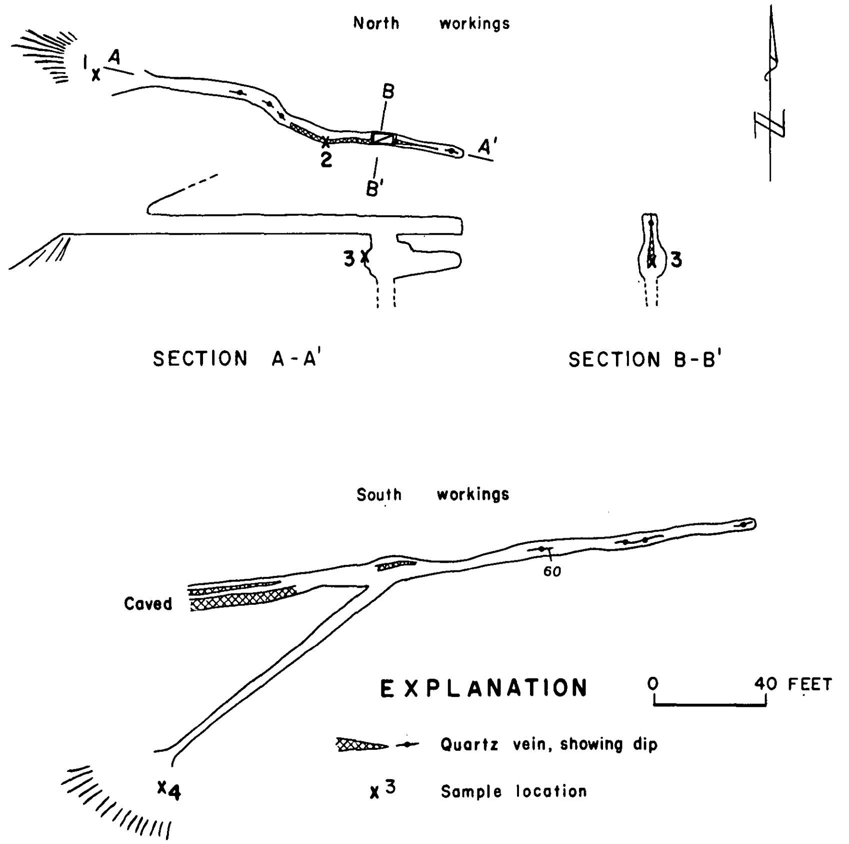
The 110-foot north adit has a winze 85 feet from the portal, which was flooded to within 12 feet of the adit floor (fig. 34). A drift 25 feet long has been driven east from the winze about 15 feet below the adit. The upper adit was driven along a shear zone containing fragmented quartz lenses that trend east, dip steeply, and are as much as 2 feet thick. The shear zone is about 30 inches wide in the winze but nearly pinches out in the face of the adit. Three samples (1–3, fig. 34) contained an average of 0.10 ounce gold per ton. A specimen from the stockpile near the portal contained a thin particle of free gold about one-eighth-inch long.

The 100-foot south adit intersects a vein that strikes N. 80° E. and dips 60° S., roughly parallel in trend to the north vein. Drifts have been driven to the east and west along the vein, which is only a stringer in the east face but widens to 4 feet where the drift is caved on the west. A quartz vein 4 inches thick, separated by 30 inches of country rock, occurs parallel to the thick vein. The quartz is generally more massive than that in the north workings and is milky. A grab sample from the dump contained 0.03 ounce gold per ton.

The entire vein system is not economically minable because of the low gold values, small size, and erratic distribution. The mine, however, has reportedly produced good specimen gold.

CANYON CREEK AREA

Canyon Creek, which heads in the granitic rocks of the Trinity Alps, flows southward to the Trinity River through an area under-



Assay data

Sample No.	Width (feet)	Gold (ounce per ton)	Silver (ounce per ton)
1	Grab	0.10	Nil
2	1.0 acros. vein	.06	Tr
3	1.5 across vein	.14	Nil
4	Grab	.03	Do.
5	Crusher feed	.07	Do.
6	Ball mill feed	.10	Do.

Tr Trace.

FIGURE 34. — Alaska mine workings.

lain by Salmon Hornblende Schist. The lower Canyon Creek area, mostly outside the study area, is known as the Dedrick–Canyon Creek district (fig. 12). Canyon Creek was extremely rich in placer gold, most of it mined before 1900. A few small-scale ventures continue sporadically to date. The main lode mining area, in which are the Globe-Bailey-Chloride mines, straddles the study area boundary on the east side of the drainage.

Globe-Bailey-Chloride Mines

The Globe-Bailey-Chloride claims are in the center of T. 35 N., R. 10 W. and straddle the ridge between Canyon Creek and Stuart Fork, about 4 miles north of Dedrick. They cover three separate mines (fig. 35), which will be described as one property because of similar access, location in the same zone of mineralization, single previous ownership, and the possibilities for future development as one operation. The combined property consists of about 40 claims. A number of persons have financial interest of various sorts in these claims.

The first recorded production from the Globe group of claims was in 1891. The mine was operated sporadically until 1953. Reported production was 113,970 ounces gold and 26,650 ounces

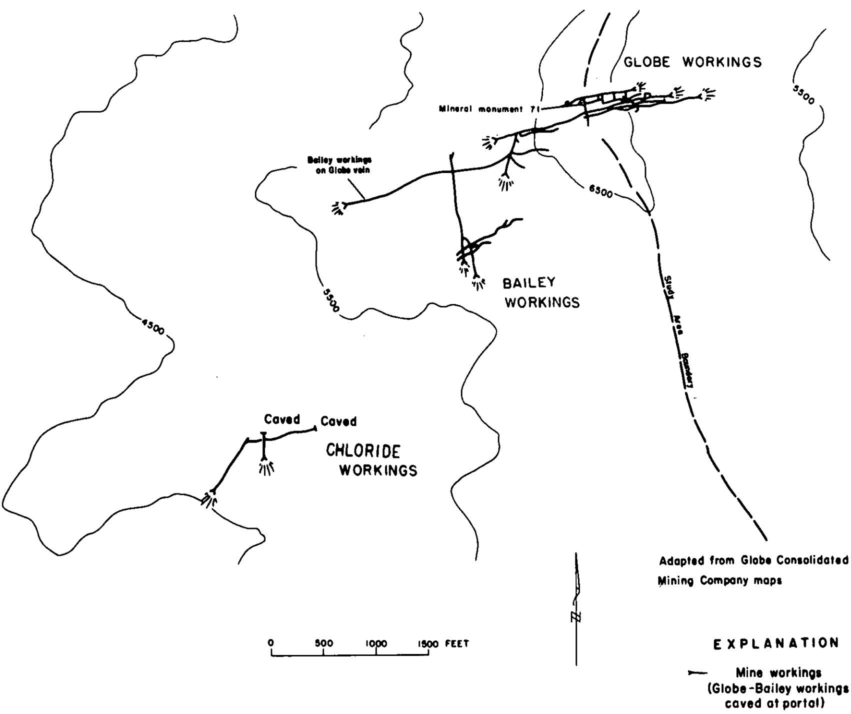


FIGURE 35. — Main workings, Globe-Bailey-Chloride mines.

silver, for a combined metal value of about $4 million at $35 per ounce for gold, which is by far the largest production from any mine in the Salmon-Trinity Alps Primitive Area.

Access to the claims is from Dedrick by a steep dirt road suitable for a light truck. Altitude at Dedrick is 2,500 feet, and the mine workings are at between 4,500 and 6,700 feet. The hillsides are brush covered in the mine area with young conifers on the benches and lower elevations (fig. 36). Water at the mines is sufficient for mining and domestic use. Electric power, water, and a

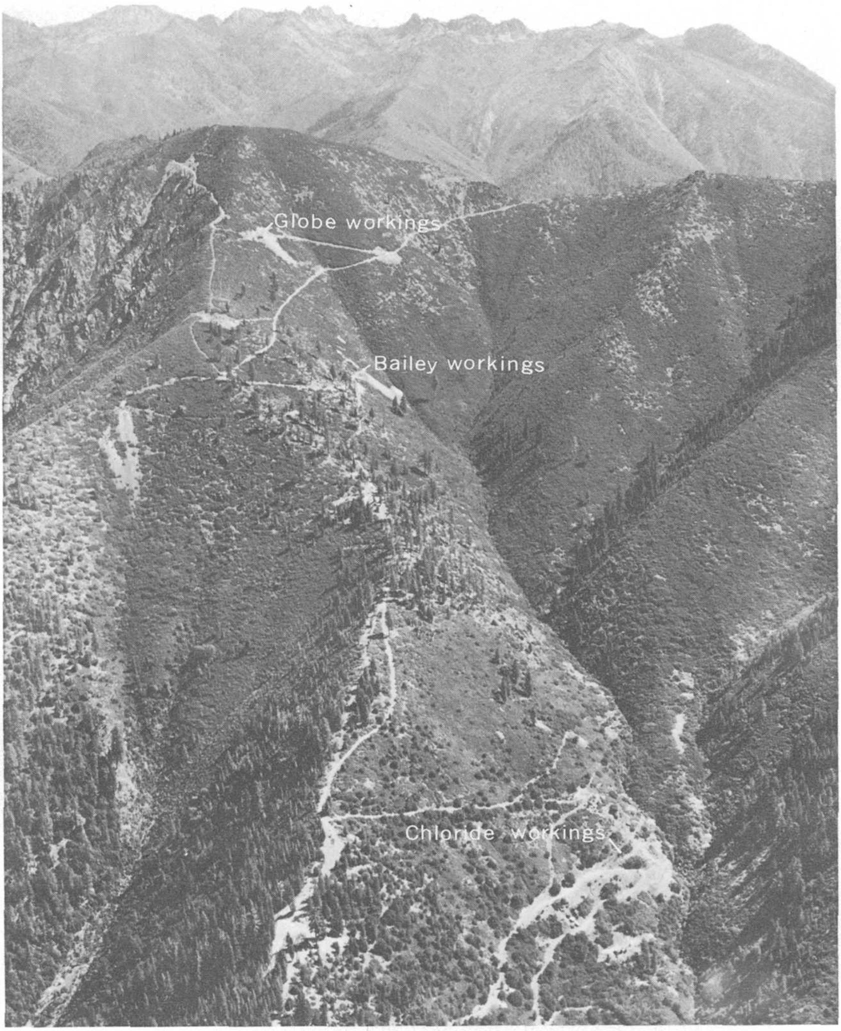


FIGURE 36. — Globe-Bailey-Chloride mines, viewed toward the northeast.

possible millsite are available in Canyon Creek about 2 miles to the west.

The Globe-Bailey-Chloride mineralized zone is within the Salmon Hornblende Schist. Granodiorite crops out 1½ miles to the north and 2½ miles to the south (pl. 1). Three vein systems, each containing a series of quartz lenses associated with dikes of alaskite, diorite, and granite porphyry, strike N. 60°–80° E. and dip 60°–70° S.; average strike of the foliation of the hornblende schist is northwest. The Globe and Bailey levels are caved (fig. 37) ; information regarding them is from mine maps furnished by present claimants and from published reports (Miller, 1890, p. 711–712; Dunn, 1892, p. 483; Brown, 1916, p. 889–891; Laizure, 1921, p. 540; Logan, 1926, p. 20–21; Averill, 1933, p. 28; O'Brien, 1965, p. 24; and Ferguson, 1914).

The quartz lenses average about 200 feet in horizontal length (the maximum is 400 feet) and 9 feet in width. The widest part of the largest lens is 36 feet. At many places, there are parallel lenses in the footwall and the hanging wall. The longest interval between lenses, measured along the strike, is about 50 feet; in most places it is no more than 20 feet.

Ore shoots within the quartz lenses vary in size. The ore consists of shattered, friable white quartz, generally stained with iron and manganese oxide. The gold is fine and uniformly distributed in the shoots. Pyrite, the only sulfide present, is auriferous and occurs in small irregularly shaped zones, generally near the hanging wall. However, pyrite apparently is not an indicator of high gold content, although manganese oxide is.

Three veins, referred to as the Globe, Bailey, and Chloride, have been developed in the area. These have been explored and mined through about 8,000 feet of drift, 2,000 feet of crosscut, 2,000 feet of raise, and 500 feet of winze (fig. 35). The amount of stoped ground is not definitely known because only the Chloride was open into a stoped area. The grade of stope ore ranged between $20 (the minimum minable grade) and $300 per ton at the old price of gold. The longitudinal section of the Globe mine (fig. 37) shows six submarginal-grade blocks remaining along the Globe vein. On the basis of available information, this part of the mine is estimated to contain 11,627 tons of ore that may contain $19.60 in gold per ton. Similar records are not available for the Bailey and Chloride mines.

The Bailey adits were caved, but vein material on the dumps was similar to that of the Globe and Chloride workings. One ore shoot was reportedly 150 feet long, 2.5–6 feet wide, averaged $50–$300 per ton, and produced $750,000 in gold (at $20.67 per ounce).

The first 500 feet of the Chloride workings is a drift along a N. 30° E. striking vein that dips about 80° SE. There are two short drifts on cross structures and one raise on the main vein. Apparently none contained ore. The main vein averages about 2 feet thick, and 460 feet from the portal, a 2-foot chip sample across the vein assayed 0.20 ounce of gold and 0.6 ounce silver. At 470 feet, a 0.5-foot segment of the vein contained considerable pyrite and assayed 0.05 ounce gold and 0.2 ounce silver. At a point 450 feet from the portal the vein branches, and a drift continues on a bearing of about N. 85° E., following a weak structure for about 180 feet. From this point, the strike changes to N. 70° E., parallel to the Globe vein, and values increase to ore grade. The drift is caved, but access is possible over the top of caved material in the stope. The vein is stoped upward an undetermined distance along about 80 feet of strike. A sample of pyrite-rich material from a 1-inch seam along the hanging wall assayed 0.14 ounce of gold and no silver. About 70 feet beyond the end of this stope a second stope, 3–10 feet wide, of unknown height is open for about 150 feet along the strike (fig. 38). The drift is not accessible beyond this stope. Caved material in the center of this stope has sloughed into an old winze. A grab sample of about 5 pounds of quartz from the caved material in this slope assayed 1.56 ounces gold and 0.8 ounce silver. Old mine records indicate the second stope was 600 feet high, the winze 355 feet deep (extending 55 feet below a 300-foot level), and the ore shoot yielded $438,000 (21,190 ounces) in gold. Cobbed ore from the bottom of the winze reportedly yielded $125 per ton. The ore shoot on the 300-foot level reportedly is 200 feet long and 5–8 feet wide and contains about $10 gold per ton at $35 per ounce.

The following conclusions regarding the Globe-Bailey-Chloride mines are based on available information: (1) About 50 percent of the N. 70° E. trending drifts on the main structures are in mineralized material, (2) vein widths average about 3.7 feet, (3) the better grade of ore developed was mined, (4) sample data obtained from old maps indicate that material left between ore shoots in the mine sections cannot be profitably mined at present, and (5) the largest parts of these mineralized zones have not been explored and may reasonably be expected to contain additional high-grade shoots. Continued exploration can be expected.

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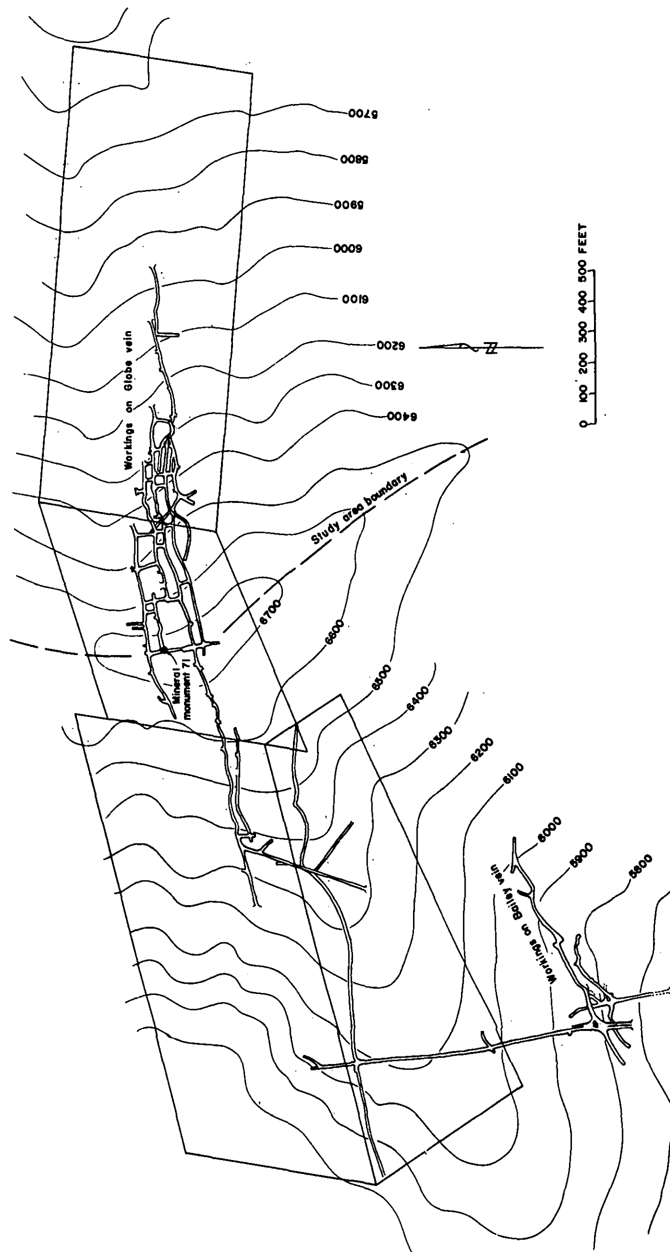
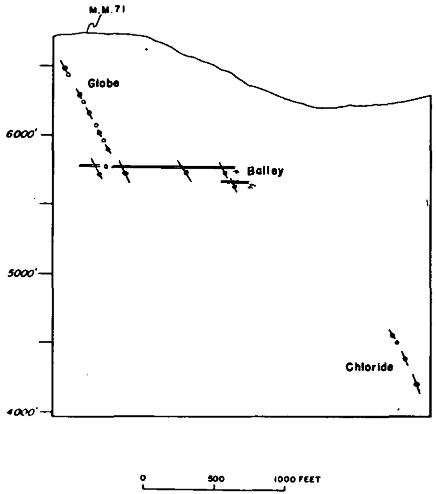


From Globe Consolidated Mining Company maps



Probable on September 20, 1916 (developed at least on one side).
Estimate based on 14 cubic feet per ton and $20.67 per ounce gold.

Block	Length	Width	Depth	Cu ft.	Tons	Dollars per ton
1	60	3.8	100	22,800	1,630	17.20
2	140	3.9	70	38,220	2,730	8.93
3	270	2.9	25	19,575	1,398	14.12
4	150	2.6	15	5,850	418	13.00
5	180	5.2	35	32,760	2,340	11.70
6	220	3.6	55	43,560	3,111	9.63
					11,627	[1] 11.61

[1] $19.60 when recalculated at $35 per ounce.

This is a direct quote from written communication accompanying the 1916 mine maps. The term "probable" is presumably "indicated" by current definition.

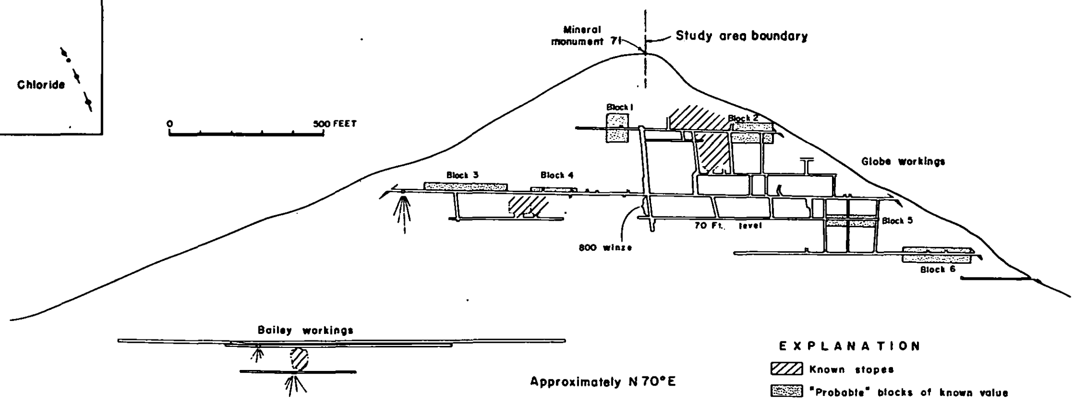


FIGURE 37. — Plan and sections, Globe and Bailey mines.

FIGURE 38. — Stope in area of main winze, Chloride mine.

RUSH CREEK

Rush Creek is a south-flowing tributary of the Trinity River originating a short distance inside the study area and 1 mile east of Monument Peak (fig. 12). There are no known lode deposits in the drainage within the study area, and there is only one placer discovery.

Martha Placer

Martha Nos. 1 through 4 placer claims are on the West Branch of Rush Creek in sec. 6, T. 34 N., R. 9 W. About half of the claims (40 acres) are within the study area. George Costa of Weaverville, Calif., located the claims in 1960. There is no usable road or maintained trail to the property, and access is by a 2-mile hike up Rush Creek from the Rush Creek public campground. An alternate route is by steep unmaintained bulldozer trail up the ridge to the east of Rush Creek, a distance of 4 miles.

Affidavits were filed of assessment work for 1961 and 1962. No later work and no production have been reported.

STUART FORK AREA

There are few prospects in the Stuart Fork area (fig. 12). It apparently is not highly mineralized, and the potential for mineral deposits in this area is not considered good.

Long Cabin Prospect

A lode prospect in Black Basin (fig. 12) is at an altitude of about 7,100 feet in sec. 22, T. 36 N., R. 9 W. A good trail extends from Swift Creek up Bear Creek to the prospect. Total trail distance from the end of Swift Creek road is about 9 miles.

The workings consist of a drift which extends 50 feet S. 52° W., then continues 15 feet S. 30° W. to the face. The drift was driven along a white quartz vein in a shear zone in diorite. The vein dips steeply southeast and averages about 6 inches wide at the face. A 4-foot vertical chip channel sample of the vein at the face contained a trace of gold. Quartz from the waste dump contained traces of gold and silver.

Salt Creek Placer

Two triangular gravel terraces occur at the mouth of Salt Creek, on Stuart Fork, in sec. 30, T. 36 N., R. 9 W. Access is by 5 miles of trail from Cherry Flat.

No workings were seen. A sample taken on bedrock contained less than $0.10 gold per cubic yard.

These gravel deposits contain less than 8,000 cubic yards of gravel, much of which is coarse boulder gravel. Mining would be expensive, and gold content is not adequate to permit a profit.

Stuart Fork Placer

A gravel terrace containing about 30,000 cubic yards is situated on the west side of Stuart Fork and extends about 800 feet downstream from the mouth of Deer Creek. The terrace is in sec. 30, T. 36 N., R. 9 W. Some mining may have been done on Stuart Fork, but no workings were observed.

COFFEE CREEK NORTH AND SOUTH AREAS

The Coffee Creek north and south areas include, in addition to Coffee Creek drainage, parts of the drainages of the South Fork Salmon River, South Fork Scott River, Scott Mountain Creek, Tangle Blue Creek, Eagle Creek, and Swift Creek. The combined area represents approximately a third of the total acreage included in the study area and lies in both Trinity and Siskiyou Counties (fig. 12).

About 34,000 ounces of gold and 9,000 ounces of silver were produced in the Coffee Creek north and south areas between 1894 and 1956. Approximately 56 percent of the gold and 81 percent of the silver came from lode deposits, and the remainder from placers. About $850,000 worth of gold was produced, and about $6,000 worth of silver. Additional gold has been mined in these areas since 1956, but the quantity is unrecorded. It probably averaged less than 100 ounces annually and consisted almost entirely of placer gold taken by prospectors and hobbyists using gold pans, sluiceboxes, and small suction dredges.

There are no active mines in the Coffee Creek areas, nor are any known mineral deposits minable under present economic conditions. Deposits containing gold, silver, and chromium are present in the area. Of these deposits, those that contain gold have the greatest economic potential. Silver occurs with gold in most deposits. It might be produced as a byproduct of gold, as there generally is about one-fourth as much silver as there is gold. Chromite is present in pods containing as much as 28 percent chromium (41 percent Cr_2O_3), but probably does not occur in bodies sufficiently large and rich to be considered ore.

Most lode prospects and mines in the Coffee Creek areas have been developed as underground workings. Few adits or shafts were open and in condition for safe entry during this investigation; therefore, most samples were taken from waste dumps. Samples were composites selected to represent (1) all material on the dump, (2) quartz, or (3) igneous or metamorphic rock fractions. Gold normally is confined to the quartz.

Obviously, dump material may give little insight to the value of mined rock, particularly where mining has been selective and dumps are nearly barren. Some dumps, however, contain significant amounts of gold and silver, testifying that the prospector found a gold-mineralized zone. Most of the dumps sampled contained only traces of gold and silver.

Most placer deposits in the Coffee Creek areas contain less than 100,000 cubic yards, and the average gold content is too low to be economically minable. Past hydraulic mining depleted virtually all placer gold reserves in the Coffee Creek north area. Although no minable reserves remain in the Coffee Creek south area, the Upper Nash and Cecil Bell's placers are submarginal deposits. The Upper Nash placer contains about 4 million cubic yards of gravel estimated to average $0.14 worth of gold per cubic yard. Cecil Bell's placers contain about 100,000 cubic yards of gravel, with an estimated average of $0.20 worth of gold per cubic yard.

COFFEE CREEK SOUTH AREA

The Coffee Creek south area encompasses the drainages of streams entering Coffee Creek from the south, including Union Creek, Battle Creek, Sugar Pine Creek, Boulder Creek, and Little Boulder Creek (fig. 39). The South Fork Salmon River and the headwaters of Swift Creek and East Fork of Stuart Fork were included because of convenience of access and proximity.

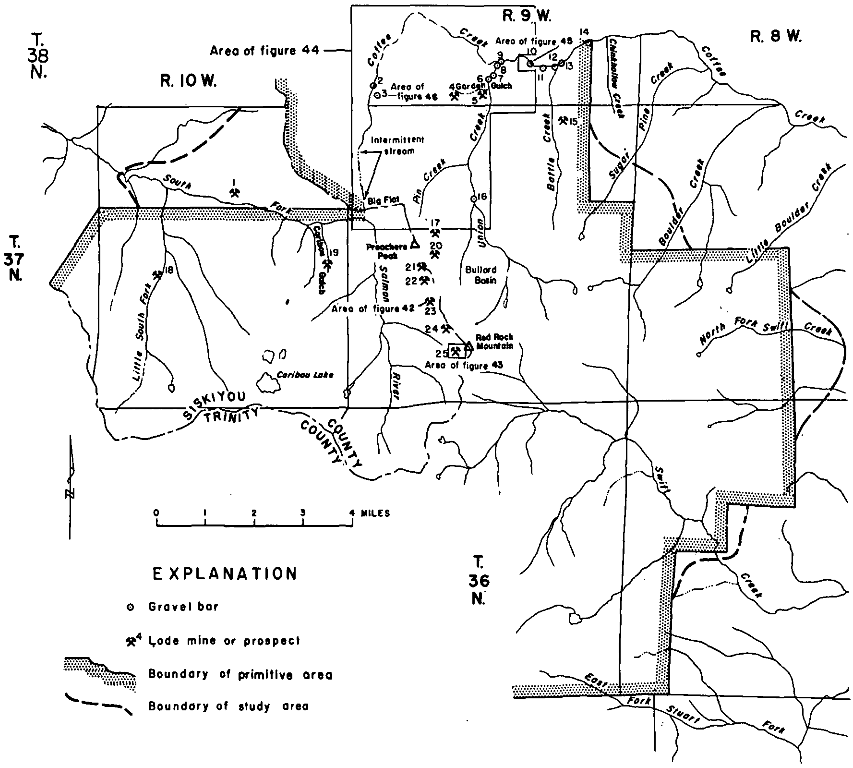
The major lode and placer production from Coffee Creek areas has come from mines in the south area. The Dorleska mine was the major lode producer, and the Nash placer group by far the major placer gold producer. Both represent potential gold resources.

Andy Lease

The Southern Pacific Land Co. has leased 120 acres known as the Andy lease in sec. 33, T. 38 N., R. 9 W., to Fred A. Marcellus, Hanford, Calif. (fig. 39, loc. 4). The property is reached by driving about 12 miles west on the Coffee Creek road from State Highway 3, then 2 miles by trail up Union Creek. The property produced more than 100 ounces of gold and some silver in the 1930's.

Gold and silver occur in quartz veins associated with dacite porphyry dikes intruding serpentinite and quartz mica schist. Main veins appear to trend eastward on a north-trending ridge; the east and west ends have been removed by erosion. The veins were developed by five adits totaling more than 500 feet in length. Ore shoots apparently occur intermittently through the veins and were mined in short raises and winzes from the adits.

The adits are caved, but 12 samples selected from waste dumps contained a trace of gold and a trace to 0.14 ounce of silver per ton.



1. Gigalo prospect
2. Nash placers
3. Big Flat placer
4. Andy lease
5. Niedra prospect
6. No Name gravel bar
7. No Name gravel bar
8. Union Creek bar
9. No Name gravel bar
10. Cecil Bell's placer
11. James Bell's placer
12. No Name gravel bar
13. Keystone placer
14. Prince Albert placer
15. Ferndale prospect
16. Upper Union Creek placers
17. B. V. prospect
18. Holy Terror prospect
19. Great Dike prospect
20. Dorleska mine
21. Dorleska prospect
22. Yellow Rose mine
23. LeRoy mine
24. No Name prospect
25. Red Rock Mountain prospect

FIGURE 39. — Mines and prospects in Coffee Creek south area.

NIEDRA PROSPECT

The Niedra group is held by William Phelps, Redding, Calif. Gold was produced during ground sluicing of overburden when the original mine was operated (Averill, 1941, p. 51). The property is at an altitude of 4,700 feet and is principally in sec. 33, T. 38 N., R. 9 W., and sec. 4, T. 37 N., R. 9 W. Access to the workings from the Coffee Creek road is by way of Union Creek trail to Garden Gulch (fig. 39, loc. 5).

Gold occurs principally in quartz stringers intersecting diorite dikes and serpentinite. Two adits were driven southwestward, probably along vein and fracture systems. Recent workings consist of a 15-foot adit and two small pits above the adit. About 300 feet west from the adit are two more small pits.

The 15-foot adit was driven along a fault which strikes S. 30° W. and dips 80° NW., in dark-gray weathered schist and brown weathered serpentinite. Samples of each rock type contained traces of gold; the schist sample contained a trace of silver and the serpentinite sample 0.05 ounce of silver per ton. Five samples, from the pit and shaft dumps, contained traces of gold; two of these samples contained no silver, the other three from 0.08 to 0.12 ounce of silver per ton.

Ferndale Prospect

Ferndale Nos. 1 through 3 claims were located in 1962 by Louis and Effie Young for nephrite jade. These claims are on the ridge east of Battle Creek in sec. 2, T. 37 N., R. 9 W. (fig. 39, loc. 15). Access from Coffee Creek is by unmaintained trail. Reconnaissance on the ridge between Battle and Chinkhollow Creeks failed to reveal any prospect workings or the exact position of the claims.

The area is underlain by ultramafic bedrock with numerous veins of dark-green to black silicate minerals as much as 3 inches wide. A sample of vein material was identified as a mixture of chlorite and green hornblende, material that may have been mistaken for jade when the claims were staked.

Gigalo Prospect

The Gigalo prospect, operated by Harlan Roff, Shasta, Calif., is approximately one-half mile north of the South Fork Salmon River in unsurveyed sec. 10, T. 37 N., R. 10 W. (fig. 39, loc. 1). Gold and silver were produced from this property between 1935 and 1941. The claims can be reached from the well-maintained Big Flat trail, which extends from the end of the road along South Fork Salmon River, a distance of about 6 miles.

Most of the country rock in the vicinity of the prospect is amphibolite. The workings, two adits, are at an altitude of about 4,000 feet. The main adit is 100 feet long and trends N. 60° E. The first 60 feet is completely timbered and lagged; the next 40 feet is unsupported and unsafe to enter. The waste dump contains amphibolite with white veins of quartz and calcite containing pyrite crystals. A sample of quartz and one of amphibolite each contained a trace of gold and 0.08 ounce of silver per ton. An equipment shed and the ruins of a mill stand across the trail from the adit portal.

The second adit, about 600 feet northwest of the main adit, strikes N. 15° W. and is about 25 feet long. It was flooded and partly caved and unsafe to enter. Analysis of a pink porphyry on the waste dump showed traces of gold, but no silver.

Holy Terror Prospect

Holy Terror lode and Holy Terror millsite claims located by George Muth, Somes Bar, Calif., are on the Little South Fork in unsurveyed sec. 21, T. 37 N., R. 10 W. (fig. 39, loc. 18). These claims are accessible by traveling 5½ miles east and south on the Big Flat and Caribou Lake trails from the end of the road up South Fork Salmon River. The workings are uphill from the Caribou Lake trail. One-half mile upstream along the Caribou Lake trail, there is a small cabin in poor repair. This probably is on the Holy Terror millsite.

Country rock consists of amphibolite, with some quartz veins. A partly caved adit at an altitude of about 4,200 feet trends S. 75° W. for 20 feet. A sample of white quartz containing abundant fine pyrite assayed 0.75 ounce gold per ton. A sample (AA11, table 1) of quartz vein 3 inches wide, stained with iron oxide, at the portal of the adit contained 94 ppm (2.75 ounces gold per ton), and semiquantitative spectrographic analysis revealed 100 ppm silver, 15 ppm bismuth, 150 ppm copper, 3,000 ppm lead, and 200 ppm zinc.

A sample (AA9, table 1) of amphibolite from an exposure 0.4 mile southeast of the adit contained no gold but 1 ppm silver and 200 ppm zinc (spectrographic analysis). Another sample (AA12, table 1) of amphibolite from 0.4 mile north of the adit contained 0.04 ppm gold and 1.5 ppm silver.

The potential is good for discovery of additional gold-bearing quartz veins on the property.

Great Dike Prospect

Prospect workings in Caribou Gulch are probably on Great Dike Nos. 1 through 7 claims located by Elmer and Flora Williams of Cottonwood, Calif. A small quantity of gold and silver reportedly was produced in 1938. This prospect can be reached by traveling about 2 miles on the old Caribou Lake trail from the Big Flat campground. The workings are in unsurveyed sec. 24, T. 37 N., R. 10 W. (fig. 39, loc. 19).

The area is underlain by the Salmon Hornblende Schist and is approximately 0.3 mile north of the Browns Meadow fault. The Salmon is not exposed at the prospect, but it crops out on the ridge to the east and in the ravine to the north. The only bedrock exposed is on a gullied slope to the west that apparently was overlain by a thin veneer of alluvium which has been stripped off by hydraulicking. The exposed bedrock is weathered highly fractured and sheared fine-grained greenish-gray altered dioritic dike rock cut by a network of calcite veinlets and containing disseminated fine-grained pyrite. Float of medium- to coarse-grained quartz diorite porphyry with large phenocrysts of feldspar is abundant to the south. No typical amphibolite of the Salmon occurs on the dumps. Apparently the workings were entirely in the dioritic dike rock, although a fine-grained white siliceous rock containing pyrite, which may also be a dike rock, is plentiful on the dump. Vein quartz is not plentiful, but some, containing small amounts of pyrite, was seen on the upper dump.

The old adit, at an altitude of about 5,800 feet, trends about S. 45° W. and is caved about 85 feet from the portal. The dump contains approximately 800 tons of dark-gray altered dike rock, with some white quartz and calcite. Samples of quartz and of country rock each contained traces of gold. The ruins of a building which may have been a mill are about 100 feet south of the portal. About 50 feet east of the ruins, along Caribou Gulch, are two large cobble-boulder piles, remnants of hydraulic mining.

A pan-concentrate sample (BB8, table 1) from Caribou Creek approximately 0.5 mile north of the Great Dike prospect contained 320 ppm gold (atomic absorption analysis).

B. V. Prospect

A prospect trench at an altitude of about 7,000 feet on the ridge between Pin Creek and Bullard Basin in sec. 17, T. 37 N., R. 9 W. (fig. 39, loc. 17) may be the B. V. prospect. It is reached from Coffee Creek road by traveling south about 3 miles on the Yellow Rose trail from Big Flat, then north about 1 mile to the divide, then another mile along the ridge past Preachers Peak.

Rocks in the vicinity of this prospect consist mostly of mica schist and amphibolite of the Abrams Mica Schist, serpentinite, and dark-gray mafic dike rocks. The trench, which is mostly filled, is about 35 feet long and trends N. 70° W. A sample of dump rock contained a trace of gold and 0.12 ounce silver per ton.

Dorleska and Yellow Rose Mines and Dorleska Prospect

The Dorleska and Yellow Rose mines (locs. 20 and 22, fig. 39) and Dorleska prospect (loc. 21, fig. 39) are in serpentinite near the contact between serpentinite and metamorphic rocks of the Abrams Mica Schist. Poor exposures, inaccessibility of the mines due to caving, and inadequate published descriptions make it difficult to determine the geology of the deposits. From the available data, however, we deduce that gold occurs in quartz veins associated with dikes that intruded the ultramafic rock. Dike rock types that occur as fragments on the dumps are fine-grained andesite, dacite porphyry, and fine-grained hornblende diorite. Andesite and dacite porphyry, which are most common, are characteristically altered in varying degree and may contain minor amounts of pyrite. The fine-grained hornblende diorite is unaltered or only slightly altered and contains no sulfides, except for very rare small cubes of pyrite. Vein quartz is rare, possibly because all that was mined was treated in the mills. The few pieces of quartz found were milky white, vuggy, and essentially devoid of sulfides. Published descriptions (Hershey, 1900, p. 91; MacDonald, 1913, p. 34; Averill, 1933, p. 55; Clark, 1970, p. 136) suggest that the gold occurred in gouge and breccia along faulted contacts between dikes and serpentinite country rock. Auriferous quartz veins possibly occupied the contact and were brecciated by subsequent faulting.

The Dorleska and Yellow Rose mines are approximately one-half mile apart on the east and west sides, respectively, of Grouse Ridge. The Dorleska prospect is approximately halfway between, on the west side of the ridge, above the Yellow Rose. Both mines are a few hundred feet east of a prominent quartz diorite porphyry dike which strikes N. 15°–20° E. and occupies the contact between serpentinite and rocks of the Abrams Mica Schist. The geologic setting is similar at both mines. They may both be on a common zone of dike intrusion and fracturing.

The Dorleska mine (fig. 40) is about 6,700 feet above sea level in sec. 20, T. 37 N., R. 9 W., on the ridge west of Bullard Basin. Access from the end of the road at Big Flat Campground is by traveling southeasterly about 2 miles on the Yellow Rose and Red Rock Mountain trail, then northeasterly about 1 mile on the Dorleska mine trail.

This deposit was discovered in 1898 and worked intermittently until about 1938. Development prior to 1926 was described as follows: "a shaft 350 feet deep with three levels, and a winze 50 feet deep from the lowest of these is said to be in ore. Drifts are said to extend about 150 feet north and south in the soft oxidized ore" (Logan, 1926, p. 18). Later development included the adit about 900 feet northeast of the shaft. Logan (1926, p. 18) estimated that about $200,000 had been produced by 1926. Minor production was reported between 1912 and 1938, the last year of operation. About nine times more gold than silver was produced during the life of the mine.

Bedrock exposures at the Dorleska mine are not plentiful. All the outcrops in the vicinity of the mine are serpentinite, except a

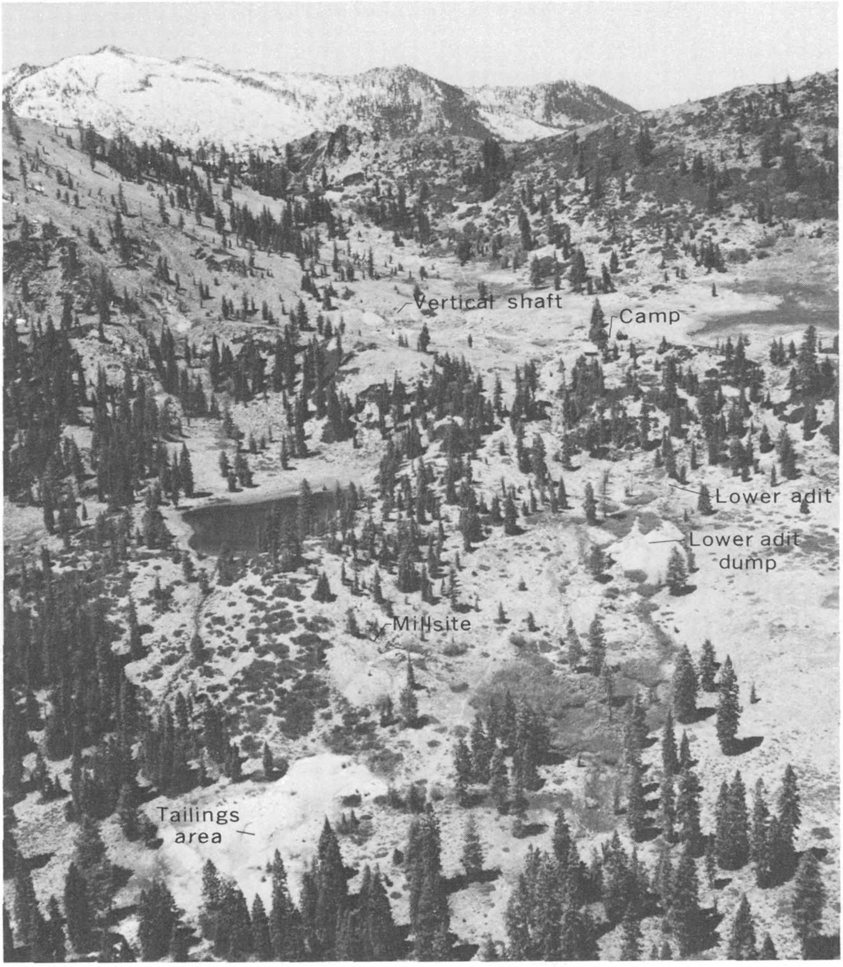


FIGURE 40. — Dorleska mine area.

quartz diorite porphyry dike northeast of the old workings. Rock on the mine dumps is serpentinite, greenish-gray altered andesite, diorite porphyry, and minor amounts of fine-grained hornblende diorite. Ore shoots at the Dorleska apparently occurred in northeast-trending fractures and vein systems.

All mine openings were caved and inaccessible when examined. Ten representative dump samples were taken. Eight contained traces of gold, one contained 0.034 ounce of gold per ton, and another, from a select stockpile on the lower adit dump, contained 7.96 ounces of gold and 1.64 ounces of silver per ton. Silver content ranged from nil to 0.20 ounce per ton in eight of these samples. A sample of pyrite-rich material, probably a "middling," remaining on the mill floor, contained 1.67 ounces of gold and 2.74 ounces of silver per ton. A mill tailings sample contained 0.04 ounce of gold and 0.10 ounce of silver per ton. Spectrographic analysis of crushed serpentinous material with some quartz obtained from an old ore bin revealed 500 ppm arsenic.

The Dorleska prospect is one-half mile southwest of the Dorleska mine, in sec. 20, T. 37 N., R. 9 W., at an altitude of about 7,000 feet. Workings consisted of a caved adit trending N. 35° W. and at least four small pits that were dug probably to search for southwestern extensions of the mineralized zone at the Dorleska mine. The workings expose dacite porphyry dikes in sheared serpentinite. Representative samples from four dumps contained traces of gold. Two samples contained 0.12 and 0.06 ounce silver per ton; the other two contained none. No gold or silver reserves are indicated at this prospect. Weak gold mineralization may occur, however, between the Dorleska and Yellow Rose mines.

The Yellow Rose mine (fig. 41) is on the ridge east of the South Fork Salmon River in sec. 20, T. 37 N., R. 8 W., Siskiyou County (fig. 39, loc. 22). It can be reached by traveling southeasterly about 2 miles on the Yellow Rose and Red Rock Mountain foot trail from the Big Flat campground. There are four adits at the property, all caved at the portal. Logan (1926, p. 26–27) reported that ore was discovered in 1897, that the lowest adit was 1,400 feet long and the one above it 710 feet long, and that the vein ranged from 2 to 6 feet in width. He estimated that about $75,000 worth of gold ore was processed with the 3½-foot steam-powered Huntington mill still on the property. The greatest production occurred between 1898 and 1901. Little gold has been produced from this property since 1926, the year Logan's work was published. Last known production was in 1936. Some ore, processed at the Yellow Rose mill may have come from the LeRoy mine, about one-half mile to the south.

Exposures at the Yellow Rose mine are very poor. The workings are in serpentinite cut by northeast-trending nearly vertical dikes (Averill, 1933, p. 55). Hershey (1900, p. 91) reported that gold-bearing quartz occurred in a shear zone at the contact between serpentinite and a dike containing "needle-shaped crystals of black hornblende." The shear zone lay a few yards east of the quartz porphyry dike separating the serpentinite from metamorphic rocks of the Abrams Mica Schist. The material now on the dumps is mostly serpentinite and pyritiferous light-colored dike rock. A very small amount of vuggy quartz is also present.

A trace of gold was reported in each of 11 dump samples. Three samples contained 0.12, 0.12, and 0.10 ounce of silver per ton, two contained traces of silver, and six contained none.

FIGURE 41. — Yellow Rose mine area.

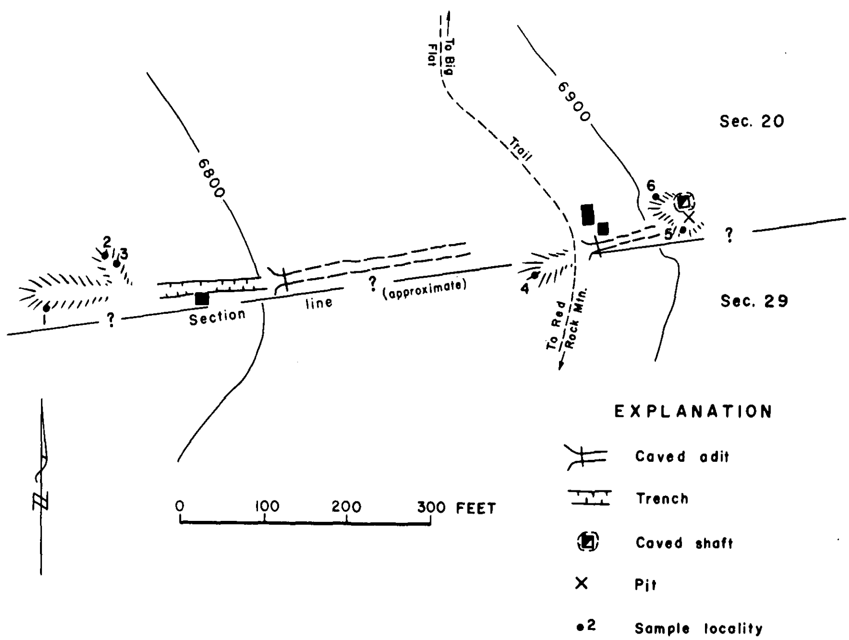
The significant production of the Dorleska and Yellow Rose mines and the possibility of geologic continuity between them suggest a slight potential for discovery of additional gold deposits in the unexplored area between the two mines.

LeRoy Mine

The LeRoy mine (fig. 39, loc. 23) is about one-half mile south of the Yellow Rose mine in sec. 20, T. 37 N., R. 9 W. The mine probably was operated along with the Yellow Rose mine, and ore probably was milled at the Yellow Rose mill.

Although the mine is separated from the Dorleska-Yellow Rose area of mineralization by the Browns Meadow fault (fig. 2), it too is in serpentinite near the contact with metamorphic rocks of the Abrams Mica Schist.

Mine workings, driven along andesite and dacite porphyry dikes which strike easterly through serpentinite, consist of two caved east-trending adits and a caved shaft (fig. 42). Sizes of dumps indicate that the main adit was driven about 500 feet, and the other about 100 feet—in the same direction and about 50 feet above the first. The shaft collar is about 35 feet above the upper adit and may have been sunk about 80 feet. Each of six dump samples contained a trace of gold. Two samples contained traces of silver, one contained none, and the others contained 0.09, 0.12, and 0.14 ounce silver per ton. No reserves are indicated at the LeRoy property.



Assay data

Sample No.	Type	Gold (ounce per ton)	Silver (ounce per ton)
1	Dump	Tr	0.09
2	do	Tr	Tr
3	do	Tr	Tr
4	do	Tr	.12
5	do	Tr	.14
6	do	Tr	None

Tr Trace.

FIGURE 42. — LeRoy mine.

Unnamed Prospect

An unnamed prospect (fig. 39, loc. 24) is situated about three-fourths mile south of the LeRoy mine and about one-half mile north of the Red Rock Mountain claims. The workings, an adit and two pits, are at an altitude of 7,000 feet, on the ridge east of South Fork Salmon River in sec. 28, T. 37 N., R. 9 W. Serpentinite and dark dike rock are poorly exposed in each of the three excavations. The adit, which is caved, trends about N. 5° E. A sample from the adit dump contained a trace of gold and 0.20 ounce of silver per ton and assayed 0.26 percent chromium and 0.24 percent nickel. These chromium and nickel contents are not unusual for ordinary serpentinite, nor are even higher ones. A sample from the pit dump 90 feet to the west contained no gold or silver, but a sample from the dump near the small pit about 50 feet north of the adit contained a trace of gold and 0.06 ounce of silver per ton.

Red Rock Mountain Prospect

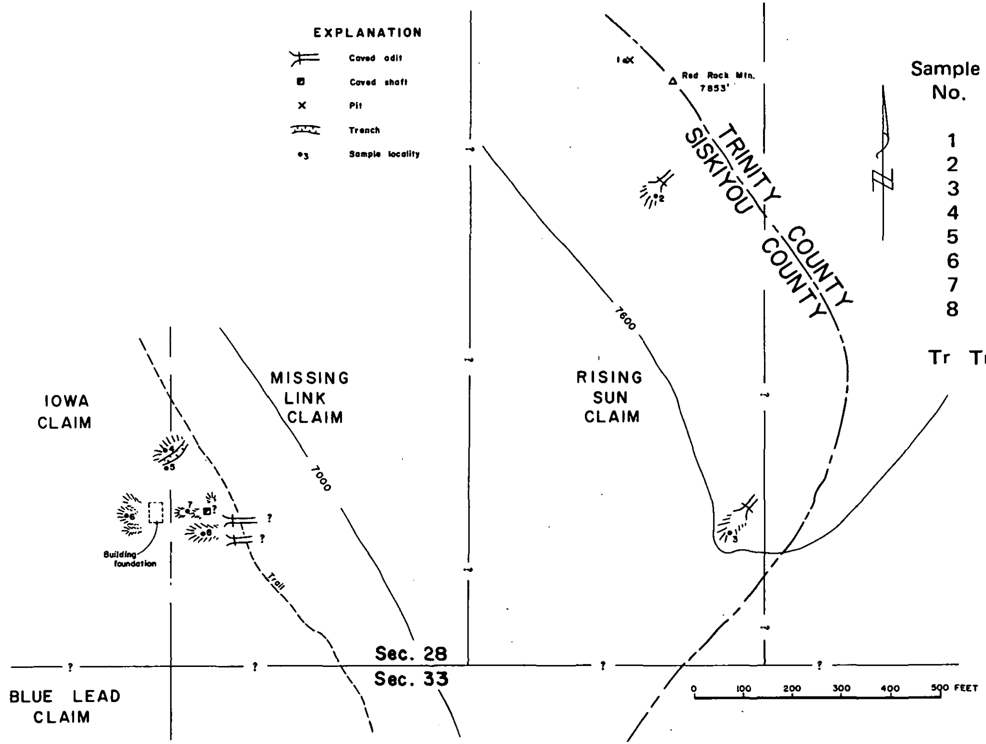
The Red Rock Mountain group includes the Iowa, Missing Link, Rising Sun, and Blue Lead patented mining claims in secs. 28 and 33, T. 37 N., R. 9 W. (fig. 39, loc. 25). The owner as listed in county records is George J. Dymesich, Cottonwood, Calif. These claims are reached from Big Flat campground by traveling about 4 miles on the Yellow Rose and Red Rock Mountain trails. The highest point on Red Rock Mountain is on the Rising Sun claim (fig. 43), and the upper workings are about 7,600 feet above sea level.

Country rock is serpentinite. Fragments of fine-grained hornblende diorite containing small amounts of pyrite are common. There is enough magnetite in the serpentinite to cause erratic compass readings. Workings are all caved, and some are difficult to identify. There probably were four adits, a shaft, and a trench.

Eight dump samples each contained a trace of gold. Three samples contained no silver, four traces of silver, and one 0.16 ounce of silver per ton.

Nash Placers

The Nash placers consist of eight patented claims (fig. 39, loc. 2; fig. 44). They were worked intermittently under various ownerships and leases between 1896 and 1951. Present owners are Gilbert and Helen Gates, San Francisco, Calif. "Lower Nash" ground comprises the Sawmill, Monroe, and part of the Gibbons claims in secs. 27, 28, 33, and 34, T. 38 N., R 9 W. "Upper Nash" ground comprises the remainder of the Gibbons, and the Zenobia, Abrams, Nash, Barstow, and Martin in secs. 29, 30, and 31, T. 38



Assay data

Sample No.	Type	Gold (ounce per ton)	Silver (ounce per ton)	Chromium (percent)
1	Pit	Tr	None	0.21
2	Dump	Tr	0.16	.067
3	do	Tr	Tr	.18
4	Trench	Tr	Tr	.18
5	Stockpile?	Tr	None	.26
6	Dump	Tr	Tr	.11
7	do	Tr	None	.067
8	do	Tr	Tr	.20

Tr Trace.

FIGURE 43. — Red Rock Mountain claim group.

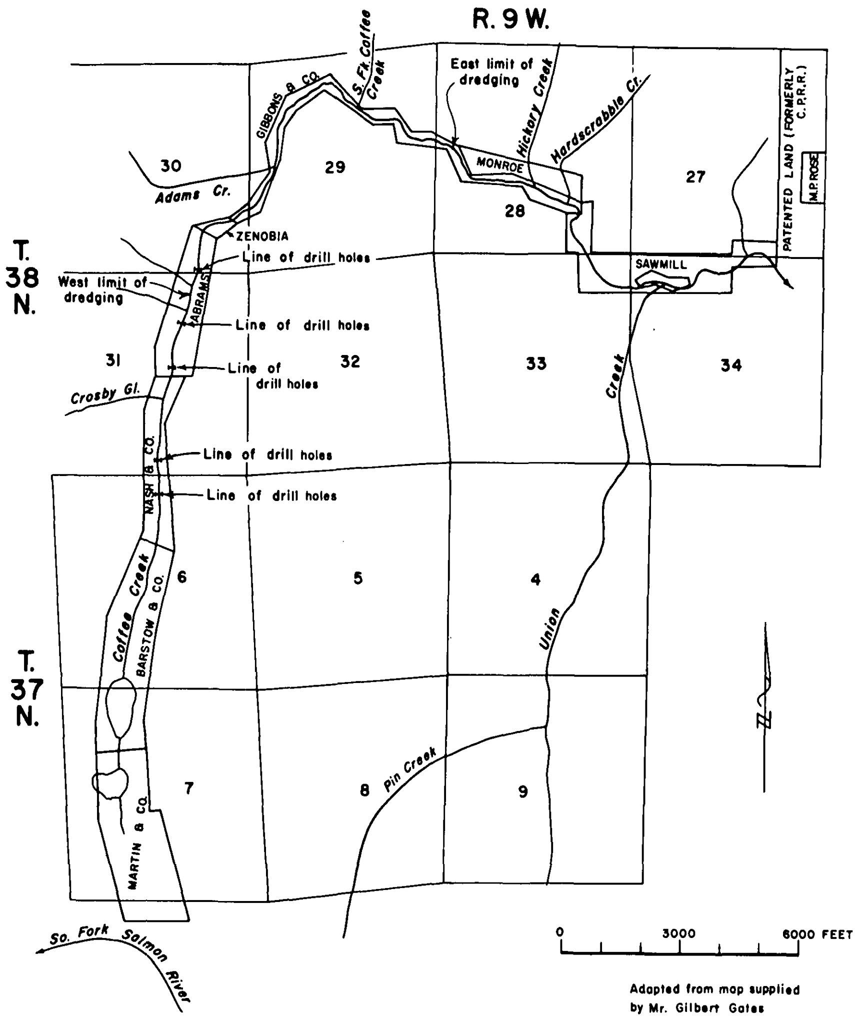


FIGURE 44. — Nash patented placer claims.

N., R. 9 W., and secs. 6 and 7, T. 37 N., R. 9 W. From State Highway 3, the property can be reached by driving about 15 miles west on Coffee Creek gravel road, which runs through the group of claims.

Terrace gravels of this deposit are of fluvioglacial origin and were derived from rocks in the upper reaches of Coffee Creek and the South Fork Salmon River. Part of the gravel probably was deposited by upper Coffee Creek before its capture by the South Fork Salmon River.

The 1½-mile-long stretch of Coffee Creek on the "Lower Nash," from the mouth of Union Creek upstream, was extensively mined by hydraulic methods. Gravel was dredged for an additional 2 miles upstream on the "Upper Nash." Last mining consisted of bucketline dredging between 1947 and 1951. More than 10,000 ounces of gold and 1,400 ounces of silver were produced from the Nash placer between 1896 and 1951, about 70 percent of it by dredging.

Remaining gravel terraces were not sampled during this study. On the basis of churn drilling done by owners prior to 1934 and field reconnaissance, an estimated 4 million cubic yards of terrace gravel containing an average of about $0.14 cubic yard in gold remains on these claims. Under present economic conditions, the deposit cannot be mined profitably.

Union Creek Bar

A gravel terrace is situated at the confluence of Union and Coffee Creeks (fig. 39, loc. 8), in sec. 34, T. 38 N., R. 9 W. Access is provided by the Coffee Creek road. No placer workings could be recognized on this deposit of auriferous gravel. A select sample taken on serpentinite bedrock at the base of the gravel contained less than $0.10 gold per yard. The deposit consists of about 10,000 cubic yards of material. It cannot be mined profitably.

Unnamed Gravel Bars on Union Creek

A small gravel terrace in sec. 34, T. 38 N., R. 9 W., is on Coffee Creek opposite the mouth of Union Creek (fig. 39, loc. 9). The gravel, a small deposit of about 500 cubic yards, probably was deposited recently, after hydraulic mining on Coffee Creek. A select sample on serpentinite bedrock contained $0.60 gold per cubic yard. No placer workings were recognized. There is insufficient gravel at this deposit to mine at a profit.

A small auriferous gravel terrace is situated on the east side of Union Creek, about one-half mile upstream from Coffee Creek (fig. 39, loc. 6), in sec. 33, T. 38 N., R. 9 W. It can be reached by walking about one-half mile up Union Creek.

The terrace is a remnant of past hydraulic mining. It is about 200 feet long, averages about 30 feet high, and contains about 2,000 cubic yards of cobble-boulder gravel. A sample taken on bedrock contained $0.60 in gold per cubic yard. The deposit is too small to warrant mining.

About 1,000 feet downstream from the gravel bar described above, a second gravel terrace is situated on the east bank of the creek, in sec. 34, T. 38 N., R. 9 W. (fig. 39, loc. 7). This remnant of past hydraulic mining is about 300 feet long, averages about

20 feet high, and contains about 3,000 cubic yards of gravel. A grab sample near the base of the terrace contained less than $0.10 worth of gold per cubic yard. The deposit is too small to mine.

Cecil Bell's Placer

The Cecil Bell mine is in sec. 34, T. 38 N., R. 9 W. (fig. 39, loc. 10), and formerly was part of the Prince Albert claim group. Cecil Bell, Fresno, Calif., operates the mine, which is on Coffee Creek near Three Sisters Gulch.

Gold is concentrated in terrace gravel, particularly near bedrock. Cobble-boulder gravel extends about 1,200 feet northwesterly on the southwest creek bank (fig. 45). Ultramafic bedrock crops out on all sides of the gravel, but gravel-bedrock contacts are obscured. The west boundary is partly covered with talus.

This gravel terrace is a remnant of earlier hydraulic mining. A series of test pits have been dug with a dragline and bulldozer to evaluate the deposit.

Resources are estimated to be 100,000 cubic yards of gravel, averaging about 15 feet thick. Gold content in five select samples ranged from $0.12 to $1.60 and averaged $0.68 per cubic yard. Average grade of the entire volume of gravel is estimated to be less than $0.25 per cubic yard. Costs of excavation and processing are very likely to exceed $0.25 per cubic yard; therefore, the entire deposit probably is not minable under present economic conditions, but some higher grade parts may be profitably mined.

James Bell's Placer

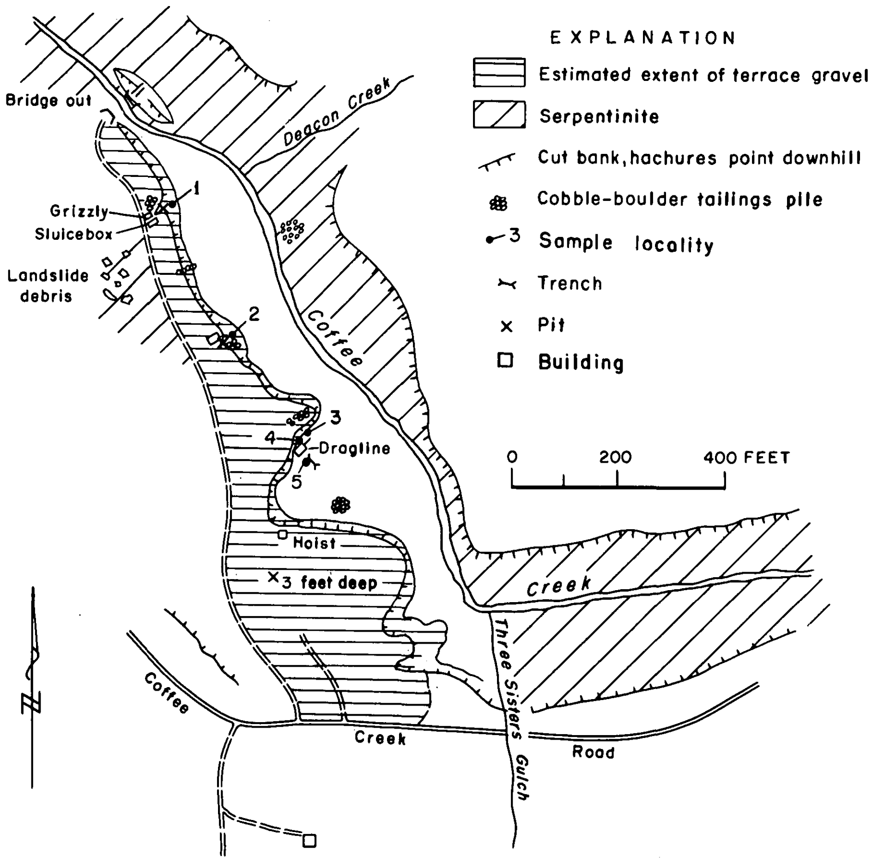
About 1,000 feet downstream from Cecil Bell's placer deposit, James Bell, Rancho Cordova, Calif., has been prospecting on two small gravel terraces in the NW¼ sec. 35, T. 38 N., R. 9 W. (fig. 39, loc. 11). These deposits are reached by a bulldozer road that extends a few hundred feet from Coffee Creek road. This property formerly was part of the Prince Albert claim group.

Placer gold occurs near the base of pebble-cobble-boulder gravel. Serpentinite and gabbro are exposed at the ends of the two gravel terraces. A sample was taken near bedrock on each terrace. One contained $0.26 and the other $0.60 gold per cubic yard. The terrace farther upstream contains an estimated 10,000 cubic yards of gravel, the other about 3,000 cubic yards.

The average gravel probably could not be mined and processed profitably under present economic conditions, but the placer may contain some concentrations that could be profitably mined.

Keystone Placer

Keystone placer claims 1 and 2 are owned by Charles H. Waugaman, San Francisco, Calif. The property is on Coffee Creek near



Assay data

Sample No.	Type	Gold (cents per cubic yard)
1	Pan concentrate	12
2	do	160
3	do	15
4	Large sample concentrate	68
5	Pan concentrate	30

FIGURE 45. — Cecil Bell's placer mine.

the mouth of Battle Creek (fig. 39, loc. 13) in sec. 35, T. 38 N., R. 9 W. Gold occurs in placer gravel, particularly near bedrock. About 50,000 cubic yards of gravel is contained in the terrace at the confluence of Coffee and Battle Creeks and west of Battle Creek.

A select sample, on ultramafic bedrock, contained $0.42 gold per cubic yard. There are no recent workings. Although gold concentration locally is significant, gravel volume is too small for profitable mining.

UNNAMED GRAVEL BAR ON COFFEE CREEK

The largest remaining gravel terrace below the Nash placer claims extends about 2,400 feet down Coffee Creek from the mouth of Battle Creek (fig. 39, loc. 12) in sec. 35, T. 38 N., R. 9 W.

Terrace gravel lies on serpentinite and gabbro bedrock, which is exposed at the downstream end of the terrace and in a few places beneath the terrace. The deposit is a series of coalescing terraces at various levels on the hillside above Coffee Creek. It is a veneer of gravel averaging 25 feet thick over a 300-foot-wide area. Total volume of gravel is on the order of 700,000 cubic yards. Four select samples ranged in gold content from less than $0.10 to $1 per cubic yard.

Mining and concentration costs would probably exceed $0.50 per cubic yard of gravel. Relocation of Coffee Creek road, which runs through this deposit, would be an additional cost. It is doubtful that this placer gold deposit could be profitably mined under present economic conditions.

PRINCE ALBERT PLACER

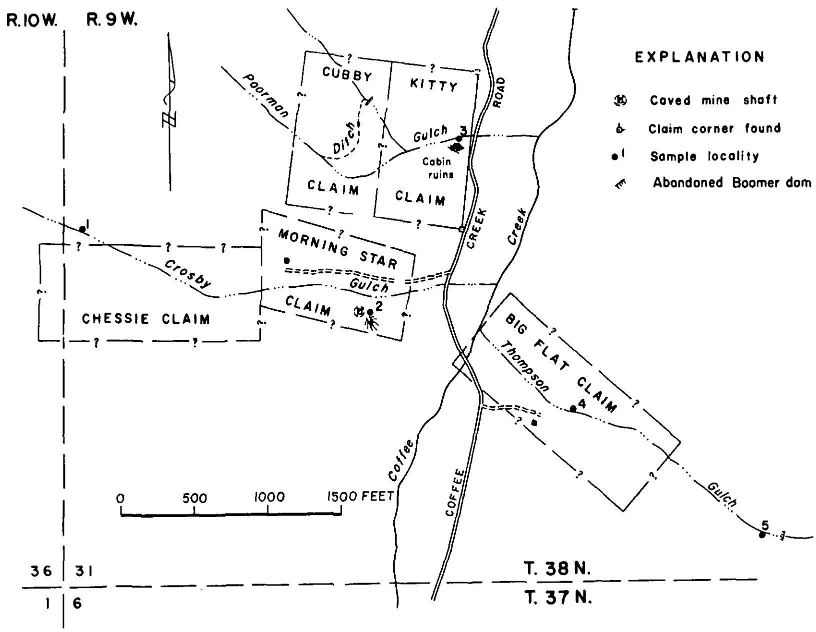
A cobble-boulder gravel terrace is situated on the south side of Coffee Creek at the study area boundary, in secs. 25 and 26, T. 38 N., R. 9 W. (fig. 39, loc. 14). About three-fourths of the gravel is inside the study area. This property may be part of the Prince Albert claim group owned by O. H. Heninger, Corning, Calif.

A veneer of gravel about 10 feet thick covers an area about 300 feet long and 250 feet wide. The deposit contains about 30,000 cubic yards of gravel. A sample taken on bedrock contained $0.60 worth of gold per cubic yard. It is very doubtful if this deposit could be economically mined, although small concentrations of gold might be profitably mined in certain places.

BIG FLAT PLACER

The Big Flat placer claim is on Thompson Gulch, near Coffee Creek, in sec. 31, T. 38 N., R. 9 W. (fig. 39, loc. 3). Mrs. Vernie Sewall of Coffee Creek, Calif., holds the claim (fig. 46).

The Big Flat claim has been mined in the past. Only about 2,000 cubic yards of terrace sand and gravel remains. Analysis of a panned grab sample of the gravel indicated $0.12 in gold per cubic yard. There are ruins of a "boomer" hydraulic mining dam about 800 feet upstream from the claim.



Assay data

Sample No.	Type	Gold (cents per cubic yard)	Silver (cent per cubic yard)
1	Pan concentrate	<10	([1])
2	Waste dump	Tr	0.06
3	Pan concentrate	<10	([1])
4	do	12	([1])
5	do	Nil	([1])

[1] Not requested.
Tr Trace.

FIGURE 46. — Big Flat, Chessie, Cubby, and Kitty placer claims and Morning Star patented lode claim.

UPPER UNION CREEK PLACERS

No placer workings were found on upper Union Creek (fig. 39, loc. 16), but auriferous terrace gravel in secs. 9, 15, and 16, T. 37 N., R. 9 W., were examined. Access is provided by Coffee Creek road and by 2–4 miles of Union Creek foot trail.

Terrace gravel is scarce on upper Union Creek. Poorly sorted detritus occurs along the creek upstream from where Union Creek enters sec. 15, T. 37 N., R. 9 W., and sorted gravel is present only in the stream channel. Farther downstream, in secs. 9, 15, and 16, some terraces have developed along a 2-mile reach of the narrow valley. As shown in table 6, eight of the bars range in size from less than 5,000 to about 90,000 cubic yards. Serpentinite bedrock

TABLE 6. — *Assay data, pan concentrates, upper Union Creek placers*

Sample No.	Size of deposit (cu yd)	Gold (cents per cu yd)
1	50,000	<10
2	90,000	10
3	10,000	None
4	2,000	None
5	20,000	<10
6	20,000	<10
7	<5,000	<10
8	<5,000	None

is exposed at the base of some terraces. Sampling was not detailed, but gold content did not exceed $0.10 per cubic yard in any sample.

A total of about 200,000 cubic yards of terrace gravel occurs over more than 1 mile of upper Union Creek. Average gold content probably does not exceed $0.10 per cubic yard. The low grade and small yardage preclude mining.

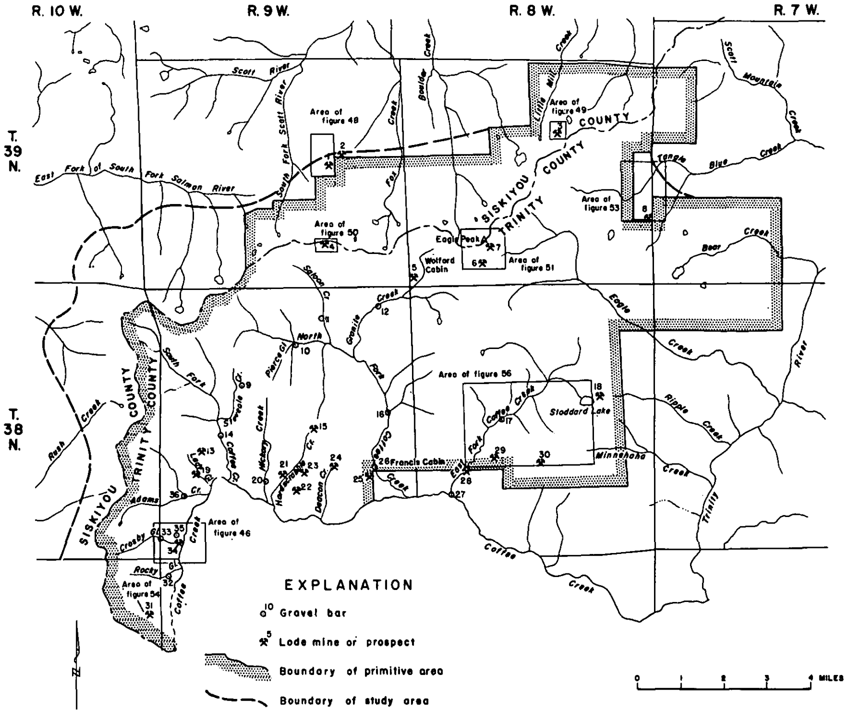
COFFEE CREEK NORTH AREA

The Coffee Creek north area (fig. 47) consists principally of Coffee Creek basin north of the main stream, but the eastern part of the area drains directly into Trinity River and the northern part is in the Scott River drainage.

PET (LOFTUS) PROSPECT

Pet Nos. 1 through 8 lode claims (fig. 47, loc. 1) are at the head of Noland Gulch (fig. 48), just outside the study area, at an altitude of about 6,400 feet in sec. 23, T. 39 N., R. 9 W. Frank P. Adams, San Francisco, Calif., Hubert D. Eller, and Richard I. Smith hold these claims and have applied for patent (Mineral Survey No. 6743). The property can be reached from Callahan by driving 10 miles west on the Cecilville Highway to Fox Creek Lake road, then about 6 miles southeastward by road to the prospect.

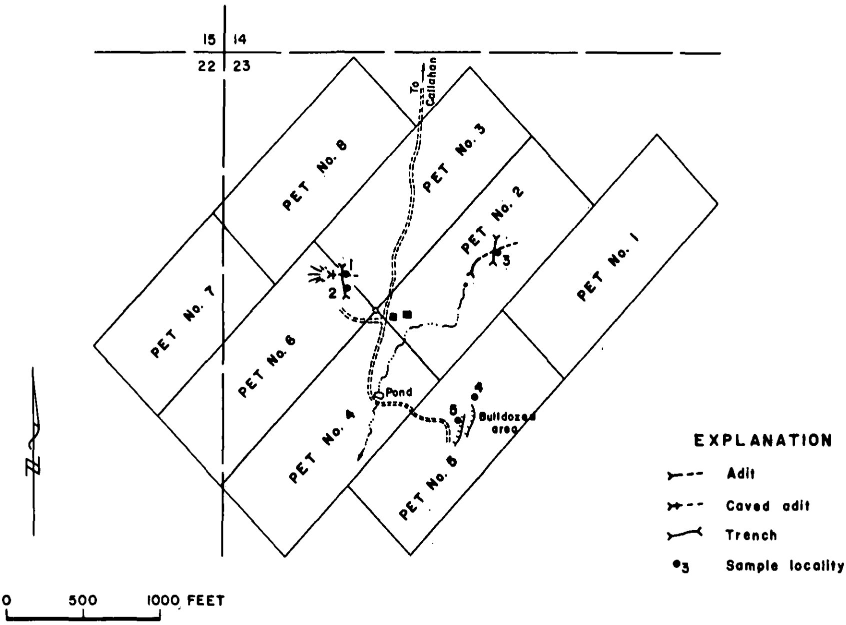
The property is on a fault separating serpentinite and quartz diorite. Noland Gulch, from which many springs issue, marks the trace of the contact. Surface weathering extends to a depth of 10 feet or more, but bulldozer cuts expose strongly sheared serpentinite and granitic rock. White vuggy quartz is abundant in surface debris and is visible in veins in the shattered granitic rock. No sulfide minerals were seen, but the quartz and granitic rock commonly have brown iron oxide stains.



1.	Pet prospect	19.	No Name prospect
2.	Lucky Star prospect	20.	Hickory Creek placers
3.	Klatt mine	21.	Shasta Lilly prospect
4.	Saloon Ridge prospect	22.	Gold Crown prospect
5.	Carter prospect	23.	M. P. Rose prospect
6.	Eagle prospect	24.	Gypsy Queen prospect
7.	Mount Shasta View prospect	25.	May Queen prospect
8.	Grand National mine	26.	Francis Cabin placers
9.	Steveale placer	27	T & C placer
10.	Schlomberg placer	28.	No Name prospect
11.	Saloon Creek placers	29.	Yellow Pine prospect
12.	Granite Creek placers	30.	Jumbo Atlas prospect
13.	Geneva mine	31.	Packer prospect
14.	South Fork Coffee Creek placers	32.	Rocky Gulch placers
15.	Hardscrabble prospect	33.	Chessie placer
16.	North Fork Coffee Creek placers	34.	Morning Star prospect
17.	Holland placer	35.	Cubby and Kitty placer
18.	Wyman prospect	36.	Adams Creek placers

FIGURE 47.—Mines and prospects in Coffee Creek north area.

Small discovery pits were dug on each claim. Extensive bulldozer excavation was done near the center of Pet No. 5. An adit was driven northeastward from near the center of Pet No. 2. The portal is partly caved, and the workings are flooded. Unstable



Assay data

Sample No.	Type	Gold (ounce per ton)	Silver (ounce per ton)
1	Pit	Tr	None
2	do	0.11	Do.
3	do	Tr	Do.
4	Dump	Tr	Do.
5	Pit	.03	Do.

Tr Trace.

FIGURE 48. — Pet (Loftus) claim group.

ground above the portal prevented safe entry. A second older adit which was driven eastward on Pet No. 6 is caved at the portal. Three samples were taken from quartz exposed in open pits; they contained a trace, 0.03, and 0.11 ounce of gold per ton. A sample of quartz from a dump and one of ultramafic rock from a pit each contained a trace of gold. No silver was reported in the samples. A sample (II50, table 1) of brecciated granitic rock with quartz veinlets obtained from a shallow pit near the portal of the adit on Pet No. 2 contained 30 ppm molybdenum (spectrographic analysis).

Gold is present in quartz veins on these claims; however, the veins appear thin and discontinuous.

LUCKY STAR PROSPECT

A lode prospect on the divide between Noland Gulch and Slide Creek may be on the Lucky Star claim located by H. K. Allen, Callahan, Calif., or might be an extension of Pet group prospecting. This prospect (fig. 47, loc. 2) is in the SE¼ sec. 14, T. 39 N., R. 9 W., on the boundary of the study area at an altitude of about 6,800 feet. It can be reached by a series of bulldozer roads that extend about one-fourth mile northeast from the Pet prospect.

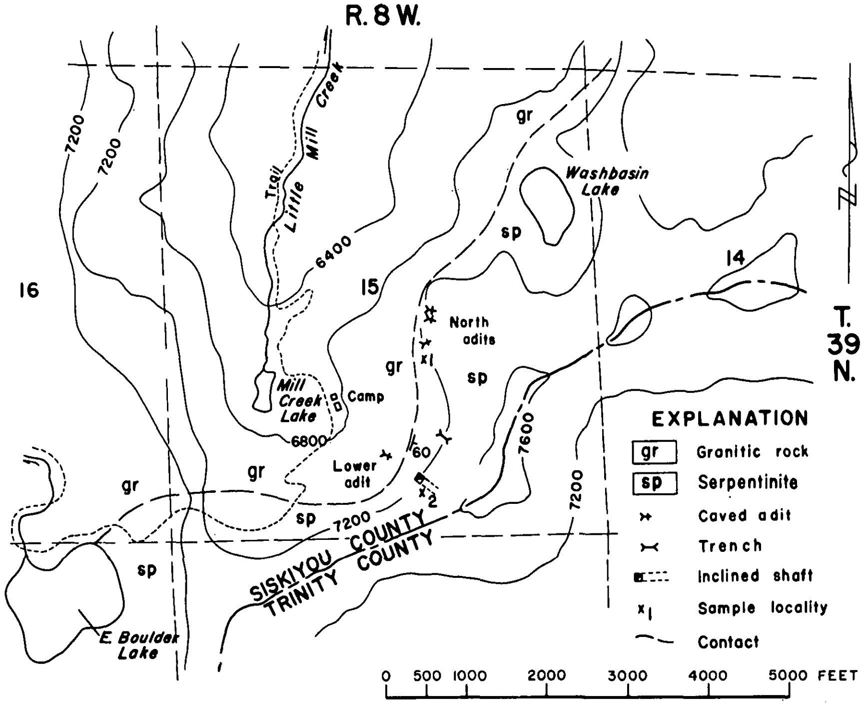
Dacite porphyry and altered and pegmatitic granitic rocks underlie the prospect workings. A shallow bulldozer excavation about 50 feet in diameter was made at the east end of the prospect. An east-trending trench about 10 feet long, 2 feet wide, and 5 feet deep was dug near the north edge of the bulldozed area. Thin seams of micaceous black hematite that cut granitic rock are exposed in the trench. A quartz sample from the trench contained 0.01 ounce of gold per ton. A porphyry sample from the same pit contained a trace of gold. A sample of quartz from a trench about 150 feet farther west contained a trace of gold. No silver was reported in the samples.

KLATT MINE (WHITTON PROPERTY)

The Klatt mine is in sec. 15, T. 39 N., R. 8 W., on private land (fig. 47, loc. 3). The mine camp and workings are in a glacial cirque at the head of Little Mill Creek, a tributary of Scott River near the Siskiyou-Trinity County line. Access from Callahan is by Forest Service road and trail up the main drainage.

Bureau of Mines production records show that the property produced approximately 1,198 ounces of gold and 552 ounces of silver during the period 1905 through 1910. There is no record of production after that period, subsequent work being only exploratory.

Gold and silver with minor amounts of copper and lead minerals occur in a persistent vein system in a shear zone as much as 35 feet wide. The zone, reported to be 2 miles long, has been explored on the Klatt mine property over a strike length of approximately 1,750 feet. The shear zone is virtually continuous between the south workings, the inclined shaft, and the northernmost adit (fig. 49) but is displaced as much as 40 feet by steeply dipping faults. It strikes approximately N. 25° E., dips steeply southeast, and is roughly parallel to the well-defined contact between granitic rock on the west and the serpentinite on the east. At the inclined shaft, the zone is approximately 200 feet east of the contact. The mineralized vein material, mainly iron oxide-stained quartz, contains scattered pyrite crystals and is vuggy in places.



Assay data

Sample No.	Width (feet)	Gold (ounce per ton)	Silver (ounce per ton)
1	Grab	0.18	0.23
2	do	.35	.27

FIGURE 49. — Klatt mine north.

Hershey[1] stated that pyrrhotite, galena, and chalcopyrite occurred in some places in the zone, and he observed breccia fragments recemented in the veins. Finely divided free gold is associated with iron oxide in parts of the sheared altered serpentinite footwall of the vein. An andesitic dike to the west parallels the shear zone and the contact of granitic rock and serpentinite. The dike and the shear zone dip approximately 60° E.

The known mineralization is limited to two ore shoots—one in the south shaft area and one in the north workings. Diligent exploration in 1934 and 1935 indicated the vein is well defined and continuous but contains very low values between the two workings.

[1] O. H. Hershey, unpub. rept., 1934–35, in files of California Division of Mines and Geology.

The sample results reported by that work range from slightly over $1 per ton (0.03 troy ounce) to over $50 per ton (1.4 troy ounces) in some of the narrower higher grade sections of the vein. Some anomalously high sample values were reported, mainly from the south workings. Samples from stockpiles at the north adit and the inclined shaft contained 0.35 and 0.18 ounce of gold per ton, respectively. Silver values were low. A sample (II9, table 1) from the dump of the shaft contained 15 ppm copper and lead and 15 ppm molybdenum (spectrographic analysis), and another (II10, table 1), from the dump of the north adit, contained 1,000 ppm lead and 10 ppm molybdenum.

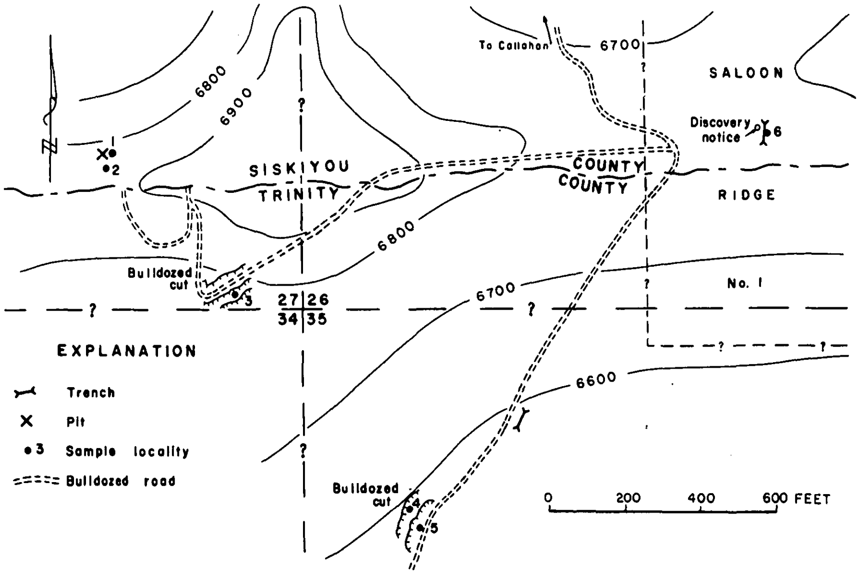
The results of the well-planned exploration in 1934 and 1935 and the present examination indicate the deposit is not minable under present economic conditions because of discontinuity of the ore shoots, relatively low average value of the ore, and inaccessibility.

Saloon Ridge Prospect

The Saloon Ridge prospect is in secs. 26, 27, and 35, T. 39 N., R. 9 W., at an altitude of about 6,800 feet on the divide between South Fork Scott River and the North Fork Coffee Creek (fig. 47, loc. 4). Most of the work was done south of the divide, in Trinity County. Access to the property now is by a trail that approximately follows an old 2½-mile-long bulldozed road from the Cecilville-Callahan Highway.

The country rock is serpentinite. A large granitic pluton crops out to the east. The contact between serpentinite and granite is a zone approximately 200 feet wide that occupies the saddle to the east on the ridge and includes mostly serpentinite (locally altered to talc), aplitic and quartz-feldspar pematitic dikes, and small lenses of fine-grained black quartz-mica hornfels. In a cutbank next to the old road, brecciated serpentinite is cut by a few narrow veinlets of asbestos.

The discovery pit for Saloon Ridge No. 1 was dug on a vein of fine-grained quartz in the contact zone. Neither gold nor silver was detected in a dump sample from this pit. Other workings may have been excavated to prospect for chromite ore. A serpentinite sample (1, fig. 50) from a small pit about 1,800 feet west of Saloon Ridge No. 1 discovery pit contained 19.8 percent chromium, 0.20 ounce of silver per ton, and no gold. The extent of the mineralized rock could not be determined, but semiquantitative spectrographic analysis of an outcrop sample taken 50 feet south of sample locality 1 showed only 0.1 percent chromium. Fire assays of the sample indicated only a trace of gold and no silver.



Assay data

Sample No.	Type	Gold (ounce per ton)	Silver (ounce per ton)	Chromium (percent)
1	Select	None	0.20	19.8
2	Outcrop	Tr	None	[1] .1
3	Select	Tr	do	[1] .1
4	do	Tr	do	[1] .1
5	do	Tr	do	[1] .3
6	do	None	do	[1] .2

Tr Trace.
[1] Estimated from semiquantitative spectrographic analysis.

FIGURE 50. — Saloon Ridge prospect.

Extensive shallow bulldozer work was done in serpentinite and andesite in two areas about 300 and 800 feet south of the divide. A few fragments of serpentinite with disseminated chromite were seen on a small dump at these workings. Three samples from these areas each contained a trace of gold and no silver. Chromium content ranged from 0.1 to 0.3 percent, according to semiquantitative spectrographic analysis.

Chromium-rich lenses are isolated occurrences on this property, and no ore reserves are present.

Carter Prospect

A prospect that might be one located by R. C. Carter, Oakland, Calif., is situated about 1,500 feet southwest of Wolford Cabin near Granite Creek (fig. 47, loc. 5), at an altitude of about 6,400 feet, in sec. 31, T. 39 N., R. 8 W. It can be reached by driving about 7 miles south of Callahan, on the McKeen Divide road, then traveling about 6 miles southward via Fox Creek Ridge to Wolford Cabin.

The country rock is quartz diorite. An adit was driven westward along a quartz-rich vein system which strikes N. 70° E. and dips nearly vertically. The adit, to a distance of about 50 feet from the old portal, has caved, leaving a trench.

An 8-foot-long vertical channel sample of the vein system contained 0.03 ounce gold per ton and a trace of silver. A representative sample of quartz from the dump contained 0.28 ounce of gold and 0.14 ounce of silver per ton. A representative sample of quartz diorite, which makes up most of the waste, contained a trace of gold and no silver.

Exposures of quartz veins are small, but samples assayed as much as $9.80 in gold per ton. The known veins cannot be economically mined, but potential for discovery of additional gold-bearing veins is good.

Eagle Prospect

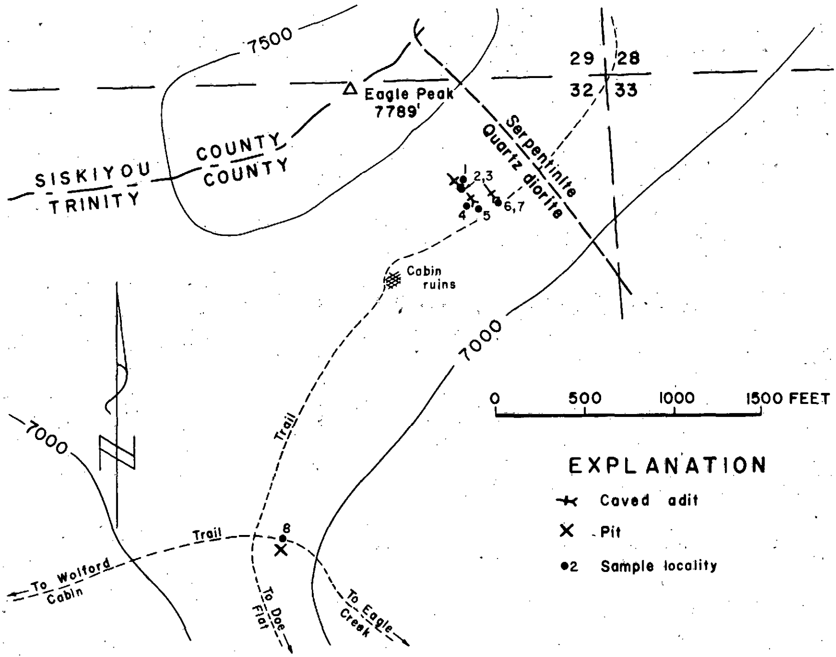
A small prospect pit, possibly on the Eagle claim, is situated in sec. 32, T. 39 N., R. 8 W. (fig. 47, loc. 6). It is one-half mile south of Eagle Peak, at an altitude of about 7,200 feet, and about 2 miles east of Wolford Cabin.

Weathered sheared granite is exposed in this pit. Prominent high-angle joints strike N. 45° W. A sample contained a trace of gold and no silver.

Mount Shasta View Prospect

The Mount Shasta View prospect, formerly the Eagle Creek, is between the head of Eagle Creek and Eagle Peak at an altitude of about 7,200 feet in sec. 32, T. 39 N., R. 8 W. (fig. 47, loc. 7). The property, held by Irene Stoddard Matson, Anderson, Calif., can be reached from Wolford Cabin by walking about 2 miles eastward.

Country rock is quartz diorite with quartz veins 6 inches thick or less and andesite dikes as much as 3 feet thick. Most prominent joints and dikes dip steeply and trend northward. About 400 feet southwest of a serpentinite body are three northwest-trending caved adits (fig. 51). Quartz diorite samples from each dump con-



Assay data

Sample No.	Type	Gold (ounces per ton)	Silver (ounces per ton)
1	Stockpile, select	0.27	0.54
2	Dump, select	Tr	None
3	do	.06	.30
4	Stockpile, select	1.97	5.66
5	Dump, select	Tr	.18
6	do	.02	.54
7	do	Tr	None
8	Representative	Tr	Do.

Tr Trace.

FIGURE 51. — Mount Shasta View prospect.

tained a trace of gold; two contained no silver, and the third 0.18 ounce silver per ton. A quartz sample from one dump contained 0.06 ounce of gold per ton and 0.30 ounce of silver; a quartz sample from the other contained 0.02 ounce of gold per ton and 0.54 ounce of silver. Two selected samples of quartz also contained 10 ppm and 70 ppm molybdenum, respectively (spectrographic analy-

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sis). Two selected samples from small stockpiles of iron oxide stained quartz contained 0.27 and 1.97 ounces gold per ton; and 0.54 and 5.66 ounces of silver per ton, respectively. The stockpile with higher gold and silver contents contained visible fine-grained pyrite.

Mine dumps contain a total of about 3,000 tons of rock, as much as might be mined from 1,000 feet of adits and crosscuts. Extensive workings with no record of production indicate that ore reserves were not developed. Potential for the discovery of other gold-bearing quartz veins in this vicinity is good.

Grand National Mine

The Grand National (or Tangle Blue) mine (fig. 47, loc. 8; fig. 52), owned by Ezra E. Erich, French Gulch, Calif., is on 240 patented acres in sec. 25, T. 39 N., R. 8 W. Study-area boundaries coincide with the west, south, and east boundaries of the patented land, which lies outside the study area. Three unpatented mining claims are contiguous with patented ground; two of these are inside the study area (fig. 53). Mill ruins and the portal of the lowest adit are about 6,000 feet above sea level. Access from the east is by about 6 miles of rough road from State Highway 3.

Gold, silver, and copper occur in at least three east-trending high-angle quartz veins in granodiorite near a contact with serpentinite (fig. 53). The veins are offset by a fault zone 20–30 feet

FIGURE 52. — Grand National (Tangle Blue) mine surface structures.

wide that strikes N. 60° E. and dips 60° E. This fault has placed granodiorite in contact with serpentinite north of the lowest adit. The quartz veins are from 1 to 8 feet thick and are displaced about 400 feet to the south, east of the fault zone (E. E. Erich, written commun., 1942).

The lowest (or mill level) adit extends about 600 feet eastward along quartz vein No. 3 to the fault zone, in which workings were extended both northward and southward. Another east-trending adit was driven about 230 feet on the same quartz vein about 160 feet uphill. A 100-foot-long adit was driven eastward on vein No. 2 about 205 feet higher on the hill, and a stope was raised 40 feet to a short adit. An adit was driven about 100 feet eastward on quartz vein No. 1 about 145 feet above and 200 feet north of the lowest level (fig. 53).

The Grand National mine produced about 1,500 ounces of gold, 2,200 ounces of silver, and 1,900 pounds of copper between 1934 and 1937. A few ounces of silver and gold were produced in 1930 and 1931. Nearly 54 percent of the gold was from quartz veins, which assayed an average of $23 per ton.

The owner estimates that 22,600 tons of indicated material averaging $20.85 in gold per ton is present in the three veins. This is reasonable compared with past production.

In view of present economic conditions, the Grand National mine represents a gold resource minable at higher gold prices. Additional similar resources may be present if the veins extend into the Grand View and Grand Empire claims within the study area.

May Queen Prospect

A lode prospect probably on the May Queen claim located by A. B. Lewis is situated in the NE¼ sec. 26, T. 38 N., R. 9 W. (fig. 47, loc. 25). It can be reached by traveling about 1½ miles up the Gypsy Queen mine trail, then continuing about 1¼ miles on the fork which leads past the Lewis cabin to the prospect. The workings are about 4,200 feet above sea level.

An adit was driven S. 70° W. along dacite porphyry dikes in serpentinite. It has caved and could not be entered. It is about 100 feet long, judging from the size of the dump. Four small pits and trenches were dug between 75 and 150 feet southwest of the adit. Three dump samples each contained a trace of gold, and two contained traces of silver. Short-fiber asbestos is present in the serpentinite.

Neither gold nor silver reserves are indicated at this prospect, and asbestos is not sufficiently abundant to constitute a resource.

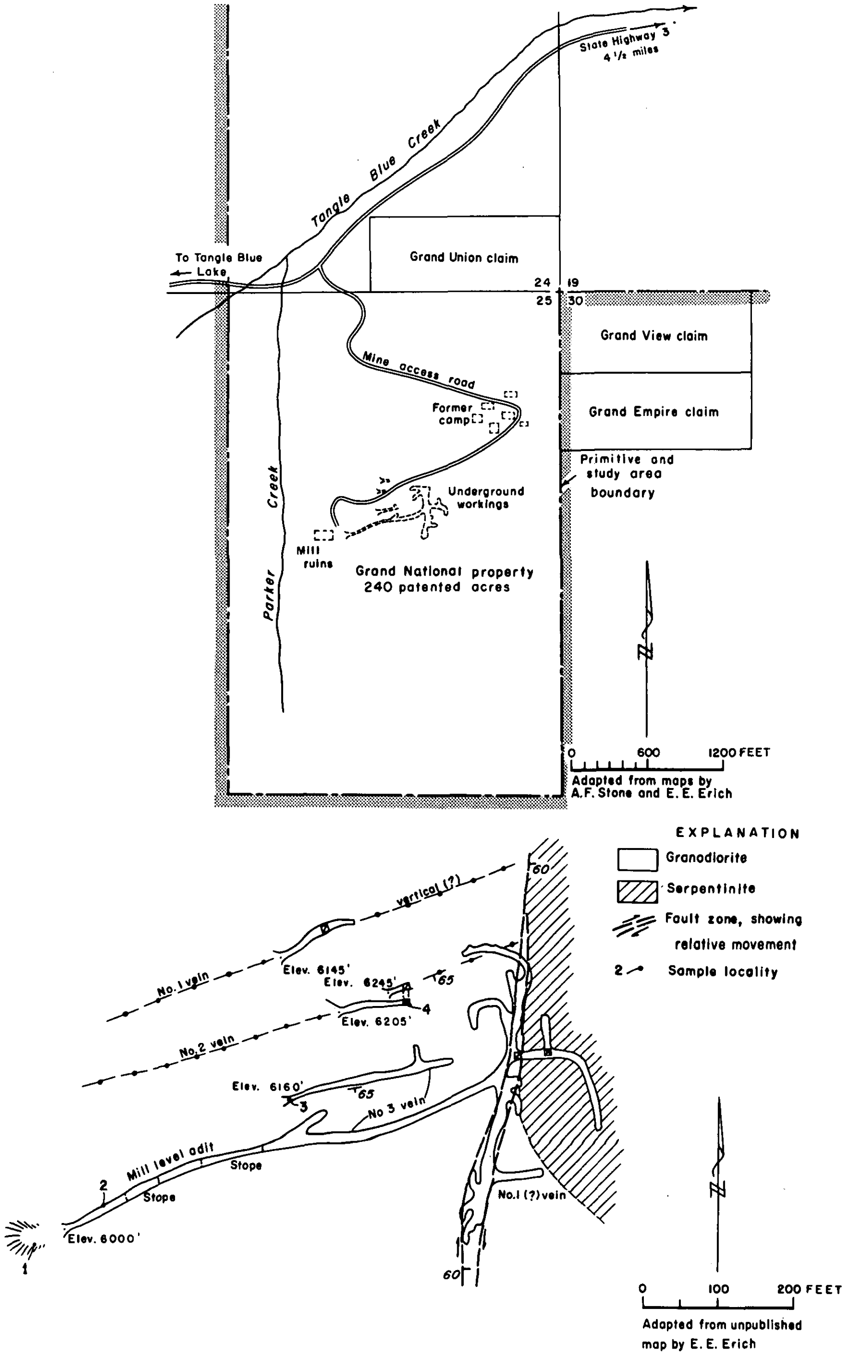


FIGURE 53. — Grand National (Tangle Blue) mine area.

Assay data

Sample No.	Type	Gold (ounce per ton)	Silver (ounce per ton)
1	Waste dump	0.22	0.40
2	Grab	.02	.19
3	1.5-foot chip	.15	.27
4	2.3-foot chip	.69	.21

UNNAMED PROSPECT

An old caved adit was found on the East Fork Coffee Creek trail about 1 mile north of Coffee Creek road near the point where the trail leaves the old Holland mine road. The prospect is at an altitude of about 3,900 feet in sec. 29, T. 38 N., R. 8 W., and probably is just outside the study area (fig. 47, loc. 28).

The adit, in weathered serpentinite, was driven about N. 5° W. The waste dump is eroded and contaminated with material washed in from above. A sample from the dump contained a trace of gold.

YELLOW PINE PROSPECT

The Yellow Pine claim owned by E. E. and C. C. Zarback, Coffee Creek, Calif., is in sec. 20, T. 38 N., R. 8 W., at an altitude of about 5,000 feet, about 3 miles north of Coffee Creek road via the trail up Benson Gulch (fig. 47, loc. 29). Workings consist of a caved adit which trends southward along andesite porphyry dikes containing quartz veins. Two dump samples were taken, one of andesite and the other of quartz. Each contained traces of gold, and the quartz sample also contained 0.14 ounce silver per ton.

JUMBO ATLAS PROSPECT

Core drilling was done during the mid-1940's at the Jumbo Atlas prospect, in sec. 21, T. 38 N., R. 8 W. (fig. 47, loc. 30). The drilling site is at an altitude of about 7,000 feet, near the top of Billys Peak, and is reached by about 3 miles of unmaintained trail up Benson Gulch from Coffee Creek road. E. E. and C. C. Zarbach of Coffee Creek, Calif., hold the claim.

Country rock consists of serpentinite, cut by northeast-trending dacite porphyry dikes and quartz veins. One pit 10 feet long, 5 feet wide, and 5 feet deep and one drill station were identified. The present owners do not have information concerning the drilling by the former owner. Samples of discarded serpentinite core, quartz from an outcrop, serpentinite from an outcrop, quartz from the pit, and select sulfide-rich quartz contained traces of gold and silver.

Wyman Prospect

The Wyman prospect, on the divide between Ripple Creek and East Fork Coffee Creek, is at an altitude of about 6,200 feet in sec. 14, T. 38 N., R. 8 W., about one-half mile east of Stoddard Lake (fig. 47, loc. 18). It can be reached from Coffee Creek road by traveling about 7 miles northeastward on East Fork Coffee Creek trail.

Country rock is serpentinite. Nearby, it is in contact with granitic rocks. The serpentinite is intruded by andesite porphyry dikes which dip steeply and strike about N. 65° E.

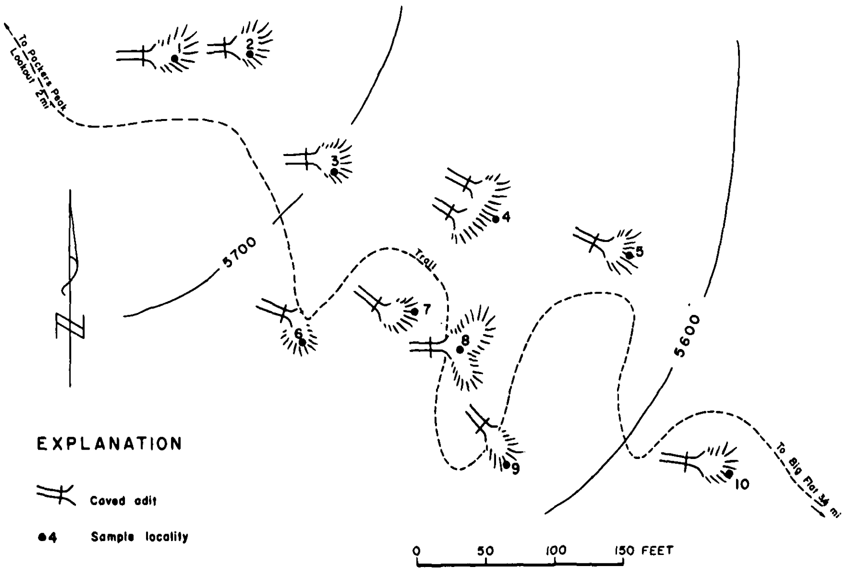
Workings consist of two adits about 20 feet apart, both caved and inaccessible. Four samples from the dumps contained no gold, but three contained traces of silver. About 600 feet north of the main adit workings, a small pit was excavated. It exposes ultramafic rock, part of which is serpentinite. Compass readings are erratic in this vicinity because of magnetite in the bedrock. Four samples taken on a northeast line, over 80 feet long, contained between 23.77 and 27.17 percent chromium. One contained 0.26 ounce silver per ton. These samples were selected on the basis of high density and a peculiar purplish oxide coating.

Distribution of dense-rock outcrops with the distinctive purplish oxide coating probably correlates with that of high-chromium bodies. The bodies appear to be scattered pods and probably are too small and low grade to constitute ore.

Packer Prospect

The Packer (Packer Gulch) prospect is northwest of Big Flat in unsurveyed sec. 12, T. 37 N., R. 10 W., (fig. 47, loc. 31) at an altitude of about 5,500 to 5,700 feet. It is reached from Big Flat by traveling about three-fourths mile west on the Packers Peak trail.

Country rock is amphibolite of the Salmon Hornblende Schist cut by west- to northwest-trending quartz veins. Chlorite-actinolite schist, probably formed by alteration of amphibolite, is common on the waste dumps. Workings consist of 11 adits (fig. 54), which were driven along quartz veins; each is caved and inaccessible. Ten quartz samples from as many waste dumps contained from a trace to 1.87 ounces of gold per ton. Nine contained between a trace and 0.48 ounce of silver per ton. About 400 ounces of gold and 240 ounces of silver were produced from this property during 10 working seasons between 1909 and 1932; 85 and 95 percent of the gold and silver, respectively, were produced in 3 years between 1909 and 1916.



Assay data

Sample No.	Type	Gold (ounces per ton)	Silver (ounce per ton)
1	Waste dump	0.09	0.12
2	do	.08	Tr
3	do	1.87	.48
4	do	Tr	.16
5	do	Tr	None
6	do	.08	.18
7	do	Tr	.22
8	do	.88	.38
9	do	Tr	.06
10	do	Tr	Tr

Tr Trace.

FIGURE 54. — Packer prospect area.

During the last 7 years that this deposit was mined, only 4–19 ounces of gold and 1–4 ounces of silver were shipped each year. Cessation of production after 1932 indicates that mining was not profitable, even though operating costs presumably were much lower than at present. Although the potential for discovery of additional quartz veins with as much as 1 ounce of gold per ton is good, vein material is probably too discontinuous to constitute a minable resource.

Morning Star Prospect

The Morning Star patented lode claim is in sec. 31, T. 38 N., R. 9 W. (fig. 47, loc. 34; fig. 46), at an altitude of about 4,800 feet in Crosby Gulch about 500 feet upstream from Coffee Creek road. In 1899, 63 ounces of gold was produced. The 14-acre claim was deeded to the State of California in 1937.

Siliceous metamorphic rocks near a small granitic body are cut by quartz veins, which contain gold. Entry for mining was by a vertical shaft, now caved and filled to within 15 feet of the surface. A quartz sample (2, fig. 46) from the dump contained a trace of gold and 0.06 ounce of silver per ton.

Unnamed Prospect

A small prospect pit was found at an altitude of about 5,000 feet in sec. 30, T. 38 N., R. 9 W., along the trail above Lady Gulch about one-half mile northwest of Coffee Creek road (fig. 47, loc. 19). The pit is old and obscure. The dump consists of about 2 tons of highly weathered greenstone, a sample of which contained 0.14 ounce of silver per ton, but no gold.

Geneva Mine

The Geneva, Easter, and Peavine claims formerly owned by E. A. Merritt, R. Rholin, and C. B. Flower, are in secs. 19 and 20, T. 38 N., R. 9 W., at an altitude of about 5,800 feet (fig. 47, loc. 13). Underground workings on the Geneva claim, on the ridge between South Fork Coffee Creek and Lady Gulch, are accessible by 1 mile of trail from the South Fork trail head at Coffee Creek road.

Ore was shipped each year between 1931 and 1939 (except 1938). During that time, 270 tons of ore containing 147 ounces of gold, 335 ounces of silver, and 246 pounds of lead was sold. During the first 6 years, the ore averaged between 0.75 and 10.75 ounces of gold per ton.

Bedrock is not exposed near the mine, but surficial fragments and material from the dump indicate that the workings are in contorted quartz mica schist west of a contact with actinolite schist. Some dacite porphyry dike rock occurs as float and in poor outcrops along the road to the mine, but there is a notable absence of dike rocks of any kind on the mine dump. Fragments of quartz mica schist on the dump contain disseminated pyrite, and some of the quartz contains galena in addition to pyrite.

An adit was driven along the vein system, but has caved. The caved workings are aligned approximately N. 30° E. About 100 feet east of the adit are ruins of a small cyanide mill.

Assay results of representative quartz-rich samples taken from the dump are given in table 7.

TABLE 7. — *Assay data, Geneva mine*
[Tr., Trace]

Sample No.	Gold (ounce per ton)	Silver (ounce per ton)	Copper (percent)	Lead (percent)	Zinc (percent)
1	Tr.	0.18	0.03	0.1	0.8
2	0.020	.20	.07	.2	.8
3	Tr.	.12	.03	.2	.6
4	Tr.	Tr.	.03	.2	.5
5	Tr.	Tr.	.06	.2	.6

The known deposit was probably mined out and additional minable ore not discovered. There is no evidence of additional reserves, but the potential for discovery of other small gold- and silver-bearing quartz veins is good in this vicinity.

SHASTA LILLY PROSPECT

An old caved adit in sec. 28, T. 38 N., R. 9 W., may be the Shasta Lilly prospect (fig. 47, loc. 21). It is about 1 mile north of Coffee Creek road on the ridge west of Hardscrabble Creek, at an altitude of almost 5,200 feet. The adit trends about N. 60° W. along a dacite porphyry dike within serpentinite. A dump sample contained a trace of gold and 0.14 ounce of silver per ton.

GOLD CROWN PROSPECT

The Gold Crown prospect, owned by W. and C. J. McQuesten, Oakland, Calif., is at an altitude of about 5,500 feet in sec. 27, T. 38 N., R. 9 W. (fig. 47, loc. 22). It is reached by unmaintained trails, and is on a ridgetop about 1 mile north of Coffee Creek road.

Country rock is serpentinite. Two trenches dug nearly end to end trend about N. 15° E. over a 50-foot distance near the discovery monument. Average depth is about 5 feet. About 75 tons of dump material is adjacent to the south trench. One sample was taken from the trenches and a second from the dump. No detectable gold or silver was reported in either.

M. P. ROSE PROSPECT

A caved adit at an altitude of about 5,300 feet is approximately on the section line between secs. 22 and 27, T. 38 N., R. 9 W. (fig. 47, loc. 23). This may be the M. P. Rose property. It is east of Hardscrabble Creek and is reached from Coffee Creek road by about 1½ miles of unmaintained trail.

Country rock is chiefly serpentinite. The adit apparently followed a rhyolite porphyry dike which strikes N. 30° E. and contains quartz veins and pyrite crystals. A dump sample contained traces of gold and silver.

Hardscrabble (Keating) Prospect

The Hardscrabble (or Keating) prospect is at the head of Hardscrabble Creek in sec. 22, T. 38 N., R. 9 W. (fig. 47, loc. 15), at an altitude of about 6,400 feet. It is reached by about 2½ miles of unmaintained trail that extends northward from Coffee Creek road.

Country rock is principally quartz mica schist and gneiss with andesite porphyry dikes and quartz veins. Nearby to the east, these rocks are in contact with a large serpentinite body. Two northeast-trending adits were driven about 100 feet apart. Both are caved. There are ruins of two buildings, one probably a mill. About 120 ounces of gold and 7 ounces of silver were produced between 1899 and 1909. A select sample from a quartz-rich stockpile near the mill contained 0.30 ounce of gold and 1.21 ounces of silver per ton. One dump sample contained 0.05 ounce of gold and 0.40 ounce of silver per ton. Two other dump samples each contained traces of gold and silver. Sample DD39 (table 1) contained 200 ppm tungsten (spectrographic analysis).

Gypsy Queen Prospect

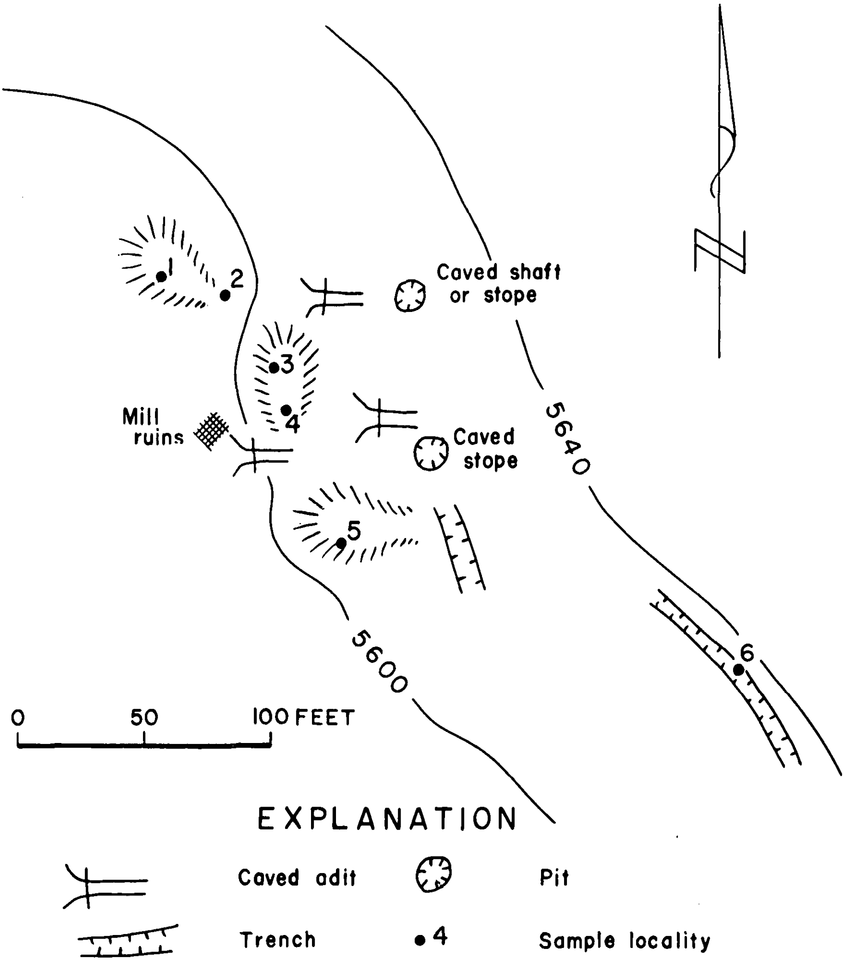
The Gypsy Queen claim group, located by Leone Conant, H. W. Trapnell, W. A. Lewis, and others, is in secs. 22, 23, 26, and 27, T. 38 N., R. 9 W. The principal workings are at an altitude of about 5,600 feet, about 3 miles north of the Coffee Creek road (fig. 47, loc. 24).

The main workings, consisting of three east-trending caved adits and two trenches, are at the head of Deacon Creek in sec. 23 (fig. 55). Country rock is serpentinite. Excavations appear to have followed rhyolite porphyry dikes and associated quartz veins, in which pyrite crystals are visible. Ruins of a small stamp mill are near the lowest adit portal. Six samples were collected and analyzed (fig. 55).

Although a record of production was not found, the extensive workings and presence of a mill suggest that gold might have been produced from this property. Material in some dumps has significant gold and silver content. No reserves are evident, but the potential for the discovery of additional gold-bearing quartz veins of limited size is good.

Schlomberg Placer

The Schlomberg placer mine is at the junction of Pierce Gulch and North Fork Coffee Creek in sec. 10, T. 38 N., R. 9 W. (fig. 47,



Assay data

Sample No.	Type	Gold (ounce per ton)	Silver (ounce per ton)
1	Representative	Tr	0.10
2	Stockpile	0.16	.20
3	Representative	.43	.30
4	Stockpile	Tr	.10
5	Quartz	.36	.30
6	Representative	Tr	Tr

Tr Trace.

FIGURE 55. — Area of main workings, Gypsy Queen prospect.

loc. 10). The property is reached by 7 miles of trail up North Fork Coffee Creek to Schlomberg Cabin.

Country rock of granodiorite, schist, and serpentinite crops out along North Fork Coffee Creek and Pierce Gulch. Past hydraulic mining has removed virtually all gravel terraces. Two samples of gravel from the terrace remnants each contained less than $0.10 gold per cubic foot.

Former operators produced about 460 ounces of gold and 40 ounces of silver between 1916 and 1937. Little gravel remains, and no placer gold resources are indicated.

Saloon Creek Placers

Small gravel terraces remain after hydraulic mining on Saloon Creek in secs. 2 and 11, T. 38 N., R. 9 W. (fig. 47, loc. 11). Access to the area is by 6½ miles on North Fork Coffee Creek trail to the mouth of Saloon Creek.

Four gravel terrace remnants were recognized, and each contained from about 600 to 3,000 cubic yards of gravel. A select sample was taken at the base of each terrace. One sample from the confluence of Saloon Creek and North Fork Coffee Creek contained $1.40 in gold per cubic yard, a second sample contained the equivalent of less than $0.10 per cubic yard, and the other samples contained no detectable gold.

Small gravel remnants on Saloon Creek do not represent a placer gold resource.

Granite Creek Placers

Small gravel terraces occur in secs. 1, 2, and 11, T. 38 N., R. 9 W., on Granite Creek (fig. 47, loc. 12). They are reached by traveling about 5 miles up the North Fork Coffee Creek trail to the mouth of Granite Creek. The terraces are 1½ miles or less up the creek.

Five gravel terraces, ranging in size from about 1,000 to 8,000 cubic yards, were examined. None of the terraces showed evidence of past placer mining. A select sample was taken at the base of each terrace. Two samples contained no gold; the other three contained less than $0.10 per cubic yard.

North Fork Coffee Creek Placers

Placer gravel deposits occur along a 2½-mile stretch of North Fork Coffee Creek between Granite Creek and Francis Cabin in secs. 11, 12, 13, and 24, T. 38 N., R. 9 W. (fig. 47, loc. 16). They are reached by 2–5 miles of trail up North Fork Coffee Creek.

Extensive hydraulic mining has been done along this stretch of the creek, probably in conjunction with mining the Schlomberg placer. Part of the gold production listed for Schlomberg placer might have come from this part of North Fork. Cobble-boulder tailings piles are common along North Fork Coffee Creek. Four gravel terrace remnants were recognized, and each contains between about 2,000 and 8,000 cubic yards of gravel. A sample was taken from the base of three of the terraces. One sample contained $0.33 in gold per cubic yard, another less than $0.10 per cubic yard, and the third contained no detectable gold.

About 20,000 cubic yards of terrace gravel remains along this 2½-mile section of North Fork Coffee Creek. The average gold content is probably less than $0.10 per cubic yard, too low to permit mining.

Francis Cabin Placer

A gravel terrace is situated on the east side of North Fork Coffee Creek at Francis Cabin, in sec. 24, T. 38 N., R. 9 W. (fig. 47, loc. 26). It is about 1 mile north of Coffee Creek road and is reached by the North Fork Coffee Creek trail.

The gravel deposit is about 1,200 feet long, averages about 30 feet thickness, and extends about 150 feet from the creek. It lies on a slope of about 45°, on serpentinite and gabbro bedrock. Two samples each contained less than $0.10 in gold per cubic yard.

This deposit contains about 100,000 cubic yards of gravel; however, average gold content is probably too low to permit mining.

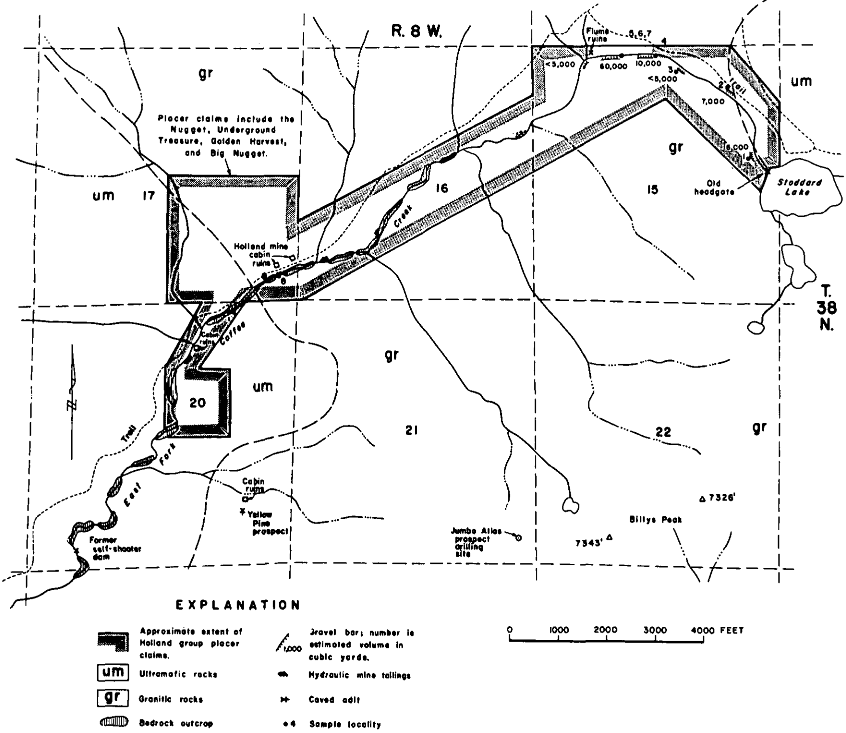
T & C Placer

T & C Nos. 1 through 3 claims, located by W. M. Thompson and B. Corbett in sec. 30, T. 38 N., R. 8 W. (fig. 47, loc. 27), extend from the mouth of East Fork Coffee Creek upstream about 4,000 feet approximately to the study area boundary. Prospecting in 1968–70 was within 1,000 feet of the stream mouth, outside the study area. The owners operated a small suction dredge and recovered some coarse gold from the stream channel. There is virtually no terrace gravel on these claims, but some coarse gold can be recovered from the stream channel.

Holland Placer

The former Holland mine is part of a group of placer claims on East Fork Coffee Creek (fig. 47, loc. 17). Extensive hydraulic mining was done in secs. 16, 17, and 20, T. 38 N., R. 8 W. Part of the claim group also lies in sec. 15 (fig. 56). The property is reached by 3–7 miles of trail up East Fork Coffee Creek from Coffee Creek Road.

According to Logan (1926, p. 45–48), Patrick Holland worked the placer with a "self-shooter" reservoir and mined hydraulically from about 1875 through 1925, during which time he produced



Assay data

Sample No.	Type	Gold (cents per cubic yard)
1	Pan concentrate	<10
2	do	<10
3	do	<10
4	do	<10
5	do	<10
6	do	<10
7	do	380
8	do	<10
9	do	20

FIGURE 56. — Holland placer claim group.

about $60,000 in gold. About 5,000–8,000 square feet of bedrock is reported to have been cleaned each year. Mining was continued intermittently through 1939. Gold was coarse, and some nuggets were worth as much as $600 each.

Bedrock crops out along most of the stream course in secs. 16, 17, and 20; it is principally granitic rock in secs. 16 and 17, and serpentinite in sec. 20. Virtually no terrace gravel remains in secs. 16, 17, or 20; however, six terraces which contain from less than 5,000 to about 60,000 cubic yards of gravel each are in sec. 15 at the head of East Fork Coffee Creek (fig. 56). Seven gravel samples were taken at the bases of these terraces; six contained less than $0.10 in gold per cubic yard, and the other $3.80 in gold per cubic yard.

Less than 100,000 cubic yards of terrace gravel remains on East Fork Coffee Creek, probably all on the Holland claim group. Although gold is present in rich pockets, it is doubtful that the gold content of the average gravel is sufficient for profitable mining.

Rocky Gulch Placers

Placer gravel occurs along Rocky Gulch in sec. 6, T. 37 N., R. 9 W. Most of this gravel is within three-fourths mile of Coffee Creek Road (fig. 47, loc. 32).

The gravel is poorly exposed in hummocky terrain, and part might be glacial outwash or till. It occurs in continuous terraces 100–300 feet wide and 10–20 feet thick along 3,000 feet of Rocky Gulch, just west of the Nash placer deposit. Average width might be much greater than 200 feet, particularly near the mouth of the gulch, but exposures are lacking. At least 300,000 cubic yards of gravel is estimated between the west side of sec. 6 and Coffee Creek. Four samples were taken near the gravel base; one contained no detectable gold, two contained less than $0.10, and the fourth sample contained $0.10 in gold per cubic yard.

Remains of a bulldozer, trommel screens, and other equipment indicate that an attempt was made to mine this gravel. This deposit does not appear to constitute a minable gold resource under present economic conditions.

Chessie Placer

The Chessie placer claim (fig. 47, loc. 33) owned by J. C. Bartlett, Berkeley, Calif., is on Crosby Gulch in sec. 31, T. 38 N., R. 9 W., about 1,500 feet from Coffee Creek Road (fig. 46).

Greenstone and actinolite schist are exposed throughout this part of the valley, and virtually no gravel terraces or placer resources are present. A sample from a small gravel remnant contained less than $0.10 in gold per cubic yard.

Cubby and Kitty Placer

The Cubby and Kitty placer claims (fig. 47, loc. 35) are on Poorman Gulch in sec. 31, T. 38 N., R. 9 W., just west of Coffee Creek road (fig. 46).

There are remains of a ditch and hydraulic dam and evidence of placer mining on the Cubby claim. About 2,000 cubic yards of terrace gravel remains on the East Fork Poorman Gulch, mostly on the Kitty claim. There may be as much as 50,000 cubic yards of terrace gravel on the West Fork Poorman Gulch. A gravel sample contained less than $0.10 in gold per cubic yard.

Adams Creek Placers

Placer gravel occurs on Adams Creek in sec. 30, T. 38 N., R. 9 W., about one-half mile from Coffee Creek Road (fig. 47, loc. 36). Claims located by H. and M. McKinney are in this vicinity. Four terraces remain from hydraulic mining between 2,000 and 4,000 feet upstream from the mouth of Adams Creek; no significant gravel terraces occur more than 4,000 feet from the mouth of the creek. One terrace contains about 6,000 and the others less than 5,000 cubic yards of gravel each. A sluicebox and other tools left at the creek show that recent small-scale prospecting has been done. Five samples were taken near the base of the gravel terraces. Two contained less than $0.10 in gold per cubic yard, and the others contained $0.10, $0.32, and $0.40 in gold per cubic yard.

Total volume of gravel in the four terraces probably is less than 20,000 cubic yards. Placer gold generally is concentrated at the bottom of the deposit, and the entire volume of gravel in these terraces probably does not average more than $0.10 in gold per cubic yard.

Steveale Placer

The old Steveale (or Stevens Gulch) placer mine is in secs. 9, 16, and 17, T. 38 N., R. 9 W., on Steveale Creek, a tributary of South Fork Coffee Creek (fig. 47, loc. 9). It is reached by about 3 miles of trail from the junction of South Fork trail and Coffee Creek Road. It formerly was operated by George Zinn of Coffee Creek, Calif.

Intermittent hydraulic mining between 1913 and 1935 produced 220 ounces of gold and 27 ounces of silver. Virtually all terrace gravel was removed. Five samples of gravel remnants were taken above schist bedrock. One contained $0.10 in gold per cubic yard, the other four less than $0.10.

South Fork Coffee Creek Placers

Placer claims were located downstream from the Steveale placer on Steveale Creek and South Fork Coffee Creek (fig. 47, loc. 14). The Lost Hope prospect consists of two claims on South Fork Coffee Creek owned by D. H. Neal, Auburn, Calif. They extend about 2,500 feet south from near the mouth of Steveale Creek and are in secs. 17 and 20, T. 38 N., R. 9 W. The claims are reached by 1½ miles of trail up the South Fork from Coffee Creek Road.

About 20,000 cubic yards of terrace gravel remains at the mouth of Steveale Creek, which may be on the Lost Hope property. A small quantity of gold was produced on Lost Hope placer in 1945. Two gravel samples taken above schist bedrock contained no detectable gold. Terrace gravel is virtually absent farther south on South Fork.

Two terraces on South Fork, upstream from Steveale Creek, contain about 5,000 and 8,000 cubic yards of gravel. A sample from one contained less than $0.10 in gold per cubic yard; a sample from the other contained no detectable gold.

Elsewhere on South Fork Coffee Creek, terrace gravel is absent, partly owing to hydraulic mining within 1½ miles of the mouth. Recreational small-scale placer mining might produce some gold from the present stream channel.

Hickory Creek Placers

The Log Cabin and Red Bear placer claims, owned by Henry Masters, Redding, Calif., are on Hickory Creek in sec. 28, T. 38 N., R. 9 W. They extend from the mouth of the creek about 3,000 feet upstream (fig. 47, loc. 20). The property is reached from Coffee Creek Road by three-fourths mile of trail, which follows an old logging road.

Hydraulic mining has removed most of the terrace gravel in the lower 1½ miles of Hickory Creek. Two terraces contain about 1,000 and 3,000 cubic yards of gravel. A sample from the base of one terrace contained no detectable gold, and another from the base of the other contained less than $0.10 in gold per cubic yard. No placer gold resources appear to remain in the valley of Hickory Creek.

APPRAISAL OF FINDINGS

Gold is the principal mineral commodity found in the study area. Lode mines in five districts have produced significant amounts of gold and byproduct silver: the Globe-Bailey-Chloride group, the Mary Blaine Mountain–Old Denny district, the Dorleska and Yellow Rose mines, the Alaska and McClaron mines, and the Grand National and Klatt mines. Deposits in these districts are not exhausted; however, all but one are of a tenor and size which will not permit their operation under today's economic conditions.

Based on available data, the Globe-Bailey-Chloride group of mines has a potential as a moderate-size producer under favorable conditions.

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Placer gold was produced from most of the streams in the study area. The most productive sections are largely worked out, and the large remnants of gravel bars and larger channel deposits are too low grade to be mined. Placer mining is currently confined to one- or two-man operations and recreational prospecting. Limited, small-scale placer operations are probably feasible. Some of these are profitable because of the premium price paid for "specimen gold." Sampling results of the Gledhill placer prospect on Rattlesnake Creek indicate that a small-scale mining operation might be economically feasible.

A few flasks of quicksilver have been produced from the Cinnabar mine in the Mary Blaine Mountain–Old Denny district. The deposit is apparently small and can be reached only by trail. Additional exploration would be necessary to determine if the deposit constitutes a minable reserve of mercury ore. The present market trend for mercury, however, might inhibit new exploration in the foreseeable future.

A geochemical sampling program revealed traces of a wide variety of elements in the rocks and stream sediments of the area. Patterns of samples with anomalously high quantities of copper, lead, and silver in the vicinity of Soldier Creek and the East Fork New River suggest that there may be undiscovered mineralization in these areas. Anomalously high quantities of lead, silver, molybdenum, zinc, and mercury were detected in samples from a fault zone in the upper part of the East Fork New River, and anomalous quantities of copper, lead, silver, and molybdenum were detected in samples from a fault zone in Nugget Creek, near where coarse placer gold has recently been found. The distribution of samples containing molybdenum, silver, and lead may be indicative of mineralization along a poorly defined belt from Stuart Fork to the Caribou Lake basin. Without excluding the foregoing indications of mineralization, however, the geochemical sampling program failed to reveal any evidence that the area studied includes potentially important mineral resources that have not yet been discovered.

The area has no potential for combustible fuels. Nonmetallic mineral resources, including granitic rock, limestone, and sand and gravel, are plentiful, but these commodities can be obtained elsewhere more economically and closer to markets.

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ANALYSES OF SAMPLES

Table 1.--*Analyses of samples from the*

[All analyses on minus 200-mesh fraction unless otherwise noted. Samples analyzed by semiquantitative
0.1 which represent approximate midpoints of group data on a geometric scale. All samples were
shown in footnotes. Analyses for Be revealed no significant values, and no determinations are shown.
following elements are also shown in footnotes: As(200), Au(10), Bi(10), Cd(20), Sb(100), Sn(10),
sediment samples analyzed for citrate soluble combined heavy metals and copper by colorimetric methods
sediments and for gold in pan concentrates and rock samples are labeled AA. Mercury determinations by
found; G, the amount of the element present is greater than the sensitivity limit; L, an undetermined
of determinations do not apply due to use of dilution technique or different sample weight; H, inter-

Sample	Semiquantitative spectrographic analyses												
	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
							Area A						
							Stream sediments						
1	3	0.5	1,500	0.5	100	1,000	50	500	70	N	500	10	150
2	3	.3	1,000	N	150	700	10	150	30	N	150	10	100
3	5	.5	1,500	N	30	1,000	20	300	70	N	200	10	100
4	5	.5	1,000	N	20	500	20	200	100	N	100	20	150
5	5	.3	2,000	N	70	1,500	30	1,000	100	N	200	15	200
6	7	1	3,000	N	100	500	50	300	100	N	150	15	150
7	5	.7	2,000	N	100	700	30	300	70	N	100	20	150
8	10	G(1)	2,000	N	200	500	50	300	100	N	150	15	100
9	7	1	2,000	N	200	500	50	200	100	N	100	20	150
11	5	.5	1,500	N	50	1,500	30	500	70	N	150	10	100
14	7	.7	1,000	N	100	500	30	300	50	N	100	20	150
16	5	.7	2,000	N	70	500	50	300	100	N	300	15	100
19	5	.5	1,000	N	100	300	30	200	70	N	100	10	200
20	10	1	2,000	N	70	700	50	300	70	N	150	10	150
21	3	.3	1,000	N	70	700	20	150	100	N	100	20	150
22	7	1	2,000	N	100	700	50	300	100	N	200	15	100
23	7	1	2,000	N	70	500	30	300	50	N	150	20	150
24	7	.7	1,500	N	70	300	70	1,000	50	N	500	10	100
25	7	.5	1,000	N	50	300	70	1,000	50	N	700	10	100
27	5	.7	2,000	N	100	1,000	50	500	50	N	300	15	150
28	7	.3	1,000	N	20	300	100	1,500	50	N	1,500	10	N
29	7	.5	2,000	N	20	300	70	1,000	50	N	1,000	15	N
30	5	.7	1,500	N	50	1,000	50	1,000	30	N	700	20	100
31	5	.7	1,500	N	100	500	50	500	50	N	200	10	200
32	10	1	1,000	N	50	500	50	700	70	N	300	10	150
33	5	.5	150	N	50	500	50	300	100	N	200	15	200
34	5	.3	2,000	N	70	1,500	30	1,000	100	N	200	15	100
35	5	.3	1,500	N	50	300	50	500	70	N	150	15	200
36	5	.5	1,500	N	100	500	20	200	70	N	100	20	200
37	5	.5	1,000	N	70	500	30	200	70	N	100	10	100
38	7	.7	2,000	N	150	700	50	300	50	N	200	20	200
39	5	.7	1,000	N	70	700	30	500	50	N	150	20	150
40	5	.7	1,000	N	50	300	50	500	50	N	200	15	150
43	5	.5	1,000	.5	300	500	30	300	30	N	100	15	200
51	5	.7	1,000	N	100	500	30	200	70	N	100	15	N
52	2	.3	1,000	N	50	300	10	100	30	N	50	10	N
53	5	1	500	N	20	300	50	150	50	N	70	10	150
							Panned concentrates						
6	7	.7	1,500	N	30	1,000	50	700	50	N	150	10	200
8	15	G(1)	1,000	N	150	300	50	1,000	70	N	150	20	100
14	5	.7	1,000	N	20	700	20	500	70	N	70	L	500
17	10	1	1,500	N	150	500	50	500	100	N	150	15	200
20	7	1	1,000	N	70	300	50	1,000	50	N	150	10	150
23	10	G(1)	1,500	N	100	200	30	2,000	50	N	100	15	100
24	15	G(1)	2,000	N	70	300	100	G(5,000)	50	N	1,000	15	100
32	5	.7	1,500	N	70	500	30	500	30	N	300	10	200
33	7	.7	1,000	N	50	1,000	50	2,000	70	N	150	10	300

See footnotes at end of table.

Salmon-Trinity Alps study area, California

spectrographic analyses are reported to the nearest number in the series 1, 0.7, 0.5, 0.3, 0.2, 0.15,
analyzed for Be, Ca, La, Mg, Nb, Sc, and Y. Those containing 100 ppm or more La, Nb, Sc, and Y are
Samples containing amounts equal to or greater than the lower spectrographic detection limits for the
W(50). Pt(10) was looked for in pan concentrates of stream sediments but was not found. Stream
are shown as cxHM and cxCu. Atomic absorption detection analyses for copper and zinc in stream
instrumental methods shown as Inst. Symbols used are: ---, not looked for; N, looked for but not
amount of the element is present below the sensitivity limit; INS, insufficient sample; *, usual limits
ference; +, determination made of -80 +200-mesh fraction]

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
							Area A			
							Stream sediments			
1	200	N	150	---	---	---	0.28	3	4	
2	150	N	100	---	---	---	---	7	2	
3	200	N	100	---	---	---	.30	6	2	
4	150	N	100	---	---	---	.18	2	2	
5	200	N	100	---	---	---	.55	3	6	
6	200	N	200	---	---	---	.15	5	4	
7	200	N	200	---	---	---	.16	3	2	
8	200	N	200	---	---	---	.30	2	1	
9	200	N	200	---	---	---	.12	2	4	
11	300	N	100	---	---	---	.11	5	4	
14	200	N	200	---	---	---	.11	2	2	
16	150	N	150	---	---	---	.20	3	10	
19	200	N	100	---	---	---	.35	6	8	
20	200	N	150	---	---	---	.20	5	6	
21	200	N	150	---	---	---	.24	7	8	
22	200	N	150	---	---	---	.09	3	8	
23	200	N	200	---	---	---	.11	2	3	
24	150	N	150	---	---	---	.14	3	6	
25	150	N	100	---	---	---	.10	3	4	
27	300	N	200	---	---	---	.13	3	6	
28	100	N	70	---	---	---	.08	2	2	
29	150	N	100	---	---	---	.22	5	6	
30	150	N	150	---	---	---	.09	5	1	
31	200	N	150	---	---	---	---	3	3	
32	200	N	150	---	---	---	.10	2	4	
33	150	N	100	---	---	---	.14	5	4	
34	200	N	100	---	---	---	.55	3	6	
35	200	N	70	---	---	---	.26	5	6	
36	200	N	150	---	---	---	---	3	---	
37	150	N	100	---	---	---	.55	3	1	
38	200	N	200	---	---	---	.13	9	4	
39	150	N	150	---	---	---	---	3	3	
40	150	N	200	---	---	---	.05	2	3	
43	200	N	100	---	---	---	.30	2	4	
51	200	N	150	---	---	---	---	3	1	
52	150	N	100	---	---	---	.22	3	1	
53	100	N	100	---	---	---	---	2	2	
							Panned concentrates			
6	300	N	70	2.2	---	---	---	---	---	
8	200	N	100	L(.02)	---	---	---	---	---	
14	200	N	70	L(.03)	---	---	---	---	---	
17	200	N	70	L(.02)	---	---	---	---	---	
20	200	N	150	L(.02)	---	---	---	---	---	
23	200	N	150	L(.02)	---	---	---	---	---	
24	150	N	70	L(.02)	---	---	---	---	---	
32	200	N	150	L(.02)	---	---	---	---	---	
33	300	N	100	L(.02)	---	---	---	---	---	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses												
	Percent		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area A--Continued							
						Rock samples							
1	10	0.03	1,000	N	L	5,000	N	20	150	N	20	N	100
6	3	.5	200	L	100	2,000	20	100	150	20	50	10	L
10	1.5	.15	200	N	L	1,000	L	50	50	N	10	N	100
12	.15	.02	100	N	L	20	N	20	L	N	L	N	N
13	2	.007	70	.5	N	30	N	15	30	N	L	N	N
15	20	.7	300	.7	500	1,000	20	100	100	30	100	20	100
18	10	.3	700	.5	15	700	50	200	500	N	100	10	500
25	3	.3	700	N	100	1,500	15	30	20	5	20	10	L
26	G(20)	.05	150	N	50	70	N	200	70	50	70	10	N
41	1	.03	100	N	15	200	N	10	N	N	L	L	100
44	5	5	1,000	N	20	300	50	300	50	5	100	L	1,000
45	5	5	500	N	10	200	20	300	100	L	70	L	700
46	5	.03	150	N	L	20	N	100	5	10	10	20	N
47	.5	.5	700	N	10	200	30	300	200	N	50	10	500
48	7	.5	500	N	20	150	50	150	100	N	70	L	500
49	5	.5	300	L	30	700	10	50	50	N	50	10	N
50	1	.1	700	N	10	70	N	30	15	N	7	N	1,500
54	5	1	500	N	20	700	20	1,500	30	N	100	L	200
						Area B							
						Stream sediments							
2	5	.7	1,000	N	100	700	50	500	50	N	200	15	200
3	5	.5	2,000	N	200	1,000	30	150	50	N	100	15	100
4	7	1	1,000	N	100	1,500	30	500	70	N	150	30	100
6	7	1	1,000	N	100	700	30	500	50	N	200	15	150
7	7	.7	1,000	N	70	500	30	500	50	N	150	15	100
8	5	.7	1,500	N	70	1,500	30	500	50	N	200	30	100
11	5	.3	700	N	30	700	30	300	50	N	100	15	200
12	5	.5	2,000	N	150	1,000	50	500	70	N	200	15	200
13	3	.3	1,000	N	50	500	5	50	20	N	15	15	100
14	10	1	1,500	N	30	500	70	1,500	50	N	700	20	150
15	7	1	1,500	N	100	1,000	30	200	70	N	100	30	100
17	2	.5	1,000	N	30	500	10	150	15	N	100	15	100
19	5	.7	1,000	N	50	1,000	50	150	50	N	70	20	300
20	10	.5	2,000	N	70	500	50	700	100	N	300	15	300
21	5	.5	1,500	N	70	300	50	500	70	N	200	20	200
22	7	.7	2,000	N	50	500	50	1,000	100	N	300	15	200
24	5	.5	1,500	N	100	500	50	500	70	N	200	20	300
25	5	.5	1,500	N	30	500	50	700	70	N	200	10	150
26	20	.01	500	N	100	20	50	N	N	N	N	L	L
27	5	.5	1,500	N	50	500	30	1,000	100	N	200	30	200
31	7	.3	5,000	N	30	150	50	50	150	N	100	15	200
32	5	.5	1,000	N	70	300	50	500	70	N	200	30	300
33	7	.3	1,500	N	30	500	70	2,000	50	N	1,000	15	150
35	5	.5	2,000	N	30	500	50	500	100	N	500	20	150
37	5	.5	1,000	N	30	200	50	700	70	N	200	15	100
38	5	.5	1,500	N	70	300	50	200	50	N	150	50	500
39	7	.7	2,000	N	100	500	50	200	100	N	150	30	300
40	5	.7	2,000	N	50	200	50	150	50	N	100	20	500
41	3	.3	2,000	N	50	300	30	100	30	N	100	30	300
42	5	.5	2,000	N	70	300	50	200	50	N	150	30	500
51	5	.3	1,000	N	10	200	20	30	70	N	5	10	200
52	5	.3	1,000	.7	20	150	20	50	100	N	10	20	150
54	5	.3	2,000	N	30	200	10	20	50	N	L	15	150
56	3	.2	700	N	20	300	15	10	70	N	5	L	100
57	3	.15	1,000	N	30	200	10	30	100	N	5	10	N

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm) V (10)	Zn (200)	Zr (10)	Chemical analyses AA (ppm) Au (0.02)	Cu (10)	Zn (25)	Inst. (ppm) Hg (0.01)	Colorimetric (ppm) cxHM (0.5)	cxCu (1)	Sample description[1]
						Area A--Continued				
						Rock samples				
1	150	N	20	0.02	---	---	0.16	---	---	Py qzt.
6	200	300	150	L(.02)	---	---	.05	---	---	100 ft FeOx st in phyl.
10	70	N	70	L(.02)	---	---	.03	---	---	Ch; sulf.
12	15	N	N	L(.02)	---	---	.06	---	---	Qtz vein.
13	10	N	N	L(.02)	---	---	.03	---	---	Qtz vein; sulf.
15	200	200	100	L(.02)	---	---	.09	---	---	Metallic min in sl.
18	150	N	100	L(.02)	---	---	.20	---	---	Min zone dio dike.
25	150	N	150	L(.02)	---	---	.07	---	---	FeOx st phyl.
26	20	N	N	L(.02)	---	---	24	---	---	Lim crust.
41	10	N	20	L(.02)	---	---	.08	---	---	Qtz vein.
44	200	N	70	L(.02)	---	---	.06	---	---	Chl-act sch.
45	300	N	100	L(.02)	---	---	.08	---	---	FeOx st.
46	30	N	10	L(.02)	---	---	.14	---	---	Qtz vein.
47	300	N	70	L(.02)	---	---	.03	---	---	FeOx st frac in mv.
48	300	N	70	L(.02)	---	---	.13	---	---	FeOx st frac in mv.
49	200	N	100	.02	---	---	.12	---	---	FeOx st frac in arg.
50	10	N	20	L(.02)	---	---	.10	---	---	Silicated ls.
54	100	N	150	.02	---	---	.08	---	---	Qtz veins.
						Area B				
						Stream sediments				
2	200	N	150	---	---	---	.12	16	8	
3	150	N	200	---	---	---	.20	3	2	
4	200	N	200	---	---	---	.22	7	8	
6	200	N	150	---	---	---	.28	3	6	
7	200	N	200	---	---	---	.12	3	6	
8	150	N	200	---	---	---	.18	5	3	
11	150	N	100	---	---	---	---	6	8+	
12	200	N	300	---	---	---	.18	3	6	
13	150	N	70	---	---	---	.09	12	2	
14	300	N	150	---	---	---	.10	7	8	
15	200	N	200	---	---	---	.05	2	2	
17	100	N	100	---	---	---	.30	7	1	
19	100	N	150	---	---	---	---	7	4	
20	200	N	150	---	---	---	.12	4	8	
21	150	N	150	---	---	---	.28	6	8	
22	200	N	150	---	---	---	.14	6	10	
24	150	N	200	---	---	---	.40	5	4	
25	200	N	150	---	---	---	.11	3	6	
26	L	N	N	---	---	---	---	1	1	
27	150	N	150	---	---	---	.18	6	15	
31	150	N	100	---	---	---	.35	9	20	
32	150	N	200	---	---	---	.15	5	8	
33	150	N	100	---	---	---	.16	4	4	
35	150	300	70	---	---	---	.30	11	2	
37	150	N	100	---	---	---	.18	5	4	
38	150	N	150	---	---	---	.13	7	3	
39	200	N	150	---	---	---	.15	6	6	
40	150	N	100	---	---	---	.15	6	6	
41	100	N	200	---	---	---	.14	5	4	
42	150	N	200	---	---	---	.18	9	6	
51	200	N	70	---	---	---	.50	6	1	
52	200	N	200	---	---	---	.40	11	8	
54	200	N	100	---	---	---	.50	6	3	
56	100	N	70	---	---	---	---	5	4	
57	200	N	300	---	---	---	.12	5	8	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Percent		(ppm)										
	Semiquantitative spectrographic analyses												
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area B--Continued							
						Stream sediments--Continued							
58	5	.7	1,500	N	20	300	30	70	150	N	20	10	200
69	5	.5	700	N	50	500	50	200	100	N	70	L	500
71	3	.5	700	N	15	150	20	150	70	N	50	10	100
72	5	.5	1,000	N	20	300	10	70	100	N	15	10	100
75	5	.3	2,000	N	15	700	30	200	100	N	100	10	200
76	2	.15	500	N	20	200	10	50	30	N	50	L	100
						Panned concentrates							
9	5	.7	1,000	N	20	700	20	500	70	N	70	L	500
10	5	.7	700	N	70	700	30	700	50	N	150	10	150
23	5	.5	700	N	50	700	30	2,000	70	N	100	10	200
28	7	1	2,000	N	50	300	50	G(5,000)	50	5	150	L	200
70	7	1	2,000	N	100	700	50	200	100	N	30	L	500
74	10	G(1)	1,000	N	20	150	30	1,500	50	5	100	N	150
						Rock samples							
5	5	.005	1,000	N	15	20	100	5,000	L	N	1,500	N	N
16	5	.005	1,500	N	70	L	700	3,000	7	N	2,000	N	N
18	1.5	.3	300	N	N	1,000	7	30	30	N	10	N	N
24[2]	10	.005	2,000	70	70	L	100	N	G(20,000)	N	L	10	N
25[3]	10	.005	1,500	50	50	N	30	20	15,000	N	30	10	N
29	3	.3	700	N	150	700	20	150	50	N	30	20	1,000
30	3	.5	1,500	L	20	150	30	50	100	7	50	10	500
34	5	.5	2,000	L	100	500	20	100	100	7	70	20	300
36	5	.001	150	.5	L	L	10	N	100	N	30	L	N
43	3	.3	3,000	N	100	200	10	70	50	N	15	70	N
44	3	.3	1,500	N	L	1,000	70	200	L	N	150	N	150
45	3	.002	700	N	50	L	1,500	3,000	L	N	3,000	N	N
46	7	.5	1,500	N	10	1,000	70	300	200	N	150	N	700
47	2	.3	1,000	N	L	150	7	30	5	N	15	N	200
48	15	.3	5,000	N	70	70	10	100	1,000	N	15	N	N
49	15	.3	G(5,000)	N	30	100	50	150	100	N	100	N	150
50	2	.3	1,500	N	30	700	15	20	50	N	30	20	100
53	7	.3	1,500	N	30	1,000	5	20	150	N	10	L	700
55	5	.2	1,000	N	20	500	30	20	70	N	5	10	1,000
59	5	.3	500	N	15	2,000	20	10	50	N	5	10	500
60	7	.3	1,000	.5	50	100	100	300	700	N	150	L	200
61	3	.15	700	N	150	N	20	150	100	N	50	L	L
62	15	.07	70	N	G(2,000)	N	N	50	50	N	5	N	N
63	3	.3	700	N	20	700	20	100	50	N	L	10	200
64	1.5	.15	500	N	30	1,000	L	20	20	N	50	L	100
65	3	.1	2,000	N	N	50	20	50	50	N	20	L	500
66	7	5	1,000	N	10	1,500	50	150	70	7	50	N	2,000
67	.05	.005	50	N	N	20	N	10	N	N	N	N	300
68	1	.1	100	N	L	20	N	100	10	N	30	N	300
69	5	.15	1,000	N	150	500	20	50	50	70	30	10	N
72	5	.2	700	N	10	700	20	15	30	N	L	L	500
73	5	.2	700	N	15	700	20	150	100	N	20	L	700
75	3	.1	300	N	20	1,500	5	N	200	N	L	L	500
76	3	.5	700	N	70	1,000	10	100	100	N	30	10	100

Trinity Alps study area, California--Continued

	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
Area B--Continued										
Stream sediments--Continued										
58	300	N	300	---	---	---	0.08	5	15	
69	150	N	200	---	---	---	---	3	15	
71	200	N	150	---	---	---	.24	3	8	
72	300	N	70	---	---	---	.15	3	4	
75	150	N	150	---	---	---	.13	7	10	
76	50	N	50	---	---	---	---	3	4+	
Panned concentrates										
9	200	N	70	L(0.03)	---	---	---	---	---	
10	150	N	100	L(.05)	---	---	---	---	---	
23	100	N	100	L(.04)	---	---	---	---	---	
28	500	N	500	.06	---	---	---	---	---	
70	500	N	150	L(.03)	---	---	---	---	---	
74	500	N	200	L(.02)	---	---	---	---	---	
Rock samples										
5	20	N	N	L(.02)	---	---	.03	---	---	Serp.
16	30	L	N	L(.02)	---	---	.02	---	---	Do.
18	70	L	30	L(.02)	---	---	.07	---	---	Vein qtz float.
24[2]	L	G(10,000)	N	.78	---	---	11	---	---	Py and chalco ch boulder.
25[3]	L	G(10.000)	N	.20	---	---	20	---	---	Do.
29	100	N	70	L(.02)	---	---	.01	---	---	Py ch.
30	150	N	70	L(.02)	---	---	.20	---	---	FeOx st phyl.
34	150	N	70	L(.02)	---	---	.30	---	---	FeOx st ch.
36	50	N	N	.02	---	---	.22	---	---	Ch; sulf.
43	150	N	150	L(.02)	---	---	.02	---	---	Sil sl.
44	100	L	50	L(.02)	---	---	.04	---	---	Tactitized marble.
45	20	L	N	L(.02)	---	---	.16	---	---	Serp.
46	500	L	30	L(.02)	---	---	.07	---	---	Qtz-bio sch.
47	50	N	30	L(.02)	---	---	.05	---	---	Marble.
48	150	200	30	L(.02)	---	---	1.10	---	---	FeOx in qzt.
49	150	200	100	.04	---	---	.11	---	---	Sample of 100 ft FeOx zone.
50	30	N	50	L(.02)	---	---	.04	---	---	Qzt.
53	300	L	10	.04	---	---	.05	---	---	Fresh gr.
55	150	N	70	L(.02)	---	---	.01	---	---	Do.
59	100	N	150	L(.02)	---	---	.35	---	---	Dio.
60	200	N	70	L(.02)	---	---	1.2	---	---	FeOx zone in sch.
61	70	N	200	L(.02)	---	---	.18	---	---	Qtz pods in sch.
62	20	N	10	L(.02)	---	---	.09	---	---	4 in.-7 in. qtz vein.
63	100	N	300	L(.02)	---	---	.12	---	---	Alt. dio.
64	70	N	10	.02	---	---	.22	---	---	FeOx st qzt.
65	50	N	100	L(.02)	---	---	.07	---	---	Marble; sil.
66	500	N	20	L(.02)	---	---	.03	---	---	Ep qzt.
67	10	N	N	.02	---	---	.03	---	---	Marble.
68	20	N	15	.02	---	---	.09	---	---	Do.
69	100	N	150	.02	---	---	.15	---	---	Alt 3 ft zone in qzt.
72	100	N	150	L(.02)	---	---	.05	---	---	Dio.
73	200	N	70	L(.02)	---	---	.02	---	---	FeOx st dio.
75	20	N	70	L(.02)	---	---	.05	---	---	FeOx st dike rock.
76	150	N	150	L(.02)	---	---	.02	---	---	FeOx st ch.

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent) Fe (0.05)	Ti (0.002)	(ppm) Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area C							
						Stream sediments							
1	3	0.2	700	N	20	500	20	20	50	N	20	L	200
6	3	.3	1,000	N	50	300	5	70	10	N	15	15	100
11	2	.15	500	N	15	200	5	70	30	N	20	10	L
13	3	.5	1,000	N	50	700	20	150	30	N	70	15	200
15	5	.7	1,000	N	100	1,500	30	200	50	N	150	15	100
16	3	.5	1,000	N	70	500	20	150	50	N	70	20	100
20	5	.7	1,500	N	70	700	30	300	50	N	150	20	150
22	7	.7	1,500	N	200	1,000	30	300	70	N	100	20	200
23	10	1	1,500	N	100	1,000	50	500	100	N	200	20	150
24	10	1	2,000	N	200	1,000	50	300	100	N	150	20	150
25	5	.5	2,000	N	150	1,500	50	200	150	N	100	30	200
30	5	.7	1,500	N	100	700	30	500	150	N	200	15	150
32[4]	10	.7	1,000	N	300	700	50	200	200	N	150	20	300
33	3	.5	700	N	200	1,000	5	200	70	N	70	20	100
40	5	.7	1,000	N	100	700	20	300	70	N	100	20	150
41	5	.7	1,000	N	100	300	20	100	30	N	100	20	200
42	5	.7	2,000	N	150	1,000	30	200	70	N	200	20	150
43	5	.7	1,000	N	100	500	30	200	50	N	100	15	150
44	7	1	2,000	N	200	1,000	30	200	100	N	150	20	150
45	5	.7	1,000	N	150	1,000	30	300	70	N	150	20	200
46	7	.7	2,000	N	70	500	50	300	70	N	150	20	100
47	3	.5	1,500	N	70	700	30	200	50	N	100	15	100
						Panned concentrates							
19	10	.7	1,500	N	70	1,000	30	500	50	N	150	15	L
22	10	1	2,000	N	100	700	30	300	30	N	100	10	100
23[5]	15	1	1,000	N	100	500	30	5,000	150	N	150	20	L
42	10	1	1,500	N	70	700	50	1,500	70	N	100	15	100
48	10	1	1,500	N	150	700	50	300	50	N	100	10	150
						Rock samples[6]							
1	1	.05	100	0.5	L	100	N	10	50	N	N	N	N
2	5	.2	700	N	20	150	20	15	10	N	N	L	200
3	.5	.1	100	N	N	1,000	N	N	5	N	N	N	N
4	.2	.05	100	N	N	50	N	N	5	N	N	N	N
5	.2	.02	50	5	N	100	N	N	5	N	N	70	N
7	7	.07	500	N	50	700	N	20	70	N	5	10	N
8	10	.5	1,500	N	20	700	20	10	15	N	5	L	500
9	10	.3	1,000	N	20	500	15	10	200	N	5	10	200
10	15	.2	150	L	20	500	N	N	150	N	5	L	L
14	.3	.05	1,000	N	L	200	N	L	30	N	10	N	N
17	1.05	.2	300	N	20	700	L	70	50	50	15	10	L
18	.1	.005	50	N	N	70	N	N	5	N	N	N	N
21	5	.15	50	N	30	2,000	5	10	10	5	7	N	L
26	5	.1	300	.7	20	200	30	20	200	N	15	15	N
27	5	.03	150	N	50	30	N	N	10	N	N	L	N
28	10	.03	1,000	N	L	5,000	N	20	150	N	20	N	100
29	.5	.1	1,000	N	L	100	N	20	5	N	7	L	N
31	7	.2	700	1	L	1,000	15	100	300	N	15	L	150
34	10	1	1,500	N	L	5,000	50	200	150	N	50	L	200
35	5	.07	70	.5	N	100	5	N	300	N	L	N	N
36	5	.05	150	1	L	300	15	30	500	N	L	L	100
37	10	.5	1,000	N	20	100	20	L	150	N	5	L	150
38	1.5	.02	70	.7	L	20	5	N	100	5	5	10	L
39	.1	L	15	N(2)	N	L	N	N	100	N	5	N	L

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
							Area C			
							Stream sediments			
1	100	N	70	---	---	---	---	12	4	
6	100	N	70	---	---	---	0.30	2	1	
11	50	N	15	---	---	---	---	3	1	
13	150	N	100	---	---	---	.20	3	1	
15	200	N	200	---	---	---	.26	5	6	
16	150	N	100	---	---	---	.11	7	8	
20	150	N	200	---	---	---	.24	3	4	
22	150	N	200	---	---	---	.45	3	2	
23	200	N	150	---	---	---	.16	5	8	
24	200	N	150	---	---	---	.20	12	8	
25	200	N	200	---	---	---	.22	7	8	
30	200	N	150	---	---	---	.15	7	15	
32[4]	200	N	200	---	---	---	.16	3	15	
33	100	N	70	---	---	---	.60	3	10	
40	150	N	200	---	---	---	.18	16	15	
41	100	N	200	---	---	---	.18	3	2	
42	200	N	200	---	---	---	.40	5	6	
43	100	N	200	---	---	---	.50	6	4	
44	200	N	200	---	---	---	.10	3	4	
45	200	N	500	---	---	---	.20	5	8	
46	200	N	200	---	---	---	.50	5	6	
47	150	N	150	---	---	---	.20	7	6	
							Panned concentrates			
19	200	N	150	0.04	---	---	---	---	---	
22	200	N	150	L(.08)	---	---	---	---	---	
23[5]	150	N	150	L(.08)	---	---	---	---	---	
42	150	N	100	L(.08)	---	---	---	---	---	
48	200	N	200	1.2	---	---	---	---	---	
							Rock samples[6]			
1	30	N	10	6.6	---	---	.05	---	---	Vein qtz, Summit mine.
2	100	N	10	.02	---	---	.03	---	---	Hb dio.
3	50	N	20	L(.02)	---	---	.10	---	---	FeOx st in meta ch.
4	20	N	N	.06	---	---	.12	---	---	Vein qtz, prospect.
5	20	N	N	.02	---	---	.15	---	---	Do.
7	100	N	N	L(.02)	---	---	.18	---	---	FeOx st in qzt.
8	200	N	150	.02	---	---	.03	---	---	Gr rk.
9	200	N	200	.1	---	---	.14	---	---	Fault gouge, Summit mine.
10	100	N	70	.02	---	---	.06	---	---	Vein qtz, alt dio, Summit mine.
14	30	N	10	.02	---	---	.04	---	---	Meta ch.
17	50	N	70	L(.02)	---	---	.04	---	---	Lim st frac, meta ch.
18	10	N	N	.02	---	---	.02	---	---	Vein qtz.
21	70	N	70	L(.02)	---	---	.07	---	---	Do.
26	100	N	N	L(.02)	---	---	.4	---	---	1.5 ft qtz vein.
27	10	N	N	.06	---	---	.04	---	---	FeOx st qtz vein.
28	150	N	20	.02	---	---	.16	---	---	Py veinlets.
29	20	N	10	L(.02)	---	---	.09	---	---	Vein qtz.
31	150	N	50	.02	---	---	.26	---	---	Qtz py vein in qzt.
34	500	N	70	L(.02)	---	---	.07	---	---	FeOx st dike rk.
35	10	N	20	.06	---	---	.07	---	---	6 in. qtz vein.
36	20	N	50	.12	---	---	.26	---	---	Qtz vein.
37	200	N	100	.08	---	---	.30	---	---	Gouge, upper adit, Jumbo mine.
38	100	N	L	6.2	---	---	.18	---	---	Qtz vein, Jumbo mine.
39	10	N	N	9.1	---	---	.01	---	---	Qtz vein; sulf, Jumbo mine.

Table 1.--*Analyses of samples from the Salmon-*

Semiquantitative spectrographic analyses

Sample	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area D							
						Stream sediments							
3	5	1	1,000	N	150	1,000	50	150	70	N	70	10	200
5	5	.5	1,000	N	100	700	30	100	50	N	70	15	150
6	3	.7	700	N	100	700	30	150	50	N	70	15	150
8	5	.2	700	N	70	700	30	100	50	N	70	10	150
9	5	.7	1,000	.7	100	1,000	50	150	70	N	100	10	200
10	5	.5	700	N	50	700	30	150	50	N	70	15	100
11	5	.5	100	N	100	1,000	30	150	50	N	70	20	200
12	3	.3	700	N	30	700	20	100	50	N	70	10	100
13	5	.3	700	N	15	700	30	500	50	N	150	10	150
14	5	1	2,000	N	30	700	20	300	70	N	100	L	200
15	3	.3	700	N	15	500	20	150	50	N	150	10	100
16	5	.5	700	N	30	700	30	200	50	N	200	10	150
17	2	.3	700	N	20	700	20	200	50	N	100	15	150
19	5	.7	1,000	N	100	700	50	300	70	N	150	10	200
20	5	.5	1,000	N	50	700	50	200	50	N	200	10	200
23	5	.3	1,000	N	70	700	50	200	50	N	100	10	200
24	5	.3	1,000	N	50	700	30	200	50	N	100	10	200
25	3	.5	700	N	20	700	50	200	50	5	150	10	100
28	5	.5	700	N	15	700	50	500	50	N	200	L	200
29	5	1	1,500	N	150	700	50	200	70	N	150	20	200
30	3	.3	700	N	30	700	30	150	50	N	70	15	150
31	5	G(1)	1,000	N	200	1,000	50	300	70	N	200	10	200
33	5	.5	700	N	20	700	30	200	50	N	100	10	200
34	5	1	700	N	70	1,000	50	300	70	N	200	10	L
35	5	1	1,000	N	150	1,000	50	200	50	N	100	15	200
36	5	.5	700	N	15	700	50	300	50	N	100	L	150
37	3	1	700	N	20	700	20	200	50	N	100	10	150
38	5	.3	700	N	10	1,000	30	300	70	N	100	L	200
39	5	1	1,000	N	50	700	50	500	70	N	200	10	200
40	5	1	700	N	50	700	30	200	70	N	100	15	200
41	3	1	1,000	N	150	700	30	200	70	N	150	10	150
42	5	.7	700	N	20	1,000	30	200	50	N	150	10	100
43	5	1	700	N	20	700	30	200	50	N	150	10	100
44	5	.7	700	N	20	700	50	300	50	N	150	L	100
45	2	.7	700	N	30	1,000	20	150	50	N	100	10	200
46	5	1	1,000	N	100	1,000	50	200	70	N	100	15	150
47	3	.7	700	N	20	1,000	20	100	50	N	70	15	100
48	5	.7	700	N	20	1,000	20	200	50	N	100	15	150
49	3	1	700	N	100	700	30	200	50	N	100	15	150
50	5	.5	700	.7	20	1,000	30	200	50	N	150	10	100
51	5	.5	700	N	20	1,500	30	150	70	N	100	10	150
52	5	.7	700	N	20	700	30	200	50	N	100	L	150
53	5	1	1,000	N	100	1,000	50	300	50	N	150	10	200
54	5	.7	700	N	100	1,000	50	300	70	N	100	10	150
55	5	1	1,000	N	100	1,000	50	300	50	N	100	10	200
56	3	.2	700	N	150	2,000	30	200	50	N	100	10	100
57	5	1	1,000	N	100	1,000	50	200	70	N	100	10	200
59	5	.5	700	N	15	700	50	500	100	N	100	20	200
60	3	.2	1,000	N	15	2,000	30	150	70	N	100	15	200
61	5	.2	G(5,000)	N	50	2,000	30	100	30	N	100	10	N
62	5	.3	2,000	1	10	2,000	15	200	70	N	150	15	N
63	3	.5	2,000	1	20	1,500	20	200	70	N	200	15	N
72	5	.5	500	N	20	1,000	20	200	30	N	100	L	150

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
								Area D		
								Stream sediments		
3	150	N	N	---	---	---	---	9	3	
5	150	N	200	---	---	---	---	6	1	
6	100	N	150	---	---	---	---	2	2	
8	100	N	150	---	---	---	---	3	2	
9	100	N	200	---	---	---	---	2	4	
10	200	N	150	---	---	---	---	3	1	
11	150	N	200	---	---	---	---	7	8	
12	100	N	150	---	---	---	---	2+	INS	
13	100	N	150	---	---	---	---	3	2	
14	300	N	50	---	---	---	---	3	3	
15	50	N	100	---	---	---	---	2	2	
16	200	N	100	---	---	---	---	3	2	
17	70	N	150	---	---	---	---	2	2+	
19	200	N	200	---	---	---	---	3	2	
20	200	N	150	---	---	---	---	3	1	
23	200	N	100	---	---	---	---	2	3	
24	200	N	100	---	---	---	---	2	2	
25	100	N	100	---	---	---	---	2	2	
28	50	N	50	---	---	---	---	2+	INS	
29	100	N	200	---	---	---	---	3	3	
30	100	N	150	---	---	---	---	3	3+	
31	150	N	300	---	---	---	---	2	4	
33	70	N	150	---	---	---	---	2	2	
34	150	N	100	---	---	---	---	2	2	
35	100	N	200	---	---	---	---	3	3	
36	100	N	150	---	---	---	---	2	3	
37	70	N	200	---	---	---	---	2	2	
38	70	N	30	---	---	---	---	5	8	
39	150	N	200	---	---	---	---	2	4	
40	100	N	200	---	---	---	---	3	4+	
41	150	300	200	---	---	---	---	90	8	
42	100	N	200	---	---	---	---	2	3	
43	70	N	70	---	---	---	---	3	3+	
44	100	N	150	---	---	---	---	2+	4+	
45	70	N	200	---	---	---	---	9	2	
46	150	N	300	---	---	---	---	3	3	
47	70	N	200	---	---	---	---	3	4+	
48	70	N	150	---	---	---	---	2	3	
49	100	N	200	---	---	---	---	2	3	
50	100	N	150	---	---	---	---	22	6	
51	100	N	50	---	---	---	---	3	2	
52	100	N	150	---	---	---	---	3	2	
53	200	N	200	---	---	---	---	2	2	
54	100	N	100	---	---	---	---	3	3+	
55	100	N	200	---	---	---	---	2	4	
56	100	N	70	---	---	---	---	3	3	
57	150	N	150	---	---	---	---	2	4	
59	150	N	70	---	---	---	---	6	10	
60	150	N	50	---	---	---	---	28	10	
61	100	N	30	---	---	---	0.26	16	1	
62	100	N	50	---	---	---	.20	10	4	
63	100	N	100	---	---	---	.15	24	8	
72	100	N	150	---	---	---	---	3	4	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area D--Continued							
						Panned concentrates							
2	7	0.7	700	N	50	700	15	150	70	N	50	10	200
3	5	.3	700	N	50	1,000	20	150	50	N	50	15	200
7	5	.7	2,000	N	50	1,000	20	700	50	N	50	10	100
13	7	.5	700	N	30	700	30	1,000	50	N	100	10	150
16	10	1	1,000	N	30	500	50	2,000	50	N	100	L	200
22	5	G(1)	1,000	N	20	500	H	2,000	30	N	30	L	L
27	5	G(1)	1,000	N	50	1,000	30	700	50	N	70	L	200
33	7	1	1,500	N	50	700	30	1,500	50	N	100	10	200
48	5	.7	1,000	N	30	1,000	50	700	50	N	100	10	150
49	5	G(1)	1,000	N	70	1,000	H	3,000	50	N	70	15	L
54	5	1	1,000	N	50	1,000	50	2,000	50	N	100	L	150
55	5	1	1,000	N	20	1,000	50	1,000	70	N	100	10	150
59	5	.2	700	N	20	1,000	50	500	70	N	70	10	300
60	5	.3	1,500	N	15	2,000	50	500	70	N	100	L	200
						Rock samples[7]							
1	5	.15	700	N	10	300	50	3,000	30	L	1,000	N	L
4	2	.15	500	N	20	1,000	N	30	20	N	15	15	500
18	2	.15	700	N	15	1,000	20	150	50	N	70	L	150
21	1.5	.1	300	N	10	1,500	5	30	50	7	50	L	150
26	5	.5	700	N	30	700	15	70	30	5	50	10	150
32	5	1	200	N	20	200	30	70	15	L	50	10	200
58	1	.15	700	N	L	1,500	5	20	20	N	20	L	100
61	.2	.02	100	N	N	1,000	N	50	50	N	15	N	100
64	1	.1	500	N	N	1,500	L	20	30	N	10	N	N
65	5	.1	200	0.5	10	2,000	N	70	150	15	50	L	N
66	2	.1	1,000	N	L	2,000	L	10	50	N	20	N	N
67	.7	.05	100	N	L(20)	500	N	15	10	10	L	L	L
68	.15	.01	200	N	N	100	N	N	L	N	N	N	N
69	7	.2	1,000	N	30	1,000	20	50	50	N	10	10	300
70	.2	.02	200	N	N	1,000	N	N	5	N	N	10	L
71	2	.3	300	N	70	1,000	5	100	50	N	50	L	150
						Area E							
						Stream sediments							
2	5	.5	700	N	10	2,000	20	150	70	N	100	10	200
3	5	.3	1,000	N	20	700	30	200	70	N	100	10	200
4	3	.5	700	N	15	700	20	300	30	N	100	10	200
5	2	.3	500	.7	10	1,000	15	100	50	N	150	L	200
6	7	.7	700	N	30	1,000	30	500	50	N	100	10	200
7	5	.7	1,000	N	20	1,000	50	200	70	N	100	10	200
8	5	1	1,000	N	20	1,000	30	200	70	N	100	10	200
9	3	.3	700	N	30	1,000	30	200	50	N	150	15	100
10	5	.7	1,000	N	100	1,000	50	500	70	N	150	10	200
11	3	.5	700	N	15	1,000	20	200	50	N	100	10	200
12	10	.3	1,000	N	100	700	50	150	100	10	100	10	100
13	3	.5	700	N	20	1,000	30	200	50	N	100	10	150
14	5	1	700	N	70	1,000	50	1,000	70	N	200	10	200
15	5	1	1,000	N	150	1,000	30	200	50	N	150	15	100
16	5	.3	1,500	N	150	1,000	30	700	100	N	150	30	100
18	5	.5	1,000	N	50	500	70	150	70	N	100	30	100
19	10	1	1,500	N	100	700	150	700	50	N	150	30	200
20	7	1	2,000	N	150	700	100	300	50	N	100	30	150
21	15	G(1)	2,000	N	50	700	200	700	100	N	500	15	150
22	15	G(1)	1,500	N	100	700	150	700	70	N	200	20	200

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses: AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
							Area D--Continued			
							Panned concentrates			
2	150	N	200	8	---	---	---	---	---	
3	150	N	150	.80	---	---	---	---	---	
7	100	N	200	51	---	---	---	---	---	
13	200	N	100	L(.03)	---	---	---	---	---	
16	200	N	150	.02	---	---	---	---	---	
22	200	N	70	L(.16)	---	---	---	---	---	
27	70	N	100	.24	---	---	---	---	---	
33	150	N	150	L(.05)	---	---	---	---	---	
48	70	N	100	.48	---	---	---	---	---	
49	100	N	150	L(.6)	---	---	---	---	---	
54	100	N	70	L(.4)	---	---	---	---	---	
55	100	N	150	L(.3)	---	---	---	---	---	
59	100	N	30	L(.04)	---	---	---	---	---	
60	100	N	50	.02	---	---	---	---	---	
							Rock samples[7]			
1	50	N	50	L(.02)	---	---	0.05	---	---	
4	50	N	70	L(.02)	---	---	.07	---	---	FeOx st phyl.
18	70	N	50	L(.02)	---	---	L(.01)	---	---	Brecc sl.
21	300	N	50	L(.02)	---	---	.18	---	---	Carb arg.
26	150	N	100	L(.02)	---	---	.04	---	---	Shear zone, sl.
32	150	N	200	L(.02)	---	---	.02	---	---	FeOx st arg.
58	30	N	100	L(.02)	---	---	.06	---	---	Ch.
61	200	N	10	L(.02)	---	---	.09	---	---	FeOx st phyl.
64	30	N	20	L(.02)	---	---	.07	---	---	Qtz, prospect.
65	300	N	50	L(.02)	---	---	.07	---	---	Ch, prospect.
66	20	N	50	L(.02)	---	---	.12	---	---	Phyl ch.
67	00	N	15	L(.02)	---	---	.11	---	---	FeOx st ch.
68	15	N	N	L(.02)	---	---	.05	---	---	Qtz.
69	200	N	20	L(.02)	---	---	.06	---	---	Dump, prospect.
70	15	N	N	L(.02)	---	---	.08	---	---	Qtz vein.
71	100	N	200	L(.02)	---	---	.14	---	---	FeOx st phyl.
							Area E			
							Stream sediments			
2	70	N	100	---	---	---	---	3	6	
3	70	N	100	---	---	---	---	3	3	
4	50	N	100	---	---	---	---	3	3	
5	100	500	100	---	---	---	---	160	4	
6	200	N	200	---	---	---	---	2+	2+	
7	150	N	150	---	---	---	---	12	3	
8	100	N	150	---	---	---	---	14	2	
9	70	N	200	---	---	---	---	3	2	
10	100	N	200	---	---	---	---	2	4	
11	70	N	200	---	---	---	---	2+	4+	
12	150	N	150	---	---	---	---	7	10	
13	100	N	200	---	---	---	---	5	4	
14	200	N	500	---	---	---	---	2	6	
15	150	N	200	---	---	---	---	3	1	
16	200	N	100	---	---	---	0.24	6	8	
18	150	N	100	---	75*	130*	---	4+	INS	
19	300	N	150	---	48+	68+	---	5	8	
20	150	N	300	---	52	94	---	4	2	
21	500	N	150	---	60	82	---	2	H	
22	300	N	150	---	62*	84*	---	3	6	

Table 1.--*Analyses of samples from the Salmon-*

Semiquantitative spectrographic analyses

Sample	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area E--Continued							
						Stream sediments--Continued							
23	15	G(1)	2,000	N	150	1,000	150	700	100	N	200	15	200
24	10	G(1)	1,500	N	100	700	150	700	70	N	200	15	150
25	7	1	1,500	N	70	1,000	50	150	100	N	70	15	100
26	3	.3	500	N	50	700	10	100	50	N	70	10	100
27	5	1	1,000	N	150	700	50	200	70	N	100	20	300
28	5	.7	1,500	1	70	700	70	200	70	N	150	30	100
29	5	.7	1,500	N	70	500	70	300	70	N	100	30	100
30	5	.7	2,000	N	70	500	70	200	100	N	150	30	150
31	5	.7	1,500	N	70	700	70	300	70	N	150	30	150
32	5	.5	1,500	N	50	500	70	200	70	N	150	50	100
39	7	G(1)	1,500	N	70	700	50	300	100	N	200	20	100
44	10	1	2,000	N	70	700	50	500	100	N	200	20	100
45	10	G(1)	1,500	N	30	700	50	500	100	N	150	10	150
47	5	.7	2,000	N	100	1,000	20	150	100	N	100	30	200
48	5	.7	1,000	N	50	500	50	100	70	N	100	20	300
49	5	.7	1,000	N	30	700	50	500	50	N	150	10	100
50	5	1	700	N	30	700	50	200	50	N	100	15	200
51	10	1	2,000	N	150	1,500	50	300	100	N	150	30	150
52	5	.7	1,500	N	100	1,000	30	150	50	N	100	30	100
53	10	.1	700	N	50	200	N	20	30	N	20	L	L
54	5	.7	700	N	30	700	30	150	30	N	100	10	200
55	7	1	5,000	N	50	1,000	50	100	30	N	70	10	200
56	5	.7	1,000	N	50	1,000	50	200	70	N	100	20	200
						Panned concentrates							
3	7	1	1,000	N	50	700	50	G(5,000)	50	L	200	10	150
4	5	1	1,000	N	50	5,000	50	G(5,000)	70	N	150	10	300
6	10	1	1,500	N	100	700	50	G(5,000)	100	N	200	10	200
7	10	1	3,000	N	50	2,000	30	1,000	70	N	100	10	300
10	5	.7	1,000	N	50	1,000	20	2,000	50	N	100	L	200
11	5	.3	500	N	20	1,000	20	500	70	N	70	10	300
13	5	G(1)	1,000	N	50	1,000	H	1,000	50	N	70	10	H
14	15	G(1)	5,000	N	100	500	H	G(5,000)	50	N	300	L	H
15	10	G(1)	2,000	N	100	700	70	G(5,000)	300	N	300	L	150
17	15	1	2,000	N	70	100	70	G(5,000)	50	N	1,000	L	150
21	20	G(1)	5,000	N	L	700	50	G(5,000)	30	5	1,000	10	100
24	20	G(1)	5,000	N	L	700	70	G(5,000)	50	N	3,000	N	150
25	10	1	2,000	N	100	1,000	30	700	30	N	50	20	100
30	10	G(1)	G(5,000)	N	100	150	70	2,000	150	N	150	15	150
31	10	G(1)	G(5,000)	N	150	200	50	500	150	N	100	30	500
44	5	1	1,500	N	30	700	30	1,000	50	N	100	10	200
45	7	1	1,000	N	20	700	50	1,000	50	N	150	L	150
50	7	.5	1,000	N	30	700	30	300	50	N	100	10	200
57	5	.7	1,000	N	70	1,000	20	500	50	N	70	10	200
						Rock samples							
1	15	.07	1,500	N	100	1,000	N	70	200	5	20	15	N
12	3	.15	500	N	15	1,000	L	30	30	5	20	10	L
33	7	.3	1,000	N	15	500	10	50	50	N	30	20	L
34	.1	.02	70	N	N	20	N	N	L	N	N	N	N
35[8]	15	1	3,000	N	10	500	70	200	30	N	70	L	200
36	.3	.03	150	N	L	50	L	L	7	N	L	N	N
37	1.5	.15	700	N	L	150	5	20	15	N	7	N	100
38	5	.5	1,000	N	150	200	30	150	70	N	50	30	150
40	1.5	.1	200	N	N	1,000	L	30	30	5	20	N	L
41	3	G(1)	500	.7	20	700	50	100	100	N	70	L	150

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
					Area E--Continued					
					Stream sediments--Continued					
23	300	N	200	---	59	74	---	1	6	
24	300	N	150	---	57	76	---	2	4	
25	150	N	150	---	88	110	---	6	H	
26	50	N	100	---	---	---	---	9	4+	
27	200	N	200	---	---	---	---	3	2+	
28	200	N	200	---	57+	94+	---	4	4+	
29	200	N	150	---	65	110	---	6	6	
30	200	N	150	---	80	130	---	4	4	
31	200	N	150	---	78	100	---	4	4	
32	200	N	150	---	90*	150*	---	6	6+	
39	200	N	150	---	---	---	0.07	2	3	
44	200	N	150	---	---	---	.07	3	4	
45	200	N	150	---	---	---	.06	2	4	
47	150	N	200	---	---	---	2.4	3	4	
48	70	N	150	---	---	---	---	5	4	
49	150	N	200	---	---	---	---	3	4	
50	100	N	150	---	---	---	---	3	6	
51	300	N	200	---	---	---	.11	6	6	
52	150	N	200	---	---	---	.07	3	4	
53	30	N	20	---	---	---	---	1	1	
54	100	N	100	---	---	---	---	2	2	
55	100	N	100	---	---	---	---	5	8	
56	100	N	150	---	---	---	---	5	4	
					Panned concentrates					
3	200	N	150	L(1.2)	---	---	---	---	---	
4	150	L	200	8	---	---	---	---	---	
6	300	N	200	L(.25)	---	---	---	---	---	
7	150	N	150	L(.06)	---	---	---	---	---	
10	150	N	200	L(.25)	---	---	---	---	---	
11	100	N	150	L(.2)	---	---	---	---	---	
13	100	N	200	L(.5)	---	---	---	---	---	
14	300	N	300	15	---	---	---	---	---	
15	300	N	150	L(.05)	---	---	---	---	---	
17	300	L	200	80	---	---	---	---	---	
21	500	500	150	L(.08)	---	---	---	---	---	
24	500	200	1,000	12	---	---	---	---	---	
25	150	N	200	L(.06)	---	---	---	---	---	
30	300	300	150	INS	---	---	---	---	---	
31	300	200	150	L(1)	---	---	---	---	---	
44	100	N	100	L(.02)	---	---	---	---	---	
45	150	N	100	L(.02)	---	---	---	---	---	
50	100	N	150	L(.03)	---	---	---	---	---	
57	100	N	200	L(.02)	---	---	---	---	---	
					Rock samples					
1	150	N	50	.04	---	---	.14	---	---	1 ft lim vein.
12	70	N	150	L(.02)	---	---	.12	---	---	Lim st phyl.
33	70	N	150	L(.02)	---	---	.11	---	---	Qtz mica sch.
34	10	N	N	L(.02)	---	---	.09	---	---	4 ft qtz vein.
35[8]	700	N	100	L(.02)	---	---	.10	---	---	Gs.
36	20	N	N	L(.02)	---	---	.04	---	---	FeOx st sil sh and qtz.
37	20	N	N	L(.02)	---	---	.04	---	---	Vein qtz.
38	100	L	150	L(.02)	---	---	.05	---	---	Sil sch.
40	150	N	50	.04	---	---	.07	---	---	3 ft qtz vein in sl.
41	100	N	200	L(.02)	---	---	.01	---	---	FeOx st ch.

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent) Fe (0.05)	Ti (0.002)	(ppm) Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area E--Continued							
						Rock samples--Continued							
42	7	G(1)	700	0.5	20	700	70	70	70	N	50	10	200
43	5	.5	700	N	15	70	50	200	200	N	70	L	500
45	5	1	1,000	N	15	100	50	300	150	N	100	L	100
46	3	.2	700	N	10	300	30	200	50	N	70	10	700
						Area F							
						Stream sediments							
1	3	.3	500	N	20	150	20	300	50	N	100	L	100
2	3	.5	500	N	20	100	50	1,000	5	N	300	L	L
3	2	.15	700	N	20	100	50	500	15	N	200	L	L
4	5	.7	1,000	N	30	700	50	500	70	N	150	20	150
5	5	1	700	N	30	700	30	500	30	N	200	10	100
6	3	.5	1,000	N	20	500	30	200	30	N	100	10	100
7	5	.2	1,000	N	30	200	50	1,000	30	N	200	10	L
8	3	.3	1,000	N	50	500	10	70	30	5	50	15	200
9	5	.5	1,000	N	20	100	50	700	20	N	200	L	100
11	5	.7	1,000	N	30	500	30	200	50	N	100	L	N
12	5	.5	1,000	N	20	500	70	700	50	N	500	L	200
13	5	.2	700	N	15	1,000	10	30	20	N	15	10	300
14	7	.5	1,000	N	20	1,000	50	700	50	N	200	10	200
15	3	.3	500	.7	50	500	20	100	70	5	100	15	100
16	5	.5	1,500	N	100	500	20	200	100	5	150	20	N
18	7	.7	1,500	N	20	500	30	1,000	30	N	150	10	100
19	7	.5	700	N	20	700	50	500	20	N	200	L	300
20	5	.7	1,000	N	30	700	50	700	50	N	200	10	150
21	5	.2	1,000	N	30	300	50	1,000	50	N	1,000	10	100
22	2	.3	1,500	N	50	500	5	150	50	N	100	15	N
23	10	1	2,000	N	30	700	50	1,000	150	N	500	15	100
24	5	.5	700	N	20	700	30	700	50	N	100	10	200
25	3	.5	1,000	N	50	700	10	300	70	N	150	15	N
27	7	1	1,000	N	20	700	50	1,000	70	N	300	L	150
28	5	.7	1,500	N	50	700	30	300	70	N	150	50	100
29	5	.5	700	N	30	700	30	300	50	N	200	10	100
30	5	.7	700	N	20	1,000	50	300	50	N	150	10	200
31	5	.5	700	.5	30	700	30	700	50	N	200	L	200
32	5	.5	500	.7	50	700	20	500	50	N	200	20	100
33	7	1	3,000	N	50	1,500	30	500	100	N	200	15	100
34	2	.2	1,000	.7	50	1,000	5	200	50	N	150	15	N
35	5	.5	1,000	N	50	1,000	20	500	70	N	200	20	100
36	10	.05	2,000	N	100	500	30	20	30	N	150	15	L
38	5	.3	700	N	20	700	50	500	70	N	100	10	200
39	5	.7	1,000	N	20	1,000	30	500	50	N	100	10	200
40	7	.7	1,000	N	30	1,000	50	1,000	50	N	150	10	300
41	3	.7	1,000	.7	20	1,000	20	300	70	N	150	15	100
42	5	.7	500	N	20	700	30	300	50	N	100	10	200
						Panned concentrates							
6[9]	5	.2	1,000	300	50	50	70	G(5,000)	30	N	500	L	100
9	15	.5	1,500	N	1,000	1,000	30	G(5,000)	50	N	1,000	L	200
14	10	1	1,500	N	50	700	500	G(5,000)	50	N	200	L	L
20	10	G(1)	2,000	N	50	700	70	G(5,000)	50	N	200	L	100
23	10	1	3,000	N	70	500	100	G(5,000)	70	5	500	L	100
27	7	.7	1,500	N	50	500	50	G(5,000)	50	N	200	N	100
28	5	.5	1,000	N	100	1,000	50	2,000	100	N	150	L	200
42	5	.7	1,000	N	20	700	30	3,000	50	N	200	L	200

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
						Area E--Continued				
						Rock samples--Continued				
42	150	N	200	L(0.02)	---	---	0.04	---	---	Chl sch.
43	200	N	50	L(.02)	---	---	.04	---	---	Gs; py.
45	200	1,000	150	L(.02)	---	---	.05	---	---	Gs; sulf.
46	200	N	30	L(.02)	---	---	.06	---	---	Do.
						Area F				
						Stream sediments				
1	70	N	150	---	---	---	---	5	3+	
2	70	N	70	---	---	---	---	3	1	
3	50	N	30	---	---	---	---	14	2	
4	100	N	200	---	---	---	---	3	4	
5	150	N	150	---	---	---	---	3	4	
6	100	N	150	---	---	---	---	5	3+	
7	70	N	70	---	---	---	---	9	4+	
8	150	N	200	---	---	---	---	30	4	
9	100	N	100	---	---	---	---	2	6+	
11	100	N	150	---	---	---	---	3	3	
12	100	N	100	---	---	---	---	3	6	
13	100	N	300	---	---	---	---	3	3	
14	100	N	150	---	---	---	---	5	6	
15	70	N	100	---	---	---	---	18	15	
16	100	N	150	---	---	---	.20	28	10	
18	200	N	100	---	---	---	.13	2	2	
19	150	N	70	---	---	---	---	5	3	
20	150	N	150	---	---	---	.13	5	4	
21	70	N	100	---	---	---	---	16	6	
22	100	N	70	---	---	---	.40	18	4	
23	300	N	150	---	---	---	.15	5	6	
24	100	N	150	---	---	---	---	5	6	
25	100	N	70	---	---	---	.24	5	3	
27	150	N	150	---	---	---	---	5	6	
28	200	N	100	---	---	---	.35	6	8	
29	100	N	100	---	---	---	---	2	1	
30	100	N	100	---	---	---	---	3	6	
31	150	N	100	---	---	---	---	2	6	
32	150	N	100	---	---	---	.30	6	8	
33	500	N	150	---	---	---	.09	3	6	
34	150	N	50	---	---	---	.30	10	6	
35	200	N	100	---	---	---	.18	10	8	
36	10	1,000	N	---	---	---	---	400	4	
38	100	N	100	---	---	---	---	5	15	
39	100	N	150	---	---	---	---	6	6	
40	150	N	150	---	---	---	---	7	6	
41	150	N	200	---	---	---	.40	12	6	
42	100	N	100	---	---	---	---	10	8	
						Panned concentrates				
6[9]	100	N	70	L(.02)	---	---	---	---	---	
9	300	N	100	L(.04)	---	---	---	---	---	
14	200	L	100	L(.02)	---	---	---	---	---	
20	150	N	100	.42	---	---	---	---	---	
23	200	300	70	3.2	---	---	---	---	---	
27	200	N	50	.12	---	---	---	---	---	
28	150	300	100	1.5	---	---	---	---	---	
42	100	N	50	L(.02)	---	---	---	---	---	

Table 1.--*Analyses of samples from the Salmon-*

Semiquantitative spectrographic analyses

Sample	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area F--Continued							
						Rock samples							
10	5	0.3	700	N	20	150	10	30	20	N	5	L	100
17	1	.1	300	N	L	200	N	20	10	N	15	L	100
26[10]	2	.3	700	.7	10	G(5,000)	20	100	70	5	50	10	100
37	5	.15	500	N	15	1,000	50	1,500	L	N	300	N	L
						Area G							
						Stream sediments							
1	2	.15	700	N	20	70	30	500	30	N	200	L	N
4	3	.3	700	N	20	70	50	200	50	N	200	L	100
6	3	.2	1,000	N	20	500	15	100	50	N	50	L	200
7	3	.3	700	N	20	100	50	300	50	N	150	10	100
9	3	.2	500	N	20	50	50	500	50	N	200	L	100
10	3	.3	700	N	20	200	15	20	20	N	5	L	200
11	3	1	1,000	N	30	500	20	5,000	10	N	70	L	200
12	2	.2	700	N	10	100	15	200	20	N	70	L	100
13	5	.2	500	N	20	100	70	700	20	N	200	L	L
14	5	.3	1,000	N	10	200	30	300	50	N	100	L	200
15	3	.3	700	N	10	150	30	200	30	N	70	L	200
16	3	.2	500	N	20	100	30	200	50	N	100	L	100
17	7	.3	1,000	N	50	500	30	150	70	N	100	10	200
18	1.5	.15	500	N	15	150	N	50	30	N	10	N	150
19	2	.15	1,000	N	30	200	15	20	50	N	5	L	150
20	3	.3	1,000	N	20	200	20	200	50	N	70	L	200
21	5	.2	700	N	20	100	30	500	50	N	100	10	200
22	3	.15	700	N	20	50	15	300	50	N	100	N	150
23	2	.15	700	N	20	100	20	500	50	N	150	10	100
26[11]	5	.3	1,000	N	20	100	50	5,000	30	N	500	15	200
33	3	.15	700	N	10	100	30	300	70	N	70	L	200
35	7	.5	1,000	N	30	100	30	300	70	N	100	L	200
36	5	.3	1,000	N	30	150	50	500	70	N	70	L	200
42	5	.3	1,000	N	15	150	30	300	50	N	70	N	150
43	5	.3	700	N	20	100	50	300	70	N	100	10	100
44	2	.15	700	N	20	70	20	500	50	N	100	L	150
47	5	.3	700	N	30	70	30	200	30	N	70	20	100
48	3	.2	500	N	20	70	50	500	30	N	200	10	100
49	5	.2	700	N	30	70	50	1,000	50	N	200	10	100
50	5	.5	1,000	N	20	100	30	100	20	N	70	10	150
51	3	.2	700	N	10	70	20	200	30	N	100	10	L
53	5	.3	700	N	20	150	50	300	70	N	100	L	200
54	5	.2	2,000	N	20	100	50	300	50	N	100	10	150
55	5	.2	700	N	15	100	30	500	50	N	150	10	150
56	5	.5	1,000	N	30	100	50	500	30	N	200	15	150
57	7	.3	1,000	N	20	200	50	500	50	N	200	10	150
58	10	.5	1,500	N	50	300	50	500	70	N	300	N	200
59	2	.15	500	N	15	50	30	200	50	N	100	L	L
60	5	.3	1,000	N	70	300	50	500	50	N	200	10	200
61	3	.2	500	N	20	70	50	500	50	N	100	10	100
62	3	.2	700	N	30	150	30	300	50	N	200	L	150
63	3	.2	500	N	20	100	50	200	50	N	150	L	100
64	3	.2	500	N	20	100	30	300	50	N	200	10	L
						Panned concentrates							
7	7	.3	700	N	70	150	50	G(5,000)	70	N	300	L	200
9	7	.3	1,000	N	200	200	50	G(5,000)	50	N	300	L	300
12	5	.3	700	N	15	150	20	1,000	20	N	70	L	200
16	7	.2	700	N	20	70	50	G(5,000)	20	N	300	N	150
21	5	1	700	N	50	200	20	150	50	N	50	L	300

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
							Area F--Continued			
							Rock samples			
10	200	N	50	L(0.02)	---	---	0.08	---	---	FeOx st dike.
17	15	N	100	L(.02)	---	---	.03	---	---	Red, purple ch.
26[10]	200	N	70	L(.02)	---	---	.22	---	---	FeOx st dio.
37	70	N	50	L(.02)	---	---	.02	---	---	Gs.
							Area G			
							Stream sediments			
1	50	N	20	---	---	---	---	3	2	
4	100	N	50	---	---	---	---	2	3	
6	100	N	150	---	---	---	---	2	4	
7	150	N	50	---	---	---	---	2	3	
9	100	N	50	---	---	---	---	2	3	
10	200	N	150	---	---	---	---	2	1	
11	150	N	300	---	---	---	---	2	1	
12	150	N	150	---	---	---	---	2	3	
13	100	N	70	---	---	---	---	2	3	
14	150	N	200	---	---	---	---	2	3	
15	100	N	50	---	---	---	---	3	8	
16	150	N	100	---	---	---	---	3	3	
17	200	N	200	---	---	---	---	2	2	
18	50	N	50	---	---	---	---	2	3	
19	100	N	100	---	---	---	---	2	2	
20	100	N	100	---	---	---	---	2	2	
21	150	N	50	---	---	---	---	2	3	
22	150	N	70	---	---	---	---	1	2	
23	100	N	30	---	---	---	---	2	3	
26[11]	150	N	100	---	---	---	---	10	2	
33	100	N	50	---	---	---	---	3	8	
35	200	N	70	---	---	---	---	2	8	
36	300	N	50	---	---	---	---	3	4	
42	150	N	50	---	---	---	---	2	4	
43	150	N	70	---	---	---	---	2	3	
44	100	N	100	---	---	---	---	2	---	
47	200	N	70	---	---	---	---	5	4	
48	100	N	50	---	---	---	---	3	3	
49	200	N	50	---	---	---	---	3	6	
50	200	N	30	---	---	---	---	2	1	
51	100	N	20	---	---	---	---	3	3	
53	150	N	100	---	---	---	---	2	6	
54	150	N	70	---	---	---	---	5	6	
55	100	N	70	---	---	---	---	3	4	
56	200	N	50	---	---	---	---	2	4	
57	200	N	50	---	---	---	---	3	3	
58	200	N	100	---	---	---	---	2	4	
59	100	N	30	---	---	---	---	1	4	
60	200	N	150	---	---	---	---	3	4+	
61	100	N	50	---	---	---	---	2	3	
62	100	N	50	---	---	---	---	3	4	
63	100	N	70	---	----	---	---	2	3	
64	100	N	50	---	---	---	---	2	4	
							Panned concentrates			
7	200	N	150	L(.03)	---	---	---	---	---	
9	300	N	100	L(.02)	---	---	---	---	---	
12	100	N	70	L(.04)	---	---	---	---	---	
16	100	N	30	.08	---	---	---	---	---	
21	200	N	150	9.9	---	---	---	---	---	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
	Semiquantitative spectrographic analyses												
	(percent)		(ppm)										
						Area G--Continued							
						Panned concentrates--Continued							
41	7	0.7	700	N	15	30	50	1,000	30	N	50	L	150
42	7	G(1)	1,000	N	30	50	50	2,000	70	N	70	L	200
43	7	G(1)	1,500	N	30	50	30	G(5,000)	150	N	100	L	200
51	5	.2	700	N	10	100	20	500	30	N	100	L	150
53	7	1	1,000	N	20	50	50	G(5,000)	100	N	100	10	200
57	5	.15	700	N	30	150	50	G(5,000)	20	N	500	N	200
58	7	.7	1,000	N	100	150	50	3,000	70	N	150	L	500
59	2	.1	1,000	N	1,500	50	10	70	30	N	10	N	100
61	10	.2	1,000	N	50	200	70	G(5,000)	15	N	500	N	L
62	10	.5	1,000	N	200	100	50	G(5,000)	70	N	500	L	300
63	15	1	2,000	N	150	100	30	G(5,000)	50	N	700	N	200
64	7	.5	1,000	N	20	200	50	G(5,000)	50	N	150	N	200
						Rock samples							
2	.3	.005	2,000	N	L	L	50	1,000	20	N	200	N	300
3	5	.5	1,000	N	200	70	20	50	50	N	20	N	200
5	5	.15	700	N	20	L	20	200	50	N	50	N	L
8	5	.3	700	N	10	30	30	200	70	N	50	N	L
24	1	.07	100	N	20	50	L	N	20	N	10	10	N
25	7	.5	700	N	10	30	50	70	50	N	100	L	L
27	.2	.02	100	N	50	70	N	N	5	N	10	L	N
28	7	.5	1,000	N	200	150	50	100	70	N	100	N	L
29	7	.5	1,000	N	30	70	50	150	20	N	100	N	150
30	3	.2	1,000	N	70	100	30	200	50	N	200	N	100
31	.5	.05	150	N	20	20	10	L	30	N	30	N	N
32	7	.05	700	N	50	L	100	2,000	L	N	100	N	100
34	5	.15	700	N	10	100	20	20	20	N	5	L	200
36	5	.5	700	N	50	50	50	150	5	N	70	L	150
37	7	1	500	N	30	30	50	30	50	N	50	L	150
38	7	.07	1,500	N	15	70	50	100	100	N	50	L	100
39	7	1	700	N	10	50	50	20	20	N	50	N	200
40	2	.07	1,000	N	L	50	5	100	5	N	20	N	L
45	10	.5	1,500	N	50	150	20	50	30	N	20	N	200
46	7	.5	1,000	N	15	70	70	200	150	N	50	N	500
52[12]	.5	.01	50	N	L	150	N	L	L	N	5	N	N
65	.3	.02	100	N	N	500	N	30	5	N	L	N	N
						Area H							
						Stream sediments							
1	3	.1	700	N	20	50	50	500	30	N	300	L	100
2	3	.2	700	N	20	100	30	500	50	N	100	20	100
3	3	.15	700	N	15	70	70	1,000	20	N	300	L	L
4	1	.05	150	N	10	30	N	100	20	N	30	L	L
5	5	.1	700	N	30	100	30	1,000	50	N	150	10	100
9	10	.2	1,500	N	20	70	100	1,500	30	N	1,500	N	100
10	5	.3	1,000	N	15	150	50	1,000	30	N	300	N	300
11	7	.2	700	N	100	50	50	1,000	50	N	300	10	L
13	7	.3	1,000	N	30	100	70	1,500	50	N	1,000	15	100
14	5	.2	1,000	N	20	100	70	1,000	50	N	300	N	100
21	2	.1	700	N	20	50	30	700	30	N	200	L	100
22	3	.2	1,000	N	30	70	50	1,000	70	N	200	10	100
23	3	.15	700	N	30	50	50	1,000	30	N	300	L	100
24	3	.2	700	N	N	200	30	300	20	N	100	L	150
25	3	.2	700	N	20	50	50	700	50	N	300	N	100

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)						Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
							Area G--Continued			
							Panned concentrates--Continued			
41	300	N	20	0.66	---	---	---	---	---	
42	300	N	50	1.5	---	---	---	---	---	
43	300	N	50	L(.03)	---	---	---	---	---	
51	150	N	30	11	---	---	---	---	---	
53	500	N	70	L(2)	---	---	---	---	---	
57	100	N	30	L(.12)	---	---	---	---	---	
58	500	N	200	L(.08)	---	---	---	---	---	
59	150	N	L	L(.02)	---	---	---	---	---	
61	200	N	10	.48	---	---	---	---	---	
62	500	N	300	L(1.6)	---	---	---	---	---	
63	500	N	50	L(.04)	---	---	---	---	---	
64	200	N	50	L(.05)	---	---	---	---	---	
							Rock samples			
2	10	N	N	L(.02)	---	---	0.35	---	---	Brecc gs.
3	200	N	30	L(.02)	---	---	.05	---	---	Wx por.
5	100	N	10	.02	---	---	.07	---	---	Py float.
8	150	N	50	L(.02)	---	---	.08	---	---	Wx gs.
24	20	N	N	17	---	---	.09	---	---	Qtz from dump.
25	200	N	100	L(.02)	---	---	.10	---	---	Shear zone, prospect, Mary Blaine.
27	20	N	N	.04	---	---	.09	---	---	Qtz vein, prospect, Mary Blaine.
28	200	N	100	1.1	---	---	1.3	---	---	Do.
29	200	N	100	L(.02)	---	---	.05	---	---	Mv, prospect, Mary Blaine.
30	100	N	20	L(.02)	---	---	3.5	---	---	Qtz vein, prospect, Mary Blaine.
31	20	N	N	.8	---	---	1.6	---	---	Qtz from dump, Mary Blaine.
32	30	N	N	L(.02)	---	---	G(100)	---	---	6 ft min zone, Cinnabar mine.
34	100	N	70	L(.02)	---	---	1.3	---	---	FeOx st gabbro.
36	100	N	30	L(.02)	---	---	.24	---	---	FeOx st.
37	300	N	100	L(.02)	---	---	.18	---	---	8 ft FeOx vein.
38	150	N	N	L(.02)	---	---	12	---	---	
39	300	N	70	L(.02)	---	---	.40	---	---	Gs.
40	50	N	N	L(.02)	---	---	3.5	---	---	Dolomite?
45	200	N	50	L(.02)	---	---	.13	---	---	Dump, Uncle Sam mine.
46	300	N	20	L(.02)	---	---	.05	---	---	Gabbro.
52[12]	10	N	10	4.3	---	---	.06	---	---	Qtz from ore pile.
65	20	N	N	.08	---	---	.6	---	---	Qtz from dump.
							Area H			
							Stream sediments			
1	100	N	30	---	---	---	---	2	2	
2	100	N	50	---	---	---	---	9	8+	
3	50	N	30	---	---	---	---	3	3	
4	30	N	10	---	---	---	---	3	6+	
5	100	N	20	---	---	---	---	5	6	
9	150	N	20	---	---	---	.08	2	3	
10	100	N	70	---	---	---	---	2	6	
11	150	N	50	---	---	---	---	2	6+	
13	150	N	50	---	---	---	.40	2	2	
14	100	N	50	---	---	---	---	1	6	
21	70	N	20	---	---	---	---	2	6	
22	150	N	50	---	---	---	---	2	6	
23	100	N	20	---	---	---	---	3	6	
24	70	N	30	---	---	---	---	2	2	
25	70	N	20	---	---	---	---	2	4	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area H--Continued							
						Stream sediments--Continued							
26	2	0.1	700	N	20	20	30	500	50	N	150	N	N
27	3	.2	700	N	20	150	30	1,000	50	N	100	L	100
28	3	.2	200	N	20	150	30	700	30	N	200	L	N
29	5	.15	1,000	N	30	100	50	1,000	50	N	500	10	L
30	5	.2	1,000	N	20	100	50	1,500	50	N	300	10	100
31	3	.2	700	N	20	70	50	1,500	20	N	200	10	L
32	3	.2	700	N	20	20	30	1,000	50	N	100	L	100
33	2	.3	700	N	20	70	20	150	20	N	50	L	100
34	3	.2	500	N	30	20	30	700	30	N	200	L	N
35	5	.5	1,000	N	20	50	50	700	70	N	150	15	100
36	3	.2	500	N	20	50	50	1,000	30	N	300	10	N
37	5	.15	700	N	30	70	50	1,500	50	N	500	L	L
38	1	.1	300	N	10	30	5	200	10	N	100	N	N
39	5	.15	500	N	30	70	50	1,500	30	N	500	10	N
40	5	.2	700	N	20	100	50	1,500	30	N	300	10	N
41	5	.2	1,000	N	30	200	50	2,000	50	N	200	10	100
42	5	.1	300	N	30	50	50	1,000	10	N	700	L	L
43	3	.02	500	N	20	L	50	1,000	5	N	500	L	N
44	2	.1	300	N	20	70	30	700	15	N	300	L	N
45	5	.15	500	N	30	100	50	1,000	30	N	300	10	L
46	3	.1	700	N	20	30	50	700	50	N	200	L	100
47	2	.1	700	N	15	50	30	300	20	N	150	10	N
48	3	.3	1,000	N	20	500	30	500	70	N	100	15	100
49	5	.15	700	N	20	70	50	1,000	50	N	200	L	100
50	3	.15	500	N	20	70	50	1,000	20	N	200	L	L
51	3	.1	1,000	N	20	70	50	700	50	N	150	L	100
52	2	.3	1,000	N	20	700	20	200	50	N	70	L	100
53	3	.5	700	N	30	700	15	150	50	N	70	10	150
54	3	.3	300	N	30	1,000	10	200	50	N	100	15	150
56	3	.2	700	N	30	100	50	1,000	30	N	200	10	100
57	3	.2	700	N	30	150	50	700	30	N	200	10	100
58	5	.2	700	N	50	200	50	1,500	50	N	500	10	150
59	7	.5	1,000	N	20	700	70	3,000	70	N	300	L	200
60	G(20)	.02	2,000	N	50	700	N	50	70	N	50	N	200
61	5	.2	700	N	30	500	50	500	70	N	150	30	150
62	G(20)	.01	1,500	N	20	300	N	N	L	N	10	L	N
63	5	.3	700	N	10	2,000	50	500	70	N	200	10	100
64	7	.5	700	N	30	700	50	1,000	50	N	300	L	200
65	5	.7	700	N	20	700	50	500	70	N	200	10	200
66	7	.7	1,000	N	50	500	70	1,500	50	N	500	10	200
68	5	.5	700	N	20	700	50	1,000	50	N	200	10	200
69	5	.5	1,500	N	50	300	70	700	100	N	500	20	N
70	2	.2	300	N	15	500	10	200	30	N	100	L	L
71	7	.5	700	N	200	700	50	500	70	N	200	15	100
72	3	.2	500	N	20	700	30	300	30	N	100	10	100
73	3	1	700	N	50	700	30	150	50	N	70	10	100
74	3	.5	1,000	N	70	500	20	300	50	N	200	20	100
75	5	.5	700	N	50	700	50	1,000	30	N	200	10	200
76	3	.3	500	N	20	500	30	300	70	N	200	10	200
77	7	.5	1,000	N	50	700	50	1,500	30	N	200	15	200
78	5	.5	700	N	20	700	50	1,000	30	N	200	L	200
79	5	.7	2,000	N	50	1,000	50	500	100	N	200	20	150
80	5	1	700	N	30	700	50	700	50	N	200	15	200
81	5	.5	700	N	30	700	50	700	50	N	200	10	200
82[13]	5	.5	500	N	30	700	30	500	30	N	150	20	100

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
							Area H--Continued			
							Stream sediments--Continued			
26	70	N	10	---	---	---	---	3	4	
27	100	N	100	---	---	---	---	3	3	
28	100	N	70	---	---	---	---	2	1	
29	50	N	50	---	---	---	---	3	2	
30	100	N	50	---	---	---	---	2	3	
31	100	N	50	---	---	---	---	5	3	
32	100	N	50	---	---	---	---	2	3	
33	100	N	30	---	---	---	---	2	2	
34	100	N	50	---	---	---	---	2	4	
35	200	N	70	---	---	---	---	2	6	
36	100	N	30	---	---	---	---	2	4	
37	100	N	30	---	---	---	---	3	3	
38	30	N	20	---	---	---	---	2	2+	
39	100	N	100	---	---	---	---	2	3	
40	100	N	50	---	---	---	---	9	2	
41	70	N	50	---	---	---	---	16	3	
42	70	N	20	---	---	---	---	3	4	
43	20	N	N	---	---	---	---	2	2	
44	50	N	20	---	---	---	---	2	2	
45	100	N	20	---	---	---	---	5	4	
46	100	N	30	---	---	---	---	2	6	
47	30	N	15	---	---	---	---	3	4	
48	150	N	150	---	---	---	---	5	8+	
49	70	N	30	---	---	---	---	3	4	
50	100	N	30	---	---	---	---	2	4	
51	70	N	30	---	---	---	---	2	4	
52	100	N	150	---	---	---	---	3	3	
53	100	N	200	---	---	---	---	3	3	
54	150	N	150	---	---	---	---	3	4	
56	100	N	50	---	---	---	---	2	4	
57	70	N	50	---	---	---	---	2	3	
58	100	N	70	---	---	---	---	3	4	
59	150	N	100	---	---	---	---	5	6	
60	10	N	N	---	---	---	0.03	2	1	
61	100	N	70	---	---	---	---	16	6+	
62	L	N	N	---	---	---	.05	3	1	
63	150	N	150	---	---	---	---	7	8	
64	100	N	100	---	---	---	---	3	6	
65	100	N	150	---	---	---	---	5	3	
66	200	N	150	---	---	---	.24	2	4	
68	150	N	100	---	---	---	---	2	8	
69	200	N	70	---	---	---	.18	9	10	
70	50	N	30	---	---	---	---	2	4	
71	100	N	100	---	---	---	---	3	4	
72	100	N	70	---	---	---	---	5	4	
73	100	N	200	---	---	---	---	3	2	
74	20	N	150	---	---	---	.13	3	3	
75	100	N	70	---	---	---	---	6	4	
76	100	N	70	---	---	---	---	3	3	
77	150	N	150	---	---	---	---	6	4	
78	150	N	70	---	---	---	---	5	4+	
79	200	N	150	---	---	---	.07	5	4	
80	100	N	200	---	---	---	---	2	3	
81	100	N	100	---	---	---	---	5	6	
82[13]	150	N	100	---	---	---	---	2	3	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area H--Continued							
						Stream sediments--Continued							
83	3	0.7	1,000	N	50	500	20	200	30	N	100	20	100
84	7	.7	1,000	N	100	700	70	G(5,000)	70	N	300	L	200
85	15	G(1)	1,500	N	150	700	200	700	70	N	300	15	200
						Panned concentrates							
9	20	.3	1,500	N	20	30	100	G(5,000)	20	N	1,500	L	N
12	G(20)	.3	1,000	N	70	30	150	G(5,000)	150	N	2,000	N	N
13	10	.3	1,000	N	20	20	70	G(5,000)	30	N	700	10	150
21	7	.2	1,000	N	20	50	50	G(5,000)	50	N	500	L	100
25	10	.2	1,000	N	30	50	50	G(5,000)	70	N	500	L	L
26	5	.15	700	N	15	20	30	150	20	N	30	N	150
34	7	.3	1,000	N	30	30	50	G(5,000)	30	N	200	L	L
35	1	.05	300	N	L	100	L	30	5	N	7	N	L
36	7	.2	700	N	20	20	50	G(5,000)	50	N	500	L	N
39	10	.15	1,000	N	50	50	70	G(5,000)	10	N	700	L	L
41	5	.3	1,000	N	15	20	30	20	100	N	20	10	L
42	10	.1	700	N	30	20	70	G(5,000)	20	N	1,500	L	L
46	10	.3	300	N	70	30	20	70	100	10	10	10	N
47	7	.5	700	N	50	500	50	G(5,000)	30	N	300	L	100
49	.5	.05	200	N	N	50	N	20	20	N	5	N	N
50	7	.7	1,000	N	70	150	50	G(5,000)	50	N	150	L	500
51	7	G(1)	700	N	30	50	50	G(5,000)	30	N	200	L	150
52	1.5	.1	500	N	L	30	5	50	10	N	10	N	300
53	5	.5	700	N	50	700	30	100	30	N	50	15	200
54	1	.05	500	N	L	50	L	N	15	N	10	N	N
56	5	1	700	N	20	50	50	G(5,000)	30	N	100	L	150
57	10	.3	1,000	N	50	100	50	G(5,000)	50	N	700	10	100
64	7	.5	700	N	30	200	50	G(5,000)	50	N	200	10	100
75	7	.5	1,500	0.7	50	700	70	G(5,000)	150	N	700	L	150
84	5	.5	1,000	N	20	500	H	G(5,000)	30	N	500	L	L
						Rock samples							
6	2	.5	500	N	150	30	20	70	20	N	50	N	200
7	5	.15	700	N	50	200	30	700	5	N	100	N	L
8	3	.2	700	N	50	200	10	10	30	N	15	L	150
15	2	.07	500	N	20	200	N	N	10	N	N	N	150
16	10	.5	1,500	N	70	30	50	70	150	N	70	L	N
17	L	.002	15	N	N	L	N	N	L	N	N	N	N
18	7	.2	700	N	20	30	50	1,000	70	N	200	N	150
19	10	1	1,000	N	20	L	30	150	100	N	50	N	L
20	5	.2	500	N	20	50	30	70	L	N	30	10	150
55	7	G(1)	700	N	50	700	30	2,000	50	N	200	L	200
67	10	.15	700	N	50	3,000	20	100	50	10	100	10	100
						Area I							
						Stream sediments							
10	2	.2	700	N	15	50	30	500	50	N	150	L	L
11	3	.2	700	N	20	50	70	1,000	50	N	200	10	L
12	5	.3	1,000	N	20	70	30	150	70	N	50	10	100
13	3	.2	500	N	20	20	30	300	30	N	100	10	N
14	3	.2	700	N	20	50	30	700	20	N	150	10	L
15	5	.3	1,000	N	30	500	50	500	70	N	150	10	100
16	5	.2	700	N	20	20	30	500	70	N	200	10	L
17	5	.3	700	N	30	50	50	1,500	30	N	100	15	L
19	5	.3	1,000	N	30	70	30	500	50	N	100	10	100
21	3	.2	700	N	70	100	20	300	30	N	100	15	L

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses: AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
						Area H--Continued				
						Stream sediments--Continued				
83	150	N	150	---	---	---	0.30	2	2	
84	200	N	100	---	---	---	---	2+	4+	
85	500	N	200	---	57	74	---	1	6	
						Panned concentrates				
9	500	500	20	L(0.04)	---	---	---	---	---	
12	200	1,000	20	L(.02)	---	---	---	---	---	
13	150	N	50	L(.03)	---	---	---	---	---	
21	150	N	30	L(.03)	---	---	---	---	---	
25	200	N	20	2.9	---	---	---	---	---	
26	150	N	10	.40	---	---	---	---	---	
34	200	N	30	L(.01)	---	---	---	---	---	
35	100	N	L	25	---	---	---	---	---	
36	100	N	20	L(.04)	---	---	---	---	---	
39	200	N	20	L(.04)	---	---	---	---	---	
41	200	N	50	L(.01)	---	---	---	---	---	
42	150	N	10	L(.05)	---	---	---	---	---	
46	200	N	30	38	---	---	---	---	---	
47	150	N	100	320	---	---	---	---	---	
49	30	N	10	.25	---	---	---	---	---	
50	200	N	150	L(.06)	---	---	---	---	---	
51	200	N	50	6	---	---	---	---	---	
52	150	N	L	1.9	---	---	---	---	---	
53	100	N	100	L(.12)	---	---	---	---	---	
54	20	N	50	37	---	---	---	---	---	
56	150	N	70	L(.2)	---	---	---	---	---	
57	200	N	100	12	---	---	---	---	---	
64	150	L	100	19	---	---	---	---	---	
75	200	500	200	31	---	---	---	---	---	
84	100	N	150	190	---	---	---	---	---	
						Rock samples				
6	150	N	70	L(.02)	---	---	11	---	---	FeOx st mv.
7	100	N	10	L(.02)	---	---	.70	---	---	Diab.
8	150	N	50	L(.02)	---	---	.15	---	---	Alt gabbro.
15	10	N	30	.02	---	---	.05	---	---	Alt dio.
16	300	N	70	.04	---	---	6	---	---	Dump, Boomer mine.
17	10	N	N	.04	---	---	.55	---	---	Qtz, dump, Boomer mine.
18	150	N	10	L(.02)	---	---	.24	---	---	Gabbro, dump, Boomer mine.
19	200	N	100	L(.02)	---	---	.16	---	---	Py dike rk, dump, Boomer mine.
20	200	N	30	L(.02)	---	---	.08	---	---	Py gs.
55	100	N	200	.02	---	---	.07	---	---	Rusty sl.
67	150	N	100	L(.02)	---	---	.14	---	---	FeOx st sl.
						Area I				
						Stream sediments				
10	100	N	30	---	---	---	---	3	6+	
11	100	N	70	---	---	---	---	6	4	
12	200	N	30	---	---	---	---	3+	8+	
13	150	N	30	---	---	---	---	2	4	
14	200	N	50	---	---	---	---	7	3	
15	150	N	50	---	---	---	---	7	6	
16	100	N	20	---	INS	INS	---	12	INS	
17	150	N	50	---	---	---	---	6	3+	
19	200	N	30	---	---	---	---	6	4	
21	200	N	50	---	---	---	---	6	8+	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area I--Continued							
						Stream sediments--Continued							
22	3	0.2	500	N	20	100	30	500	30	N	100	L	100
23	5	.2	700	N	20	100	30	500	50	N	150	10	100
25	5	.3	500	N	20	100	50	1,000	50	N	100	L	100
26[14]	.07	.07	200	N	L	30	N	50	10	N	20	10	L
27	5	.07	500	N	20	30	70	1,000	10	N	500	L	N
28	7	.2	1,000	N	30	500	30	1,000	30	N	200	20	L
29	5	.7	1,000	N	70	1,000	50	500	70	5	200	15	L
30	7	.05	G(5,000)	N	50	200	20	70	50	N	100	10	N
31	10	.7	1,500	N	50	500	50	2,000	100	N	1,000	20	100
33	2	.2	1,000	N	10	500	N	70	30	N	50	L	N
34	5	1	1,000	N	30	700	30	300	30	N	150	10	L
36	15	1	2,000	2	70	1,500	70	1,500	150	5	1,500	50	N
38	10	.7	1,500	1	150	200	50	1,000	150	N	700	30	200
40	5	.5	1,500	N	20	200	200	700	70	N	300	10	100
41	5	.5	1,000	N	20	150	200	700	70	N	300	30	100
42	5	.5	1,500	N	20	150	200	700	70	N	300	20	L
44	5	.5	1,500	1	30	300	200	700	70	N	300	30	100
45	5	.7	1,500	1	20	300	200	1,000	70	N	300	10	100
						Panned concentrates							
10	5	.2	700	N	10	20	15	3,000	20	N	100	L	L
11	2	.15	700	N	15	30	20	G(5,000)	30	N	100	L	150
13	5	.3	700	N	20	70	30	5,000	70	N	150	L	150
14	5	.2	1,000	N	10	70	20	G(5,000)	50	N	100	L	100
17	5	.3	1,000	N	20	50	30	2,000	70	N	100	L	150
18	5	.3	700	N	20	20	30	5,000	50	N	100	L	150
19	5	.3	700	N	15	20	30	5,000	30	N	100	L	100
21	5	.3	1,000	N	20	150	20	2,000	70	N	70	L	200
22	5	.3	700	N	20	100	30	700	70	N	100	L	100
23	5	.3	700	N	20	150	50	500	30	N	100	L	150
24	5	.5	700	N	30	150	50	1,000	70	N	100	N	100
29	5	1	1,000	N	50	1,000	20	2,000	50	N	150	10	L
31	7	.5	1,000	N	100	5,000	30	500	70	N	100	15	150
33	7	.5	700	N	50	1,000	20	700	50	N	70	10	100
34	7	.7	2,000	N	50	1,000	30	G(5,000)	50	N	150	L	L
36	10	.5	1,500	N	50	700	30	G(5,000)	50	N	200	L	N
38	10	.7	1,000	N	10	150	50	1,000	70	N	150	L	200
39	5	.7	1,000	N	20	300	50	1,500	50	N	500	L	100
42	15	.3	1,500	N	30	70	150	G(5,000)	150	N	10	N	100
44	7	.7	1,500	1	50	700	150	1,500	70	N	300	10	150
45	15	.7	1,500	N	30	300	200	G(5,000)	15	N	300	N	150
						Rock samples							
1[15]	20	.2	G(5,000)	N	20	30	70	50	300	N	700	100	200
2	7	.7	1,000	N	20	50	50	150	70	N	100	L	300
3	10	1	2,000	N	30	50	70	150	100	N	100	L	L
4	.5	.07	5,000	N	20	N	N	N	7	N	20	N	L
5	10	1	1,500	N	20	50	70	150	50	N	100	L	100
6	7	.007	700	N	20	L	100	2,000	10	N	3,000	N	L
7	3	.15	700	N	20	70	30	50	100	N	200	N	100
8	10	1	1,000	N	15	20	70	100	50	N	100	N	L
9	10	1	700	N	10	50	50	20	500	N	50	N	L
20	2	.2	500	N	20	100	10	200	10	N	50	L	200
32	2	.15	3,000	N	20	700	7	30	20	N	20	L	200
34	5	G(1)	1,000	N	15	200	50	50	30	N	30	L	500
35	5	.3	500	0.7	50	1,000	15	100	500	N	70	15	100
37	7	.1	700	N	10	100	50	G(5,000)	15	N	300	N	L
43	5	.5	1,000	N	L	150	100	700	70	N	200	L	500

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses: AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
							Area I--Continued			
							Stream sediments--Continued			
22	150	N	30	---	---	---	---	5	6+	
23	100	N	30	---	---	---	---	3+	6+	
25	200	N	70	---	---	---	---	1	6	
26[14]	20	N	10	---	---	---	---	3	1	
27	20	N	10	---	---	---	---	6	2	
28	150	N	70	---	---	---	---	18	8+	
29	200	N	150	---	---	---	---	16	20	
30	30	N	20	---	---	---	---	7	1	
31	500	N	150	---	66	64	---	5	15	
33	50	N	50	---	---	---	---	18	6+	
34	150	N	150	---	---	---	---	10	10+	
36	500	300	300	---	85	120	---	19	6	
38	500	N	100	---	120	63	---	9	10	
40	200	N	50	---	86	89	---	8	8	
41	300	N	50	---	93	90	---	10	8	
42	200	N	50	---	92	89	---	10	8	
44	200	N	70	---	84	100	---	10	4	
45	300	N	70	---	89	92	---	10	8	
							Panned concentrates			
10	100	N	20	0.70	---	---	---	---	---	
11	150	N	30	L(.02)	---	---	---	---	---	
13	200	N	30	L(.03)	---	---	---	---	---	
14	100	N	20	L(.02)	---	---	---	---	---	
17	150	N	30	L(.03)	---	---	---	---	---	
18	200	N	30	L(.03)	---	---	---	---	---	
19	200	N	30	L(.05)	---	---	---	---	---	
21	100	N	50	.08	---	---	---	---	---	
22	200	N	50	L(.12)	---	---	---	---	---	
23	200	N	50	1.2	---	---	---	---	---	
24	300	N	50	L(.03)	---	---	---	---	---	
29	150	N	100	L(.04)	---	---	---	---	---	
31	150	N	150	.12	---	---	---	---	---	
33	200	N	200	.02	---	---	---	---	---	
34	200	N	100	L(.02)	---	---	---	---	---	
36	150	N	100	L(.04)	---	---	---	---	---	
38	150	N	70	L(.01)	---	---	---	---	---	
39	100	N	70	L(.02)	---	---	---	---	---	
42	700	300	70	L(.02)	---	---	---	---	---	
44	300	L	150	L(.02)	---	---	---	---	---	
45	700	300	200	L(.02)	---	---	---	---	---	
							Rock samples			
1[15]	1,000	N	150	L(.02)	---	---	0.45	---	---	Black rk in gs.
2	150	N	50	L(.02)	---	---	.02	---	---	Qtz veinlets.
3	200	N	100	L(.02)	---	---	.02	---	---	Frac in diab.
4	20	N	20	L(.02)	---	---	.75	---	---	Serp.
5	200	N	100	L(.02)	---	---	.04	---	---	Diab.
6	50	N	N	L(.02)	---	---	.07	---	---	Serp.
7	100	N	10	L(.02)	---	---	.01	---	---	FeOx st gabbro.
8	200	N	100	L(.02)	---	---	.02	---	---	Frac in diab.
9	200	N	100	.04	---	---	.22	---	---	FeOx in diab.
20	70	N	70	L(.02)	---	---	.22	---	---	FeOx st dike.
32	50	N	70	L(.02)	---	---	.13	---	---	FeOx vein.
34	100	N	100	L(.02)	---	---	.08	---	---	Gs.
35	100	N	70	L(.02)	---	---	.18	---	---	FeOx st ch; qtz and py.
37	100	N	30	.02	---	---	.08	---	---	
43	300	L	50	L(.02)	---	---	.13	---	---	And dike.

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
Area I--Continued													
Rock samples--Continued													
46	1	0.1	150	N	10	1,500	N	N	L	N	5	70	300
47	1	.07	70	N	10	700	N	20	10	10	10	N	L
48	3	.2	1,000	N	30	300	5	20	10	10	20	N	L
Area J													
Stream sediments													
9	5	.3	700	N	20	50	50	1,000	10	N	500	L	L
10	10	.3	1,000	N	20	100	70	1,500	50	N	1,000	N	100
11	7	.2	700	N	30	70	70	1,000	20	N	1,000	L	L
16	10	.3	1,000	N	30	200	70	1,500	50	N	1,000	L	L
17	10	G(1)	1,000	N	50	300	50	500	30	N	300	10	150
18	10	.7	1,000	N	50	200	70	1,000	20	N	700	10	L
19	7	.5	1,000	N	30	150	70	1,000	30	N	700	L	100
20	10	1	1,000	N	30	200	70	700	70	N	700	L	100
21	7	1	700	N	30	300	70	500	20	N	700	L	100
22	5	.3	700	N	20	50	50	700	20	N	700	L	L
24	5	.3	700	N	20	70	70	700	15	N	500	L	L
25	10	1	1,000	N	30	200	70	1,000	30	N	700	L	100
26	5	.7	700	N	50	700	30	500	30	5	200	10	L
27	7	.5	1,000	N	30	200	50	1,000	20	N	500	L	L
28	7	G(1)	1,000	N	50	2,000	50	500	70	L	500	15	L
29	5	.15	700	N	100	L	100	700	10	N	1,000	L	L
30	7	.5	1,000	N	30	200	50	500	20	N	500	10	L
31	5	.5	700	N	50	200	30	300	15	N	500	L	L
32	5	.5	1,000	N	50	500	50	500	70	N	500	10	L
33	7	.7	1,000	N	30	300	70	700	20	N	700	L	L
34	7	.7	1,000	N	50	200	70	1,000	30	N	700	15	100
35	7	.5	1,000	N	30	200	50	500	20	N	700	L	L
36	7	.5	700	N	20	200	50	700	20	N	500	L	100
37	7	.5	1,000	N	30	200	50	700	20	N	700	L	L
38	7	.5	1,000	N	30	300	50	200	20	N	500	L	100
39	1.5	.3	1,000	N	30	500	30	20	30	N	50	15	L
40	7	.5	2,000	N	100	500	30	150	70	5	100	15	L
41	7	.5	5,000	N	150	500	50	150	70	5	100	30	L
42	10	1.	1,500	N	100	700	50	700	70	7	500	15	L
47	7	1	1,000	N	50	500	30	200	70	L	200	10	100
48	10	1	1,500	N	50	500	50	700	70	7	300	10	L
50	10	1	1,000	N	70	500	50	500	70	L	300	10	L
51	7	1	1,000	N	70	500	50	300	70	5	300	15	100
52	10	1	1,000	N	50	500	50	700	70	L	300	15	100
53	10	1	1,500	N	50	700	70	2,000	100	N	1,500	10	150
54	10	.7	1,500	N	100	500	70	2,000	70	N	1,500	100	150
55	5	.7	1,000	N	20	300	50	1,000	30	N	200	10	100
68	5	.7	1,500	N	30	300	70	1,000	70	N	300	15	150
69	7	.7	1,000	N	50	300	70	1,500	70	N	500	10	100
71	15	.7	1,500	N	30	300	70	1,500	150	N	700	L	200
72	7	.7	1,500	N	30	300	50	1,500	100	N	500	15	150
73	10	.7	1,500	N	100	500	50	1,500	100	N	700	50	200
Panned concentrates													
25	15	1	1,000	N	50	200	50	5,000	50	N	700	L	200
30	G(20)	.3	1,000	N	30	500	200	G(5,000)	50	N	1,000	L	L
35	15	.7	1,000	N	70	500	70	G(5,000)	30	N	1,000	L	L
49	10	G(1)	2,000	N	150	5,000	70	5,000	70	5	300	10	100
52	20	1	3,000	N	70	700	70	G(5,000)	50	N	500	L	100

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
						Area I--Continued				
						Rock samples--Continued				
46	15	N	70	L(0.02)	---	---	0.05	---	---	Dac dike.
47	300	N	30	L(.02)	---	---	.12	---	---	FeOx st arg.
48	70	N	70	L(.02)	---	---	.06	---	---	FeOx st mv.
						Area J				
						Stream sediments				
9	150	N	50	---	59	74	---	2	2	
10	150	N	30	---	44	60	---	2	1	
11	100	N	20	---	43	56	---	5	2	
16	150	N	50	---	47	64	---	8	2	
17	150	N	150	---	66	96	---	4	1	
18	150	N	100	---	56	78	---	7	2	
19	150	N	100	---	59	76	---	2	1	
20	150	N	150	---	58	80	---	5	2	
21	150	N	150	---	56	84	---	5	2	
22	150	N	100	---	53	66	---	2	4	
24	150	N	20	---	61	72	---	8	1	
25	150	N	100	---	60	80	---	5	1	
26	150	N	150	---	77	130	---	10	6	
27	150	N	100	---	56	68	---	2	2	
28	200	N	200	---	81	110	---	7	4	
29	70	N	15	---	20	42	---	8	1	
30	100	N	100	---	61	82	---	8	1	
31	100	N	100	---	52	94	---	8	1	
32	150	N	100	---	59	100	---	7	3	
33	150	N	100	---	54	70	---	4	4	
34	200	N	150	---	52	70	---	5	4	
35	150	N	100	---	50	68	---	10	4	
36	100	N	100	---	52	70	---	5	4	
37	100	N	70	---	54	70	---	5	4	
38	100	N	100	---	56	72	---	4	4	
39	150	N	150	---	83	150	---	8	1	
40	150	N	200	---	85	180	---	12	6	
41	150	N	200	---	89	220	---	18	6	
42	200	N	300	---	61	86	---	5	4	
47	200	N	150	---	80	100	---	2	2	
48	200	N	200	---	66	84	---	5	4	
50	200	N	150	---	15	15	---	5	2	
51	200	N	150	---	72	88	---	7	4	
52	200	N	150	---	68	90	---	5	4	
53	500	N	150	---	56	52	---	3	8	
54	500	N	100	---	45	65	---	14	5	
55	200	N	100	---	---	---	.07	2	4	
68	200	N	100	---	---	---	.45	9	10	
69	200	N	150	---	---	---	.11	4	10	
71	700	N	100	---	100	58	---	4	8	
72	200	N	100	---	---	---	.12	2	8	
73	500	N	100	---	50	65	---	12	4.5	
						Panned concentrates				
25	200	200	100	.2	---	---	---	---	---	
30	500	700	100	2.8	---	---	---	---	---	
35	200	300	100	L(.02)	---	---	---	---	---	
49	300	N	150	.1	---	---	---	---	---	
52	300	300	150	L(.02)	---	---	---	---	---	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
							Area J--Continued						
							Panned concentrates--Continued						
53	10	0.5	500	N	20	200	50	2,000	30	N	500	L	L
54	20	.5	1,000	2	20	300	70	G(5,000)	50	N	1,000	N	L
70	15	.7	1,000	N	20	200	70	G(5,000)	50	N	300	N	150
71	7	.5	1,000	N	15	150	50	1,000	50	N	150	L	200
73	10	.5	700	N	15	200	70	G(5,000)	100	N	200	L	150
							Rock samples						
1	15	.7	1,500	N	10	30	50	200	70	N	70	N	L
2	5	.2	1,000	N	100	100	20	L	20	N	L	10	700
3	5	.2	1,000	N	50	700	20	N	15	N	5	L	500
4	5	.2	G(5,000)	N	10	50	20	10	20	N	100	20	100
5	5	.02	1,000	N	20	N	100	3,000	5	N	2,000	L	N
6	10	.005	700	N	15	20	150	2,000	L	N	5,000	L	N
7	10	G(1)	1,000	N	10	100	70	150	100	N	100	L	100
8	5	.5	1,500	N	15	200	30	10	70	N	50	L	200
12	7	.7	500	N	100	5,000	20	70	70	10	50	10	L
13	10	.5	700	.5	150	5,000	20	70	100	15	50	20	L
14	7	1	700	.5	100	5,000	30	100	100	50	70	30	200
15	20	.3	200	.5	100	1,000	15	50	70	5	50	20	L
16[16]	10	G(1)	1,500	N	200	70	70	300	70	N	500	L	300
23	10	.7	1,500	N	20	30	70	200	70	N	100	L	L
43	5	.002	700	N	30	50	50	700	10	N	1,000	L	L
44[17]	10	1	1,500	N	15	500	50	150	300	N	70	L	L
45	2	.2	2,000	N	20	300	20	15	15	N	50	N	L
46[18]	7	G(1)	700	N	50	300	50	200	50	N	100	L	100
56	G(20)	.15	500	70	100	L	200	70	G(20,000)	100	70	10	L
57	7	.5	700	N	30	300	50	200	300	N	200	L	500
58	5	.2	2,000	N	L	20	30	150	50	N	70	L	100
59	3	.2	1,000	N	L	L	30	100	70	N	50	N	100
60	5	.5	1,000	N	10	L	50	150	70	N	70	N	L
61	1.5	.15	200	N	L	20	10	50	15	N	20	N	L
62	10	.7	2,000	N	20	L	50	300	100	N	150	N	L
63	10	.5	1,000	N	15	L	50	150	70	N	100	L	100
64	7	.5	1,000	N	20	L	30	100	70	N	70	L	500
65	7	.5	1,500	N	200	L	20	150	100	N	70	L	100
66	5	.3	1,000	N	15	50	30	150	50	N	70	L	150
67	7	.3	2,000	N	10	20	20	150	70	N	50	L	L
							Area K						
							Stream sediments						
1	10	.5	1,500	N	20	500	50	1,000	150	5	1,000	10	500
2	10	.7	1,500	N	10	300	70	1,500	300	7	1,500	20	200
3	7	.5	1,500	N	20	150	30	1,000	200	10	500	30	200
4	10	.5	1,500	N	20	200	50	1,500	150	5	1,000	15	200
5	10	.7	1,500	L	50	200	30	300	100	N	200	10	200
6	10	.5	1,500	L	20	300	50	1,500	200	5	700	20	300
7	10	.7	1,500	L	70	300	50	1,000	150	N	500	50	300
9	10	.7	1,500	1	150	200	50	1,000	150	N	700	30	200
11	10	.7	1,500	N	50	200	70	1,500	150	N	700	20	300
12	10	.7	1,500	N	30	200	50	700	100	N	200	20	150
13	INS	INS	INS	INS	INS	INS	INS	INS	INS	INS	INS	INS	INS
14	7	.3	1,500	L	100	700	20	300	100	N	300	20	150
15	10	.7	1,500	1	200	300	30	500	150	N	500	30	150
17	15	.3	2,000	N	70	300	150	3,000	70	N	3,000	15	N
18	10	.7	2,000	L	100	500	30	700	100	N	700	20	150

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
Area J--Continued										
Panned concentrates--Continued										
53	200	N	100	L(0.02)	---	---	---	---	---	
54	300	200	50	80	---	---	---	---	---	
70	200	L	70	L(.02)	---	---	---	---	---	
71	150	N	70	L(.02)	---	---	---	---	---	
73	150	N	70	L(.02)	---	---	---	---	---	
Rock samples										
1	500	N	50	L(.02)	---	---	L	---	---	Gr.
2	150	N	70	L(.02)	---	---	L	---	---	Ep frac qd.
3	100	N	30	L(.02)	---	---	.04	---	---	Gd.
4	150	N	150	L(.02)	---	---	.22	---	---	Red ch.
5	30	N	N	L(.02)	---	---	.07	---	---	Serp.
6	30	N	N	L(.02)	---	---	.22	---	---	Sheared serp.
7	200	N	100	L(.02)	---	---	.01	---	---	Mv.
8	200	N	50	L(.02)	---	---	.01	---	---	Hb dio por.
12	150	N	150	L(.02)	---	---	.05	---	---	Carb shear; py.
13	200	200	150	L(.02)	---	---	.20	---	---	Do.
14	500	L	200	L(.02)	---	---	.09	---	---	Do.
15	150	N	70	L(.02)	---	---	.80	---	---	Selected sulf.
16[16]	150	N	150	L(.02)	---	---	.1	---	---	Orange wx ms.
23	300	N	70	L(.02)	---	---	.02	---	---	Frac in mv.
43	20	N	N	L(.02)	---	---	.22	---	---	Green st ch and gs.
44[17]	200	N	70	L(.02)	---	---	.02	---	---	Frac in gs.
45	30	N	100	L(.02)	---	---	.01	---	---	Py ch.
46[18]	300	N	200	L(.02)	---	---	.03	---	---	Frac in ch.
56	100	1,000	N	.3	---	---	4	---	---	Py, chalco, Salyer prospect.
57	150	N	100	L(.02)	---	---	.03	---	---	Frac in dike, Salyer prospect.
58	150	300	20	L(.02)	---	---	.07	---	---	Asbestos vein 20 ft NE of vein.
59	100	N	15	L(.02)	---	---	.02	---	---	Gs 59 ft N of vein.
60	200	N	50	L(.02)	---	---	.03	---	---	Sheared mv 200 ft NE of vein.
61	70	N	10	L(.02)	---	---	.02	---	---	Qtz vein 400 ft NE of vein.
62	200	N	50	L(.02)	---	---	.05	---	---	Frac in diab 400 ft NE of vein.
63	150	N	50	L(.02)	---	---	.02	---	---	Frac in diab 30 ft NE of vein.
64	200	N	70	.02	---	---	.03	---	---	Frac in diab 200 ft NW on strike.
65	150	N	20	L(.02)	---	---	.02	---	---	FeOx st gs 120 ft SW of vein.
66	150	N	50	.06	---	---	.01	---	---	Frac in gs 270 ft SW of vein.
67	150	500	20	.02	---	---	.16	---	---	Frac in diab 1,000 ft SW of vein.
Area K										
Stream sediments										
1	300	N	100	---	100	63	---	7	8	
2	500	N	200	---	80	31	---	7	10	
3	500	N	50	---	170	29	---	5	10	
4	500	N	70	---	160	35	---	9	10	
5	500	N	100	---	100	74	---	9	10	
6	300	N	100	---	140	37	---	12	10	
7	500	N	100	---	94	58	---	12	8	
9	500	N	100	---	120	63	---	9	10	
11	500	N	200	---	120	57	---	7	8	
12	700	N	100	---	98	65	---	7	8	
13	INS	INS	INS	INS	16	65	INS	5	INS	
14	300	N	100	---	84	76	---	12	5	
15	300	L	100	---	150	91	---	17	10	
17	300	N	70	---	46	54	---	14	3	
18	500	200	150	---	99	110	---	20	8	

Table 1.--*Analyses of samples from the Salmon-*

Sample	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
							Semiquantitative spectrographic analyses						
							Area K--Continued						
							Stream sediments--Continued						
19	10	0.5	1,500	N	70	500	70	1,500	100	N	1,500	30	100
20	7	.3	1,500	N	300	300	50	1,500	100	N	1,000	50	100
23	5	.5	1,500	N	30	150	20	150	100	N	100	70	100
24[19]	7	.5	2,000	L	20	150	50	150	150	N	70	20	150
25	10	.7	2,000	N	70	200	30	700	100	N	200	30	150
26	10	1	2,000	N	70	200	50	200	200	N	100	20	200
27	7	.7	2,000	N	30	200	50	300	150	N	200	20	100
28	10	1	2,000	N	20	100	50	150	700	N	100	10	100
30	7	.3	1,000	N	150	500	20	300	70	N	200	50	300
31	10	.5	2,000	N	50	500	70	1,500	150	N	1,500	50	200
32	10	.3	1,500	N	50	100	100	2,000	70	N	3,000	L	N
33	10	.3	1,000	N	50	100	100	2,000	70	N	2,000	20	100
34	10	.3	1,500	N	30	100	100	3,000	50	N	3,000	L	N
35	10	.07	1,500	N	20	L	150	3,000	10	N	3,000	N	N
36	10	.5	1,500	N	30	200	100	2,000	70	N	2,000	10	N
37	10	.5	1,500	N	30	200	100	3,000	50	N	2,000	30	N
38	INS	INS	INS	INS	INS	INS	INS	INS	INS	INS	INS	INS	INS
39	10	.7	1,500	N	70	700	50	2,000	100	N	1,000	50	150
40	10	.5	1,500	N	70	700	50	1,500	100	N	1,000	50	200
44	1	.15	500	N	20	20	20	50	15	N	20	10	L
57	10	1	1,000	N	20	50	50	150	100	N	100	N	L
58	10	.7	1,000	N	50	70	100	700	70	N	700	N	L
59	3	.3	700	N	30	100	50	700	20	N	500	L	L
61	7	.5	700	N	20	100	50	700	20	N	500	L	L
62	7	.7	1,000	N	30	200	50	500	50	N	500	10	L
63	5	.3	1,000	N	30	150	30	500	15	N	500	L	L
64	5	.7	700	N	150	700	30	300	20	5	300	10	L
65	5	.7	700	N	150	1,000	30	200	30	7	300	10	L
66	5	.7	700	N	70	100	30	500	20	N	500	10	L
67	7	.5	700	N	50	200	70	1,000	20	N	700	L	L
							Panned concentrates						
4	10	.5	1,000	N	10	150	50	2,000	50	N	200	L	200
6	10	.7	1,000	N	10	100	70	G(5,000)	70	N	150	N	200
9	10	.7	1,000	N	10	150	50	1,000	70	N	150	L	200
34	10	.2	500	N	20	50	70	G(5,000)	15	N	1,500	L	L
37	10	.3	700	N	15	150	70	G(5,000)	15	N	700	N	L
38	10	.2	500	N	10	100	50	G(5,000)	20	N	700	N	N
39	10	.3	700	N	20	500	50	G(5,000)	50	N	500	L	150
60	10	.5	1,000	N	15	300	50	2,000	30	N	300	L	100
63	10	.5	1,500	N	20	300	50	5,000	50	N	500	L	150
67	10	.7	1,000	N	15	300	50	3,000	50	N	500	L	150
							Rock samples						
8	7	.1	700	N	10	100	50	G(5,000)	15	N	300	N	L
10	3	.2	700	N	15	20	20	150	30	N	50	N	L
16	2	.15	700	N	50	700	5	50	50	N	20	L	L
21	7	.15	700	N	20	50	50	G(5,000)	50	N	500	N	150
22	3	.1	500	N	15	20	30	2,000	50	N	200	N	L
29	10	.3	700	N	20	30	70	5,000	50	N	500	N	100
41	10	.7	1,500	N	30	L	50	70	200	N	70	L	200
42	10	G(1)	1,500	N	50	100	70	150	100	N	100	N	300
43	15	G(1)	1,500	N	30	20	50	50	500	N	50	L	200
45	10	.7	1,500	N	50	50	70	200	100	N	100	N	200

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm) V (10)	Zn (200)	Zr (10)	Chemical analyses AA (ppm) Au (0.02)	Cu (10)	Zn (25)	Inst. (ppm) Hg (0.01)	Colorimetric (ppm) cxHM (0.5)	cxCu (1)	Sample description[1]
							Area K--Continued			
							Stream sediments--Continued			
19	300	N	100	---	85	76	---	17	5	
20	300	N	100	---	66	84	---	19	6	
23	300	L	70	---	77	120	---	30	1.5	
24[19]	500	300	100	---	130	130	---	14	10	
25	500	N	70	---	48	33	---	12	4	
26	700	L	100	---	140	110	---	12	10	
27	300	N	100	---	120	72	---	7	5	
28	500	N	100	---	440	54	---	9	30	
30	300	N	70	---	40	65	---	9	3	
31	300	L	70	---	84	86	---	14	5	
32	300	N	30	---	36	54	---	5	3	
33	300	N	50	---	48	42	---	5	4	
34	200	N	20	---	34	54	---	5	3	
35	200	N	N	---	L	28	---	4	1	
36	300	N	70	---	56	43	---	5	2.3	
37	500	N	70	---	34	52	---	7	4	
38	INS	INS	INS	INS	L	L	INS	3	3	
39	500	N	100	---	72	90	---	19	5	
40	300	L	70	---	73	80	---	7	4	
44	50	N	15	---	INS	INS	---	14	INS	
57	300	N	70	---	140	68	---	1	10	
58	200	N	100	---	62	54	---	1	3	
59	100	N	70	---	67	72	---	3	4	
61	100	N	70	---	61	62	---	5	3	
62	200	N	150	---	INS	INS	---	8	8	
63	150	N	70	---	67	70	---	5	6	
64	150	N	100	---	INS	INS	---	10	8	
65	200	N	150	---	85	130	---	5	8	
66	150	N	100	---	63	80	---	5	6	
67	200	N	100	---	45	70	---	4	4	
							Panned concentrates			
4	100	N	70	0.1	---	---	---	---	---	
6	200	N	70	L(.02)	---	---	---	---	---	
9	150	N	70	.1	---	---	---	---	---	
34	50	N	L	L(.02)	---	---	---	---	---	
37	70	N	20	L(.02)	---	---	---	---	---	
38	200	N	50	L(.02)	---	---	---	---	---	
39	100	N	100	L(.02)	---	---	---	---	---	
60	100	N	70	3.4	---	---	---	---	---	
63	150	N	70	220	---	---	---	---	---	
67	100	N	70	L(.02)	---	---	---	---	---	
							Rock samples			
8	100	N	30	.02	---	---	0.08	---	---	FeOx st diab.
10	150	N	10	L(.02)	---	---	.03	---	---	Gs.
16	100	N	100	.02	---	---	.01	---	---	FeOx vein in phyl.
21	100	N	30	.06	---	---	.14	---	---	3-4 in. lim veins.
22	70	N	15	.14	---	---	.09	---	---	Qtz vein; FeOx.
29	150	N	30	.04	---	---	.08	---	---	Qtz calcite vein.
41	200	N	100	L(.02)	---	---	L	---	---	Shear; ep and qtz.
42	300	N	100	L(.02)	---	---	.01	---	---	Diab.
43	500	N	150	L(.02)	---	---	.02	---	---	5 ft FeOx shear.
45	300	N	50	.02	---	---	.01	---	---	Mv.

Table 1.--*Analyses of samples from the Salmon-*

Semiquantitative spectrographic analyses

Sample	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area K--Continued							
						Rock samples--Continued							
46	5	0.5	100	N	70	5,000	15	10	70	L	70	10	L
47	7	.7	1,500	N	10	20	20	150	70	N	70	N	150
48	5	.7	1,500	N	30	500	10	70	50	N	30	L	N
49	3	.7	1,500	N	N	2,000	7	100	70	N	30	L	L
50	5	.7	3,000	N	10	3,000	10	150	70	N	30	N	150
51	7	.7	300	N	30	700	7	70	50	N	20	L	L
52	5	.7	1,500	N	50	1,000	10	100	70	N	30	L	N
53	7	.7	1,000	N	10	1,000	30	15	70	N	100	N	150
54	1	.15	150	N	20	100	7	15	5	N	20	N	N
55	7	.3	2,000	N	1,000	70	10	30	50	N	20	N	N
56	5	.3	1,500	N	30	1,500	30	100	30	N	100	L	L
68	7	.015	700	N	L	L	150	3,000	5	N	300	N	N
69	5	.01	1,000	N	10	L	700	2,000	7	N	1,500	N	100
70[20]	7	G(1)	2,000	N	20	150	N	N	50	N	L	N	100
71	7	.5	2,000	N	L	20	15	150	70	N	70	N	L
72	5	.3	1,500	N	15	L	30	300	70	N	70	N	L
73	7	.3	1,000	N	10	L	20	200	70	N	70	N	100
						Area L							
						Stream sediments							
9	7	.7	1,500	N	20	700	70	500	70	N	700	10	L
10	10	1	1,500	N	30	500	50	500	50	N	700	10	L
12	10	.7	1,500	N	50	500	70	700	70	N	1,000	10	L
13	7	G(1)	1,500	N	50	500	50	500	20	N	500	10	L
14	5	1	1,000	N	20	700	50	300	70	N	200	10	L
15	7	.7	1,000	N	30	500	50	500	20	N	500	10	L
16	5	1	1,000	N	70	1,000	50	700	70	N	300	10	L
17	7	G(1)	1,500	N	50	1,500	70	500	70	N	500	10	100
18	5	.5	1,000	N	15	500	50	300	20	N	500	10	L
20	5	.5	1,000	N	50	500	70	700	20	N	500	L	L
21	5	.7	700	N	50	500	50	700	50	N	300	10	L
22	10	1	2,000	N	50	700	70	300	70	N	700	L	100
23	10	G(1)	1,500	N	30	700	70	700	30	N	500	L	100
24	10	.7	1,000	N	20	1,000	50	500	20	N	300	10	100
25	10	1	1,500	N	10	500	70	300	30	N	500	L	150
26	5	.5	1,000	N	10	500	30	200	20	N	200	L	150
27	7	.5	1,000	N	10	200	50	500	20	N	500	L	100
28	10	.7	1,500	N	50	70	100	700	20	N	500	15	L
29	10	.5	1,500	N	50	500	50	500	100	N	300	20	100
30	15	1	1,500	N	50	500	100	1,000	50	N	1,000	10	100
31	15	.7	1,000	N	50	200	100	2,000	20	N	1,000	L	100
32	15	1	1,000	N	100	100	70	500	70	N	500	15	100
33	10	.5	1,000	N	15	300	70	700	20	N	700	10	L
35	15	G(1)	1,500	N	50	300	100	700	70	N	700	L	L
37	10	1	1,500	N	50	500	70	500	50	N	300	10	L
38	10	1	1,000	N	100	500	100	700	70	N	500	L	100
39	10	1	1,000	N	100	200	50	200	50	N	200	L	L
40	10	1	1,000	N	200	200	70	300	30	N	200	L	100
57	7	.5	1,000	N	70	100	50	150	20	N	100	L	100
70	7	G(1)	1,000	N	20	100	50	100	50	N	70	L	100
72	7	G(1)	1,500	N	30	100	50	100	30	N	70	L	100
73	7	G(1)	1,000	N	20	100	50	100	50	N	70	L	100
75	7	G(1)	1,000	N	20	70	50	100	20	N	70	L	L
76	5	1	700	N	20	70	30	100	20	N	70	L	L
77	7	1	1,000	N	20	70	30	100	20	N	50	L	L

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm) V (10)	Zn (200)	Zr (10)	Chemical analyses AA (ppm) Au (0.02)	Cu (10)	Zn (25)	Inst. (ppm) Hg (0.01)	Colorimetric (ppm) cxHM (0.5)	cxCu (1)	Sample description[1]
					Area K--Continued					
					Rock samples--Continued					
46	300	N	200	0.02	---	---	0.12	---	---	FeOx frac gr ch.
47	500	L	20	L(.02)	---	---	.03	---	---	Mv.
48	150	N	150	L(.02)	---	---	.08	---	---	Sil arg.
49	150	N	30	L(.02)	---	---	.05	---	---	Alt mv.
50	300	N	20	L(.02)	---	---	.05	---	---	Mv.
51	200	N	300	L(.02)	---	---	.05	---	---	Arg brecc.
52	200	N	100	L(.02)	---	---	.05	---	---	FeOx st arg.
53	150	500	300	L(.02)	---	---	.07	---	---	Do.
54	20	N	30	L(.02)	---	---	.08	---	---	Arg.
55	500	N	10	L(.02)	---	---	.05	---	---	Mv.
56	100	N	100	L(.02)	---	---	.01	---	---	FeOx st ms.
68	100	N	N	L(.02)	---	---	.04	---	---	Alt mv.
69	30	N	N	L(.02)	---	---	.14	---	---	Gossan in mv.
70[20]	150	L	200	L(.02)	---	---	.11	---	---	Alt mv.
71	300	N	20	L(.02)	---	---	.05	---	---	Do.
72	300	N	15	L(.02)	---	---	.05	---	---	Mv.
73	300	N	10	L(.02)	---	---	.12	---	---	Do.
					Area L					
					Stream sediments					
9	200	N	150	---	67	80	---	2	2	
10	300	N	150	---	58	88	---	4	1	
12	200	N	100	---	64	74	---	1	2	
13	300	N	150	---	55	76	---	2	1	
14	200	N	150	---	63	90	---	2	1	
15	200	N	150	---	51	78	---	2	1	
16	200	N	150	---	64	98	---	4	2	
17	300	N	150	---	70	92	---	4	2	
18	150	N	150	---	60	82	---	2	1	
20	200	N	100	---	50	62	---	5	1	
21	150	N	100	---	54	84	---	4	1	
22	200	N	100	---	53	70	---	2	1	
23	200	N	150	---	49	60	---	2	1	
24	300	N	150	---	50	72	---	4	1	
25	200	N	100	---	40	46	---	2	1	
26	150	N	100	---	INS	INS	---	1	1	
27	150	N	150	---	44	40	---	1	1	
28	200	N	70	---	43	46	---	14	1	
29	200	N	100	---	120	54	---	1	15	
30	200	N	150	---	40	40	---	1	1	
31	200	N	200	---	41	38	---	1	1	
32	300	N	200	---	68	82	---	1	2	
33	150	N	70	---	45	48	---	1	1	
35	200	N	150	---	57	62	---	1	1	
37	300	N	150	---	51	60	---	1	1	
38	300	N	150	---	52	64	---	2	1	
39	300	N	100	---	55	50	---	1	1	
40	300	N	100	---	30	42	---	1	1	
57	200	N	50	---	38	48	---	2	L	
70	300	N	500	---	69	40	---	1	L	
72	500	N	200	---	68	38	---	1	4	
73	300	N	100	---	76	44	---	2	1	
75	300	N	150	---	69	42	---	2	6	
76	200	N	70	---	69	44	---	1	3	
77	200	N	100	---	54	38	---	2	1	

Table 1.--*Analyses of samples from the Salmon-*

Semiquantitative spectrographic analyses

Sample	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area L--Continued							
						Stream sediments--Continued							
78	5	G(1)	700	N	20	50	30	100	15	N	50	L	L
79	15	G(1)	1,500	N	30	200	70	200	50	N	100	L	200
80	7	.7	700	N	20	100	30	100	15	N	70	L	150
81	10	G(1)	1,000	N	30	70	50	150	30	N	70	N	100
82	10	.7	1,500	N	30	100	30	150	50	N	70	L	100
83	15	G(1)	1,500	N	30	100	50	200	30	N	100	L	150
84	15	G(1)	1,500	N	50	50	70	200	50	N	100	L	100
85	15	G(1)	1,500	N	50	50	70	200	70	N	100	L	L
87	15	G(1)	1,500	N	50	50	70	200	50	N	100	N	L
88	7	.5	1,000	N	20	70	50	200	50	N	150	L	100
89	10	1	1,000	N	30	70	50	200	50	N	100	L	100
90	15	G(1)	1,000	N	30	100	50	200	20	N	100	L	150
91	3	1	500	N	20	300	20	150	20	N	100	L	L
92	7	G(1)	1,500	N	50	700	50	200	70	N	200	15	150
93	10	G(1)	2,000	N	30	100	50	150	50	N	70	L	100
94	15	G(1)	2,000	N	30	100	70	200	50	N	100	N	100
95	7	G(1)	1,000	N	30	500	50	200	30	N	300	L	L
96	7	1	1,000	N	50	300	50	200	20	N	200	L	100
97	15	G(1)	1,500	N	30	100	70	200	20	N	100	N	100
98	10	G(1)	1,500	N	50	100	70	200	30	N	100	L	100
99	10	G(1)	2,000	N	30	150	50	150	20	N	100	L	150
100	10	G(1)	2,000	N	50	100	50	150	20	N	70	L	100
101	10	.7	1,500	N	20	300	50	200	70	N	100	L	200
102	3	.3	700	N	100	700	20	150	20	N	150	15	L
103	7	.7	700	N	100	700	50	500	20	N	500	10	L
104	7	.5	1,000	N	70	1,000	70	1,000	50	N	700	10	L
105	7	.5	1,500	N	70	500	50	700	70	N	500	15	L
106	5	.5	1,000	N	50	500	70	500	70	N	500	10	L
107	10	.5	1,000	N	50	500	70	700	70	N	500	10	L
109	15	.7	1,500	N	50	500	70	700	70	N	300	10	L
110	10	.7	1,500	N	50	500	70	700	70	N	500	L	L
111	15	1	1,500	N	30	500	100	1,000	50	N	500	L	150
112	10	.7	1,500	N	20	500	70	200	30	N	500	L	100
113	15	1	1,500	N	20	300	50	10	20	N	500	L	150
114	15	1	1,500	N	30	200	100	1,000	50	N	500	L	200
115	10	.7	1,000	N	20	500	70	300	100	N	100	L	100
116	15	G(1)	1,500	N	30	500	70	700	50	N	300	L	150
117	10	.7	1,500	N	20	300	70	700	50	N	500	L	100
119	7	.5	1,500	N	20	300	50	500	50	N	200	L	150
120	15	.7	1,500	N	30	150	50	200	70	N	100	10	100
						Panned concentrates							
17[21]	20	G(1)	3,000	5	200	2,000	70	2,000	100	N	700	15	L
18	15	G(1)	2,000	N	30	200	100	1,500	50	N	500	10	100
26[22]	20	G(1)	3,000	N	50	500	100	3,000	70	N	1,000	10	100
27	G(20)	G(1)	5,000	N	50	100	100	G(5,000)	20	N	1,500	10	150
31	G(20)	G(1)	2,000	N	100	70	100	G(5,000)	20	N	2,000	N	L
37	15	G(1)	1,500	N	30	150	70	1,500	20	N	500	L	100
73	15	G(1)	1,500	N	10	100	70	150	50	N	70	L	150
77	20	G(1)	1,500	N	10	70	70	300	50	N	100	L	100
81	G(20)	G(1)	1,500	N	70	50	70	1,000	15	N	70	N	L
85	15	G(1)	1,000	N	15	L	100	200	50	N	100	N	L
90	20	G(1)	1,500	N	20	70	70	500	20	N	100	N	100
97	G(20)	G(1)	5,000	N	100	20	100	1,000	50	N	100	L	L
101	20	G(1)	2,000	N	50	50	100	700	20	N	150	N	100
108	10	.7	1,500	N	30	5,000	50	5,000	30	N	500	L	L
111	20	G(1)	2,000	N	50	200	100	G(5,000)	50	N	1,000	L	100

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm) V (10)	Zn (200)	Zr (10)	Chemical analyses AA (ppm) Au (0.02)	Cu (10)	Zn (25)	Inst. (ppm) Hg (0.01)	Colorimetric (ppm) cxHM (0.5)	cxCu (1)
					Area L--Continued				
					Stream sediments--Continued				
78	200	N	100	---	57	36	---	2	1
79	500	N	300	---	49	42	---	2	2
80	300	N	300	---	22	38	---	2	1
81	500	N	500	---	51	36	---	1	4
82	200	N	300	---	47	42	---	1	2
83	500	N	1,000	---	47	40	---	1	3
84	500	N	150	---	65	44	---	4	2
85	500	N	150	---	57	38	---	2	3
87	500	N	100	---	56	42	---	2	4
88	150	N	70	---	70	46	---	2	2
89	200	N	100	---	INS	INS	---	1	3
90	500	N	200	---	58	42	---	2	3
91	100	N	70	---	INS	INS	---	1	1
92	200	N	100	---	61	76	---	2	1
93	300	N	100	---	50	40	---	1	3
94	500	N	200	---	43	34	---	1	4
95	200	N	200	---	54	64	---	1	2
96	200	N	150	---	63	70	---	1	1
97	500	N	100	---	46	34	---	1	4
98	500	N	100	---	47	38	---	1	3
99	300	N	100	---	41	32	---	1	4
100	300	N	150	---	38	28	---	L	4
101	300	N	100	---	42	34	---	1	2
102	100	N	100	---	110	220	---	2	6
103	150	N	150	---	47	92	---	7	2
104	150	N	100	---	60	130	---	16	3
105	150	N	150	---	INS	INS	---	7	3
106	150	N	100	---	64	120	---	5	3
107	200	N	100	---	61	90	---	10	2
109	300	N	150	---	INS	INS	---	7	INS
110	300	N	150	---	50	76	---	2	1
111	500	N	200	---	37	42	---	1	1
112	200	N	100	---	48	48	---	1	1
113	300	N	100	---	37	38	---	1	1
114	500	N	100	---	39	44	---	1	1
115	300	N	100	---	55	50	---	1	1
116	300	N	100	---	44	42	---	1	2
117	300	N	100	---	43	46	---	1	1
119	200	N	150	---	38	42	---	1	1
120	500	N	150	---	46	54	---	1	1
					Panned concentrates				
17[21]	200	N	100	48	---	---	---	---	---
18	200	N	100	L(.04)	---	---	---	---	---
26[22]	200	N	70	1	---	---	---	---	---
27	300	N	100	L(.04)	---	---	---	---	---
31	1,000	N	50	.1	---	---	---	---	---
37	200	N	100	.02	---	---	---	---	---
73	200	N	200	1.1	---	---	---	---	---
77	500	N	200	.04	---	---	---	---	---
81	1,000	N	G(1,000)	.04	---	---	---	---	---
85	200	N	100	.04	---	---	---	---	---
90	500	N	200	.04	---	---	---	---	---
97	1,000	N	500	.3	---	---	---	---	---
101	700	N	200	2.4	---	---	---	---	---
108	300	N	100	L(.04)	---	---	---	---	---
111	500	N	70	L(.04)	---	---	---	---	---

Table 1.--*Analyses of samples from the Salmon-*

Semiquantitative spectrographic analyses

Sample	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area L--Continued							
						Panned concentrates--Continued							
117	G(20)	G(1)	3,000	N	50	200	100	2,000	50	N	700	L	200
121	20	G(1)	5,000	N	30	70	70	300	30	N	100	N	150
						Rock samples							
1	2	.5	500	N	50	5,000	15	50	30	N	70	L	L
2	5	.3	500	N	100	G(5,000)	10	50	150	N	50	N	L
3	5	.5	700	N	70	500	15	70	15	N	50	L	L
4	.15	.01	200	N	N	50	5	10	15	N	20	N	L
5	20	.2	G(5,000)	N	50	100	20	50	200	5	70	10	L
6	7	.2	700	N	20	700	30	15	70	N	20	L	500
7	10	.15	700	N	20	L	100	2,000	7	N	2,000	N	L
8	.2	.005	70	N	L	20	N	10	L	20	10	N	L
11	7	.5	1,000	N	70	G(5,000)	30	100	50	N	70	15	L
16[23]	5	.5	700	N	10	1,000	20	70	20	N	50	L	L
17	3	.3	1,000	N	70	G(5,000)	20	50	50	N	50	N	L
19	7	.7	500	.5	50	5,000	20	70	100	L	70	15	L
34	7	.005	1,000	N	50	N	100	2,000	L	N	2,000	N	L
36	15	.1	2,000	N	30	30	150	3,000	20	N	3,000	N	N
41	5	.02	700	N	10	L	50	1,500	10	N	1,500	L	L
42[24]	.1	.007	70	N	N	30	5	10	15	N	20	N	L
43	15	.5	2,000	N	30	500	70	200	150	N	150	N	200
44	10	.3	1,000	N	20	500	50	100	70	N	100	L	200
45	.2	.01	50	N	50	50	N	N	10	N	10	N	L
46	1	.1	100	N	N	50	5	20	10	N	20	N	L
47	7	.1	100	1	20	100	5	20	100	20	30	L	L
48	5	.7	1,500	N	20	5,000	30	70	50	N	100	10	L
49	15	G(1)	2,000	N	15	70	70	500	150	N	100	L	200
50	2	.2	700	L	20	500	10	30	20	N	70	L	L
51	2	.15	500	N	L	L	10	20	30	N	10	N	L
52	20	.7	500	N	150	20	5	70	500	N	7	N	L
53	15	G(1)	2,000	N	15	L	70	200	50	N	100	N	100
54	15	G(1)	2,000	N	10	10	70	150	50	N	100	N	100
55	15	1	1,500	N	L	200	50	200	100	N	200	N	500
56	10	G(1)	1,500	N	20	50	50	100	15	N	70	N	150
58	15	G(1)	1,500	N	20	L	70	300	70	N	100	L	150
59	5	.15	500	.5	L	L	30	70	70	N	50	N	L
60	5	.5	1,000	N	70	5,000	20	100	100	N	100	15	L
61	20	G(1)	1,500	N	30	20	100	150	70	N	100	L	150
62	10	G(1)	1,500	N	20	L	70	100	200	N	70	L	200
63	10	1	1,500	N	30	1,000	50	200	100	N	200	N	100
64	.5	.1	100	N	N	30	10	10	20	N	20	N	L
65	10	1	1,500	N	10	70	50	300	100	N	100	N	150
66	5	.3	700	N	L	150	50	500	15	N	200	N	200
67	5	.3	700	N	10	100	20	50	70	N	10	N	300
68	.1	.02	50	N	N	100	N	10	5	N	5	N	L
69	7	.5	1,000	N	L	500	20	70	10	N	50	L	700
71[25]	20	G(1)	3,000	N	20	L	70	150	200	N	100	N	100
74	7	1	1,000	N	L	20	20	50	70	N	50	N	L
86[26]	20	G(1)	3,000	N	50	20	70	100	200	N	70	N	L
118	1.5	.15	150	N	L	20	7	5	10	N	7	N	L
122	7	.3	700	N	30	700	30	100	200	5	200	L	150
123	10	G(1)	2,000	N	20	500	50	150	50	N	100	N	L
124	1.5	.15	150	N	70	700	N	20	10	N	10	N	N
125	15	G(1)	1,500	N	20	30	50	150	30	N	100	N	200

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
					Area L--Continued					
					Panned concentrates--Continued					
117	700	N	300	16	---	---	---	---	---	
121	200	N	50	.1	---	---	---	---	---	
					Rock samples					
1	50	N	150	.02	---	---	0.03	---	---	FeOx st ch.
2	100	N	150	L(.02)	---	---	.04	---	---	FeOx st ch sh.
3	70	N	200	L(.02)	---	---	.01	---	---	Sheared ch and mv.
4	20	N	N	.02	---	---	L	---	---	Vein qtz.
5	150	N	70	L(.02)	---	---	.01	---	---	FeOx st amph; qtz.
6	200	N	50	.2	---	---	.01	---	---	Mica sch.
7	50	N	N	L(.02)	---	---	.01	---	---	Talc sch; FeOx.
8	15	N	N	L(.02)	---	---	.01	---	---	Qtz float.
11	100	N	200	L(.02)	---	---	.02	---	---	
16[23]	150	N	100	L(.02)	---	---	.03	---	---	Ch-gs contact.
17	100	N	150	L(.02)	---	---	.03	---	---	Ch-chl sch contact.
19	150	N	150	L(.02)	---	---	.02	---	---	
34	30	N	N	L(.02)	---	---	.02	---	---	Sh serp.
36	200	N	N	.02	---	---	.07	---	---	Serp; FeOx pockets.
41	20	N	10	L(.02)	---	---	.03	---	---	FeOx st act rods.
42[24]	15	N	N	L(.02)	---	---	.01	---	---	Qtz vein.
43	300	N	20	L(.02)	---	---	.02	---	---	Amph.
44	200	N	70	L(.02)	---	---	.01	---	---	Shear in amph.
45	15	N	L	L(.02)	---	---	L	---	---	Qtz vein.
46	50	N	10	L(.02)	---	---	.01	---	---	Do.
47	200	N	30	L(.02)	---	---	.01	---	---	Lim in mica sch.
48	150	N	150	L(.02)	---	---	.02	---	---	Mica sch.
49	200	N	100	L(.02)	---	---	.03	---	---	Shear in amph.
50	50	N	70	L(.02)	---	---	.03	---	---	FeOx st qtz in mica sch.
51	150	N	50	L(.02)	---	---	.01	---	---	Qtz in amph.
52	300	N	100	.02	---	---	.06	---	---	FeOx and qtz in amph.
53	500	N	200	L(.02)	---	---	.01	---	---	FeOx st amph.
54	300	N	100	L(.02)	---	---	.01	---	---	Amph.
55	200	N	100	.02	---	---	L	---	---	Qd.
56	200	N	100	L(.02)	---	---	.03	---	---	FeOx st amph.
58	300	N	100	L(.02)	---	---	.01	---	---	Frac in amph.
59	150	N	10	.02	---	---	.02	---	---	Qtz vein in amph.
60	150	N	150	L(.02)	---	---	.08	---	---	Do.
61	500	N	200	L(.02)	---	---	.02	---	---	Shear in amph.
62	300	N	150	L(.02)	---	---	.03	---	---	Amph.
63	200	N	150	L(.02)	---	---	.01	---	---	Shear; qtz in amph.
64	15	N	10	L(.02)	---	---	L	---	---	Qtz vein.
65	200	N	100	L(.02)	---	---	.01	---	---	Amph.
66	100	N	70	L(.02)	---	---	.01	---	---	
67	100	N	100	L(.02)	---	---	.01	---	---	FeOx st gr dike.
68	10	N	50	L(.02)	---	---	.01	---	---	Qtz veins in dio.
69	200	N	100	L(.02)	---	---	.01	---	---	Qtz dio.
71[25]	500	N	150	L(.02)	---	---	.02	---	---	FeOx st frac in amph.
74	200	N	70	L(.02)	---	---	.01	---	---	FeOx st qtz in amph.
86[26]	500	N	100	.02	---	---	.03	---	---	FeOx st amph.
118	50	N	10	L(.02)	---	---	.03	---	---	Qtz in amph.
122	100	N	100	L(.02)	---	---	.11	---	---	FeOx st.
123	300	N	100	L(.02)	---	---	.01	---	---	Frac in gs.
124	70	N	70	L(.02)	---	---	.02	---	---	6 ft qtz vein.
125	300	N	150	L(.02)	---	---	.01	---	---	Shear zone, mv.

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area L--Continued							
						Rock samples--Continued							
126	0.05	0.005	30	N	N	30	N	L	L	N	N	N	500
127[27]	20	G(1)	3,000	N	100	2,000	70	200	70	N	100	N	100
128[28]	15	G(1)	2,000	N	30	5,000	70	300	150	N	200	N	200
129	1.5	.15	1,000	N	100	G(5,000)	N	N	10	N	10	15	300
						Area M							
						Stream sediments							
1	7	G(1)	1,000	N	30	50	20	100	15	N	70	L	L
30	7	1	1,000	N	20	50	50	100	20	N	50	L	L
33	5	.5	1,000	N	10	70	30	70	15	N	30	L	L
34	7	1	1,500	N	10	50	50	100	50	5	50	L	100
35	7	1	1,500	N	10	70	50	150	50	L	70	10	200
36	5	.7	700	N	10	70	30	100	20	5	50	L	100
37	10	1	1,000	N	10	150	50	150	100	L	100	L	200
38	15	G(1)	1,500	N	20	100	70	200	70	L	100	L	300
39	15	G(1)	1,500	N	15	70	70	150	100	L	100	L	200
40	20	G(1)	2,000	N	20	100	70	200	70	N	100	L	200
43	7	1	1,000	N	15	200	30	100	15	N	70	10	300
44	7	G(1)	1,000	N	10	30	50	70	20	N	70	10	L
45	7	1	1,000	N	10	70	30	70	15	N	50	10	100
46	7	G(1)	1,000	N	10	70	50	100	50	N	70	10	100
47	10	G(1)	1,500	N	15	70	50	150	50	N	100	10	100
48	10	1	1,000	N	20	150	50	150	70	N	100	10	150
49	7	1	1,000	N	15	50	50	100	70	N	100	10	L
50	15	G(1)	1,500	N	50	50	50	200	30	N	70	N	100
51	7	G(1)	1,000	N	50	70	30	150	20	N	70	L	L
54	15	G(1)	1,500	N	30	100	50	150	30	N	70	L	200
55	10	G(1)	2,000	N	70	500	70	500	100	N	500	15	100
56[29]	10	G(1)	1,000	N	20	70	N	50	150	L	15	100	150
57	20	1	2,000	N	50	100	100	500	100	N	100	L	200
58	20	G(1)	2,000	N	50	100	100	500	100	N	100	L	100
59	7	.5	1,500	N	20	50	30	150	30	N	50	L	150
61	15	1	1,500	N	50	30	70	200	70	N	100	10	100
62	20	G(1)	2,000	N	30	100	100	500	100	N	100	10	150
63	10	G(1)	1,000	N	50	70	30	150	20	N	50	L	100
64	20	G(1)	2,000	N	50	70	100	500	70	N	100	L	200
65	20	1	2,000	N	30	50	100	500	70	N	100	L	100
66	10	G(1)	1,500	N	30	50	50	150	50	N	70	10	L
67	15	G(1)	2,000	N	20	70	70	200	70	N	70	L	150
						Panned concentrates							
35	20	G(1)	2,000	N	50	100	70	500	70	N	100	L	300
40	G(20)	G(1)	1,500	N	150	30	100	1,000	30	N	100	L	L
46[30]	20	G(1)	1,500	N	20	70	100	300	50	N	70	L	100
48	G(20)	G(1)	1,500	N	100	20	100	700	20	N	70	L	L
52	20	G(1)	3,000	N	50	50	100	500	70	N	100	L	100
57	20	G(1)	1,500	N	50	70	70	300	20	N	70	L	200
58	20	G(1)	2,000	N	50	70	100	500	20	N	70	N	200
61	15	G(1)	700	N	20	30	70	500	20	N	150	L	100
62	G(20)	G(1)	2,000	N	30	20	100	500	20	N	100	N	100
67	20	G(1)	2,000	N	70	50	70	500	50	N	100	L	150

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm) V (10)	Zn (200)	Zr (10)	Chemical analyses AA (ppm) Au (0.02)	Cu (10)	Zn (25)	Inst. (ppm) Hg (0.01)	Colorimetric (ppm) cxHM (0.5)	cxCu (1)	Sample description[1]
					Area L--Continued					
					Rock samples--Continued					
126	10	N	N	L(0.02)	---	---	0.02	---	---	Ls.
127[27]	500	N	100	.02	---	---	.02	---	---	Mv.
128[28]	500	N	15	L(.02)	---	---	.01	---	---	Sheared gs.
129	20	N	100	L(.02)	---	---	.06	---	---	Dacite por.
					Area M					
					Stream sediments					
1	200	N	150	---	49	58	---	1	1	
30	200	N	100	---	47	48	---	7	1	
33	150	N	70	---	44	40	---	2	1	
34	300	N	150	---	98	50	---	2	1	
35	300	N	150	---	86	50	---	5	2	
36	200	N	100	---	88	46	---	7	1	
37	300	N	100	---	89	46	---	5	4	
38	700	N	150	---	68	38	---	4	6	
39	500	N	200	---	73	40	---	5	8	
40	500	N	200	---	64	40	---	4	6	
43	200	N	500	---	27	48	---	4	1	
44	300	N	150	---	48	46	---	7	1	
45	200	N	300	---	36	42	---	5	1	
46	300	N	150	---	58	44	---	4	1	
47	500	N	150	---	60	44	---	4	1	
48	200	N	100	---	65	52	---	8	2	
49	300	N	100	---	66	54	---	---	---	
50	500	N	200	---	61	38	---	2	8	
51	200	N	100	---	53	50	---	2	8	
54	500	N	200	---	50	32	---	1	4	
55	200	N	100	---	62	68	---	2	2	
56[29]	500	N	150	---	76	86	---	10	8	
57	500	N	300	---	57	38	---	1	3	
58	700	N	150	---	60	40	---	1	3	
59	150	N	50	---	52	38	---	1	2	
61	300	N	100	---	68	56	---	2	3	
62	500	N	200	---	61	42	---	1	4	
63	200	N	100	---	28	40	---	1	1	
64	700	N	150	---	48	38	---	2	4	
65	500	N	150	---	50	44	---	1	3	
66	500	N	150	---	55	52	---	1	2	
67	500	N	200	---	52	40	---	1	4	
					Panned concentrates					
35	500	N	200	.04	---	---	---	---	---	
40	1,500	N	G(1,000)	3.2	---	---	---	---	---	
46[30]	500	N	200	L(.04)	---	---	---	---	---	
48	1,000	N	500	.1	---	---	---	---	---	
52	700	N	100	.04	---	---	---	---	---	
57	500	N	300	.3	---	---	---	---	---	
58	700	N	200	L(.02)	---	---	---	---	---	
61	200	N	70	1.9	---	---	---	---	---	
62	1,000	N	500	L(.02)	---	---	---	---	---	
67	1,000	N	1,000	.08	---	---	---	---	---	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area M--Continued							
						Rock samples[31]							
2	10	G(1)	1,500	5	15	30	70	100	300	N	70	100	150
3	20	G(1)	5,000	N	10	20	100	150	200	N	100	N	100
4	10	.3	3,000	N	20	5,000	20	70	150	N	50	L	100
5	20	G(1)	2,000	N	20	150	70	300	100	N	200	N	300
6	.15	.01	70	N	20	50	N	15	15	N	10	N	L
7	1	.15	200	L	10	30	10	20	10	N	50	N	L
8	15	1	1,500	N	20	700	50	200	100	N	200	L	200
9	15	.3	1,500	N	10	L	100	2,000	70	N	2,000	L	L
10	20	G(1)	1,500	N	20	300	100	500	200	N	200	L	300
11	7	.7	1,500	N	20	70	50	300	50	N	100	L	300
12	3	.5	1,000	N	10	5,000	20	50	150	N	50	L	L
13	7	.005	500	N	10	N	100	1,500	10	N	2,000	L	L
14	10	1	1,500	N	30	100	100	500	100	N	200	L	500
15	2	.5	700	N	150	5,000	20	70	70	N	70	L	L
16	.1	.002	70	N	N	100	N	N	10	N	L	N	L
17	3	.5	1,000	N	20	1,000	30	70	50	N	100	L	L
18	7	.5	700	N	10	20	50	500	50	N	100	N	100
19	10	.5	1,000	N	20	2,000	20	50	100	N	50	L	L
20	.15	.007	70	N	N	50	N	10	7	N	L	N	L
21	20	G(1)	2,000	N	20	L	70	200	70	N	100	50	150
22	20	G(1)	2,000	N	30	L	70	150	20	N	70	N	150
23	.1	.01	100	N	N	L	N	N	L	N	L	N	L
24	15	1	1,500	N	20	L	70	150	30	N	100	N	100
25	.2	.07	100	N	N	L	N	10	L	N	L	N	L
26	20	G(1)	1,500	N	20	L	100	150	50	N	100	N	L
27	1	.1	100	N	N	L	10	10	20	N	L	N	L
28	20	G(1)	G(5,000)	N	30	L	100	150	10	N	100	N	100
29	20	G(1)	1,500	N	30	50	70	100	20	N	70	L	150
31	5	.3	500	N	L	L	20	30	15	N	20	N	L
32	10	.7	1,500	N	30	L	50	200	20	N	100	N	100
40	10	1	2,000	N	50	100	50	500	70	N	100	L	200
41	G(20)	.3	1,000	.5	700	20	2,000	70	300	N	200	10	L
42	10	1	2,000	N	20	L	70	100	500	N	70	N	L
52	.15	.02	70	N	50	70	N	15	20	N	20	N	L
53	10	1	1,000	N	20	500	50	200	70	N	200	L	700
59	.15	.1	100	N	10	30	5	5	10	N	5	N	L
60	5	.7	1,000	N	10	50	20	100	15	N	50	N	L
						Area N							
						Stream sediments							
2	5	.5	1,000	N	50	500	30	100	50	N	150	10	L
3	5	.5	700	N	30	500	30	200	20	N	200	10	L
4	7	1	1,500	N	50	700	50	300	50	N	200	15	L
6	5	.7	700	N	30	500	30	700	50	N	200	10	L
7	10	.7	1,000	N	50	500	50	500	70	N	200	20	L
8	20	G(1)	2,000	N	30	200	70	1,000	70	N	500	L	200
9	5	.3	700	N	20	200	20	150	20	N	70	10	L
17	10	1	2,000	N	30	500	70	500	50	N	500	L	150
18	7	.3	700	N	30	100	70	500	20	N	700	L	L
19	10	.7	1,500	N	50	200	70	700	50	N	700	10	150
20	10	.5	1,000	N	50	200	70	700	30	N	700	L	100
21	10	1	1,000	N	50	200	70	1,000	20	N	700	L	200
22	15	1	1,500	N	50	300	100	1,500	20	N	1,000	L	L
23	15	1	1,500	N	50	200	70	1,500	30	N	700	10	100
25	7	.5	1,000	N	20	100	50	1,000	20	N	500	L	L

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses: AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
						Area M--Continued				
						Rock samples[31]				
2	300	N	100	1.6	---	---	0.30	---	---	
3	500	N	200	L(.02)	---	---	.02	---	---	Frac in amph.
4	150	N	200	L(.02)	---	---	.02	---	---	Frac in mica sch.
5	300	N	200	L(.02)	---	---	.03	---	---	Mica sch.
6	15	N	10	L(.02)	---	---	.01	---	---	Frac in mica sch.
7	15	N	10	.02	---	---	.01	---	---	Qtz vein in mica sch.
8	200	N	200	L(.02)	---	---	.03	---	---	Frac in mica sch.
9	100	N	100	.02	---	---	.02	---	---	Do.
10	300	N	150	.02	---	---	.01	---	---	Do.
11	200	N	100	L(.02)	---	---	.01	---	---	Mica sch.
12	150	N	150	L(.02)	---	---	.02	---	---	Do.
13	30	N	N	L(.02)	---	---	L	---	---	Do.
14	300	N	100	L(.02)	---	---	.02	---	---	Frac in act talc sch.
15	200	N	150	L(.02)	---	---	.01	---	---	Rusty mica sch.
16	15	N	N	L(.02)	---	---	.01	---	---	Vein qtz.
17	150	N	150	.02	---	---	.02	---	---	Vein qtz in mica sch.
18	150	N	100	.02	---	---	.01	---	---	Frac in amph.
19	200	N	150	.02	---	---	.04	---	---	Rusty mica sch.
20	15	N	N	L(.02)	---	---	.01	---	---	Vein qtz.
21	300	N	150	L(.02)	---	---	.01	---	---	Frac in amph.
22	500	N	200	.02	---	---	L	---	---	Amph.
23	15	N	N	.02	---	---	.01	---	---	Vein qtz.
24	300	N	100	.02	---	---	.01	---	---	Frac in amph.
25	20	N	L	.02	---	---	.01	---	---	Qtz lense in andesite dike.
26	500	N	150	L(.02)	---	---	L	---	---	Frac in amph.
27	20	N	N	.02	---	---	.01	---	---	Vein qtz.
28	500	N	200	L(.02)	---	---	.01	---	---	Amph.
29	500	N	200	.02	---	---	.02	---	---	Frac in amph.
31	150	N	50	.02	---	---	.01	---	---	Qtz vein in amph.
32	200	N	100	L(.02)	---	---	L	---	---	Amph.
40	300	N	150	L(.02)	---	---	.02	---	---	FeOx st brecc zone.
41	150	N	50	.02	---	---	.75H	---	---	Py veinlet.
42	300	500	150	L(.02)	---	---	.02	---	---	Amph with py veinlets.
52	15	N	15	L(.02)	---	---	.03	---	---	Qtz vein.
53	150	N	150	L(.02)	---	---	.01	---	---	Andesite dike.
59	15	N	L	L(.02)	---	---	.03	---	---	Qtz vein in amph.
60	200	N	100	L(.02)	---	---	.02	---	---	FeOx pockets in vein.
						Area N				
						Stream sediments				
2	150	N	100	---	76	130	---	8	2	
3	150	N	200	---	62	100	---	7	1	
4	150	N	150	---	INS	INS	---	7	2	
6	150	N	150	---	62	98	---	7	1	
7	300	N	300	---	62	110	---	5	2	
8	700	N	150	---	36	36	---	1	1	
9	150	N	150	---	65	130	---	10	1	
17	500	N	150	---	44	46	---	1	1	
18	70	N	150	---	38	64	---	4	1	
19	300	N	200	---	58	54	---	1	2	
20	200	N	200	---	49	50	---	2	1	
21	300	N	300	---	45	46	---	1	1	
22	300	N	200	---	47	50	---	2	2	
23	300	N	150	---	46	52	---	1	1	
25	200	N	100	---	43	40	---	2	1	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
	Semiquantitative spectrographic analyses												
	(percent)		(ppm)										
						Area N--Continued							
						Stream sediments--Continued							
26	7	.5	1,000	N	30	70	50	70	30	N	700	10	L
27	10	.3	1,000	N	50	200	100	1,500	20	N	2,000	L	100
28	5	.5	700	N	20	200	30	100	20	N	100	10	L
30	10	.7	1,000	N	50	300	70	1,000	20	N	500	L	100
31	7	.5	1,000	N	50	500	50	500	50	N	300	10	100
32	10	.7	1,500	N	50	300	100	1,000	50	N	700	10	150
						Panned concentrates							
5	15	.7	2,000	N	150	3,000	50	G(5,000)	100	N	200	20	200
7	15	.7	1,500	N	70	700	30	500	70	N	200	L	L
8	20	G(1)	2,000	1	70	100	100	2,000	30	N	500	L	100
9	20	G(1)	3,000	N	100	50	100	5,000	20	N	700	L	100
22	G(20)	.3	2,000	N	100	500	200	G(5,000)	50	N	2,000	N	L
29	G(20)	.5	2,000	N	200	200	150	G(5,000)	20	N	1,500	L	200
31	G(20)	.5	1,500	N	200	70	150	G(5,000)	20	N	100	N	150
						Rock samples							
1	10	1	700	N	20	5,000	30	150	200	N	50	N	500
10	15	1	3,000	N	50	1,000	50	10	50	N	20	L	700
11	10	.7	1,000	N	20	300	30	15	500	N	20	L	500
12	2	.3	700	N	30	700	10	50	30	5	50	L	L
13[32]	10	.7	2,000	N	50	2,000	15	50	70	5	30	10	500
14	5	.3	300	N	100	1,000	20	50	20	N	70	10	L
15	1	.2	500	N	50	700	10	10	15	N	50	N	L
16	15	.5	3,000	N	50	500	50	200	100	N	300	10	100
24	7	.005	1,000	N	20	N	100	2,000	10	N	3,000	N	N
33	7	.3	700	N	30	700	30	100	200	5	200	L	150
						Area O							
						Stream sediments							
1	2	.5	700	N	20	30	20	50	20	N	30	10	L
5	5	.3	700	N	15	70	15	70	30	N	50	15	L
6	3	.5	700	N	20	50	20	70	20	N	70	20	L
7	5	1	700	N	15	20	30	100	50	N	70	10	L
8	2	.2	500	N	L	10	10	70	15	N	50	15	L
9	7	1	1,000	N	10	70	50	150	70	N	100	20	100
10	2	.2	700	N	15	20	10	100	15	N	70	15	L
11	7	1	1,000	N	20	50	50	300	30	N	300	15	100
12	5	1	700	N	10	50	30	200	50	N	100	10	100
13	7	1	700	N	30	70	50	500	50	N	200	15	100
14	7	.7	1,500	N	10	150	30	200	20	N	200	L	200
15	10	.7	1,000	N	10	100	50	500	50	N	200	L	150
17	10	1	1,000	N	10	70	50	500	70	N	200	10	100
18	7	.5	1,000	N	10	100	50	700	20	N	500	15	100
19	7	1	1,000	N	20	100	50	300	70	N	300	10	150
20	5	1	1,000	N	50	500	30	200	20	N	300	15	100
21	7	G(1)	1,500	N	15	100	50	500	70	N	300	10	150
23	7	1	1,000	N	20	70	50	300	50	N	200	L	150
24	10	1	1,000	N	20	70	50	500	70	N	500	10	150
25	7	1	1,000	N	20	70	50	500	50	N	700	10	100
26	3	.5	1,500	N	15	70	20	200	50	N	200	10	100
27	5	.3	700	N	10	30	30	70	50	N	50	15	L
28	5	.5	700	N	15	50	30	100	70	N	70	15	L
29	5	.5	700	N	15	50	30	150	50	N	100	20	L
30	7	.3	700	N	30	10	70	500	50	N	1,000	10	L

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)				Chemical analyses: AA (ppm)		Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
							Area N--Continued			
							Stream sediments--Continued			
26	200	N	150	---	54	50	---	1	1	
27	200	N	70	---	31	32	---	1	1	
28	150	N	100	---	62	88	---	2	1	
30	200	N	150	---	46	56	---	1	1	
31	200	N	200	---	57	82	---	7	1	
32	300	N	150	---	51	54	---	4	1	
							Panned concentrates			
5	300	N	100	0.04	---	---	---	---	---	
7	200	N	150	.04	---	---	---	---	---	
8	500	N	100	6.8	---	---	---	---	---	
9	500	N	500	25	---	---	---	---	---	
22	1,000	1,000	50	3.9	---	---	---	---	---	
29	700	500	150	L(.02)	---	---	---	---	---	
31	1,000	1,000	70	.2	---	---	---	---	---	
							Rock samples			
1	150	N	150	L(.02)	---	---	0.04	---	---	Rusty frac in dike.
10	300	N	200	L(.02)	---	---	.01	---	---	Dio.
11	150	N	100	L(.02)	---	---	L	---	---	Py dike.
12	100	N	150	.02	---	---	L	---	---	FeOx st hfs.
13[32]	200	N	200	L(.02)	---	---	.01	---	---	FeOx st dike.
14	150	N	150	L(.02)	---	---	.01	---	---	Sl.
15	70	N	100	L(.02)	---	---	L	---	---	Ch.
16	500	N	150	L(.02)	---	---	.02	---	---	Vein qtz in mica sch.
24	50	N	N	L(.02)	---	---	.04	---	---	Serp.
33	100	N	100	L(.02)	---	---	.11	---	---	FeOx in ch sch.
							Area O			
							Stream sediments			
1	200	N	100	---	110	110	---	10	4	
5	150	N	70	---	49	64	---	10	1	
6	150	N	100	---	INS	INS	---	14	INS	
7	200	N	70	---	51	56	---	5	2	
8	100	N	15	---	INS	INS	---	16	1	
9	200	N	70	---	90	52	---	5	6	
10	100	N	15	---	66	88	---	12	1	
11	200	N	100	---	63	72	---	10	2	
12	150	N	70	---	79	54	---	8	4	
13	150	N	100	---	INS	INS	---	20	INS	
14	200	N	150	---	45	54	---	4	1	
15	200	N	200	---	58	52	---	7	4	
17	500	N	70	---	59	44	---	5	6	
18	150	N	100	---	47	72	---	5	2	
19	200	N	100	---	65	50	---	5	8	
20	150	N	150	---	INS	INS	---	10	1	
21	200	N	150	---	58	48	---	7	8	
23	200	N	100	---	47	44	---	5	6	
24	200	N	150	---	58	46	---	5	6	
25	200	N	150	---	63	54	---	4	6	
26	150	N	50	---	61	58	---	8	4	
27	150	N	70	---	98	58	---	4	1	
28	150	N	70	---	90	60	---	5	1	
29	200	N	100	---	81	50	---	5	3	
30	150	N	50	---	53	48	---	5	4	

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Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses												
	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area O--Continued							
						Stream sediments--Continued							
31	5	0.2	1,000	N	30	10	50	500	70	N	700	15	L
37	7	.5	1,000	N	50	30	70	700	70	N	1,000	10	L
39	7	.5	1,000	N	50	30	50	500	70	N	700	15	L
44	3	.3	1,000	N	10	30	70	300	70	N	150	L	100
45	3	.3	1,000	N	10	30	70	300	70	N	150	10	100
46	5	.5	1,500	N	10	70	70	700	150	N	150	10	150
47	7	.7	1,500	N	10	50	70	700	150	N	150	L	150
48	7	.3	1,500	N	10	20	500	1,500	150	N	1,000	L	L
49	7	.3	1,500	N	10	20	300	3,000	100	N	700	10	100
50	7	.3	1,500	N	10	20	300	2,000	150	N	700	L	L
						Panned concentrates							
11	15	G(1)	1,000	N	50	30	70	5,000	50	N	300	L	300
13	7	.7	700	N	10	L	50	700	20	N	100	L	150
16	10	1	1,500	N	30	20	50	1,000	70	N	200	N	200
22	G(20)	1	2,000	N	50	70	70	2,000	70	N	500	N	200
25	20	.7	1,500	N	30	70	50	2,000	70	N	500	N	200
30	7	.3	1,000	N	70	20	50	2,000	50	N	300	L	100
40	10	1	1,000	N	50	20	50	5,000	50	N	200	L	300
44	7	G(1)	1,500	N	10	L	30	700	70	N	70	N	300
46	10	G(1)	1,500	N	10	L	50	700	70	N	70	N	300
47	10	G(1)	1,500	N	15	L	70	1,000	70	N	100	L	200
48	G(20)	.5	3,000	N	30	L	700	G(5,000)	50	N	1,500	N	N
50	G(20)	.7	3,000	N	50	L	1,000	G(5,000)	70	N	2,000	N	N
						Rock samples							
2	15	G(1)	1,000	N	30	L	70	20	300	N	50	N	L
3	10	G(1)	1,500	N	30	L	50	100	20	N	70	L	L
4	10	1	1,500	N	20	50	50	70	150	N	50	N	200
32	15	.2	3,000	N	100	L	50	100	15	N	100	10	100
33	10	.5	1,000	N	150	100	50	150	70	N	100	L	100
34	10	.7	2,000	N	70	700	70	150	70	15	150	50	L
35	15	.7	5,000	N	50	500	70	200	100	20	200	50	L
36[33]	10	.3	G(5,000)	N	20	300	30	70	70	5	200	15	L
37	15	.7	G(5,000)	N	100	500	30	50	300	5	150	50	L
38[34]	20	.2	G(5,000)	N	50	300	70	50	500	N	500	20	L
39	15	.3	1,000	1	30	200	100	150	2,000	5	150	L	200
41	7	.15	1,000	N	L	L	500	1,500	30	N	1,000	N	100
42	7	.5	1,500	N	L	L	50	200	150	N	100	N	300
43	.3	.015	70	N	N	70	10	10	5	N	20	N	N
51	5	1	3,000	N	L	L	7	10	30	N	15	N	100
52	7	.15	G(5,000)	N	G(5,000)	L	L	15	5	N	10	N	200
53	15	.3	150	N	30	L	5	20	300	20	10	N	N
54	5	.5	1,000	N	10	200	70	700	30	N	150	N	700
55	10	.3	150	3	30	L	L	10	700	15	L	N	N
						Area P							
						Stream sediments							
2	20	G(1)	3,000	N	50	200	100	1,000	50	N	200	L	150
3	10	1	1,500	1	30	200	50	500	70	N	200	20	150
4	5	.5	1,000	N	50	500	50	500	1000	N	500	20	L
6	10	1	1,500	N	20	150	50	700	20	N	200	L	200
7	10	.7	1,500	N	30	500	50	500	70	N	100	10	200

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
							Area O--Continued			
							Stream sediments--Continued			
31	100	N	15	---	56	48	---	4	6	
37	200	N	70	---	63	54	---	4	4	
39	150	N	100	---	59	56	---	4	4	
44	300	L	30	---	80	41	---	4	4	
45	300	N	30	---	80	39	---	2	3	
46	300	L	30	---	88	41	---	2	4	
47	300	L	70	---	76	40	---	2	3	
48	200	L	20	---	110	43	---	5	8	
49	300	L	30	---	81	35	---	4	8	
50	300	L	15	---	84	34	---	4	6	
							Panned concentrates			
11	500	N	100	7.4	---	---	---	---	---	
13	150	N	100	1.5	---	---	---	---	---	
16	300	N	70	.1	---	---	---	---	---	
22	1,000	N	300	L(.04)	---	---	---	---	---	
25	300	N	100	L(.02)	---	---	---	---	---	
30	150	N	30	L(.02)	---	---	---	---	---	
40	200	N	50	14	---	---	---	---	---	
44	700	L	30	L(.02)	---	---	---	---	---	
46	700	L	50	.1	---	---	---	---	---	
47	1,000	300	30	3.3	---	---	---	---	---	
48	1,000	500	150	.3	---	---	---	---	---	
50	1,000	300	200	L(.02)	---	---	---	---	---	
							Rock samples			
2	2,000	N	70	L(.02)	---	---	0.02	---	---	FeOx st gabbro-diabase contact.
3	300	N	150	L(.02)	---	---	.01	---	---	Sheared diabase.
4	200	N	70	L(.02)	---	---	.01	---	---	FeOx st joint.
32	150	N	N	.2	---	---	.01	---	---	Sulf brecc zone.
33	200	N	100	.02	---	---	L	---	---	Fault gouge.
34	150	N	200	L(.02)	---	---	.02	---	---	Do.
35	300	N	150	.02	---	---	.04	---	---	FeOx st brecc.
36[33]	200	N	150	.02	---	---	.02	---	---	Do.
37	500	N	200	.02	---	---	.08	---	---	Do.
38[34]	1,000	N	200	.04	---	---	.18	---	---	Sulf bearing brecc.
39	200	N	70	.02	---	---	L	---	---	Brecc gs.
41	100	N	N	.06	---	---	.02	---	---	FeOx st sheared serp.
42	300	N	20	L(.02)	---	---	.05	---	---	Mv brecc.
43	10	L	N	L(.02)	---	---	.05	---	---	Vein qtz float.
51	500	L	30	L(.02)	---	---	.05	---	---	Mv.
52	700	L	L	L(.02)	---	---	.02	---	---	Vuggy qtz in mv.
53	100	200	15	.02	---	---	.14	---	---	FeOx st vein qtz.
54	300	L	50	L(.02)	---	---	.06	---	---	Andesite dike.
55	300	L	70	L(.02)	---	---	.50	---	---	Gossan.
							Area P			
							Stream sediments			
2	500	N	200	---	39	38	---	1	3	
3	300	N	100	---	INS	INS	---	4	INS	
4	150	N	150	---	INS	INS	---	7	2	
6	500	N	150	---	38	36	---	1	1	
7	200	N	100	---	40	40	---	1	2	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area P--Continued							
						<u>Stream sediments</u>--Continued							
8	10	1	1,000	N	30	500	50	500	50	N	300	L	100
9	15	1	1,500	N	50	100	70	200	100	N	150	50	100
10	10	G(1)	1,500	N	50	30	70	200	70	N	100	L	100
11	10	1	1,000	N	30	20	50	150	70	N	70	10	100
12	15	G(1)	1,500	N	50	100	100	300	100	N	200	20	150
13[35]	15	G(1)	1,500	N	30	50	100	200	100	N	100	L	150
14	10	G(1)	1,000	N	50	50	70	200	70	N	100	10	100
15	10	1	1,500	N	30	50	70	200	70	N	100	L	100
16	15	G(1)	1,500	N	30	70	100	300	50	N	100	10	100
17	15	G(1)	1,500	N	30	200	70	700	70	N	200	L	100
18	20	G(1)	1,500	N	50	300	70	700	50	N	200	L	150
19	15	G(1)	1,000	N	20	300	70	500	70	N	200	L	100
20	10	1	1,000	N	30	70	50	150	70	N	70	10	100
21	15	G(1)	1,500	N	30	300	50	700	50	N	200	L	200
23	15	G(1)	1,500	.5	30	100	100	300	100	N	100	10	100
24	10	.7	1,000	N	20	200	50	200	70	N	100	L	L
25	10	1	1,500	N	30	100	70	300	70	N	100	10	100
26	10	G(1)	1,500	N	30	100	50	200	100	N	100	L	100
27	15	G(1)	1,500	N	30	100	100	500	100	N	100	L	150
28	10	.7	1,000	N	20	50	50	150	70	N	100	10	L
29	15	G(1)	1,500	N	30	50	70	200	100	N	70	L	L
30	10	1	1,500	N	30	20	50	200	100	N	100	L	L
31	15	.7	1,000	N	30	100	70	200	50	N	70	L	100
32	10	.7	1,000	N	50	50	50	150	70	N	70	L	L
33	15	1	1,000	N	50	100	50	200	50	N	100	10	150
34	10	G(1)	700	N	20	70	50	100	50	N	50	L	L
36	10	G(1)	1,000	N	15	70	50	100	50	N	50	L	L
37	10	G(1)	1,000	N	20	30	50	100	70	N	50	L	L
38	7	1	1,000	N	15	70	30	100	20	N	30	L	L
39	10	.7	1,000	N	15	100	50	150	100	N	70	L	100
40	10	1	1,000	N	20	70	50	100	100	N	70	L	100
41	10	G(1)	1,500	N	20	70	70	150	100	N	70	L	100
42	7	G(1)	1,000	N	20	150	50	150	50	N	100	L	300
43	10	G(1)	1,500	N	20	70	70	150	100	N	70	10	150
44	10	G(1)	1,000	N	20	70	70	100	70	N	70	10	100
45	10	G(1)	1,000	N	20	70	70	150	70	N	70	L	150
46	15	G(1)	1,000	N	20	70	70	150	100	N	100	10	100
47[36]	10	.7	1,500	1.5	15	70	50	200	150	N	100	70	N
48	15	1	2,000	1	15	50	50	200	200	N	100	30	100
49	15	1	1,500	1	15	50	70	300	150	N	150	15	100
50	7	.7	1,500	N	L	30	50	150	100	N	70	N	100
51	7	.7	1,500	N	10	30	50	200	100	N	100	20	100
52	7	.7	1,500	N	10	30	30	150	70	N	70	N	100
55	10	1	2,000	1	15	70	70	500	100	N	150	20	150
60	10	1	2,000	1	10	70	70	500	150	N	100	20	150
61	10	.7	1,500	N	10	50	50	200	100	N	100	10	100
62	7	G(1)	1,500	N	10	50	30	150	30	N	30	10	100
63	7	1	1,500	N	10	70	30	150	30	N	30	10	100
64	10	1	1,500	N	30	300	30	500	30	N	70	15	100
65	10	1	2,000	N	15	200	30	700	30	N	100	10	100
66	15	G(1)	1,500	N	10	500	70	500	70	N	150	10	100
67	15	G(1)	2,000	N	15	300	150	500	70	N	150	10	100
68	10	G(1)	2,000	N	L	300	70	300	50	N	100	L	100
84	7	.1	1,500	N	10	30	50	150	70	7	100	20	N
85	7	.7	1,500	N	10	20	50	200	70	N	100	20	N

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
							Area P--Continued			
							Stream sediments--Continued			
8	200	N	150	---	45	48	---	1	1	
9	500	N	100	---	INS	INS	---	16	INS	
10	500	N	150	---	50	46	---	4	1	
11	300	N	100	---	100	82	---	20	15	
12	500	N	100	---	INS	INS	---	8	INS	
13[35]	700	N	200	---	85	56	---	4	3	
14	500	N	150	---	74	46	---	5	2	
15	500	N	150	---	61	48	---	7	2	
16	500	N	150	---	96	46	---	5	2	
17	500	N	300	---	38	38	---	1	1	
18	500	N	300	---	37	32	---	1	1	
19	300	N	200	---	38	36	---	1	L	
20	300	N	150	---	70	68	---	10	2	
21	500	N	150	---	37	32	---	1	1	
23	1,000	N	200	---	82	70	---	8	15	
24	500	N	150	---	50	98	---	2	2	
25	700	N	150	---	71	72	---	8	8	
26	700	N	150	---	70	74	---	8	10	
27	700	N	200	---	69	74	---	7	8	
28	500	N	150	---	78	72	---	10	8	
29	700	N	200	---	68	84	---	10	10	
30	500	N	150	---	63	52	---	2	1	
31	300	N	100	---	61	48	---	2	4	
32	200	N	150	---	63	48	---	1	4	
33	300	N	200	---	INS	INS	---	5	10	
34	300	N	150	---	60	42	---	5	1	
36	500	N	300	---	58	52	---	2	2	
37	300	N	100	---	110	52	---	10	4	
38	200	N	100	---	71	48	---	4	1	
39	300	N	150	---	95	58	---	5	4	
40	200	N	150	---	98	56	---	2	4	
41	300	N	150	---	96	64	---	4	4	
42	300	N	300	---	42	50	---	1	1	
43	300	N	100	---	88	56	---	2	4	
44	500	N	200	---	70	50	---	2	4	
45	500	N	150	---	69	56	---	2	4	
46	500	N	100	---	INS	INS	---	5	6	
47[36]	300	L	50	---	80	92	---	18	8	
48	700	L	70	---	110	82	---	14	15	
49	700	L	100	---	62	70	---	6	6	
50	500	L	100	---	84	47	---	6	15	
51	500	L	100	---	80	62	---	10	10	
52	300	L	70	---	61	44	---	5	10	
55	500	L	70	---	62+*	40+*	---	8	8+	
60	500	L	70	---	85	95	---	14	8	
61	500	L	50	---	85	58	---	8	10	
62	300	L	100	---	43	30	---	2	8	
63	200	L	100	---	66	44	---	4	10	
64	200	L	100	---	64*	62*	---	5	8	
65	200	L	150	---	54*	52*	---	3	4	
66	700	L	150	---	72*	64*	---	6	8	
67	700	L	150	---	74	61	---	5	6	
68	500	L	100	---	62	54	---	3	6	
84	300	L	100	---	96	74	---	10	10	
85	300	L	70	---	60	75	---	8	4+	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area P--Continued							
						Stream sediments--Continued							
86	7	0.7	2,000	N	10	20	50	200	100	N	100	N	N
87	5	.7	1,500	N	15	30	20	150	70	N	50	15	N
88	5	.7	2,000	N	15	70	30	150	50	7	50	20	100
89	5	.7	2,000	N	L	L	30	150	70	N	70	10	N
90	15	G(1)	3,000	N	N	30	20	300	70	N	70	L	100
91	15	G(1)	3,000	N	30	30	15	200	70	N	70	15	100
92	15	G(1)	2,000	N	10	200	70	500	50	N	100	L	150
93	15	G(1)	1,500	N	10	300	70	500	70	N	100	10	150
94	15	G(1)	1,500	N	50	1,000	70	300	70	N	150	10	100
95	10	1	1,500	N	70	700	70	300	70	N	100	20	100
96	7	1	1,500	N	70	1,500	150	300	70	N	200	10	N
97	15	G(1)	2,000	N	70	1,000	70	300	100	N	150	15	100
98	10	G(1)	1,500	N	100	1,500	70	300	70	N	150	15	N
99	15	G(1)	3,000	N	70	1,000	70	500	100	N	150	15	100
100	15	1	2,000	N	50	70	70	500	100	N	150	10	100
101	10	1	5,000	N	70	1,000	50	200	100	7	100	20	N
						Panned concentrates[37]							
1	20	G(1)	2,000	N	70	30	100	2,000	20	N	300	L	100
4	G(20)	G(1)	2,000	N	100	20	70	2,000	15	N	300	L	100
5	15	.7	1,500	N	50	300	50	2,000	70	N	500	10	L
6	G(20)	G(1)	2,000	N	100	100	100	1,500	20	N	500	L	100
8	20	G(1)	2,000	N	50	30	100	500	50	N	100	N	200
10	15	G(1)	1,000	N	50	L	100	300	20	N	100	N	150
13	20	G(1)	700	N	30	N	100	500	20	N	70	N	L
14[38]	20	G(1)	2,000	N	50	20	100	200	50	N	100	L	200
16[39]	20	G(1)	1,500	N	70	50	100	700	50	N	150	N	200
18	G(20)	G(1)	3,000	1.5	100	30	100	1,500	20	N	500	N	L
21	G(20)	G(1)	1,000	N	150	20	100	1,000	20	N	500	L	L
25[40]	G(20)	G(1)	3,000	2	50	50	100	500	50	N	100	N	100
32	20	G(1)	2,000	N	50	70	100	500	50	N	150	L	200
38	20	G(1)	3,000	N	50	50	70	500	20	N	70	L	100
41[41]	20	G(1)	2,000	N	50	L	150	300	20	N	100	N	100
45[42]	20	G(1)	2,000	N	70	30	100	500	20	N	100	N	100
49	15	G(1)	3,000	N	10	L	30	200	150	N	50	N	100
50	15	G(1)	3,000	N	20	20	30	300	150	N	50	"	100
52[43]	15	G(1)	3,000	30	20	L	30	500	15	N		"	N
60	15	1	1,500	N	10	L	50	300	7		70	L	150
61	15	G(1)	1,500	N	30	L	50	500	150	N	70	N	150
63	20	G(1)	5,000	N	L	N	100	500	200	N	50	N	100
64	20	G(1)	3,000	N	L	L	70	2,000	20	N	50	N	100
84	10	G(1)	3,000	N	20	L	30	150	70	N	50	N	100
86	10	G(1)	3,000	N	10	L	20	150	70	N	50	N	100
90	15	G(1)	3,000	N	L	N	70	200	150	N	30	N	150
93	G(20)	G(1)	5,000	N	L	L	70	2,000	200	N	50	N	L
94	20	G(1)	3,000	1	L	N	50	1,500	20	N	50	N	100
100	15	G(1)	5,000	N	10	70	70	1,500	50	N	50	N	150
						Rock samples[44]							
12	10	1	1,000	N	50	500	50	300	50	N	200	L	700
22	20	1	2,000	5	70	50	100	300	G(2,000)	N	500	N	150
28	.5	.02	70	N	N	L	5	L	10	N	L	N	L
35	7	.2	200	L	15	20	10	30	150	N	10	N	L
53	3	.5	1,500	5	20	70	10	70	70	7	30	30	N

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm) V (10)	Zn (200)	Zr (10)	Chemical analyses AA (ppm) Au (0.02)	Cu (10)	Zn (25)	Inst. (ppm) Hg (0.01)	Colorimetric (ppm) cxHM (0.5)	cxCu (1)	Sample description[1]
							Area P--Continued			
							Stream sediments--Continued			
86	500	L	100	---	76	61	---	6	15	
87	300	N	70	---	85	79	---	4	4	
88	300	N	150	---	49	64	---	6	4	
89	300	L	100	---	74	68	---	6	10	
90	700	L	70	---	73	55	---	5	8	
91	700	L	100	---	55+	56+	---	10	10	
92	700	L	150	---	50*	52*	---	2	4	
93	700	L	70	---	58	53	---	3	6	
94	700	L	300	---	76	84	---	4	4	
95	700	L	200	---	59	84	---	3	3	
96	300	L	150	---	72	100	---	5	2	
97	150	L	150	---	100	100	---	6	8	
98	150	L	150	---	73	110	---	6	4	
99	700	L	150	---	84	94	---	3	6	
100	700	L	100	---	82	90	---	3	8	
101	200	L	200	---	70	120	---	12	2	
							Panned concentrates[37]			
1	500	N	200	0.02	---	---	---	---	---	
4	700	N	1,000	L(.04)	---	---	---	---	---	
5	200	N	100	.8	---	---	---	---	---	
6	1,000	N	300	2.9	---	---	---	---	---	
8	500	N	70	L(.04)	---	---	---	---	---	
10	500	N	100	L(.04)	---	---	---	---	---	
13	300	N	70	.3	---	---	---	---	---	
14[38]	500	N	100	L(.02)	---	---	---	---	---	
16[39]	500	N	100	L(.02)	---	---	---	---	---	
18	1,500	N	500	17	---	---	---	---	---	
21	1,000	N	500	4.1	---	---	---	---	---	
25[40]	1,500	N	200	83	---	---	---	---	---	
32	1,500	N	100	.08	---	---	---	---	---	
38	500	N	200	L(.02)	---	---	---	---	---	
41[41]	500	N	150	2.4	---	---	---	---	---	
45[42]	500	N	150	.04	---	---	---	---	---	
49	300	300	30	L(.02)	---	---	---	---	---	
50	500	300	100	.6	---	---	---	---	---	
52[43]	700	300	300	.2	---	---	---	---	---	
60	500	200	70	L(.02)	---	---	---	---	---	
61	700	500	30	1.7	---	---	---	---	---	
63	300	N	20	L(.02)	---	---	---	---	---	
64	700	N	150	L(.02)	---	---	---	---	---	
84	300	200	30	L(.02)	---	---	---	---	---	
86	700	300	30	3.5	---	---	---	---	---	
90	300	N	20	.8	---	---	---	---	---	
93	700	N	150	96	---	---	---	---	---	
94	500	N	200	400	---	---	---	---	---	
100	300	N	200	.3	---	---	---	---	---	
							Rock samples[44]			
12	150	N	70	L(.02)	---	---	0.01	---	---	Diabase.
22	300	N	70	5	---	---	.08	---	---	
28	20	N	L	L(.02)	---	---	.01	---	---	FeOx st qtz float.
35	150	N	50	L(.02)	---	---	.05	---	---	Qtz vein in amph.
53	300	L	50	1.3	---	---	.24	---	---	12 ft shear McClaron mine.

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
Area P--Continued													
Rock samples[44]--Continued													
54	1	0.07	150	15	N	L	5	N	100	5	5	100	N
55	7	1	1,500	5	L	70	30	150	200	N	50	10	N
56	15	.7	200	N	L	L	30	150	5	N	70	N	100
57	7	.7	2,000	N	L	L	20	150	20	N	30	N	L
58	1.5	.02	70	20	N	L	N	N	300	20	L	150	N
59	3	.5	700	7	15	30	5	50	70	7	20	20	N
69	3	.5	1,500	N	10	L	5	15	20	N	10	N	N
70	7	G(1)	2,000	N	N	L	30	150	70	N	70	N	150
71	1.5	.15	700	N	N	L	5	20	10	N	10	N	N
72	.2	.002	30	N	N	L	5	L	10	N	L	N	N
73	7	3	1,500	N	L	L	5	50	70	N	10	30	N
74	5	.7	2,000	N	L	L	15	50	20	N	30	N	300
75	7	.7	3,000	N	L	L	30	150	30	N	70	N	150
76	.2	.002	70	N	N	L	L	N	7	N	5	N	N
77	L	L	15	N	15	L	L	N	10	N	L	N	N
78	.5	.3	150	N	N	L	5	10	5	N	5	N	N
79	10	1	2,000	N	10	L	30	150	50	N	70	N	100
80	.2	.007	20	N	N	L	L	L	700	N	5	N	N
81	5	1	1,500	1.5	L	L	10	70	20	N	30	N	150
82	.7	.03	100	N	N	L	L	10	5	N	5	N	N
83	5	.7	1,000	N	L	20	15	70	50	N	50	N	100
Area Q													
Stream sediments													
1	2	.3	700	N	L	200	10	70	15	N	20	15	200
2	1.5	.2	700	N	10	200	7	50	15	N	20	15	200
3	2	.2	500	N	10	100	7	70	10	N	20	10	150
4	3	.3	1,000	N	10	200	20	50	20	N	30	15	200
5[45]	3	.5	700	N	10	200	15	50	15	N	20	20	300
6	3	.5	700	N	L	200	15	50	15	N	20	L	200
7	3	.3	1,500	N	10	200	15	50	15	N	20	20	150
8	5	.5	1,000	N	10	500	20	70	15	N	30	10	300
9	1.5	.2	300	N	L	100	N	50	10	N	15	L	100
10	3	.5	1,000	N	15	300	20	70	15	N	30	15	500
11	2	.3	700	N	L	150	10	50	15	N	20	10	100
12	2	.2	700	N	10	200	10	70	15	N	30	10	100
13	3	.3	700	N	10	300	10	50	20	N	20	10	200
14	3	.5	700	N	10	200	15	100	15	N	20	L	300
15	10	1	1,000	N	10	200	30	150	15	N	50	10	300
16	5	.5	700	N	10	200	15	70	30	N	50	15	300
17	5	.5	700	N	10	500	15	70	50	N	50	10	300
18	3	.5	700	N	10	300	10	70	20	N	30	15	500
19	3	.5	700	N	10	300	15	70	15	N	50	10	300
20	5	1	1,000	N	30	200	30	100	20	N	50	10	300
21	10	G(1)	1,000	N	30	200	50	150	50	N	70	10	300
22	7	.7	700	N	20	300	30	150	30	N	50	10	300
23	10	G(1)	1,000	N	30	50	50	150	50	N	70	L	L
25	20	G(1)	3,000	N	30	L	70	300	150	N	100	N	100
26	5	1	3,000	N	10	30	50	300	100	N	150	N	100
27	7	.7	3,000	N	10	70	50	300	70	N	150	N	100
28	7	.7	3,000	N	10	70	50	300	70	N	100	N	100
29	7	1	5,000	N	10	70	50	300	150	N	100	N	100
30	7	1	5,000	N	10	30	50	300	150	N	100	N	100
36	7	G(1)	3,000	N	10	30	50	150	70	N	100	10	100

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
Area P--Continued										
Rock samples[44]--Continued										
54	30	200	N	4.6	---	---	0.60	---	---	"Ore" pile, McClaron mine.
55	700	L	50	2.4	---	---	.18	---	---	15 ft vein, McClaron mine.
56	700	L	50	L(.02)	---	---	.04	---	---	Amph.
57	300	L	30	L(.02)	---	---	.02	---	---	5 ft gouge in amph, McClaron mine.
58	15	300	N	25	---	---	1	---	---	"Ore" pile, McClaron mine.
59	300	N	30	2.8	---	---	.24	---	---	Do.
69	100	N	20	L(.02)	---	---	.04	---	---	Qtz vein in amph.
70	1,000	L	100	L(.02)	---	---	.02	---	---	FeOx st amph.
71	50	N	150	L(.02)	---	---	.04	---	---	Qtz vein in amph.
72	10	N	N	L(.02)	---	---	.04	---	---	Do.
73	200	200	30	L(.02)	---	---	.07	---	---	FeOx gossan in amph.
74	300	N	30	L(.02)	---	---	.02	---	---	Vein qtz in amph.
75	500	N	30	L(.02)	---	---	.03	---	---	FeOx st amph.
76	L	N	N	L(.02)	---	---	.07	---	---	Vein qtz in amph.
77	L	N	N	L(.02)	---	---	.03	---	---	Do.
78	20	N	N	L(.02)	---	---	.04	---	---	Do.
79	700	N	150	L(.02)	---	---	.03	---	---	Amph.
80	N	L	70	100	---	---	.09	---	---	Qtz from dump, Alaska mine.
81	300	N	150	16	---	---	.08	---	---	Dump material, Alaska mine.
82	30	N	N	.6	---	---	.05	---	---	Qtz from dump, Alaska mine.
83	300	L	50	4.8	---	---	.12	---	---	Dump material, Alaska mine.
Area Q										
Stream sediments										
1	150	N	G(1,000)	---	18	48	---	4	1	
2	100	N	500	---	12	42	---	2	1	
3	100	N	G(1,000)	---	18	40	---	2	1	
4	100	N	500	---	20	54	---	4	1	
5[45]	150	N	1,000	---	22	42	---	5	1	
6	150	N	G(1,000)	---	20	42	---	1	1	
7	100	N	100	---	22	58	---	2	1	
8	150	N	G(1,000)	---	24	40	---	1	1	
9	50	N	500	---	19	34	---	2	1	
10	150	N	500	---	INS	INS	---	2	1	
11	100	N	G(1,000)	---	15	44	---	2	1	
12	50	N	200	---	25	52	---	2	1	
13	100	N	500	---	19	40	---	1	1	
14	150	N	G(1,000)	---	19	34	---	1	1	
15	300	N	1,000	---	14	28	---	2	1	
16	150	N	500	---	39	52	---	2	1	
17	150	N	150	---	35	58	---	1	1	
18	150	N	700	---	36	84	---	2	1	
19	150	N	1,000	---	INS	INS	---	2	1	
20	200	N	300	---	45	40	---	2	1	
21	300	N	G(1,000)	---	47	36	---	4	4	
22	200	N	G(1,000)	---	31	36	---	2	1	
23	300	N	150	---	52	42	---	2	3	
25	1,000	200	150	---	74	64	---	4	2	
26	500	L	150	---	61	43	---	5	2	
27	500	L	150	---	60	52	---	6	L	
28	500	L	150	---	60	49	---	5	L	
29	500	L	100	---	61	43	---	4	1	
30	500	L	100	---	43	L	---	2	1	
36	500	L	150	---	72	55	---	5	1	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses												
	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area Q--Continued							
						<u>Stream sediments</u>--Continued							
37	7	0.7	3,000	N	L	100	30	150	70	N	70	30	200
38	5	.7	1,500	N	10	150	50	150	20	N	100	15	300
39	5	.7	1,500	N	10	100	30	150	30	N	70	10	200
40	7	.7	1,500	N	20	30	70	300	70	N	150	N	100
41	7	.7	1,500	N	50	L	70	200	70	N	150	N	100
						<u>Panned concentrates</u>							
11	15	.7	1,000	N	20	300	30	500	10	N	70	10	500
17	15	.5	1,000	N	30	200	30	500	7	N	70	L	300
20	G(20)	G(1)	1,000	N	100	50	50	1,000	10	N	50	N	L
23	20	G(1)	3,000	N	50	L	100	200	70	N	70	L	L
27	15	G(1)	3,000	N	15	L	50	700	150	N	100	N	N
29	15	G(1)	3,000	N	15	L	50	500	100	N	100	N	N
						<u>Rock samples</u>							
24	7	1	3,000	N	L	L	20	150	50	N	50	N	L
26	3	.3	700	N	N	200	7	30	7	N	20	L	500
31	.5	L	L	N	N	500	N	10	7	N	L	N	N
32[46]	3	.2	200	30	L	L	5	20	500	N	15	3,000	N
33[47]	5	G(1)	1,000	5	10	L	20	70	70	N	50	300	N
34	1	.2	150	N	N	L	N	15	20	N	5	N	N
35	1	.15	700	N	N	500	N	10	5	N	L	15	150
						Area R							
						<u>Stream sediments</u>							
2	3	.5	700	N	10	200	30	100	30	N	100	L	500
3	5	G(1)	1,000	N	20	150	50	200	50	N	200	15	300
4	3	.5	700	N	10	100	50	200	20	L	150	10	200
5	3	.7	1,000	N	15	200	50	200	20	N	150	15	200
6	3	1	1,000	N	15	700	30	200	20	5	150	10	200
8	3	1	1,000	N	15	500	30	200	20	L	100	15	300
9	2	1	700	N	10	500	20	150	15	L	70	10	200
10	2	.5	700	N	L	300	20	100	15	N	70	L	200
11	5	1	1,000	N	15	300	30	150	30	L	70	10	300
12	2	.2	700	N	L	100	5	50	10	N	20	10	100
14	3	.3	1,000	N	10	150	15	70	15	N	50	20	200
15	3	.3	700	N	10	150	7	50	10	N	30	30	200
16	3	.5	700	N	10	150	10	100	15	N	30	20	200
17	5	.7	1,000	N	10	500	20	70	10	N	30	10	200
19	20	G(1)	3,000	N	70	200	70	500	70	L	700	L	150
20	10	1	3,000	N	50	300	50	500	70	N	700	10	150
						<u>Panned concentrates</u>							
8	15	G(1)	1,500	N	10	30	50	1,000	15	N	100	L	200
18	20	G(1)	1,500	N	50	70	50	1,000	15	N	70	N	200
19	20	.7	3,000	N	70	700	70	G(5,000)	10	N	1,000	N	L
						<u>Rock samples</u>							
1	7	.5	700	N	L	500	50	150	10	N	100	10	700
7	3	.5	1,000	N	50	5,000	7	100	50	30	30	15	L
8	10	1	1,000	N	10	500	50	100	10	N	200	15	500
13	7	.5	700	N	L	300	30	100	15	N	70	L	700

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses: AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
						Area Q--Continued				
						Stream sediments--Continued				
37	200	N	300	---	50*	120*	---	20	1+	
38	300	N	200	---	18	28	---	5	L	
39	300	L	200	---	30	66	---	6	L	
40	300	L	150	---	65	L	---	4	1	
41	300	L	200	---	36	26	---	2	L	
						Panned concentrates				
11	300	N	300	L(0.05)	---	---	---	---	---	
17	200	N	200	L(.08)	---	---	---	---	---	
20	1,000	N	G(1,000)	L(.5)	---	---	---	---	---	
23	200	N	200	L(2)	---	---	---	---	---	
27	500	300	500	L(.8)	---	---	---	---	---	
29	500	300	500	L(.32)	---	---	---	---	---	
						Rock samples				
24	500	200	100	L(.02)	---	---	0.04	---	---	Amph.
26	150	L	30	L(.02)	---	---	.07	---	---	Qtz dio.
31	L	N	N	.6	---	---	.05	---	---	Qtz, open cut, Globe mine.
32[46]	200	N	20	95	---	---	.20	---	---	Sheared qtz, open cut, Globe mine.
33[47]	500	L	150	3	---	---	.12	---	---	Sheared amph, open cut, Globe mine.
34	30	N	10	.06	---	---	.04	---	---	Qtz vein in amph.
35	30	N	30	.2	---	---	.04	---	---	Alt dac por.
						Area R				
						Stream sediments				
2	100	N	100	---	45	50	---	5	L	
3	200	N	1,000	---	35	56	---	8	L	
4	100	N	200	---	38	36	---	7	1	
5	200	N	700	---	36	48	---	8	1	
6	150	N	300	---	42	86	---	2	1	
8	150	N	300	---	39	82	---	7	1	
9	150	N	1,000	---	33	58	---	2	1	
10	100	N	300	---	33	58	---	2	1	
11	200	N	700	---	27	56	---	4	1	
12	100	N	150	---	37	60	---	5	1	
14	100	N	500	---	INS	INS	---	10	1	
15	100	N	150	---	29	56	---	7	1	
16	150	N	G(1,000)	---	26	40	---	4	1	
17	150	N	700	---	16	46	---	1	1	
19	500	N	300	---	42	48	---	2	1	
20	150	N	150	---	44	66	---	5	1	
						Panned concentrates				
8	200	N	G(1,000)	L(0.08)	---	---	---	---	---	
18	500	N	G(1,000)	L(.12)	---	---	---	---	---	
19	700	300	700	L(.02)	---	---	---	---	---	
						Rock samples				
1	150	N	200	L(.02)	---	---	L	---	---	Quartz diorite.
7	200	N	200	L(.02)	---	---	L	---	---	FeOx st arg.
8	200	N	200	L(.02)	---	---	0.01	---	---	Micaceous qzt.
13	100	N	50	L(.02)	---	---	L	---	---	Quartz diorite.

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
							Area S						
							Stream sediments						
1	3	1	700	N	15	30	30	100	20	N	70	10	L
2	7	G(1)	1,500	N	50	100	50	70	70	N	70	10	L
4	10	G(1)	1,000	N	20	50	50	100	70	N	70	L	L
5	10	G(1)	1,500	L	50	50	70	150	70	N	100	15	L
6	10	G(1)	1,500	L	50	30	70	150	70	N	100	30	L
7	10	G(1)	1,500	N	70	20	70	150	70	N	100	50	L
8	7	G(1)	1,000	N	50	30	50	150	70	N	70	10	L
9	10	G(1)	1,500	L	50	30	70	150	70	N	70	50	L
10	10	G(1)	1,000	1	70	20	70	150	70	N	70	50	L
11	7	G(1)	1,000	5	50	20	50	70	70	N	70	20	L
12	7	G(1)	700	2	20	20	50	100	50	L	70	70	L
13	5	1	700	N	50	20	50	100	20	L	50	15	L
18	7	G(1)	1,500	N	15	100	30	70	50	N	50	L	100
19	20	G(1)	2,000	N	15	70	50	150	50	N	100	L	100
20	15	G(1)	1,500	N	10	30	50	100	50	N	70	L	100
21	20	G(1)	1,500	N	20	30	50	150	50	N	70	L	L
22	7	G(1)	1,000	N	15	20	30	100	15	N	70	L	L
23	1	.2	500	N	10	15	30	50	L	N	30	10	L
24	3	.7	700	N	10	70	50	150	15	N	100	10	100
25	2	.5	500	N	10	50	30	70	15	N	50	L	L
26	3	.3	700	N	10	70	30	100	15	N	50	20	100
27	2	.2	500	N	L	50	20	70	10	N	30	L	L
33	3	.5	700	N	10	100	20	70	10	N	50	15	100
34	2	.2	700	N	L	100	N	30	5	N	10	15	150
35	1	.15	700	N	L	50	N	20	L	N	7	15	L
36	1.5	.3	500	N	L	150	N	30	7	N	20	15	200
40	5	.7	1,000	N	L	700	15	50	10	N	20	20	300
41	10	.5	1,500	1	10	500	20	100	15	N	30	20	300
42	5	.5	1,500	N	L	500	15	70	10	N	15	20	300
							Panned concentrates[48]						
2	20	G(1)	1,000	N	50	50	100	500	70	N	100	N	100
3	20	G(1)	1,000	N	30	N	100	300	15	N	70	N	200
6	15	G(1)	1,500	N	50	L	100	500	50	N	100	L	100
9[49]	15	G(1)	2,000	5	20	L	100	500	50	N	100	10	100
18	15	G(1)	2,000	N	30	20	100	150	70	N	70	L	100
21	20	G(1)	2,000	L	20	20	150	300	500	N	100	N	100
							Rock samples						
14	15	G(1)	1,000	.5	10	L	70	150	50	N	70	L	L
15	15	.7	1,500	1	100	30	70	150	100	N	70	15	L
16	7	.5	1,000	N	30	L	50	100	100	N	50	N	L
17	15	G(1)	1,000	N	10	L	70	100	50	N	70	N	L
28	15	G(1)	1,000	2	10	L	30	100	500	20	50	10	L
29[50]	15	G(1)	1,500	N	20	L	50	150	20	N	70	N	100
30	5	.5	700	N	L	L	20	70	10	N	50	N	L
31	10	1	2,000	N	10	L	70	200	70	N	100	N	L
32	3	.7	700	N	N	500	L	20	10	N	7	10	700
37	15	G(1)	2,000	N	L	N	30	70	100	N	30	N	100
38	5	.3	1,000	N	L	700	10	20	5	N	7	N	200
39	7	.3	1,000	N	L	500	20	50	7	N	15	N	500

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
						Area S				
						Stream sediments				
1	150	N	100	---	63	64	---	7	3	
2	200	N	150	---	81	86	---	5	4	
4	200	N	100	---	69	78	---	8	4	
5	500	N	150	---	INS	INS	---	5	4	
6	300	N	100	---	62	52	---	7	6	
7	300	N	150	---	INS	INS	---	5	4	
8	300	N	150	---	66	54	---	7	4	
9	300	N	150	---	85	70	---	10	8	
10	300	N	150	---	76	56	---	8	8	
11	300	N	150	---	93	76	---	7	8	
12	300	N	150	---	80	62	---	5	1	
13	200	N	150	---	110	44	---	5	15	
18	200	N	100	---	54	76	---	7	4	
19	500	N	100	---	58	86	---	5	3	
20	300	N	100	---	63	82	---	12	6	
21	500	N	150	---	60	98	---	4	4	
22	300	N	150	---	51	60	---	7	4	
23	100	N	50	---	50	58	---	5	1	
24	200	N	150	---	38	40	---	4	1	
25	150	N	100	---	43	32	---	4	L	
26	150	N	70	---	24	34	---	5	1	
27	100	N	100	---	INS	INS	---	4	1	
33	150	N	300	---	20	44	---	2	1	
34	100	N	200	---	10	74	---	5	1	
35	50	N	15	---	INS	INS	---	7	INS	
36	100	N	105	---	11	68	---	5	1	
40	150	N	300	---	16*	46*	---	3	2	
41	200	N	500	---	20	45	---	5	1	
42	150	N	200	---	20	53	---	3	1	
						Panned concentrates[48]				
2	300	N	20	0.2	---	---	---	---	---	
3	200	N	150	2.5	---	---	---	---	---	
6	500	N	150	4.8	---	---	---	---	---	
9[49]	500	N	100	22	---	---	---	---	---	
18	300	N	150	1.6	---	---	---	---	---	
21	500	N	150	L(.02)	---	---	---	---	---	
						Rock samples				
14	500	N	100	.04	---	---	0.03	---	---	Shear zone, Globe mine.
15	300	N	70	.4	---	---	.05	---	---	Do.
16	200	N	150	L(.02)	---	---	L	---	---	FeOx st amph. Globe mine.
17	300	N	150	L(.02)	---	---	.02	---	---	Do.
28	300	500	150	.04	---	---	1.1	---	---	Act sch; qtz veinlets.
29[50]	500	N	200	L(.02)	---	---	1	---	---	Frac in amph.
30	150	N	100	L(.02)	---	---	L	---	---	Qtz vein with FeOx.
31	300	N	100	L(.02)	---	---	.01	---	---	Amph.
32	150	N	30	L(.02)	---	---	.04	---	---	Qd.
37	500	N	150	L(.02)	---	---	.10	---	---	Amph.
38	70	N	100	95	---	---	.20	---	---	Dac por.
39	150	N	100	3	---	---	.12	---	---	Qd.

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area T							
						Stream sediments							
1	7	0.3	700	N	10	200	70	700	20	L	700	10	200
2	7	.2	1,000	N	10	100	100	2,000	15	L	1,500	L	L
3	7	.2	1,000	N	10	70	70	1,500	15	L	1,500	L	100
4	7	.2	1,000	N	15	100	100	2,000	15	L	2,000	L	100
5	7	.3	1,000	N	15	70	100	1,500	10	5	2,000	L	100
6	10	.3	1,000	N	20	100	100	2,000	20	L	2,000	L	150
7	5	G(1)	1,000	N	20	1,000	30	200	50	L	300	15	200
8	5	.2	1,000	N	10	200	50	1,000	20	N	1,000	10	150
9	3	.5	700	N	L	700	30	150	20	10	100	10	100
10	7	.5	1,000	N	20	500	70	1,500	30	L	1,500	10	200
11	10	.7	1,000	N	15	500	100	2,000	50	L	2,000	L	150
12	7	.7	1,000	N	20	500	100	1,500	20	L	1,500	10	150
13	7	.5	1,000	N	15	300	100	1,500	20	L	1,500	L	150
14	7	.5	70	N	15	300	100	2,000	20	L	1,500	L	100
15	10	.7	1,500	N	70	1,000	50	500	50	N	700	10	150
18	15	G(1)	1,500	N	70	1,500	70	700	70	5	1,000	15	200
19	15	1	1,500	N	100	2,000	50	500	70	L	700	15	100
20	10	G(1)	2,000	N	70	700	50	700	50	5	700	20	200
21	10	G(1)	2,000	N	50	500	70	700	20	L	1,000	10	200
22	10	1	2,000	N	70	500	70	500	50	L	1,000	15	200
23	20	G(1)	2,000	N	70	700	70	1,000	50	L	1,500	15	200
25	5	.15	700	N	10	50	30	1,500	10	N	1,000	L	L
26	7	.15	700	N	10	70	70	2,000	10	N	2,000	10	L
27	10	.1	1,500	N	10	30	70	3,000	10	N	2,000	10	L
28	2	.2	200	N	L	100	30	500	10	N	700	L	100
29	3	.15	700	N	10	100	50	700	15	N	1,000	10	200
30	5	.15	700	N	10	100	70	1,000	15	N	1,000	10	100
31	7	.15	1,000	N	10	100	100	2,000	15	N	1,500	10	100
32	5	.15	500	N	15	50	70	2,000	15	N	1,000	L	L
33	7	.15	1,000	N	15	70	100	1,500	10	N	1,500	L	L
34	5	.15	1,000	N	10	100	70	1,000	15	N	1,500	10	100
35	7	.2	1,000	N	10	70	100	2,000	15	N	2,000	L	100
36	7	.2	1,000	N	20	100	70	1,500	20	N	2,000	L	100
38	7	.2	1,000	N	20	200	70	1,500	20	N	2,000	L	L
39	7	.3	700	N	20	500	70	1,500	20	L	2,000	L	100
40	7	.5	700	N	20	500	70	2,000	20	L	2,000	L	100
41	7	.3	700	N	20	700	50	1,000	20	5	1,000	10	L
42	10	1	2,000	N	50	1,500	50	500	70	L	1,000	10	L
43	15	1	3,000	N	50	500	70	700	70	N	1,000	10	150
44	5	1	2,000	N	50	500	50	1,000	70	L	1,000	15	L
45	7	1	1,500	N	20	300	70	700	20	N	1,000	10	150
46	5	1	1,500	N	50	500	50	700	50	N	1,000	L	150
47[51]	5	G(1)	1,500	N	50	2,000	30	200	100	10	200	20	L
48	7	G(1)	1,500	N	50	500	50	700	70	N	1,000	10	200
49	7	1	1,500	N	50	700	70	1,000	50	N	1,500	L	200
50	10	G(1)	1,500	N	30	500	70	700	200	N	1,000	10	200
51	10	G(1)	1,500	N	30	500	70	500	50	N	700	10	150
52	7	.3	1,500	N	50	150	70	1,000	50	N	1,500	L	L
53	10	.5	1,500	N	100	200	100	1,500	50	N	2,000	10	L
54	3	.3	1,000	N	30	150	70	700	20	N	1,000	10	L
55	5	.5	1,000	N	20	200	70	1,000	70	N	1,000	10	100
56	10	G(1)	2,000	N	100	500	50	200	100	N	200	10	L
57	10	G(1)	1,500	N	50	500	70	500	20	L	700	10	150

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
							Area T			
							Stream sediments			
1	150	N	150	---	29	60	---	5	1	
2	100	N	70	---	15	50	---	8	1	
3	100	N	150	---	14	48	---	7	1	
4	100	N	70	---	17	54	---	10	1	
5	100	N	70	---	13	44	---	10	1	
6	100	N	100	---	18	42	---	7	1	
7	200	N	200	---	55	100	---	4	1	
8	100	N	150	---	25	60	---	4	1	
9	100	N	150	---	80	130	---	2	2	
10	150	N	200	---	35	72	---	5	1	
11	150	N	200	---	32	72	---	5	1	
12	150	N	200	---	42	80	---	5	1	
13	100	N	300	---	32	70	---	4	L	
14	150	N	200	---	30	64	---	2	1	
15	150	N	100	---	46	82	---	10	1	
18	200	N	1,000	---	52	98	---	16	1	
19	150	N	150	---	56	110	---	14	1	
20	200	N	1,000	---	42	84	---	16	1	
21	200	N	300	---	42	74	---	4	1	
22	200	N	300	---	38	70	---	4	1	
23	200	N	G(1,000)	---	37	64	---	4	1	
25	50	N	20	---	15	56	---	5	1	
26	70	N	20	---	17	68	---	5	1	
27	50	N	15	---	17	60	---	8	1	
28	50	N	70	---	14	88	---	14	1	
29	50	N	70	---	22	62	---	16	1	
30	50	N	100	---	18	66	---	12	1	
31	50	N	70	---	19	66	---	8	1	
32	100	N	30	---	16	54	---	5	1	
33	70	N	20	---	14	58	---	10	1	
34	50	N	70	---	17	62	---	10	1	
35	50	N	70	---	18	62	---	7	1	
36	50	N	70	---	20	62	---	7	1	
38	50	N	50	---	33	80	---	7	1	
39	70	N	100	---	40	78	---	7	1	
40	100	N	70	---	34	82	---	5	1	
41	70	N	70	---	44	94	---	8	3	
42	200	N	200	---	INS	INS	---	8	2	
43	150	N	300	---	43	70	---	5	1	
44	150	N	150	---	59	110	---	5	1	
45	150	N	300	---	34	60	---	5	2	
46	150	N	150	---	41	72	---	8	1	
47[51]	200	N	200	---	97	160	---	10	6	
48	200	N	300	---	45	86	---	12	1	
49	200	N	300	---	31	58	---	2	3	
50	500	N	200	---	68+	60+	---	5	6	
51	200	N	200	---	48	68	---	4	2	
52	70	N	70	---	30	60	---	7	1	
53	100	N	70	---	29	64	---	8	1	
54	150	N	70	---	57	68	---	5	1	
55	150	N	100	---	56	62	---	5	1	
56	500	N	150	---	65	90	---	3	1	
57	200	N	200	---	49	76	---	3	3	

Table 1.--*Analyses of samples from the Salmon-*

Sample	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area T--Continued							
						Panned concentrates							
6	20	0.5	700	N	50	L	100	G(5,000)	5	N	2,000	N	L
10	20	.7	2,000	N	50	100	100	G(5,000)	7	N	2,000	L	L
14	15	.7	2,000	N	20	700	100	G(5,000)	10	N	2,000	L	L
18	G(20)	1	3,000	N	50	500	70	G(5,000)	15	N	1,500	L	100
22	G(20)	.5	2,000	N	70	200	50	G(5,000)	10	N	1,000	L	L
39	20	.3	1,000	N	10	200	150	G(5,000)	10	N	2,000	N	L
42	20	.3	2,000	N	20	100	100	G(5,000)	15	N	3,000	N	L
45	G(20)	G(1)	2,000	N	100	150	100	G(5,000)	500	N	1,500	L	L
49	20	1	2,000	N	70	500	70	G(5,000)	5	N	1,000	L	L
57	20	1	2,000	N	20	300	100	G(5,000)	30	N	1,000	N	L
						Rock samples							
10[S2]	20	1	1,500	5	20	1,000	100	200	500	L	30	L	150
16	7	.7	1,000	.5	30	2,000	30	150	100	30	150	15	200
17	5	.3	700	N	50	G(5,000)	20	70	70	N	100	20	L
24	7	.15	1,000	N	15	50	100	1,500	L	N	1,500	N	L
37	10	.3	500	N	100	5,000	5	70	20	10	20	20	100
						Area U							
						Stream sediments							
2	7	.2	700	N	10	150	70	1,500	10	N	1,000	10	100
3	7	.3	1,000	N	10	100	70	1,000	20	L	1,000	10	100
4	5	.3	700	N	10	100	50	500	15	N	500	10	100
5	10	.5	700	N	10	70	70	1,000	15	N	1,000	L	L
6	7	.5	700	N	10	150	70	1,000	20	N	1,500	L	100
7	7	.3	700	N	10	70	70	1,000	10	N	1,500	L	L
8	7	.3	1,500	N	L	200	50	2,000	15	N	2,000	10	150
9	7	.5	1,500	N	L	200	50	1,500	20	N	100	10	200
10	7	.5	700	N	15	70	70	1,000	15	N	1,000	L	100
11	7	.7	1,500	N	L	200	50	1,500	20	N	700	10	200
12	3	.3	700	N	L	100	30	500	15	N	500	10	100
13	7	.3	1,500	N	10	300	50	1,500	30	N	1,000	20	150
14	7	.5	2,000	N	L	500	50	1,500	30	N	700	20	200
15	7	G(1)	2,000	N	L	700	20	200	30	N	50	15	300
16	7	.7	2,000	N	10	500	50	1,500	30	N	500	15	200
17	7	.7	2,000	N	10	500	50	1,500	30	N	700	15	200
20	7	.15	1,000	N	10	70	150	2,000	15	N	2,000	10	L
						Panned concentrates							
7	G(20)	.5	700	N	15	L	150	G(5,000)	20	N	5,000	N	L
16	G(20)	1	2,000	N	N	L	70	G(5,000)	5	N	5,000	N	L
						Rock samples							
1	7	.7	1,000	N	10	1,000	30	70	7	N	30	10	700
18	7	.3	1,500	N	10	500	70	1,000	20	N	1,000	L	500
19	7	.03	1,000	N	10	N	100	200	20	N	2,000	N	L
21	7	.7	1,000	N	15	300	50	100	10	N	50	L	500
22	10	.5	2,000	N	15	100	50	200	500	N	70	L	200
23	10	G(1)	1,000	N	20	200	50	150	50	N	70	L	700

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
							Area T--Continued			
							Panned concentrates			
6	200	300	100	0.04	---	---	---	---	---	
10	500	300	20	.2	---	---	---	---	---	
14	150	200	70	.02	---	---	---	---	---	
18	500	N	G(1,000)	6.4	---	---	---	---	---	
22	700	300	200	L(.02)	---	---	---	---	---	
39	150	300	70	.4	---	---	---	---	---	
42	150	300	15	L(.04)	---	---	---	---	---	
45	1,500	N	G(1,000)	L(.02)	---	---	---	---	---	
49	1,000	N	G(1,000)	.8	---	---	---	---	---	
57	500	300	1,000	.1	---	---	---	---	---	
							Rock samples			
105[2]	700	N	10	L(.02)	---	---	0.01	---	---	Alt micaceous qzt.
16	150	N	150	L(.02)	---	---	.01	---	---	Shear zone with qtz.
17	50	N	150	L(.02)	---	---	.02	---	---	Micaceous qzt.
24	50	N	15	L(.02)	---	---	.11	---	---	Serp.
37	100	N	150	L(.02)	---	---	.50	---	---	Alt phyl with py.
							Area U			
							Stream sediments			
2	100	N	70	---	17	54	---	4	1	
3	100	N	150	---	29	64	---	5	1	
4	100	N	200	---	24	56	---	4	1	
5	100	N	300	---	18	46	---	4	1	
6	100	N	200	---	21	52	---	5	1	
7	100	N	70	---	21	48	---	4	1	
8	100	N	150	---	23	42	---	1	1	
9	100	N	150	---	42*	46*	---	6	4	
10	150	N	70	---	16	36	---	4	1	
11	150	N	150	---	27	30	---	3	4	
12	70	N	100	---	24	36	---	2	1	
13	100	N	100	---	37	60	---	2	2	
14	150	N	100	---	51	57	---	2	4	
15	200	N	200	---	37	39	---	6	6	
16	150	N	100	---	61	57	---	5	4	
17	150	N	100	---	50	56	---	3	3	
20	50	N	15	---	22	82	---	10	1	
							Panned concentrates			
7	700	500	200	.02	---	---	---	---	---	
16	300	300	100	L(.04)	---	---	---	---	---	
							Rock samples			
1	150	N	150	L(.02)	---	---	.30	---	---	Qd.
18	100	N	70	.02	---	---	.12	---	---	Serp.
19	20	N	N	L(.02)	---	---	.18	---	---	Do.
21	200	N	150	L(.02)	---	---	.06	---	---	Qd.
22	200	N	70	L(.02)	---	---	L	---	---	FeOx st amph.
23	300	N	100	L(.02)	---	---	.05	---	---	Qd.

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Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses												
	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
							Area V						
							Stream sediments						
1	10	0.15	1,000	N	20	50	100	1,000	15	N	2,000	10	L
2	3	.15	700	N	15	50	50	700	7	N	1,000	L	L
3	7	.15	1,000	N	15	30	100	1,000	7	N	2,000	L	L
4	7	.3	1,000	N	30	70	50	700	15	L	1,000	10	100
5	10	.2	1,000	N	20	50	70	1,500	15	N	2,000	L	L
6	10	.3	1,000	N	50	100	70	2,000	15	L	2,000	10	100
7	10	.5	1,500	N	100	100	100	1,500	30	N	150	10	100
8	5	.3	1,000	N	50	100	50	1,000	15	L	1,500	10	100
9	7	.5	1,000	N	50	150	70	1,500	50	N	2,000	L	150
10	5	.5	700	N	10	100	100	1,000	7	N	1,000	L	200
11	5	.5	1,000	N	50	100	50	500	30	N	1,000	L	100
12	7	.5	1,500	N	15	200	50	1,500	20	N	1,000	L	100
13	10	.5	1,500	N	15	200	50	1,000	20	N	1,500	L	100
14	7	.3	700	N	10	200	50	700	15	N	700	L	300
15	5	.5	700	N	10	150	50	500	15	N	500	L	200
16	10	.5	1,000	N	70	100	100	1,000	20	N	1,500	L	100
17	10	.3	1,000	N	50	100	100	1,500	30	N	1,500	L	100
18	10	.3	1,000	N	50	100	100	1,500	15	N	1,500	L	100
19	5	.15	500	N	20	50	70	500	15	N	700	10	L
20	7	.3	700	N	30	100	100	1,500	15	N	1,500	10	150
22	7	.3	700	N	15	100	70	1,500	15	N	1,000	L	100
23	7	.5	700	N	10	50	70	1,500	15	N	1,000	L	L
24	5	.3	700	N	L	50	70	1,500	15	N	1,000	L	L
25	10	.3	1,000	N	10	50	100	3,000	15	N	2,000	L	L
26	10	.3	1,000	N	10	50	70	5,000	15	N	2,000	L	L
27	20	.5	1,000	N	30	100	150	3,000	20	N	2,000	10	L
28	10	.3	700	N	10	50	70	3,000	15	N	1,500	10	L
29	15	.5	1,000	N	50	70	150	2,000	20	N	2,000	L	L
33	3	.2	1,000	N	30	70	30	150	15	N	500	10	100
34	7	.7	1,500	N	100	200	70	500	20	N	1,000	20	300
35	10	.7	1,500	N	30	200	100	1,000	70	N	1,500	15	200
36	7	.5	1,000	N	50	200	50	500	30	N	1,000	15	200
37	3	.3	700	N	20	100	50	300	15	N	700	10	150
38	3	.2	500	N	10	100	50	700	15	N	1,000	10	100
39	7	.3	1,500	N	50	150	100	1,000	15	N	1,000	10	200
40	7	.5	1,000	N	50	150	100	1,000	20	N	1,000	10	200
41	7	.5	1,000	N	50	100	100	1,000	20	N	1,000	10	200
42	7	.5	1,000	N	30	150	100	1,500	20	N	1,500	10	150
43	5	.2	700	N	50	100	70	700	20	N	1,000	10	200
44	7	.3	700	N	15	50	50	1,500	10	N	1,000	L	L
45	10	.3	1,000	N	30	100	100	2,000	15	N	1,500	L	L
46	10	.3	1,000	N	30	70	100	5,000	7	N	2,000	L	L
47	10	.3	1,000	N	20	70	100	2,000	15	N	2,000	10	L
48	10	.3	1,000	N	30	70	100	3,000	15	N	2,000	L	L
49	10	.3	1,000	N	15	70	70	2,000	20	N	2,000	10	L
50	10	.3	1,000	N	10	100	70	1,000	20	N	2,000	15	100
51	5	.2	700	N	20	50	70	1,500	15	N	2,000	L	L
52	7	.3	700	N	10	70	50	200	10	N	1,000	L	L
53	3	.15	700	N	15	30	70	2,000	20	N	1,000	L	L
54	5	.15	1,000	N	L	70	50	500	10	N	700	10	L
55	10	.7	1,000	N	10	200	50	1,500	10	N	700	10	200
56	10	.3	1,000	N	10	150	100	1,000	30	N	2,000	10	100
57	10	.3	1,000	N	15	100	70	1,000	15	N	1,000	L	100
58	10	.3	1,000	N	10	100	50	700	15	N	1,000	10	100
59	10	.3	1,500	N	10	100	100	700	15	N	1,500	15	100

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
					Area V					
					Stream sediments					
1	70	N	70	---	22	60	---	10	1	
2	30	N	20	---	12	58	---	5	1	
3	70	N	20	---	18	64	---	12	1	
4	70	N	100	---	33	72	---	8	1	
5	70	N	50	---	22	56	---	10	H	
6	100	N	70	---	27	66	---	7	1	
7	150	N	100	---	29	64	---	8	1	
8	70	N	150	---	30	68	---	10	1	
9	150	N	500	---	27	58	---	5	2	
10	100	N	150	---	L	32	---	1	H	
11	150	N	200	---	29	60	---	5	1	
12	70	N	150	---	32	66	---	5	1	
13	300	N	150	---	33	68	---	5	1	
14	150	N	300	---	34	62	---	4	1	
15	100	N	500	---	39	66	---	2	1	
16	150	N	100	---	28	62	---	10	1	
17	150	N	100	---	24	50	---	5	1	
18	100	N	200	---	21	46	---	5	1	
19	50	N	15	---	20	44	---	10	1	
20	70	N	200	---	20	54	---	10	1	
22	100	N	150	---	22	44	---	5	1	
23	1,500	N	200	---	22	48	---	5	1	
24	100	N	70	---	18	38	---	5	1	
25	100	N	200	---	17	38	---	4	1	
26	100	N	200	---	17	36	---	7	1	
27	150	N	300	---	18	34	---	4	1	
28	100	N	200	---	20	38	---	5	1	
29	150	N	300	---	23	40	---	4	1	
33	100	N	70	---	47	92	---	7	H	
34	150	N	200	---	46	90	---	5	1	
35	150	N	200	---	59	100	---	5	1	
36	100	N	150	---	43	94	---	7	1	
37	70	N	50	---	41	84	---	10	L	
38	100	N	70	---	41	68	---	5	1	
39	150	N	100	---	38	66	---	7	1	
40	150	N	200	---	33	66	---	7	1	
41	100	N	100	---	30	54	---	5	1	
42	100	N	150	---	30	56	---	2	1	
43	50	N	50	---	29	52	---	7	3	
44	150	N	100	---	12	44	---	22	1	
45	150	N	150	---	23	42	---	5	1	
46	150	N	150	---	L	44	---	4	1	
47	150	N	50	---	21	40	---	14	1	
48	150	N	50	---	19	36	---	5	1	
49	150	N	100	---	19	42	---	5	1	
50	100	N	200	---	20	60	---	7	1	
51	50	N	100	---	20	56	---	5	1	
52	100	N	150	---	17	60	---	4	1	
53	50	N	70	---	19	46	---	8	1	
54	70	N	100	---	18	60	---	12	1	
55	150	N	G(1,000)	---	11	48	---	5	1	
56	150	N	300	---	33	62	---	8	2	
57	150	N	300	---	12+	42+	---	10+	L+	
58	100	N	150	---	20	60	---	7	1	
59	100	N	200	---	19	66	---	10	1	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses												
	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area V--Continued							
						Stream sediments--Continued							
60	5	0.3	1,000	N	10	100	50	500	10	N	1,000	10	L
61	5	.3	700	N	L	100	70	500	10	N	500	10	100
62	7	.5	700	N	10	100	70	1,000	7	N	700	L	100
63	5	.3	700	N	15	150	50	500	15	N	500	15	100
64	5	.5	700	N	15	100	50	500	10	N	700	10	200
						Panned concentrates							
5	G(20)	.2	1,000	N	200	20	200	G(5,000)	10	N	G(5,000)	N	L
8	G(20)	.3	1,000	N	150	20	200	G(5,000)	15	N	G(5,000)	N	L
20	G(20)	.5	1,000	N	15	20	200	G(5,000)	15	N	5,000	N	L
24	20	G(1)	1,500	N	10	30	100	G(5,000)	20	N	1,000	N	L
27	G(20)	1	1,000	N	20	L	100	G(5,000)	20	N	1,500	N	L
28	G(20)	G(1)	700	N	15	L	150	G(5,000)	10	N	2,000	N	L
39	20	1	1,500	N	15	50	150	G(5,000)	15	N	1,000	N	100
43	20	.7	1,500	N	15	20	200	G(5,000)	20	N	5,000	N	L
45	G(20)	.5	1,000	N	20	L	150	G(5,000)	15	N	2,000	N	L
49	G(20)	.7	1,500	N	20	L	200	G(5,000)	15	N	3,000	N	L
50	G(20)	.3	1,000	N	10	20	150	G(5,000)	50	N	2,000	N	L
57	15	.3	1,000	N	10	70	100	G(5,000)	7	N	1,500	N	150
						Rock samples							
21	10	.7	1,000	N	10	70	30	100	70	N	50	L	200
30	5	.3	700	N	L	500	30	70	7	N	70	10	500
31	10	.7	1,000	N	L	150	70	300	20	N	100	N	500
32	10	.03	1,000	N	10	L	150	2,000	15	N	3,000	N	N
51	10	.05	1,000	N	10	N	150	5,000	5	N	2,000	N	N
						Area W							
						Stream sediments							
3	5	.5	1,000	N	30	150	30	300	20	N	500	L	150
4	10	.3	2,000	N	20	100	100	700	50	N	1,500	10	100
5	3	.3	1,000	N	20	200	30	150	15	N	200	10	150
6	3	.3	1,000	N	10	200	30	100	20	N	200	15	200
7	5	.5	1,000	N	30	200	50	200	30	N	500	10	200
8	5	.3	1,000	N	20	200	30	300	15	N	300	15	200
9	5	.5	1,000	N	20	200	30	200	20	N	300	10	200
10	7	.2	1,000	N	10	50	70	1,000	10	N	1,500	10	L
11	7	.2	1,000	N	10	50	100	1,000	20	N	1,500	L	L
12	7	1	1,000	N	20	200	30	500	20	L	300	10	300
13	7	.7	1,000	N	15	150	50	1,000	20	N	700	10	150
15	7	.7	1,000	N	20	200	50	100	20	N	700	10	200
16	10	.5	1,000	N	20	150	50	1,000	20	N	700	10	200
17	7	.5	700	N	10	100	30	500	15	N	500	L	200
						Panned concentrates							
6	20	1	1,000	N	20	100	50	G(5,000)	10	N	700	L	200
9	20	1	1,000	N	50	150	50	3,000	30	N	500	L	300
14	G(20)	.5	1,000	N	150	20	100	G(5,000)	10	N	1,500	N	L
						Rock samples							
1	7	.7	1,000	N	15	300	30	50	15	N	20	10	500
2	7	1	1,000	N	20	500	30	50	50	N	30	10	500

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
						Area V--Continued				
						Stream sediments--Continued				
60	100	N	200	---	15	72	---	10	1	
61	100	N	200	---	21	70	---	7	1	
62	150	N	500	---	12	40	---	7	1	
63	150	N	200	---	35	82	---	12	1	
64	150	N	150	---	23	58	---	5	1	
						Panned concentrates				
5	300	2,000	N	0.08	---	---	---	---	---	
8	300	2,000	70	L(.04)	---	---	---	---	---	
20	200	500	300	9.6	---	---	---	---	---	
24	300	300	200	L(.02)	---	---	---	---	---	
27	1,000	500	G(1,000)	L(.08)	---	---	---	---	---	
28	1,000	500	G(1,000)	17	---	---	---	---	---	
39	200	500	50	25	---	---	---	---	---	
43	200	700	30	.2	---	---	---	---	---	
45	300	700	700	L(.08)	---	---	---	---	---	
49	700	700	700	L(.04)	---	---	---	---	---	
50	200	200	200	.02	---	---	---	---	---	
57	200	L	150	L(.04)	---	---	---	---	---	
						Rock samples				
21	300	N	20	.02	---	---	0.20	---	---	FeOx st gr dike and amph.
30	100	N	100	.02	---	---	.01	---	---	Qd.
31	300	N	100	L(.02)	---	---	.01	---	---	Do.
32	50	N	N	.02	---	---	.02	---	---	Sch serp.
51	50	N	N	L(.02)	---	---	.01	---	---	Serp.
						Area W				
						Stream sediments				
3	150	N	300	---	26	46	---	4	1	
4	150	N	70	---	35	52	---	10	1	
5	100	N	200	---	21	52	---	5	H	
6	150	N	G(1,000)	---	23	44	---	4	1	
7	150	N	700	---	34	56	---	4	L	
8	100	N	150	---	17+	38+	---	5	1	
9	150	N	200	---	23	40	---	10	1	
10	150	N	70	---	19	56	---	14	1	
11	100	N	100	---	21	36	---	10	1	
12	200	N	200	---	21	32	---	5	1	
13	150	N	200	---	22	36	---	4	L	
15	200	N	200	---	23	36	---	2	L	
16	200	N	500	---	22	34	---	4	1	
17	150	N	100	---	28	38	---	5	1	
						Panned concentrates				
6	1,000	N	G(1,000)	L(.05)	---	---	---	---	---	
9	700	N	G(1,000)	.04	---	---	---	---	---	
14	1,000	N	G(1,000)	.6	---	---	---	---	---	
						Rock samples				
1	150	N	100	L(.02)	---	---	.08	---	---	Qd.
2	150	N	50	L(.02)	---	---	.04	---	---	Do.

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent) Fe (0.05)	Ti (0.002)	(ppm) Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area X							
						Stream sediments							
1	1.5	0.2	300	N	L	100	5	100	7	N	100	L	100
2	2	.2	500	N	L	100	20	300	5	N	200	L	100
3	7	.3	1,000	N	10	100	50	700	15	N	500	10	200
4	10	.5	1,000	N	10	200	50	1,000	15	N	500	10	300
5	7	.5	700	N	L	150	50	500	15	N	500	L	200
6	7	.5	700	N	10	70	50	200	20	N	200	L	100
7	7	.3	700	N	L	50	50	150	20	N	150	10	100
8	7	.5	1,000	N	10	100	50	150	15	N	150	10	200
9	7	.7	700	N	10	200	50	150	20	N	150	10	200
10	5	.7	700	N	10	200	30	100	15	N	100	10	200
						Panned concentrates							
4	G(20)	G(1)	1,500	N	50	100	70	G(5,000)	15	N	1,000	N	100
10	G(20)	G(1)	1,500	N	30	70	70	G(5,000)	10	N	1,000	N	100
						Area Y							
						Stream sediments							
1	7	.3	1,000	N	10	50	70	1,500	20	N	1,000	L	L
2	7	.3	1,000	N	15	70	70	1,500	20	N	1,000	L	L
3	7	.2	700	N	15	50	70	700	15	N	1,000	L	L
4	5	.3	1,500	N	L	200	20	500	20	N	200	10	300
5	7	.2	1,000	N	10	100	70	700	20	N	100	L	L
6	7	.3	1,000	N	15	150	50	1,000	20	N	1,000	L	100
7	10	.5	1,500	N	10	150	70	1,000	15	N	1,500	N	100
8	7	.2	700	N	20	50	70	1,000	15	N	2,000	L	L
9	5	.7	700	N	30	100	30	500	10	N	1,000	10	150
10	7	.5	1,500	N	30	150	70	1,000	20	N	2,000	10	150
11	7	.15	700	N	L	200	70	1,500	10	N	1,000	L	200
12	7	.2	700	N	L	200	70	2,000	15	N	1,000	L	150
13	7	.2	700	N	15	200	70	5,000	10	N	700	L	150
19	10	.2	700	N	30	150	70	2,000	10	N	1,500	L	150
20	10	.2	700	N	20	150	70	2,000	7	N	1,500	L	150
21	10	.15	700	N	20	150	70	2,000	10	N	1,500	L	150
22	7	.2	700	N	L	200	70	2,000	10	N	1,000	L	150
23	10	.2	700	N	10	200	70	2,000	15	N	1,000	L	150
24	10	.3	700	N	70	300	50	1,500	15	N	500	10	300
25	10	.2	700	N	10	300	70	1,500	15	N	1,000	L	200
26	10	.2	700	N	10	300	70	2,000	15	N	1,000	L	200
27	10	.2	700	N	20	200	70	2,000	10	N	700	L	150
28	10	.2	700	N	30	200	70	2,000	15	N	1,000	L	150
32	10	.3	700	N	50	300	50	700	20	N	300	L	200
33	10	.3	700	N	30	300	50	1,500	15	N	700	L	200
34	10	.5	1,500	N	30	200	70	500	50	N	1,000	10	100
35	10	.2	700	N	L	150	70	2,000	10	N	1,000	L	150
36	10	.2	700	N	L	150	70	2,000	7	N	1,000	L	150
37	10	.2	700	N	L	200	70	2,000	10	N	1,500	L	150
38	10	.2	700	N	L	200	50	5,000	5	N	500	L	150
39	10	.3	700	N	L	200	70	1,500	10	N	1,500	L	150
40	15	.3	700	N	L	200	70	3,000	10	N	1,000	L	150
41	10	.2	700	N	L	150	70	2,000	15	N	1,000	L	150
42	15	.3	700	N	L	100	70	G(5,000)	10	N	1,000	L	150
43	7	.3	700	N	15	70	70	1,500	15	N	1,000	L	L
44	3	.5	700	N	10	300	30	1,000	15	N	300	10	100
45	7	.2	700	N	15	100	70	2,000	15	N	1,500	10	L

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm) V (10)	Zn (200)	Zr (10)	Chemical analyses AA (ppm) Au (0.02)	Cu (10)	Zn (25)	Inst. (ppm) Hg (0.01)	Colorimetric (ppm) cxHM (0.5)	cxCu (1)	Sample description[1]
						Area X				
						Stream sediments				
1	50	N	100	---	L+	28	---	5	1	
2	50	N	G(1,000)	---	12	38	---	2	1	
3	150	N	300	---	16	46	---	4	1	
4	150	N	G(1,000)	---	10+	28+	---	4	1	
5	100	N	300	---	20	44	---	2	1	
6	150	N	200	---	34	36	---	2	1	
7	150	N	150	---	33	38	---	2	1	
8	150	N	150	---	28	46	---	4	1	
9	150	N	200	---	20	42	---	4	1	
10	150	N	G(1,000)	---	23	44	---	2	1	
						Panned concentrates				
4	1,500	N	G(1,000)	L(0.1)	---	---	---	---	---	
10	1,500	N	G(1,000)	L(.04)	---	---	---	---	---	
						Area Y				
						Stream sediments				
1	100	N	50	---	23	44	---	7	1	
2	100	N	150	---	22	52	---	8	2	
3	70	N	30	---	26	66	---	10	3	
4	100	N	150	---	18	L	---	1	1	
5	100	N	200	---	22	46	---	4	L	
6	100	N	500	---	21	52	---	5	1	
7	150	N	150	---	18	32	---	5	1	
8	70	N	20	---	24	62	---	10	1	
9	100	N	150	---	30	92	---	10	1	
10	150	N	150	---	32	64	---	12	1	
11	70	N	30	---	28	34	---	4	L	
12	70	N	70	---	33	36	---	4	1	
13	100	N	150	---	39	49	---	4	1	
19	70	N	30	---	25	63	---	4	1	
20	70	N	50	---	24	59	---	4	1	
21	70	N	30	---	22	51	---	5	1	
22	100	N	30	---	46	51	---	4	1	
23	100	N	50	---	43	51	---	2	1	
24	100	N	70	---	43	72	---	4	1	
25	100	N	50	---	39	50	---	4	1	
26	100	N	150	---	42	52	---	4	1	
27	100	N	150	---	34	52	---	5	1	
28	100	N	150	---	40	56	---	5	1	
32	150	N	100	---	59	73	---	4	2	
33	100	N	150	---	48	61	---	4	1	
34	100	N	200	---	54	74	---	5	1	
35	150	N	50	---	20	46	---	4	1	
36	150	N	50	---	18	42	---	4	1	
37	150	N	50	---	20	46	---	4	1	
38	150	N	100	---	L	L	---	2	L	
39	100	N	100	---	24	52	---	5	1	
40	150	N	200	---	19	42	---	4	1	
41	150	N	70	---	26	44	---	5	1	
42	200	N	100	---	18	31	---	4	1	
43	100	N	70	---	26	46	---	5	1	
44	100	N	100	---	29	54	---	4	2	
45	100	N	70	---	20	56	---	5	1	

Table 1.--*Analyses of samples from the Salmon-*

Semiquantitative spectrographic analyses

Sample	Fe (0.05) (percent)	Ti (0.002) (percent)	Mn (10) (ppm)	Ag (0.5) (ppm)	B (10) (ppm)	Ba (20) (ppm)	Co (5) (ppm)	Cr (5) (ppm)	Cu (5) (ppm)	Mo (5) (ppm)	Ni (5) (ppm)	Pb (10) (ppm)	Sr (100) (ppm)
						Area Y--Continued							
						Panned concentrates							
21	20	0.7	2,000	N	50	30	100	G(5,000)	5	N	5,000	N	N
22	15	.7	1,000	N	10	150	50	G(5,000)	10	N	1,000	N	200
26	20	G(1)	2,000	N	50	70	100	G(5,000)	15	N	2,000	N	N
33	20	1	2,000	N	20	150	100	G(5,000)	10	N	1,000	N	200
34	G(20)	.7	1,000	N	20	70	150	G(5,000)	15	N	2,000	N	100
39	G(20)	.5	2,000	N	50	N	100	G(5,000)	5	N	3,000	N	N
41	G(20)	G(1)	2,000	N	50	N	100	G(5,000)	10	N	2,000	N	N
						Rock samples							
4	10	.7	1,000	N	10	200	50	100	15	N	70	N	500
14	7	.2	500	L	N	200	50	1,500	5	N	1,000	N	200
15	2	.2	200	N	N	700	N	30	L	N	10	L	1,000
16	10	1	1,000	N	20	500	50	200	70	N	100	L	700
17	7	.01	700	N	10	L	1,000	5,000	L	N	3,000	N	N
18[53]	10	.1	700	2	N	50	100	3,000	L	N	2,000	15	200
26	20	1	2,000	N	20	200	100	300	150	N	200	N	200
29	3	.3	700	30	N	200	10	150	30	N	20	30	1,000
30	1.5	.2	300	.5	20	30	15	150	15	N	30	10	700
31	7	1	1,500	1	L	100	100	1,000	30	N	200	10	200
						Area Z							
						Stream sediments							
1	3	.5	1,500	N	50	300	70	500	70	N	150	10	150
2	7	.3	1,500	N	50	200	70	200	70	N	150	15	150
5	3	.3	1,500	N	20	70	500	1,500	15	N	1,000	10	100
9	7	.3	2,000	N	15	70	1,000	3,000	15	N	2,000	L	N
13	10	1	2,000	N	30	1,000	50	1,000	100	N	200	L	200
14	10	.5	2,000	N	70	500	50	1,000	20	N	700	L	200
15	10	.5	1,000	N	20	200	50	1,000	70	N	700	L	200
16	10	.5	1,000	N	30	500	50	1,000	50	N	1,000	L	200
17	10	1	1,000	N	20	500	70	1,000	50	N	700	L	200
18	10	1	1,000	N	15	700	50	500	50	N	200	10	200
19	3	.2	2,000	N	L	150	7	50	10	N	15	30	150
21	3	.3	1,500	N	L	150	5	30	10	N	10	15	150
22[54]	3	.3	1,500	N	L	150	5	30	10	N	5	10	150
23	3	.3	1,500	N	L	300	15	150	15	N	50	10	150
24	7	1	1,000	N	10	700	20	500	50	N	150	10	200
25	3	.7	1,500	N	L	300	15	150	20	N	30	10	200
26	7	.7	1,500	N	L	300	70	200	70	N	150	15	150
27	7	1	1,500	N	15	700	50	1,000	50	N	1,000	L	200
28	10	.5	1,000	N	10	700	50	2,000	50	N	2,000	L	150
29	7	.7	1,000	N	20	700	30	700	50	N	300	L	200
30	3	.3	2,000	N	L	200	15	150	10	N	30	15	200
31	3	.3	1,500	N	L	200	10	150	15	N	30	20	200
32	3	.3	2,000	N	L	200	50	300	15	N	30	10	200
33	7	.7	1,000	N	10	700	30	700	50	N	500	L	200
34	10	1	1,000	N	10	700	30	700	50	N	300	L	200
35	7	1	1,000	N	15	700	20	500	50	N	300	L	200
						Panned concentrates							
17	20	G(1)	2,000	N	30	100	50	5,000	100	N	200	N	150
18	15	G(1)	2,000	N	L	200	30	500	15	N	100	N	150
21	G(20)	.2	700	N	70	70	20	700	70	N	20	N	L
23	10	.3	1,500	N	30	150	15	300	70	N	30	30	300
26	20	G(1)	G(5,000)	N	50	150	70	3,000	70	N	150	N	100

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm) V (10)	Zn (200)	Zr (10)	Chemical analyses: AA (ppm) Au (0.02)	Cu (10)	Zn (25)	Inst. (ppm) Hg (0.01)	Colorimetric (ppm) cxHM (0.5)	cxCu (1)	Sample description[1]
						Area Y--Continued				
						Panned concentrates				
21	200	N	100	L(0.04)	---	---	---	---	---	
22	200	N	500	L(.05)	---	---	---	---	---	
26	500	N	500	30	---	---	---	---	---	
33	500	N	500	.08	---	---	---	---	---	
34	300	700	70	.04	---	---	---	---	---	
39	500	N	200	3.2	---	---	---	---	---	
41	1,500	N	50	L(.04)	---	---	---	---	---	
						Rock samples				
4	200	N	20	L(.02)	---	---	0.18	---	---	Gr rock.
14	100	N	100	.02	---	---	.01	---	---	Prospect.
15	50	N	100	L(.02)	---	---	.01	---	---	Py dike, Dorleska mine.
16	200	N	100	L(.02)	---	---	.02	---	---	Mafic dike, Dorleska mine.
17	30	L	N	L(.02)	---	---	.02	---	---	Dump, Dorleska mine.
18[53]	50	N	30	37	---	---	.26	---	---	Ore bin, Dorleska mine.
26	200	N	100	L(.02)	---	---	.06	---	---	FeOx st shear.
29	70	N	30	12	---	---	.6	---	---	Dump, Marcellus mine.
30	70	N	70	2.1	---	---	.24	---	---	Do.
31	300	L	150	.1	---	---	.11	---	---	Wx dio with qtz veins.
						Area Z				
						Stream sediments				
1	150	L	100	---	76	110	---	5	2	
2	100	N	30	---	68	71	---	4	2	
5	70	N	20	---	35	52	---	4	L	
9	150	N	20	---	25	86	---	5	L	
13	300	N	300	---	75	73	---	2	1	
14	200	N	100	---	44	65	---	3	1	
15	200	N	100	---	64	71	---	1	2	
16	200	N	100	---	59	68	---	2	2	
17	200	N	100	---	59	80	---	3	2	
18	200	N	200	---	50	95	---	2	1	
19	100	N	100	---	22	100	---	5	L	
21	70	N	70	---	28*	60*	---	2	L	
22[54]	70	L	300	---	21	68	---	2	1	
23	150	N	100	---	30*	68*	---	2	L	
24	200	N	150	---	47	89	---	2	2	
25	200	N	150	---	31	74	---	2	L	
26	300	L	100	---	74	93	---	2	3	
27	200	N	100	---	49	85	---	1	3	
28	200	N	100	---	43	84	---	2	3	
29	200	N	100	---	46	81	---	1	1	
30	150	N	300	---	22	80	---	6	L	
31	150	N	300	---	11	32	---	5	L	
32	150	N	300	---	20	73	---	3	L	
33	200	N	100	---	50	88	---	2	1	
34	200	N	200	---	47	85	---	.5	1	
35	200	N	100	---	42	77	---	1	2	
						Panned concentrates				
17	500	N	50	L(.08)	---	---	---	---	---	
18	300	N	150	L(.1)	---	---	---	---	---	
21	700	L	G(1,000)	L(2)	---	---	---	---	---	
23	300	N	G(1,000)	INS	---	---	---	---	---	
26	700	200	300	L(.4)	---	---	---	---	---	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses												
	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area Z--Continued							
						Panned concentrates--Continued							
29[55]	G(20)	0.7	1,500	1.5	L	100	30	5,000	30	N	200	N	100
31[56]	20	.7	5,000	N	50	70	20	700	150	N	70	N	100
35	G(20)	G(1)	500	N	N	L	50	500	L	N	20	N	N
						Rock samples							
3	7	1	3,000	N	20	700	70	500	50	N	150	10	100
4	5	.7	1,500	N	15	700	70	300	70	N	100	10	100
6	2	.2	200	N	10	700	70	50	5	N	150	10	1,500
7	5	.02	1,500	N	15	L	700	3,000	L	N	1,500	10	150
8	3	.3	700	N	L	500	10	30	15	N	20	L	500
9	2	.3	300	N	N	700	5	30	5	N	10	L	1,500
10	3	.002	1,000	N	70	L	700	3,000	L	N	1,500	N	N
11	5	.5	1,500	1.5	L	150	70	700	70	N	300	N	700
12	5	.3	1,500	N	L	20	300	2,000	10	N	700	N	150
20	2	.15	500	N	N	200	N	15	10	N	L	L	300
						Area AA							
						Stream sediments							
8	3	.7	1,500	N	L	200	70	300	30	N	150	L	300
10	5	.7	1,500	N	10	200	50	200	70	N	70	10	150
20	3	.3	1,500	N	L	150	10	50	7	N	20	30	200
						Panned concentrates							
8	15	G(1)	3,000	N	10	150	100	1,500	30	N	200	N	150
10	G(20)	G(1)	3,000	N	30	70	70	1,000	50	N	70	N	N
						Rock samples							
1	2	.2	700	N	N	200	5	30	5	N	10	L	500
2	1.5	.3	1,500	N	N	3,000	7	70	30	N	15	15	N
3	.7	.07	700	N	N	200	7	15	5	N	7	L	L
4	3	.3	1,500	N	N	700	30	150	30	15	70	20	150
5	3	.2	700	N	N	700	15	50	10	N	30	N	N
6	5	.5	1,000	N	L	150	15	20	100	N	30	N	1,000
7	7	.3	1,000	N	30	700	50	200	70	10	100	10	150
9	7	1	2,000	1	15	50	20	150	15	N	50	N	100
11[57]	5	.15	100	100	L	L	7	10	150	N	5	3,000	N
12	7	1	1,500	1.5	L	L	30	300	15	N	70	20	L
13	3	.2	700	N	N	200	5	30	20	N	10	L	500
14[58]	3	.2	700	N	N	200	L	15	5	N	5	10	700
15	2	.2	700	N	N	300	L	L	20	N	L	15	700
16	3	.3	1,500	N	N	500	5	10	5	N	5	10	700
17	3	.2	1,000	N	N	300	5	15	7	N	7	L	500
18	2	.3	700	N	N	500	7	15	30	5	15	10	150
19	3	.5	1,500	N	N	300	L	15	5	N	5	10	500
20	1.5	.15	1,000	N	N	200	L	15	10	N	5	L	500
21	.5	.03	700	N	N	700	5	N	5	N	7	50	150
22	3	.5	2,000	N	L	150	70	500	30	N	150	L	300
23	15	.2	300	N	50	300	30	100	70	10	70	N	N
						Area BB							
						Stream sediments							
2	3	.3	1,500	N	10	700	30	150	50	N	70	10	300
7	3	1	1,500	N	10	150	30	150	70	N	70	10	150
8	7	1	2,000	N	15	150	30	200	100	N	70	10	150
10	3	.7	1,500	N	10	500	150	500	70	N	200	10	150
11	5	1	2,000	N	15	300	150	500	70	N	200	L	200

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses: AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
Area Z--Continued										
Panned concentrates--Continued										
29[55]	700	N	500	13	---	---	---	---	---	
31[56]	700	N	G(1,000)	32	---	---	---	---	---	
35	1,000	N	200	L(.05)	---	---	---	---	---	
Rock samples										
3	300	L	100	.02	---	---	0.05	---	---	Alt qtz mica sch.
4	300	L	150	L(.02)	---	---	.09	---	---	Amph.
6	50	N	100	L(.02)	---	---	.05	---	---	Trench, Yellow Rose mine.
7	30	N	N	L(.02)	---	---	.04	---	---	Dump, Yellow Rose mine.
8	100	N	100	L(.02)	---	---	.09	---	---	Py por, Yellow Rose mine.
9	70	N	30	.4	---	---	.05	---	---	Andesite por, Leroy mine.
10	20	L	N	L(.02)	---	---	.07	---	---	Serp, Leroy mine.
11	300	L	30	.1	---	---	.90	---	---	Py dike, Gulick mine.
12	300	L	20	.04	---	---	.07	---	---	Dump, prospect.
20	70	N	15	L(.02)	---	---	.03	---	---	Gr.
Area AA										
Stream sediments										
8	300	N	200	---	38	40	---	2	1	
10	300	L	200	---	58	65	---	4	2	
20	100	N	150	---	35*	66*	---	10	L	
Panned concentrates										
8	1,000	300	500	3.1	---	---	---	---	---	
10	1,500	300	300	3.4	---	---	---	---	---	
Rock samples										
1	100	N	30	L(.02)	---	---	.04	---	---	Gd.
2	300	N	150	L(.02)	---	---	.05	---	---	Mica phyl.
3	30	L	20	L(.02)	---	---	.04	---	---	Vein qtz.
4	150	L	150	L(.02)	---	---	.04	---	---	Mica phyl.
5	100	N	150	L(.02)	---	---	.05	---	---	Qzt.
6	300	L	20	L(.02)	---	---	.03	---	---	Qd.
7	300	L	150	L(.02)	---	---	.03	---	---	FeOx st qtz mica sch.
9	700	200	150	L(.02)	---	---	.03	---	---	Amph.
11[57]	70	200	10	94	---	---	6	---	---	3-inch vein, prospect.
12	300	L	100	.04	---	---	.05	---	---	Amph.
13	100	L	30	L(.02)	---	---	.04	---	---	Gd.
14[58]	100	N	30	L(.02)	---	---	.05	---	---	Do.
15	70	N	150	L(.02)	---	---	.05	---	---	Do.
16	70	N	70	L(.02)	---	---	.02	---	---	Do.
17	70	N	30	L(.02)	---	---	.02	---	---	Qm.
18	70	N	30	L(.02)	---	---	.04	---	---	Gd.
19	100	N	70	L(.02)	---	---	.04	---	---	Do.
20	70	N	20	L(.02)	---	---	.05	---	---	Do.
21	10	N	15	L(.02)	---	---	.06	---	---	Gd in amph.
22	300	L	70	L(.02)	---	---	.16	---	---	FeOx st mica phyl.
23	100	200	30	L(.02)	---	---	.07	---	---	FeOx st mica sch with qtz.
Area BB										
Stream sediments										
2	150	N	200	---	82	97	---	4	2	
7	300	N	150	---	110	91	---	2	4	
8	500	L	100	---	100	89	---	4	6	
10	300	L	150	---	54	85	---	4	2	
11	300	L	150	---	50	78	---	5	2	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent) Fe (0.05)	Ti (0.002)	(ppm) Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area BB--Continued							
						Stream sediments--Continued							
12	7	0.7	2,000	N	20	300	150	300	100	N	150	N	200
13	5	1	3,000	N	20	150	30	300	100	N	100	N	150
14	5	1	3,000	N	20	300	70	300	100	N	150	N	150
15	7	1	2,000	N	20	150	50	200	150	N	100	N	150
16	3	.7	1,500	N	20	150	50	150	70	N	150	L	150
17	5	.7	1,500	N	15	150	50	150	70	N	100	N	100
18	5	.7	1,500	N	30	150	70	200	70	N	150	N	150
19	3	.7	1,500	N	30	150	50	200	70	N	150	N	150
21	5	.7	1,500	N	50	100	50	300	70	N	150	N	150
23	3	.7	1,500	N	20	30	70	700	70	N	200	N	L
24	3	.5	1,500	N	20	150	50	300	70	N	150	N	150
25	3	.7	1,500	N	30	100	50	200	70	N	100	N	150
27	5	.7	2,000	N	30	100	50	300	70	N	100	N	150
						Panned concentrates							
8[59]	20	.7	5,000	3	70	70	100	700	300	N	150	N	N
11	G(20)	.7	3,000	N	70	70	150	G(5,000)	200	N	300	N	100
14[60]	20	1	3,000	N	70	70	70	5,000	200	N	150	N	100
15	G(20)	.7	5,000	N	70	70	30	1,000	200	N	70	N	L
17	15	G(1)	G(5,000)	N	30	50	15	500	200	N	15	N	N
18[61]	15	G(1)	3,000	10	30	70	50	3,000	150	N	100	N	100
20	7	.7	1,500	1.5	70	30	50	700	70	N	70	N	150
21	7	.3	200	N	30	20	30	300	100	N	70	N	100
						Rock samples							
1	7	G(1)	3,000	N	10	L	20	150	150	7	50	N	100
3	3	.15	1,500	N	15	70	15	100	5	N	30	L	700
4	5	1	1,500	N	L	50	15	100	5	N	30	N	100
5	7	1	1,500	1	10	20	15	100	300	N	30	N	300
6	3	.5	150	N	L	30	15	70	20	N	30	N	300
9	7	1	2,000	N	15	70	70	300	70	N	150	N	100
22	7	.5	1,500	2	20	30	30	150	700	N	70	10	100
26	10	1	1,500	1	10	30	20	15	70	N	30	10	100
28	7	G(1)	2,000	N	50	L	15	50	70	N	30	N	100
						Area CC							
						Stream sediments							
1	10	1	3,000	N	10	200	20	200	15	N	200	L	200
2	7	1	1,000	N	10	300	15	500	10	N	200	L	200
3	10	1	1,000	N	10	300	20	200	10	N	200	L	200
4	7	.5	700	N	10	500	15	200	5	N	200	L	200
5	10	1	2,000	N	10	700	15	500	10	N	300	L	500
6	10	.7	1,000	N	10	700	20	500	20	N	150	L	300
7	10	.5	700	N	L	700	20	300	5	N	150	L	500
8	10	.5	700	N	10	500	30	300	15	N	200	L	300
9	5	.5	700	N	L	500	20	100	15	N	100	L	200
10	3	.5	2,000	N	L	200	30	150	10	N	70	10	300
11	3	.5	2,000	N	L	200	15	150	10	N	30	L	300
13	3	.5	1,500	N	L	150	20	150	7	N	50	10	300
14	3	.3	1,500	N	L	150	15	100	10	N	20	10	200
18	7	.7	3,000	N	10	70	30	200	100	N	70	L	100
19	7	G(1)	2,000	N	15	70	30	200	150	N	70	L	100
22	5	.7	1,500	N	50	50	50	150	100	N	70	N	100
23	7	.7	1,500	N	50	70	50	300	70	N	70	N	100
26	5	.7	1,500	N	70	70	30	150	70	N	70	N	100
27	7	.7	1,500	N	70	70	30	150	70	N	70	N	100

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm) V (10)	Zn (200)	Zr (10)	Chemical analyses AA (ppm) Au (0.02)	Cu (10)	Zn (25)	Inst. (ppm) Hg (0.01)	Colorimetric (ppm) cxHM (0.5)	cxCu (1)	Sample description[1]
					Area BB--Continued					
					Stream sediments--Continued					
12	300	L	150	---	92	100	---	4	4	
13	500	L	100	---	95	85	---	2	6	
14	300	L	100	---	79	85	---	2	6	
15	500	L	150	---	140	100	---	4	8	
16	300	L	100	---	70	72	---	4	4	
17	300	L	70	---	85	74	---	4	4	
18	300	L	100	---	68	72	---	2	3	
19	300	L	70	---	71	70	---	2	4	
21	300	L	70	---	78	64	---	4	4	
23	300	L	30	---	66	65	---	4	4	
24	300	L	30	---	70	70	---	4	6	
25	300	L	70	---	73	64	---	4	6	
27	300	L	70	---	65	60	---	4	4	
					Panned concentrates					
8[59]	500	300	300	320	---	---	---	---	---	
11	700	500	300	1.4	---	---	---	---	---	
14[60]	700	300	300	.7	---	---	---	---	---	
15	700	200	300	1.2	---	---	---	---	---	
17	500	200	500	L(.12)	---	---	---	---	---	
18[61]	500	200	200	34	---	---	---	---	---	
20	500	200	150	1.6	---	---	---	---	---	
21	300	200	150	3	---	---	---	---	---	
					Rock samples					
1	700	200	100	L(.02)	---	---	0.12	---	---	Amph.
3	100	N	10	2	---	---	7.5	---	---	Dump, Great Dike mine.
4	500	L	150	L(.02)	---	---	.12	---	---	FeOx st mv.
5	500	N	30	.2	---	---	.40	---	---	Py boulder, Great Dike mine.
6	200	N	30	.02	---	---	.22	---	---	Dump, Great Dike mine.
9	700	L	70	L(.02)	---	---	.35	---	---	Shear in amph.
22	300	L	30	.5	---	---	.22	---	---	Py dikes and amph.
26	500	L	100	L(.02)	---	---	.09	---	---	Amph. with FeOx.
28	700	L	150	L(.02)	---	---	.04	---	---	Amph.
					Area CC					
					Stream sediments					
1	200	N	200	---	31	50	---	7	L	
2	200	N	300	---	22	40	---	2	1H	
3	200	N	500	---	21	34	---	1	L	
4	200	N	500	---	10	39	---	1	1	
5	300	N	700	---	18	39	---	2	1	
6	200	N	200	---	25	49	---	1	1	
7	200	N	500	---	17	44	---	1	2	
8	200	N	700	---	33	50	---	1	1	
9	100	N	G(1,000)	---	36	82	---	4	1	
10	200	N	300	---	24	70	---	6	L	
11	150	N	1,000	---	17	66	---	2	L	
13	200	N	300	---	13	38	---	2	L	
14	150	N	700	---	12	36	---	2	L	
18	300	L	50	---	77	77	---	5	3	
19	500	L	100	---	84	50	---	2	3	
22	300	L	50	---	100	89	---	4	4	
23	300	L	50	---	82	63	---	2	2	
26	300	L	50	---	83	64	---	2	4	
27	300	L	50	---	78	77	---	2	3	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent) Fe (0.05)	Ti (0.002)	(ppm) Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area CC--Continued							
						Panned concentrates							
5	G(20)	0.7	700	N	N	150	20	700	L	N	50	N	100
7	G(20)	.7	300	N	N	100	20	700	L	N	50	N	N
8	15	G(1)	1,000	N	50	70	30	500	20	N	50	N	150
10	G(20)	.5	700	N	70	70	70	2,000	10	N	100	N	N
22	10	G(1)	1,500	N	30	20	50	500	100	N	100	N	L
26	20	G(1)	700	N	70	20	50	1,000	30	N	150	N	N
						Rock samples							
12	1.5	.3	700	N	N	1,000	5	70	15	10	5	20	150
15	2	.2	700	N	N	500	5	20	5	N	5	L	500
16	7	1	1,000	N	10	30	30	200	70	N	30	L	N
17	7	.5	1,500	N	10	20	30	200	50	N	30	10	150
20	7	.7	1,500	N	L	L	15	150	70	N	20	N	N
21	7	1	1,500	N	L	50	30	300	30	N	100	N	100
24	10	G(1)	3,000	N	10	30	20	150	70	N	70	N	L
25	7	.7	1,000	N	L	L	15	70	30	N	30	N	N
						Area DD							
						Stream sediments							
1	7	.5	500	N	N	300	20	200	5	N	50	L	300
2	10	.5	1,000	N	N	500	20	300	5	N	100	15	500
3	5	.5	500	N	N	200	15	200	5	N	50	L	200
4	7	.2	500	N	N	300	10	200	5	N	50	L	200
5	7	.5	700	N	N	500	20	300	10	N	100	15	300
6	7	.7	1,000	N	10	500	50	500	10	N	150	10	500
7	2	.2	500	N	N	200	7	150	5	N	20	L	150
8	5	.2	500	N	15	500	15	200	10	N	100	L	300
9	7	.5	700	N	10	500	20	500	10	N	150	L	300
12	10	.5	700	N	10	150	50	300	20	N	100	N	150
13	15	1	1,000	N	10	150	50	500	20	N	100	N	150
18	10	1	1,000	N	10	150	70	300	20	N	100	N	150
19	10	1	2,000	N	15	150	50	300	30	N	100	N	100
20	10	1	700	N	10	300	50	500	10	N	100	N	300
21	10	1	2,000	N	20	200	70	500	50	N	100	N	100
22	10	.7	700	N	10	500	50	500	20	N	150	N	200
23	7	.5	700	N	10	700	10	300	10	N	150	L	200
24	10	1	1,000	N	10	500	50	500	20	N	150	L	200
25	2	.2	500	N	L	300	20	100	20	N	30	10	300
28	10	G(1)	1,000	N	30	300	50	150	50	N	100	10	200
29	10	.7	1,000	N	50	500	50	1,000	20	N	500	10	150
30	15	1	1,000	N	20	200	70	500	20	N	200	N	150
31	10	1	1,000	N	70	500	50	500	20	N	200	N	150
33	10	.5	1,000	N	10	700	50	700	70	N	300	10	300
34	7	.7	1,000	N	20	500	50	500	20	N	150	N	200
35	10	1	1,000	N	50	500	50	500	50	N	200	10	200
36	10	.5	700	N	30	500	50	500	20	N	200	N	200
37	7	G(1)	2,000	N	100	500	50	200	50	N	150	10	200
40	10	.5	1,000	15	70	500	50	700	50	N	500	100	200
41	10	.7	1,000	.5	70	500	50	1,000	20	N	500	70	200
42	10	1	1,000	L	100	500	50	1,000	50	N	500	50	300
43	7	.5	1,000	L	70	300	50	1,000	20	N	700	20	200
44	7	.5	1,000	L	70	500	50	1,000	20	N	700	20	200
45	7	1	1,000	N	100	200	50	300	20	N	500	30	100
46	7	.15	700	N	10	300	70	2,000	7	N	2,000	10	100
47	7	.15	700	N	10	100	70	5,000	7	N	2,000	L	100
48	7	.15	700	N	L	500	70	3,000	7	N	1,500	20	100

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm) V (10)	Zn (200)	Zr (10)	Chemical analyses AA (ppm) Au (0.02)	Cu (10)	Zn (25)	Inst. (ppm) Hg (0.01)	Colorimetric (ppm) cxHM (0.5)	cxCu (1)	Sample description[1]
						Area CC--Continued				
						Panned concentrates				
5	700	N	200	L(0.03)	---	---	---	---	---	
7	700	N	G(1,000)	L(.04)	---	---	---	---	---	
8	500	N	50	11	---	---	---	---	---	
10	1,500	500	G(1,000)	L(.1)	---	---	---	---	---	
22	500	200	30	L(.1)	---	---	---	---	---	
26	700	200	700	60	---	---	---	---	---	
						Rock samples				
12	150	N	100	L(.02)	---	---	0.06	---	---	FeOx st sil sch.
15	70	N	30	L(.02)	---	---	.04	---	---	Gd.
16	700	L	150	L(.02)	---	---	.05	---	---	Prospect in amph.
17	500	L	20	.02	---	---	.20	---	---	Alt serp.
20	500	L	50	L(.02)	---	---	.04	---	---	FeOx st amph with qtz.
21	500	L	70	.5	---	---	.02	---	---	Prospect dump.
24	500	L	150	.2	---	---	.05	---	---	Do.
25	300	L	30	L(.02)	---	---	.02	---	---	Do.
						Area DD				
						Stream sediments				
1	100	N	200	---	19	35	---	1	2^H	
2	200	N	200	---	16	31	---	.5	3^H	
3	100	N	200	---	12	29	---	2	2^H	
4	100	N	50	---	16	31	---	1	1^H	
5	100	N	150	---	18	34	---	1	2^H	
6	100	N	500	---	17	32	---	1	3^H	
7	70	N	200	---	18	37	---	1	1^H	
8	100	N	150	---	21	39	---	4	1^H	
9	200	N	700	---	24	30	---	1	1^H	
12	200	N	100	---	39	31	---	1	1^H	
13	500	N	100	---	31	26	---	1	1	
18	300	N	100	---	46	36	---	.5	2	
19	200	N	150	---	47	33	---	.5	3^H	
20	200	N	200	---	17	28	---	.5	2^H	
21	300	N	150	---	46	34	---	.5	3^H	
22	200	N	150	---	44	40	---	1	3	
23	150	N	500	---	25	53	---	2	3^H	
24	200	N	150	---	39	43	---	2	2	
25	70	N	50	---	40	40	---	2	2	
28	300	N	200	---	38	52	---	4	1	
29	200	N	50	---	43	46	---	4	L	
30	200	N	100	---	50	41	---	1	1	
31	200	N	100	---	55	51	---	3	1	
33	200	N	50	---	84	56	---	2	2	
34	200	N	50	---	63	56	---	2	3	
35	200	N	70	---	57	51	---	2	3^H	
36	200	N	70	---	56	49	---	1	3	
37	200	N	150	---	20	54	---	2	INS	
40	100	N	100	---	74	68	---	3	6	
41	100	N	100	---	72	67	---	3	6	
42	100	N	150	---	64	62	---	2	4	
43	100	N	50	---	61	63	---	3	3^H	
44	100	N	50	---	57	58	---	3	2	
45	150	N	150	---	54	86	---	4	1	
46	70	N	30	---	20	42	---	2	1	
47	70	N	30	---	19	45	---	3	1	
48	100	N	30	---	25	54	---	5	1	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)												
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
							Area DD--Continued						
							Panned concentrates						
8	G(20)	G(1)	700	N	N	70	50	500	10	N	150	N	100
9	G(20)	G(1)	700	N	N	L	50	700	L	N	150	N	N
21	G(20)	G(1)	1,500	N	10	L	150	700	70	N	100	N	N
24	G(20)	G(1)	1,500	N	L	50	50	700	L	N	50	N	N
28	G(20)	1	700	N	N	N	50	700	L	N	50	N	N
36	G(20)	G(1)	3,000	N	20	70	70	2,000	30	N	150	L	200
42	G(20)	1	1,000	L	15	150	70	G(5,000)	50	N	1,000	30	100
44	G(20)	1	1,500	N	15	150	100	G(5,000)	30	N	1,000	L	150
							Rock samples						
10	10	.7	1,000	N	20	N	50	300	20	N	50	N	100
11	3	.5	1,500	N	L	70	30	300	30	N	70	N	300
14	7	.7	1,000	N	20	300	30	150	15	N	30	N	300
15	.05	.07	50	N	10	N	N	5	70	N	L	N	N
16	15	1	1,000	N	L	30	70	300	70	N	70	N	150
17	15	1	1,500	N	30	70	70	1,500	70	N	150	N	200
26	2	.2	150	30	N	300	5	10	50	N	L	300	N
27	7	.15	1,000	N	L	L	500	1,500	30	N	1,000	N	100
32	1	.05	100	L	10	150	5	10	20	N	5	N	N
38	1.5	.07	200	10	L	150	N	5	1,000	N	5	1,500	N
39[62]	.3	.015	50	200	L	30	5	20	70	N	20	70	150
							Area EE						
							Stream sediments						
1	10	1	2,000	N	50	200	50	300	50	N	200	L	100
2	10	1	2,000	N	50	150	50	500	50	N	150	L	100
3	10	1	1,000	N	50	150	50	500	50	N	150	N	100
4	10	1	1,000	N	20	200	50	500	50	N	150	L	150
5	10	G(1)	1,000	N	50	300	50	100	30	N	100	10	150
6	10	G(1)	1,000	N	50	300	50	150	30	N	100	10	200
7	10	G(1)	1,500	N	50	300	50	150	20	N	100	L	150
8	10	G(1)	1,500	N	50	300	50	200	30	N	200	L	100
9	7	G(1)	1,500	N	30	300	30	200	20	N	100	10	200
10	5	.5	700	N	15	200	50	500	15	N	700	10	100
11	5	.5	1,000	N	30	150	50	500	15	N	700	10	100
12	7	.5	1,000	N	20	200	50	700	30	N	700	10	150
13	7	1	1,000	N	30	200	50	700	20	N	700	10	100
14	7	G(1)	1,000	N	50	150	50	1,000	20	N	700	10	100
							Panned concentrates						
4	G(20)	.7	3,000	N	L	70	20	G(5,000)	30	N	150	N	100
9	10	G(1)	1,000	N	20	150	70	1,000	15	N	200	N	200
12	20	G(1)	1,500	N	10	20	100	G(5,000)	20	N	1,000	N	L
							Rock samples						
8	10	G(1)	1,000	N	20	50	70	150	50	N	100	L	L
							Area FF						
							Stream sediments[63]						
6	10	.3	700	N	L	500	10	200	10	N	30	10	300
7	7	.3	700	N	L	500	15	500	7	N	100	10	300
8	10	.7	1,000	N	L	300	30	1,500	7	N	300	L	300
9	10	1	1,000	N	L	100	20	200	20	N	70	L	200
10	15	.7	1,000	N	10	150	20	300	15	N	150	L	200

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
						Area DD--Continued				
						Panned concentrates				
8	1,000	N	300	L(0.04)	---	---	---	---	---	
9	1,000	N	300	1.6	---	---	---	---	---	
21	1,000	N	200	1	---	---	---	---	---	
24	1,000	N	300	L(.04)	---	---	---	---	---	
28	1,000	N	150	1.8	---	---	---	---	---	
36	700	N	20	27	---	---	---	---	---	
42	300	500	70	2.2	---	---	---	---	---	
44	300	700	50	1.4	---	---	---	---	---	
						Rock samples				
10	300	N	100	.02	---	---	0.04	---	---	Amph.
11	300	L	30	L(.02)	---	---	.06	---	---	Dio.
14	300	N	100	L(.02)	---	---	.04	---	---	Prospect in amph.
15	10	N	N	L(.02)	---	---	.02	---	---	Qtz vein in amph.
16	500	N	100	L(.02)	---	---	.02	---	---	Amph.
17	500	N	100	L(.02)	---	---	.04	---	---	Do.
26	100	L	70	9	---	---	.55	---	---	Qtz, dump, Geneva mine.
27	100	N	30	.06	---	---	.02	---	---	Py qtz-mica sch, Geneva mine.
32	70	N	20	.3	---	---	.10	---	---	4-in. vein, prospect.
38	20	N	N	3.4	---	---	.05	---	---	Qtz, dump, Hardscrabble mine.
39[62]	30	N	20	100	---	---	.10	---	---	Do.
						Area EE				
						Stream sediments				
1	300	N	100	---	59	61	---	2	4	
2	300	N	100	---	45	52	---	3	3	
3	300	N	100	---	37	39	---	1	3	
4	300	N	100	---	51	52	---	2	6	
5	300	N	500	---	47	64	---	4	2	
6	200	N	500	---	INS	INS	---	4	1	
7	200	N	300	---	46	60	---	1	1	
8	300	N	500	---	42	52	---	1	1	
9	200	N	200	---	41	56	---	1	1	
10	100	N	100	---	54	66	---	4	1	
11	100	N	70	---	50	66	---	4	1	
12	100	N	70	---	43	58	---	5	1	
13	100	N	150	---	39	58	---	5	1	
14	150	N	300	---	34	50	---	4	1	
						Panned concentrates				
4	500	N	200	3	---	---	---	---	---	
9	300	N	200	.1	---	---	---	---	---	
12	500	500	150	24	---	---	---	---	---	
						Rock samples				
8	300	N	100	L(.02)	---	---	.07	---	---	Qtz mica sch.
						Area FF				
						Stream sediments[63]				
6	200	N	700	---	L	47	---	4	1	
7	150	N	200	---	L	35	---	1	1	
8	200	N	500	---	24	37	---	2	1	
9	200	N	50	---	30	31	---	4	1	
10	200	N	70	---	33	37	---	4	1	

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Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area FF--Continued							
						Stream sediments[63]--Continued							
11	10	.7	1,000	N	10	150	20	300	15	N	200	L	200
12	15	1	1,000	N	15	150	30	500	15	N	300	L	200
13	15	.7	1,000	N	50	300	50	1,500	15	N	300	L	200
14	15	.7	1,000	N	15	300	50	1,500	15	N	500	L	200
15	15	1	1,000	N	15	300	50	1,500	15	N	500	L	300
16	10	.7	1,000	N	15	200	30	700	15	N	300	L	200
17	10	.7	1,000	N	L	150	50	300	15	N	100	L	300
18	10	.7	1,000	N	L	150	30	300	15	N	100	L	200
19	15	.7	700	N	20	500	70	1,000	20	N	300	L	200
20	10	.5	1,000	N	20	700	50	700	15	N	150	20	300
21	15	1	1,000	N	20	300	70	700	20	N	200	L	200
22	15	.7	1,000	N	15	300	50	500	20	N	150	L	300
23	15	.2	700	N	10	150	70	5,000	15	N	2,000	L	150
24	15	.2	1,000	N	10	200	70	5,000	15	N	2,000	L	150
25	10	.7	700	N	15	300	30	500	15	N	150	L	200
26	15	1	1,000	N	15	200	50	700	15	N	300	L	200
27	15	1	700	N	10	200	50	1,500	15	N	300	L	150
28	7	.3	700	N	L	300	20	500	7	N	200	L	300
29	10	.3	700	N	L	300	15	200	7	N	20	L	300
30	7	.3	700	N	L	300	20	200	7	N	50	L	300
31	7	.2	700	N	L	300	15	150	7	N	15	L	300
32	7	.3	700	N	10	300	15	200	7	N	70	L	300
33	7	.2	700	N	L	300	15	200	7	N	70	L	300
34	7	.3	700	N	L	500	15	200	7	N	70	L	300
35	5	.3	700	N	L	500	15	100	7	N	20	15	300
36	7	.3	700	N	10	300	20	200	7	N	150	20	300
37	7	.3	700	N	L	300	15	150	7	N	30	70	300
38	5	.3	700	N	L	300	15	150	7	N	20	L	300
39	3	.2	700	N	L	300	15	150	7	N	20	50	300
40	3	.2	500	N	L	500	15	150	7	N	30	10	300
41	5	.2	700	N	L	500	15	150	7	N	30	15	300
42	7	.3	700	N	L	700	15	300	7	N	30	15	300
44	7	.3	700	N	L	300	15	150	7	N	50	10	300
45	10	.5	700	N	L	300	15	200	7	N	50	10	300
46	10	.5	700	N	L	300	15	300	7	N	150	L	300
47	7	.3	700	N	L	300	15	200	7	N	150	L	200
48	7	.3	700	N	10	300	15	200	5	N	150	10	300
49	10	.5	700	N	10	300	20	700	10	N	300	L	200
50	10	.5	700	N	10	300	30	700	10	N	300	L	200
51	15	.15	700	N	10	100	70	G(5,000)	10	N	3,000	L	100
52	15	.7	700	N	L	200	30	1,500	7	N	300	L	200
53	10	.5	700	N	L	300	30	500	5	N	300	L	300
54	5	.5	3,000	N	10	150	300	1,000	10	N	1,500	15	300
55	10	.5	700	N	10	200	50	700	10	N	300	L	200
56	3	.3	3,000	N	L	100	200	1,000	5	N	300	15	200
57	3	.5	3,000	N	L	150	300	2,000	15	N	700	10	200
58	3	.3	3,000	N	10	150	500	2,000	30	N	1,500	15	100
59	3	.3	3,000	N	10	150	300	1,500	15	N	700	10	150
60	5	.3	3,000	N	10	150	300	2,000	30	N	1,500	L	150
61	7	.3	2,000	N	10	150	500	2,000	50	N	1,500	L	100
62	5	.7	2,000	N	10	150	300	2,000	20	N	1,500	N	300
63	10	.5	700	N	L	200	50	1,000	10	N	500	L	200
64	10	.5	700	N	L	200	50	1,000	10	N	500	L	200
65	10	.5	1,000	N	10	200	50	2,000	15	N	700	L	200
66	10	.7	1,000	N	10	200	50	3,000	15	N	700	L	150

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses						Sample description[1]
					AA (ppm)		Inst. (ppm)	Colorimetric (ppm)		
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
						Area FF--Continued				
						Stream sediments[63]--Continued				
11	300	N	70	---	29	36	---	4	1	
12	200	N	70	---	29	35	---	3	1	
13	300	N	50	---	22	31	---	2	L	
14	300	N	150	---	23	38	---	2	1	
15	300	N	200	---	20	37	---	4	1	
16	300	N	150	---	19	34	---	2	1	
17	300	N	150	---	38	32	---	1	1	
18	300	N	100	---	34	28	---	1	1	
19	300	N	100	---	44	33	---	2	1	
20	300	N	150	---	31	42	---	2	1	
21	300	N	150	---	45	41	---	1	2	
22	300	N	150	---	37	36	---	3	1	
23	150	N	150	---	32	45	---	5	1	
24	200	N	150	---	26	47	---	5	1	
25	300	N	150	---	43	37	---	2	1	
26	300	N	200	---	30	30	---	1	1	
27	200	N	100	---	28	31	---	2	1	
28	100	N	500	---	10	39	---	1	1	
29	100	N	700	---	L	35	---	1	1	
30	100	N	300	---	L	41	---	1	1	
31	100	N	300	---	L	28	---	1	1	
32	100	N	200	---	14*	42*	---	2	L	
33	100	N	700	---	L	33	---	1	L	
34	100	N	500	---	11	39	---	2	1	
35	100	N	200	---	L	36	---	1	1	
36	150	N	200	---	INS	INS	---	3	1	
37	100	N	200	---	L	37	---	1	1	
38	150	N	500	---	L	36	---	2	1	
39	100	N	500	---	L	40	---	1	1	
40	100	N	300	---	L	45	---	2	1	
41	100	N	500	---	L	43	---	2	1	
42	150	N	700	---	L	37	---	1	1	
44	150	N	200	---	11	38	---	1	1	
45	150	N	500	---	L	35	---	1	1	
46	200	N	300	---	13	39	---	1	1	
47	150	N	150	---	13	44	---	1	1	
48	150	N	200	---	11	43	---	2	1	
49	150	N	300	---	16	30	---	1	1	
50	150	N	300	---	19	36	---	2	1	
51	100	N	50	---	24	42	---	7	1	
52	150	N	500	---	17	31	---	1	1	
53	150	N	700	---	L	38	---	2	1	
54	200	N	700	---	14	48	---	2	L	
55	150	N	300	---	20	33	---	1	1	
56	150	N	300	---	11	42	---	4	L	
57	300	N	300	---	13	42	---	4	L	
58	200	N	300	---	22	56	---	2	L	
59	200	N	500	---	13	44	---	2	1	
60	300	N	1,000	---	20	42	---	2	L	
61	200	N	700	---	30	47	---	2	L	
62	300	N	700	---	19	41	---	4	1	
63	150	N	200	---	20	32	---	2	1	
64	150	N	150	---	20	31	---	2	1	
65	200	N	200	---	21	31	---	2	1	
66	300	N	200	---	29	28	---	4	2	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses												
	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
Area FF--Continued													
Panned concentrates[64]													
12	20	G(1)	3,000	N	70	700	100	G(5,000)	20	N	1,000	N	N
16	20	G(1)	3,000	N	50	100	100	G(5,000)	10	N	1,000	N	N
22	20	G(1)	3,000	N	50	70	100	2,000	50	N	150	N	N
27	20	G(1)	3,000	N	50	70	100	5,000	20	N	500	N	N
28	20	1	1,000	N	30	200	20	1,500	20	N	100	N	500
30	20	1	1,000	N	50	100	20	1,500	500	N	100	N	N
36	20	G(1)	1,000	N	30	100	15	1,000	10	N	100	N	200
37	G(20)	G(1)	1,000	N	50	70	20	1,500	10	N	150	N	N
52	20	G(1)	2,000	N	30	100	70	5,000	10	N	500	N	200
53	15	.7	1,000	N	20	200	15	1,000	5	N	100	N	300
60	G(20)	.7	1,500	N	70	30	300	G(5,000)	30	N	1,000	N	N
64	20	G(1)	2,000	N	50	100	100	G(5,000)	15	N	1,500	N	N
66	20	G(1)	2,000	N	30	150	70	G(5,000)	20	N	1,000	N	200
Rock samples[65]													
1	3	.3	1,500	3	L	70	50	700	700	N	300	N	200
2	5	.3	1,500	N	L	70	50	700	30	N	70	N	500
3	10	.5	2,000	1	10	200	70	2,000	300	N	150	10	200
4	10	.05	1,000	N	N	20	200	G(5,000)	L	N	5,000	N	N
5	10	.15	300	N	N	L	700	G(5,000)	L	N	1,000	N	N
43	5	.2	700	N	N	200	N	50	10	N	50	N	500
Area GG													
Stream sediments													
1	7	.2	700	N	10	300	20	500	7	N	200	10	300
2	7	.3	700	N	L	300	15	200	7	N	100	10	300
3	7	.2	700	N	L	300	15	300	7	N	150	10	300
4	7	.2	500	N	L	300	20	500	7	N	200	10	300
5	7	.3	700	N	L	300	20	300	7	N	200	10	300
6	10	.2	700	N	L	150	50	500	15	N	700	70	150
7	7	.2	700	N	L	200	30	700	10	N	500	15	150
8	7	.2	700	N	L	150	30	700	7	N	500	15	150
9	7	.2	700	N	20	300	15	300	7	N	200	10	300
10	7	.5	700	N	L	500	15	200	10	N	50	L	300
11	7	.2	700	N	20	200	20	1,000	7	N	300	10	200
12	7	.5	700	N	20	150	20	300	10	N	200	L	150
13	7	.5	700	N	15	300	15	300	7	N	200	10	300
14	7	.3	700	N	10	300	15	200	7	N	50	L	300
17	7	.3	700	N	20	300	15	300	7	N	150	15	300
18	7	.5	700	N	L	150	30	500	10	N	300	10	150
19	5	.2	700	N	L	300	10	200	7	N	30	15	300
20	5	.3	700	N	15	200	15	300	7	N	150	30	200
21	7	.3	700	N	L	200	50	1,000	10	N	700	15	200
22	7	.15	700	N	L	150	70	1,500	10	N	1,000	10	150
23	7	.15	700	N	L	150	50	2,000	15	N	1,000	10	100
24	7	.3	700	N	10	150	70	1,000	10	N	1,000	L	200
25	7	.2	700	N	L	150	70	2,000	10	N	1,000	L	150
Panned concentrates[66]													
9	20	G(1)	1,000	N	20	100	50	G(5,000)	20	N	150	N	200
20	20	G(1)	2,000	N	50	70	70	G(5,000)	15	N	500	N	N
24	20	1	2,000	N	50	70	100	G(5,000)	5	N	1,000	N	N
Rock samples													
15	5	.5	700	N	N	500	5	70	L	N	50	N	500
16	1	.05	150	N	N	150	N	15	L	N	10	N	100

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
Area FF--Continued										
Panned concentrates[64]										
12	500	N	30	L(0.06)	---	---	---	---	---	
16	700	N	500	L(.08)	---	---	---	---	---	
22	500	N	300	.05	---	---	---	---	---	
27	500	N	500	.04	---	---	---	---	---	
28	500	N	700	L(.05)	---	---	---	---	---	
30	700	N	500	.02	---	---	---	---	---	
36	700	N	700	.04	---	---	---	---	---	
37	1,500	N	G(1,000)	.04	---	---	---	---	---	
52	500	N	700	L(.04)	---	---	---	---	---	
53	500	N	700	.5	---	---	---	---	---	
60	1,500	500	G(1,000)	L(.15)	---	---	---	---	---	
64	700	N	200	.2	---	---	---	---	---	
66	500	N	500	L(.04)	---	---	---	---	---	
Rock samples[65]										
1	300	N	15	.02	---	---	0.08	---	---	Dio.
2	300	L	20	L(.02)	---	---	.04	---	---	Do.
3	500	L	20	L(.02)	---	---	.04	---	---	Amph at serp contact.
4	50	N	N	.02	---	---	.09	---	---	Serp.
5	1,500	L	N	L(.02)	---	---	.05	---	---	Chromite prospect.
43	100	N	100	.04	---	---	.09	---	---	Qd.
Area GG										
Stream sediments										
1	100	N	200	---	20*	50*	---	5	1	
2	100	N	200	---	10	46	---	1	1	
3	100	N	200	---	14	54	---	4	1	
4	70	N	150	---	13	47	---	5	1	
5	100	N	150	---	14	53	---	4	1	
6	150	N	30	---	30	59	---	10	1	
7	100	N	150	---	27	49	---	8	1	
8	100	N	100	---	21	41	---	4	1	
9	100	N	200	---	20*	54*	---	4	1	
10	150	N	1,000	---	11	42	---	2	1	
11	100	N	200	---	13	30	---	3	1	
12	200	N	150	---	16+	34+	---	7	1	
13	150	N	150	---	13	44	---	3	1	
14	100	N	700	---	13	42	---	3	1	
17	100	N	100	---	INS	INS	---	5	1	
18	200	N	100	---	31	54	---	3	1	
19	100	N	500	---	10	44	---	3	1	
20	100	N	200	---	L+	32	---	4	1	
21	150	N	300	---	20	40	---	2	1	
22	100	N	300	---	20	38	---	2	1	
23	100	N	30	---	28	40	---	2	1	
24	100	N	100	---	30*	45*	---	4	1	
25	100	N	200	---	21	37	---	4	1	
Panned concentrates[66]										
9	500	N	200	L(.08)	---	---	---	---	---	
20	1,000	N	1,000	5.1	---	---	---	---	---	
24	500	N	500	.04	---	---	---	---	---	
Rock samples										
15	100	N	30	.02	---	---	.08	---	---	Qd.
16	50	N	30	L(.02)	---	---	.04	---	---	Qd with qtz veinlets.

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses						Sample description[1]
					AA (ppm)		Inst. (ppm)	Colorimetric (ppm)		
	V (10)	Zn (200)	Zr (10)	Agu (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
						Area HH				
						Stream sediments				
2	100	N	20	---	24	55	---	3	1	
3	100	N	30	---	27	49	---	2	2	
4	100	N	20	---	21	39	---	1	2	
5	100	N	30	---	25	41	---	2	2	
6	300	N	200	---	27	52	---	6	2	
7	200	N	200	---	24	49	---	2	3	
8	200	N	200	---	26	54	---	4	2	
9	100	N	100	---	22	39	---	2	1	
10	200	N	100	---	24	46	---	2	2	
11	100	N	20	---	25	44	---	3	1	
12	100	N	20	---	17	59	---	4	1	
13	100	N	50	---	26	46	---	2	1	
14	100	N	20	---	24	51	---	5	1	
15	100	N	50	---	23	49	---	2	2	
16	100	N	200	---	39	52	---	3	1	
17	100	N	100	---	51	54	---	2	2	
18	100	N	100	---	22	52	---	6	L	
19	50	N	150	---	20	55	---	7	1	
20	50	N	200	---	19	51	---	8	1	
21	100	N	300	---	23	53	---	4	1	
22	100	N	200	---	28	52	---	4	1	
23	100	N	300	---	25	53	---	6	1	
24	100	N	300	---	28	48	---	4	L	
25	200	N	200	---	33	31	---	1	1	
29	100	N	100	---	20	57	---	1	1[H]	
30	100	N	30	---	21	43	---	1	2	
31	100	N	30	---	20	41	---	2	1[H]	
32	200	N	70	---	19	39	---	1	2	
33	200	N	100	---	19	53	---	2	1	
34	150	N	100	---	19	51	---	3	2	
35	200	N	100	---	17	44	---	1	2	
36	100	N	150	---	19	53	---	1	1[H]	
37	150	N	500	---	14	34	---	1	2	
38	100	N	200	---	L	40	---	.5	L[H]	
39	100	N	500	---	12	38	---	1	1[H]	
40	100	N	300	---	12	47	---	2	1[H]	
41	100	N	300	---	11	47	---	1	L[H]	
42	100	N	300	---	11	45	---	1	1[H]	
43	100	N	100	---	14	36	---	1	2	
44	100	N	200	---	15	36	---	1	1	
45	100	N	100	---	36	34	---	1	3[H]	
46	100	N	100	---	20*	54*	---	2	INS	
47	100	N	100	---	17	39	---	1	2[H]	
48	100	N	100	---	16	38	---	2	3[H]	
						Panned concentrates				
14	700	500	20	L(0.03)	---	---	---	---	---	
25	1,000	N	300	L(.03)	---	---	---	---	---	
34	1,000	700	500	.1	---	---	---	---	---	
37	1,000	N	200	.04	---	---	---	---	---	
42[67]	700	N	500	L(.08)	---	---	---	---	---	
46	700	N	300	L(.06)	---	---	---	---	---	
						Rock samples				
26	50	N	N	8.4	---	---	1.3	---	---	Qtz, dump, Emma Stoddard mine.
27	300	N	30	.4	---	---	1.6	---	---	Alt dio, dump, Emma Stoddard mine.
28[68]	150	L	10	130	---	---	.24	---	---	Py qtz, dump, Emma Stoddard mine.

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses												
	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
							Area HH						
							Stream sediments						
2	7	.2	1,000	N	10	500	150	2,000	5	N	1,000	L	150
3	7	.2	1,000	N	L	200	100	2,000	5	N	1,000	L	200
4	7	.2	700	N	10	150	100	5,000	5	N	2,000	N	150
5	7	.2	700	N	10	150	100	5,000	10	N	2,000	N	150
6	7	.5	2,000	N	10	200	70	2,000	10	N	1,000	10	200
7	7	.5	1,000	N	10	200	50	1,000	10	N	500	10	200
8	7	.5	1,000	N	10	200	50	2,000	15	N	500	10	200
9	7	.3	700	N	10	150	100	5,000	5	N	2,000	N	150
10	7	.5	2,000	N	10	150	70	5,000	10	N	2,000	L	150
11	7	.3	1,000	N	10	100	150	5,000	5	N	2,000	L	100
12	5	.3	1,000	N	10	100	100	5,000	5	N	2,000	L	100
13	5	.3	700	N	L	100	100	5,000	10	N	2,000	L	100
14	10	.3	1,000	N	10	100	100	5,000	5	N	2,000	L	100
15	10	.5	2,000	N	10	150	150	5,000	10	N	2,000	L	100
16	7	.5	700	N	10	300	50	1,000	10	N	700	10	300
17	7	.3	500	N	L	300	70	2,000	20	N	1,000	L	200
18	3	.2	700	N	L	500	15	200	10	N	150	50	200
19	1	.1	700	N	L	300	L	70	L	N	10	30	200
20	3	.2	1,000	N	10	500	10	100	10	N	50	50	300
21	5	.3	700	N	10	500	15	200	10	N	70	50	300
22	5	.3	1,000	N	10	300	15	200	10	N	50	30	300
23	3	.2	700	N	10	500	15	150	5	N	50	30	300
24	5	.5	1,000	N	10	500	15	200	10	N	50	50	300
25	7	.5	1,000	N	10	200	20	150	15	N	70	N	300
29	5	.2	700	N	10	500	50	1,000	10	N	700	L	200
30	7	.3	700	N	10	150	70	2,000	10	N	1,000	N	200
31	7	.2	700	N	10	200	50	1,500	L	N	1,000	N	300
32	10	.5	700	N	10	200	70	2,000	5	N	1,000	N	300
33	7	.2	700	N	10	200	50	3,000	5	N	1,000	N	200
34	7	.5	700	N	10	200	50	5,000	5	N	1,000	L	200
35	10	.5	700	N	10	200	70	5,000	5	N	1,000	N	200
36	7	.3	700	N	10	200	70	2,000	5	N	1,000	N	200
37	10	.5	1,000	N	L	200	70	5,000	10	N	1,000	L	200
38	2	.2	200	N	N	150	N	150	L	N	20	N	200
39	7	.5	500	N	L	200	10	150	5	N	50	10	300
40	7	.5	700	N	L	500	10	200	5	N	50	15	500
41	5	.2	500	N	N	300	10	150	5	N	20	10	300
42	5	.2	500	N	N	200	10	150	5	N	20	L	300
43	10	.5	700	N	N	200	50	2,000	5	N	1,000	L	200
44	7	.5	700	N	N	200	70	3,000	5	N	1,000	L	200
45	7	.5	700	N	L	200	70	2,000	15	N	1,000	L	200
46	7	.5	700	N	10	200	50	5,000	5	N	700	20	200
47	7	.5	700	N	L	200	70	2,000	5	N	1,000	10	300
48	7	.5	700	N	L	200	70	2,000	5	N	1,000	L	300
							Panned concentrates						
14	G(20)	.7	700	N	N	L	30	G(5,000)	L	N	1,500	N	N
25	G(20)	G(1)	500	N	N	L	70	700	L	N	30	N	N
34	G(20)	G(1)	1,000	N	N	20	70	G(5,000)	L	N	2,000	N	N
37	G(20)	1	700	N	N	N	50	G(5,000)	L	N	1,500	N	N
42[67]	G(20)	1	500	N	N	30	20	700	L	N	15	N	L
46	G(20)	.7	500	N	N	100	30	G(5,000)	L	N	1,000	N	100
							Rock samples						
26	2	.03	150	10	L	50	5	50	10	10	15	N	N
27	3	.3	1,500	1	10	70	70	500	50	N	150	N	100
28[68].	15	.1	20	150	15	70	5	50	300	70	20	N	N

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
							Area II						
							Stream sediments						
1	5	.2	1,000	N	15	50	50	1,000	20	N	1,000	N	100
2	5	.15	1,000	N	N	20	50	700	10	N	1,000	L	L
3	7	.5	1,500	N	L	300	50	700	50	N	700	10	100
4	7	.5	1,500	N	L	200	50	1,500	50	N	1,000	10	100
6	5	.5	1,500	N	L	500	15	70	10	N	15	20	300
7	7	.3	1,500	N	10	300	50	1,500	30	N	1,000	20	150
8	7	.5	2,000	N	L	500	50	1,500	30	N	700	20	200
12	5	.3	1,500	N	N	200	30	700	15	N	500	10	200
13	5	.2	1,000	N	N	150	30	1,000	7	N	500	N	200
14	5	.3	300	N	L	100	30	2,000	L	N	1,500	N	100
15	5	.3	700	N	L	200	30	1,000	5	N	300	10	150
16	5	1	2,000	N	L	500	30	1,500	10	N	1,000	10	200
17	7	.7	1,500	N	L	700	30	1,500	10	N	500	10	300
18	5	.15	1,500	N	L	100	70	2,000	20	N	1,500	10	100
19	5	.2	1,000	N	L	150	70	1,500	15	N	700	10	100
20	5	.2	1,000	N	L	150	50	1,500	10	N	1,000	20	100
21	7	.2	1,000	N	L	150	50	2,000	10	N	700	10	100
23	5	.2	1,000	N	L	70	50	1,500	10	N	700	15	L
24	5	.3	1,500	N	L	200	30	200	15	N	150	L	200
25	5	.3	1,000	N	L	150	30	1,000	10	N	500	L	150
26	7	G(1)	3,000	N	10	30	50	150	70	N	100	10	100
27	3	.3	700	N	L	200	15	70	10	N	20	10	200
28	5	.5	700	N	L	150	20	200	10	N	50	10	200
29	5	.3	700	N	L	200	20	150	10	N	50	10	200
30	5	.5	1,000	N	N	200	20	300	10	N	70	L	200
31	7	.5	1,000	N	L	150	50	1,000	10	N	200	L	150
32	5	.3	1,000	N	N	150	30	700	10	N	200	L	150
33	5	.3	1,000	N	L	200	30	700	10	N	500	L	200
34	3	.3	2,000	N	L	15	20	150	5	N	50	20	500
36	3	.3	3,000	N	L	200	20	150	5	N	30	30	500
37	3	.3	2,000	N	L	150	15	100	5	N	30	20	300
38	2	.3	1,500	N	10	150	15	70	7	N	20	15	700
39	3	.3	3,000	N	L	150	30	150	7	N	50	20	500
40	5	.3	2,000	N	10	150	20	150	5	N	30	20	700
41	3	.3	1,500	N	L	100	15	70	5	N	15	15	300
42	5	.3	3,000	N	L	150	20	150	5	N	30	20	500
43	3	.3	3,000	N	10	150	20	150	10	N	30	15	300
44	7	.5	3,000	N	10	200	20	150	7	N	30	20	700
45	7	.5	3,000	N	10	200	15	150	5	N	30	30	500
46	5	.2	1,500	N	10	70	700	2,000	20	N	1,000	15	150
47	5	.3	1,500	N	10	70	700	3,000	70	N	1,000	L	200
48	3	.2	1,500	N	L	70	300	1,500	5	N	1,000	L	150
49	3	.3	3,000	1	L	150	300	1,500	10	N	700	L	200
52	7	.7	3,000	N	10	70	50	200	70	N	70	L	150
54	7	1	1,500	N	10	30	30	150	30	N	70	N	100
55	7	.7	3,000	N	30	50	50	150	100	N	70	10	100
56	7	.7	1,500	N	20	150	70	150	100	N	150	10	100
57	3	.3	1,000	N	L	100	300	1,500	15	N	500	N	150
							Panned concentrates[69]						
3	20	G(1)	5,000	N	N	N	50	G(5,000)	7	N	700	N	N
15	20	1	2,000	N	N	100	50	G(5,000)	10	N	700	N	100
17	20	G(1)	2,000	N	N	20	50	G(5,000)	7	N	700	N	100
25	G(20)	1	3,000	N	N	L	50	G(5,000)	10	N	1,000	N	L
28	G(20)	G(1)	3,000	N	N	50	50	1,500	15	N	50	N	100

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm) V (10)	Zn (200)	Zr (10)	Chemical analyses AA (ppm) Au (0.02)	Cu (10)	Zn (25)	Inst. (ppm) Hg (0.01)	Colorimetric (ppm) cxHM (0.5)	cxCu (1)	Sample description[1]
						Area II				
						Stream sediments				
1	70	N	50	---	41	63	---	16	4	
2	70	N	10	---	25	29	---	2	1	
3	200	N	50	---	59	34	---	2	4	
4	150	N	50	---	42	36	---	4	3	
6	150	N	200	---	20	53	---	3	1	
7	100	N	100	---	37	60	---	2	2	
8	150	N	100	---	51	37	---	2	4	
12	100	N	200	---	37	66	---	6	2	
13	100	N	200	---	18	63	---	5	1	
14	70	N	100	---	12	50	---	2	1	
15	100	N	300	---	15	48	---	5	1	
16	150	N	G(1,000)	---	12	38	---	4	L	
17	150	N	1,000	---	13	40	---	4	L	
18	70	N	70	---	48	50	---	10	6	
19	70	N	200	---	41	56	---	10	1	
20	70	N	100	---	25	51	---	5	2	
21	70	N	200	---	22	48	---	5	2	
23	70	N	50	---	20	34	---	3	1	
24	100	N	100	---	31	46	---	8	1	
25	100	N	100	---	20	37	---	5	1	
26	500	L	150	---	72	55	---	5	1	
27	100	N	150	---	20	45	---	5	L	
28	150	N	200	---	23	40	---	1	L	
29	100	N	150	---	22	46	---	3	L	
30	100	N	300	---	20	36	---	1	1	
31	100	N	150	---	20	37	---	1	1	
32	100	N	200	---	19	38	---	1	1	
33	100	N	200	---	37	20	---	1	1	
34	200	N	300	---	L*	62*	---	8	L	
36	200	N	300	---	12	74	---	10	L	
37	200	N	300	---	L	54	---	5	L	
38	150	N	300	---	L	40	---	8	L	
39	300	N	200	---	L+	L+	---	6	L	
40	300	N	300	---	L	40	---	2	L	
41	150	N	700	---	L*	25*	---	4	L	
42	300	N	300	---	L+	31+	---	2	INS	
43	300	N	300	---	10	37	---	4	L	
44	300	N	300	---	INS	INS	---	4	INS	
45	300	N	1,000	---	L	32	---	2	L	
46	200	N	300	---	12	49	---	5	L	
47	200	N	200	---	24	47	---	3	1	
48	150	N	150	---	19	44	---	4	L	
49	200	N	200	---	44	48	---	5	2	
52	300	L	100	---	47	29	---	4	3	
54	500	L	100	---	28	25	---	2	L	
55	500	L	150	---	73	61	---	5	3	
56	300	N	100	---	62	88	---	4	L	
57	150	L	50	---	30	50	---	4	1	
						Panned concentrates[69]				
3	1,000	500	N	L(.04)	---	---	---	---	---	
15	700	N	G(1,000)	L(.02)	---	---	---	---	---	
17	1,000	N	G(1,000)	.05	---	---	---	---	---	
25	1,000	200	G(1,000)	L(.5)	---	---	---	---	---	
28	1,000	N	1,000	L(.4)	---	---	---	---	---	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses												
	(percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area II--Continued							
						Panned concentrates[69]--Continued							
30	G(20)	G(1)	3,000	N	N	L	50	1,500	7	N	30	N	L
31	G(20)	1	3,000	N	L	L	70	G(5,000)	10	N	50	N	100
33	G(20)	G(1)	3,000	0.5	L	70	50	G(5,000)	L	N	1,000	N	100
42	20	.5	1,500	N	30	30	700	G(5,000)	15	N	1,500	N	N
56[70]	10	G(1)	3,000	N	50	150	70	500	50	N	100	L	150
						Rock samples							
5	7	.5	1,500	N	N	N	30	150	20	N	50	N	100
9	5	.07	300	5	L	20	30	1,000	1,500	15	700	1,500	L
10	2	.07	300	5	10	150	10	150	70	10	70	1,000	L
11	7	.07	1,500	1.5	L	100	70	1,500	15	N	1,000	50	150
22	5	1	1,500	N	N	700	15	50	L	N	10	10	300
35	3	.3	1,500	N	N	300	10	70	5	N	30	L	700
50	2	.3	150	N	N	150	L	15	30	30	5	10	150
51	.7	.015	70	N	N	20	7	10	50	N	20	N	N
53	.7	.07	150	N	N	L	5	150	5	N	5	N	N
						Area JJ							
						Stream sediments							
2	5	.7	1,500	N	L	70	50	300	20	N	150	10	200
3	5	.5	1,500	N	L	70	50	200	30	N	100	N	150
4	3	.3	1,500	N	L	70	30	150	15	N	70	20	150
5	5	.5	1,500	N	L	70	50	200	30	N	100	10	150
6	5	.7	2,000	N	15	70	50	150	70	N	70	N	100
7	5	.5	1,500	N	30	50	50	150	70	N	100	10	L
8	3	.3	1,000	N	L	150	30	150	5	N	50	15	150
9	3	.5	1,500	N	L	150	50	300	30	N	70	10	200
10	3	.3	1,500	N	10	150	20	300	15	N	70	L	200
11	3	.3	1,500	N	L	70	50	300	15	N	150	L	150
12	3	.5	1,500	N	L	100	50	200	10	N	70	L	150
13	3	.3	1,500	N	L	150	50	200	15	N	70	L	200
14	3	.3	1,500	N	L	100	30	150	15	N	70	L	150
15	3	.5	1,500	N	10	150	50	200	30	N	100	30	200
16	3	.5	1,500	N	L	150	70	200	30	N	150	L	150
17	3	.7	1,500	N	20	150	70	300	50	N	150	10	100
18	5	.7	2,000	N	10	150	50	300	20	N	150	L	150
19	2	.2	700	N	L	70	10	70	5	N	30	L	100
20	3	.5	2,000	N	L	150	20	150	10	N	70	L	150
21	3	.3	1,500	N	L	150	50	150	20	N	100	L	150
22	5	.5	2,000	N	15	200	70	200	70	N	150	10	150
24	3	.3	1,500	N	L	150	15	100	10	N	30	L	150
25	3	.3	1,500	N	L	200	20	150	10	N	30	L	200
26	3	.5	1,500	N	L	150	15	150	10	N	30	10	200
27	5	.5	1,500	N	L	200	20	150	10	N	50	10	300
28	3	.5	2,000	N	L	200	20	150	7	N	30	L	200
29	5	.5	2,000	N	L	150	15	150	10	N	50	L	200
30	3	.3	1,500	N	L	100	10	70	10	N	30	10	150
31	3	.5	1,000	N	L	150	15	100	10	N	30	10	200
32	3	.2	1,500	N	L	70	10	50	7	N	20	L	100
34	3	.3	1,500	N	L	150	15	150	7	N	50	10	150
35	3	.7	1,500	N	L	150	20	150	7	N	50	L	200
36	3	.3	1,500	N	L	150	10	70	10	N	20	10	150
37	7	.7	2,000	N	L	200	20	150	15	N	30	L	300
38	5	.7	1,500	N	L	150	20	150	15	N	50	15	200

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses: AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		Sample description[1]
	V (10)	Zn (200)	Zr (10)	Zu (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
						Area II--Continued				
						Panned concentrates[69]--Continued				
30	1,000	N	700	L(0.2)	---	---	---	---	---	
31	1,000	300	700	L(.15)	---	---	---	---	---	
33	2,000	L	700	L(.15)	---	---	---	---	---	
42	1,000	1,000	300	L(.4)	---	---	---	---	---	
56[70]	500	300	100	L(.2)	---	---	---	---	---	
						Rock samples				
5	200	N	20	L(.02)	---	---	0.07	---	---	Gabbro.
9	70	N	20	20	---	---	.18	---	---	Py-serp-qtz, dump, Klatt mine.
10	50	N	50	21	---	---	.11	---	---	Py qtz vein, Klatt mine.
11	70	N	20	.9	---	---	.10	---	---	Dump, adit.
22	300	N	150	.04	---	---	.06	---	---	Qd.
35	150	N	20	L(.02)	---	---	.05	---	---	Gd.
50	150	N	150	.3	---	---	.05	---	---	FeOx st qzt, Loftus mine.
51	20	N	20	1.6	---	---	.16	---	---	Cut, Loftus mine.
53	20	N	N	L(.02)	---	---	.05	---	---	Qtz vein in amph.
						Area JJ				
						Stream sediments				
2	200	N	150	---	28	30	---	2	L	
3	300	L	30	---	58	36	---	2	L	
4	200	N	300	---	26	32	---	4	L	
5	300	N	30	---	48	37	---	4	1	
6	300	L	100	---	46	40	---	2	1	
7	300	L	70	---	92	55	---	6	1	
8	150	N	150	---	28	60	---	4	L	
9	300	N	150	---	32	54	---	5	L	
10	300	N	150	---	32	43	---	4	L	
11	200	N	100	---	31	37	---	2	L	
12	200	N	300	---	28	43	---	4	L	
13	200	N	300	---	30	78	---	16	L	
14	150	N	150	---	37	47	---	4	L	
15	300	N	200	---	47	59	---	2	1	
16	300	N	150	---	44	67	---	2	L	
17	200	N	100	---	41	58	---	4	L	
18	200	N	100	---	56	62	---	4	1	
19	150	N	150	---	20	60	---	5	L	
20	200	N	150	---	30	48	---	4	L	
21	150	N	100	---	46	65	---	4	L	
22	200	N	100	---	48	70	---	2	L	
24	200	N	200	---	27	60	---	5	L	
25	200	N	300	---	32	55	---	2	L	
26	200	N	300	---	30	50	---	2	L	
27	300	N	300	---	100*	90*	---	2	1	
28	200	N	300	---	24	49	---	2	L	
29	200	N	300	---	19	40	---	2	L	
30	200	N	150	---	26	44	---	2	L	
31	200	N	200	---	22	34	---	2	L	
32	200	N	150	---	38	63	---	2	1	
34	200	N	300	---	21	43	---	2	L	
35	300	N	300	---	19	37	---	2	L	
36	150	N	150	---	12	46	---	4	L	
37	200	N	700	---	11	37	---	2	L	
38	150	N	300	---	28*	50*	---	2	L	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
Area JJ--Continued													
Stream sediments--Continued													
39	3	.5	1,500	N	L	300	15	150	15	N	30	10	300
Panned concentrates													
5	15	G(1)	1,500	N	30	L	50	700	70	N	100	N	N
7	10	1	2,000	N	150	L	30	300	100	N	70	N	L
10	G(20)	G(1)	1,000	N	50	70	50	700	10	N	100	N	N
13	20	G(1)	2,000	N	30	70	70	1,500	10	N	150	N	L
16	20	G(1)	2,000	N	30	70	50	1,500	20	N	70	N	N
18	10	1	1,500	N	30	30	50	700	70	N	100	N	N
21	15	.7	1,500	N	30	30	70	1,500	70	N	100	N	N
25[71]	15	G(1)	3,000	10	30	70	50	3,000	150	N	100	N	100
27	7	.7	1,500	1.5	70	30	30	200	150	N	70	N	150
28	7	.3	200	N	30	20	30	700	100	N	70	N	100
32	20	G(1)	1,500	N	30	70	30	300	15	N	20	N	N
35	20	G(1)	1,000	N	70	30	30	700	15	N	30	N	N
Rock samples													
1	7	.7	1,500	N	10	70	50	300	70	N	70	N	150
23	1.5	.1	200	N	N	500	N	L	5	N	L	L	500
33	3	.3	1,000	N	N	150	5	20	10	N	7	L	500
Area KK													
Stream sediments													
1	3	.5	700	N	L	70	100	500	50	N	150	10	N
2	5	1	2,000	N	10	100	70	200	70	N	150	10	150
3	7	G(1)	2,000	1	10	150	100	500	100	N	150	10	200
4	7	G(1)	2,000	N	L	150	70	500	70	N	150	10	200
5	7	1	1,500	N	10	70	150	700	70	N	200	20	150
6	7	.3	1,500	N	20	50	1,000	2,000	30	N	3,000	L	N
7	3	.2	1,500	N	L	70	700	1,500	30	N	1,500	L	N
8	3	.3	1,500	N	10	100	300	1,500	50	N	700	L	150
9	3	.1	1,000	N	100	30	700	1,500	20	N	1,500	N	N
10	7	.7	3,000	N	70	70	700	3,000	50	N	1,500	N	100
11	7	.7	2,000	N	L	70	700	2,000	70	N	1,000	N	150
13	5	.7	1,500	N	50	50	300	1,000	70	N	500	10	100
14	3	.3	1,000	N	100	70	700	1,500	50	N	1,500	10	100
15	2	.3	500	N	10	70	150	300	50	N	150	30	100
16	5	.3	1,500	N	70	70	700	2,000	70	N	1,500	N	150
17	5	.5	1,000	N	70	70	500	2,000	70	N	1,000	10	150
18	3	.7	1,000	N	10	100	200	500	70	N	300	L	150
19	5	.5	1,000	N	50	100	500	1,500	70	N	1,000	L	150
20	3	.3	1,500	N	20	50	150	300	150	N	200	N	100
22	3	.2	1,500	N	L	70	70	700	70	N	150	L	100
24	3	.5	1,500	N	20	70	150	500	150	N	200	N	100
25	3	.3	1,500	N	15	70	150	700	100	N	300	N	100
26	3	.3	1,500	N	20	70	150	700	150	N	200	N	100
27	7	.5	1,000	N	50	100	300	1,500	100	N	700	10	150
28	5	.5	1,000	N	50	100	300	1,500	70	N	1,000	L	150
29	5	.5	1,000	N	50	100	300	1,500	70	N	700	L	150
31[72]	2	.2	300	N	20	100	10	300	15	N	100	50	100

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm)			Chemical analyses						Sample description[1]
				AA (ppm)			Inst. (ppm)	Colorimetric (ppm)		
	V (10)	Zn (200)	Zr (10)	Au (0.02)	Cu (10)	Zn (25)	Hg (0.01)	cxHM (0.5)	cxCu (1)	
							Area JJ--Continued			
							Stream sediments--Continued			
39	200	N	700	---	13	40	---	2	L	
							Panned concentrates			
5	700	300	200	L(0.03)	---	---	---	---	---	
7	300	300	15	L(.02)	---	---	---	---	---	
10	1,500	500	300	L(.3)	---	---	---	---	---	
13	1,500	300	300	L(.12)	---	---	---	---	---	
16	1,500	300	G(1,000)	L(.8)	---	---	---	---	---	
18	700	200	300	1.6	---	---	---	---	---	
21	1,500	300	200	L(.03)	---	---	---	---	---	
25[71]	500	200	200	34	---	---	---	---	---	
27	500	200	150	1.6	---	---	---	---	---	
28	300	200	150	3	---	---	---	---	---	
32	1,000	300	200	L(.8)	---	---	---	---	---	
35	1,500	300	300	L(.02)	---	---	---	---	---	
							Rock samples			
1	500	L	30	L(.02)	---	---	0.05	---	---	Qtz bio sch.
23	30	N	30	L(.02)	---	---	.04	---	---	Qd.
33	150	N	N	L(.02)	---	---	.04	---	---	Do.
							Area KK			
							Stream sediments			
1	150	N	30	---	78	86	---	2	4	
2	300	N	150	---	76	77	---	2	2	
3	300	L	150	---	87	77	---	4	4	
4	300	N	200	---	68	80	---	2	2	
5	300	N	150	---	58*	92*	---	6	4	
6	150	L	20	---	45	67	---	4	2	
7	150	L	15	---	46	67	---	2	2	
8	300	L	30	---	55	57	---	4	2	
9	150	N	10	---	26	42	---	2	2	
10	200	N	100	---	45	50	---	4	2	
11	300	N	30	---	59	43	---	3	3	
13	200	N	30	---	58*	53*	---	5	2	
14	200	N	50	---	42*	50*	---	4	4	
15	100	N	30	---	40*	65*	---	INS	INS	
16	300	L	50	---	41	48	---	2	3	
17	300	L	70	---	55	59	---	4	3	
18	150	N	150	---	41	69	---	3	1	
19	200	N	100	---	43	54	---	5	3	
20	300	N	30	---	170	92	---	5	20	
22	200	N	20	---	86	47	---	5	4	
24	300	N	50	---	160	78	---	2	15	
25	300	N	30	---	120	72	---	4	10	
26	300	N	50	---	130	66	---	2	10	
27	300	L	100	---	55	48	---	4	4	
28	300	L	100	---	79	66	---	5	6	
29	300	L	100	---	65	51	---	4	8	
31[72]	150	N	20	---	---	---	---	3	---	

Table 1.--*Analyses of samples from the Salmon-*

Sample	Semiquantitative spectrographic analyses (percent)		(ppm)										
	Fe (0.05)	Ti (0.002)	Mn (10)	Ag (0.5)	B (10)	Ba (20)	Co (5)	Cr (5)	Cu (5)	Mo (5)	Ni (5)	Pb (10)	Sr (100)
						Area KK--Continued							
						Panned concentrates							
3	10	1	1,000	N	15	100	150	G(5,000)	70	N	300	N	300
5	15	.7	1,500	N	30	70	150	G(5,000)	70	N	300	N	300
9	15	.3	700	N	50	50	700	G(5,000)	70	N	1,500	N	150
10[7,3]	20	.3	700	10	70	30	700	G(5,000)	70	N	1,000	N	150
16	20	.3	1,000	N	70	70	500	G(5,000)	70	N	700	N	200
18	20	.7	700	N	70	70	300	G(5,000)	30	N	500	N	300
19	20	.3	700	N	70	30	300	G(5,000)	70	N	1,000	N	100
28	20	.3	700	N	70	30	300	G(5,000)	70	N	700	N	100
						Rock samples							
12	3	.3	1,500	N	L	200	10	70	150	7	30	N	N
21	5	.2	1,500	N	15	150	5	20	150	N	15	N	300
23	5	.3	1,000	N	10	70	15	50	300	5	30	N	200
30	10	.7	1,500	N	10	150	50	700	100	N	50	N	300

[1]Abbreviations used in table:

act = actinolite
alt = altered
amph = amphibolite
and = andesite
arg = argillite
bio = biotite
brecc = breccia, brecciated
carb = carbonaceous
ch = chert
chalco = chalcopyrite
chl = chlorite
dac = dacite
diab = diabase
dio = diorite
ep = epidote, epidotized
FeOx = iron oxide
frac = fracture
gd = granodiorite
gr = granitic, granite
gs = greenstone
hb = hornblende
hfs = hornfels
lim = limonite
ls = limestone
meta = metamorphosed
min = mineral, mineralized
mv = metavolcanic
ms = metasediment
phyl = phyllite, phyllitic
por = porphyry
py = pyrite, pyritic
qd = quartz diorite
qm = quartz monzonite
qtz = quartz
qzt = quartzite
rk = rock
sch = schist
serp = serpentine, serpentinite
sh = shale
sil = siliceous, silicified, silicate(s)
sl = slate
st = stain(ed)
sulf = sulfide(s)
wx = weathered

[2]100 ppm Cd.

[3]100 ppm Cd.

[4]100 ppm La and Y.

[5]100 ppm Y.

[6]Bismuth in following samples: 1, 70 ppm; 4, 10 ppm; 5, 20 ppm; 10, 10 ppm; 14, 10 ppm; 17, 10 ppm; 26, 15 ppm; 31, 20 ppm; 36, 50 ppm; 38, 300 ppm. Also present below sensitivity limits (10) ppm in samples 2, 3, 9, 18, 21, 29, 37, and 39.

[7]Bi below sensitivity limit (10) ppm in following samples: 4, 58, 61, 64, 65, 66.

[8]100 ppm Sc and Y.

[9]G(500) Au detected spectrographically.

[10]100 ppm Sb.

[11]70 ppm Sn.

[12]2,000 ppm As.

[13]100 ppm La.

[14]30 ppm Sn.

[15]100 ppm La and 150 ppm Y.

[16]700 ppm As.

Trinity Alps study area, California--Continued

Sample	Semiquantitative spectrographic analyses--Continued (ppm) V (10)	Zn (200)	Zr (10)	Chemical analyses: AA (ppm) Au (0.02)	Cu (10)	Zn (25)	Inst. (ppm) Hg (0.01)	Colorimetric (ppm) cxHM (0.5)	cxCu (1)	Sample description[1]
							Area KK--Continued			
							Panned concentrates			
3	700	300	70	L(0.1)	---	---	---	---	---	
5	700	700	100	9.9	---	---	---	---	---	
9	700	300	70	17	---	---	---	---	---	
10[73]	1,000	300	150	4.8	---	---	---	---	---	
16	700	300	70	L(.16)	---	---	---	---	---	
18	500	300	100	L(.2)	---	---	---	---	---	
19	1,000	500	150	L(.3)	---	---	---	---	---	
28	1,000	700	150	L(.25)	---	---	---	---	---	
							Rock samples			
12	200	N	150	.04	---	---	0.04	---	---	FeOx st gouge.
21	200	N	20	L(.02)	---	---	.09	---	---	FeOx st dike.
23	300	N	15	L(.02)	---	---	.16	---	---	Py mafic dike.
30	300	N	50	L(.02)	---	---	.07	---	---	Mv.

[17]700 ppm As.

[18]100 ppm Nb.

[19]70 ppm Cd.

[20]700 ppm As.

[21]20 ppm Au detected spectrographically.

[22]100 ppm Nb.

[23]10 ppm Bi, 20 ppm Cd.

[24]10 ppm Bi.

[25]100 ppm Sc and Y.

[26]100 ppm Y.

[27]100 ppm Sc.

[28]100 ppm Sc.

[29]10 ppm Sb.

[30]500 ppm Y.

[31]100 ppm Sc in samples 3, 10, 21, and 22.

[32]100 ppm La.

[33]100 ppm La.

[34]100 ppm Y.

[35]100 ppm Y.

[36]15 ppm Au detected spectrographically.

[37]100 ppm Sc in samples 16, 41, 45, 63, 90, 93, 94, and 100.

[38]100 ppm Y.

[39]100 ppm Y.

[40]30 ppm Au detected spectrographically.

[41]100 ppm Y.

[42]100 ppm Y.

[43]150 ppm Au detected spectrographically.

[44]15 ppm Au detected spectrographically in samples 58 and 80.

[45]15 ppm Sn.

[46]3,000 ppm As, 15 ppm Bi, and 30 ppm Au detected specrographically.

[47]5,000 ppm As, L(10) Bi.

[48]100 ppm Sc in samples 6, 9, 18, and 21; 100 ppm Y in samples 3, 6, and 18; 150 ppm Y in samples 9 and 21.

[49]20 ppm Au detected spectrographically in sample 9.

[50]100 ppm Y.

[51]100 ppm Nb.

[52]100 ppm Sc.

[53]500 ppm As and 10 ppm Au detected spectrographically.

[54]150 ppm Sn.

[55]15 ppm Au detected spectrographically.

[56]200 ppm La.

[57]15 ppm Au detected spectrographically, 15 ppm Bi.

Trinity Alps study area, California--Continued

[58]100 ppm La.

[59]15 ppm Au detected spectrographically.

[60]100 ppm Y.

[61]15 ppm Au detected spectrographically.

[62]30 ppm Au detected spectrographically, 200 ppm W.

[63]50 ppm W in sample 50; 70 ppm W in samples 33 and 51.

[64]100 ppm La in samples 30 and 60; 150 ppm La in sample 37.

[65]10 ppm Au in sample 5 and 15 ppm Au in sample 1 detected spectrographically.

[66]150 ppm La in sample 9; 300 ppm La in sample 20.

[67]200 ppm La.

[68]30 ppm Au detected spectrographically.

[69]100 ppm Sc in samples 15, 17, and 28.

[70]150 ppm W in sample 56.

[71]15 ppm Au detected spectrographically in sample 25.

[72]15 ppm Sn.

[73]15 ppm Au detected spectrographically.

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