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June 16, 1987

FILE NOTE

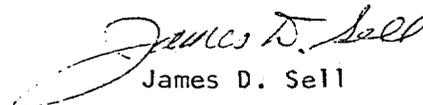
Copper Bottom  
La Cholla Mining District  
La Paz County, Arizona

In reference to P.J. Bartos' Exploration Record Sheet of June 11, 1987, I would add the following to his Conclusions and Recommendations:

1. The four anomalous samples (CB-32, 33, 34, 35) all are on or near the hematite-stained Cunningham Mountain Fault (CMF), a 30° or less SE dipping, detachment style fault.
2. The three anomalous samples (CB-24, 28, 29) lie on or near the northwest trending, unnamed, fault which offsets rock units and probably also the Cunningham Mountain fault. Thus implying mineralization post the faulting of the CMF and the unnamed fault.
3. The anomalous "hanging wall" samples CB-11, 12, 14, 18, and possibly CB-9, 16, 17, 21, located in and around the old mine workings, are 2000 to 3500 feet away from the anomalous trace of the Cunningham Mountain Fault.
4. Thus, if the overturned fold-axis in the Copper Bottom Mine area reflects a shear zone control (see P.J. Bartos' "Structure" paragraph) which intercepts the flattish CMF, then a better prepared structural intersection may host improved ore grades. The tourmaline enriched and pyritic samples in the hanging wall exposures may indicate a halo relationship to gold mineralization as such features do across the river at Tumco, California. The reported production of 100 tons of 1.6 oz./ton gold certainly suggests some economic pods in the hanging wall units.
5. Yes, even the old-timers who dug the pits and tunnels found the area intriguing--and so with us.

JDS:mek

cc: P.J. Bartos  
W.L. Kurtz  
Copper Bottom ERS

  
James D. Sell

JDS

6/17/87

FROM: W. L. KURIZ

To: DL Brown / HT Graybeal

An example of the critical review JDSell is making of reports and ERSS's submitted to him:

# ASARCO

JDS - good review, additions BUT  
does this make a drill target?  
Southwestern Exploration Division

June 16, 1987

*Probably not  
without a further  
field review by  
usins.*

*J.*

FILE NOTE

Copper Bottom  
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4. Thus, if the overturned fold-axis in the Copper Bottom Mine area reflects a shear zone control (see P.J. Bartos' "Structure" paragraph) which intercepts the flattish CMF, then a better prepared structural intersection may host improved ore grades. The tourmaline enriched and pyritic samples in the hanging wall exposures may indicate a halo relationship to gold mineralization as such features do across the river at Tumco, California. The reported production of 100 tons of 1.6 oz./ton gold certainly suggests some economic pods in the hanging wall units.
5. Yes, even the old-timers who dug the pits and tunnels found the area intriguing--and so with us.

JDS:mek

*James D. Sell*  
James D. Sell

cc: P.J. Bartos  
W.L. Kurtz  
Copper Bottom ERS

ASARCO EXPLORATION RECORD  
(Attach Highway-Type Location Map)

FIELD EXAMINATION /X/ LITERATURE SEARCH / /  
ASARCO FILE / / SUBMITTAL / /

SECTION 1: GENERAL INDEXING

NAME OF PROPERTY OR AREA: Copper Bottom  
MINING DISTRICT: La Cholla  
COUNTY: La Paz  
STATE OR PROVINCE: Arizona  
LATITUDE: 33°35'  
LONGITUDE: 114°20'  
FILE:  
AMS SHEET: Salton Sea  
USGS QUADRANGLE: Cunningham Mtn. 7 1/2  
TOWNSHIP: T3N, R20W  
SECTION: 28  
EXAMINED BY: Paul J. Bartos  
OFFICE: RMED  
FIELD DAYS: 2  
DATE ENTERED: June 11, 1987

SECTION 2: SOURCES OF INFORMATION

REFERENCES:  
Marshak, S., 1980, A preliminary study of Mesozoic geology in the southern Dome Rock Mountains, southwestern Arizona: Arizona Geol. Soc. Digest, v. 12, p. 123-133.

SECTION 3: APPRAISAL

CONCLUSIONS: Action Now / /; Too Low Grade /X/; Too Small / /;  
Ownership Problem / /; Access Problem; / /  
BASIS: Geologic Concept /X/; Geochemical Anomaly / /;  
Geophysical Anomaly / /; Other / /  
SUPPORT DATA: Spectrographic Analysis Attached / /; Assays Attached /X/  
Geochemical Results Attached / /; Geophysical Results Attached / /  
Geologic Map Attached /X/; Other / /  
HISTORY: Producer / /; Past Producer /X/; Prospect / /;  
Mineral Deposit / /; Mineral Occurrence / /  
PRODUCTION (Commodity, Tons, Grade): 100 tons, 19% Cu, 1.6 oz/T Au,  
27 oz/T Ag  
RESERVES (Commodity, Tons, Grade): Measured / /; Estimated / /  
NUMBER OF DRILL HOLES: 0  
APPROXIMATE TOTAL FOOTAGE: 0  
EXCAVATIONS: Several tunnels and shafts on property

*but not in  
PJB's  
samples.*

=====

SECTION 4: GEOLOGIC DATA

-----

COMMODITY: Au, Ag, Cu

ORE MINERALS (Major and Minor): quartz, tetrahedrite, native Au

HOST ROCKS (Major and Minor): Calcareous quartz sandstone interbedded with phyllite

AGES OF HOST ROCKS: Mesozoic

NATURE OF EXPOSURES: Steep cliff face. Major NW left lateral fault, poorly exposed in wash.

ALTERATION: Minimal (Qtz veins in qtzite w/ little or no selvages).

TOTAL EXTENT OF ALTERATION: ---

STRUCTURE: Veins localized by a pair of overturned synclines. Major left-lateral strike-slip fault occurs in area. Detachment fault underlies the mine at shallow depth.

ORE OCCURRENCE: Ore occurs as a series of qtz-tourmaline ± bn calcite veins perpendicular to bedding.

AGE OF MINERALIZATION: ?

CONCLUSIONS AND RECOMMENDATIONS:

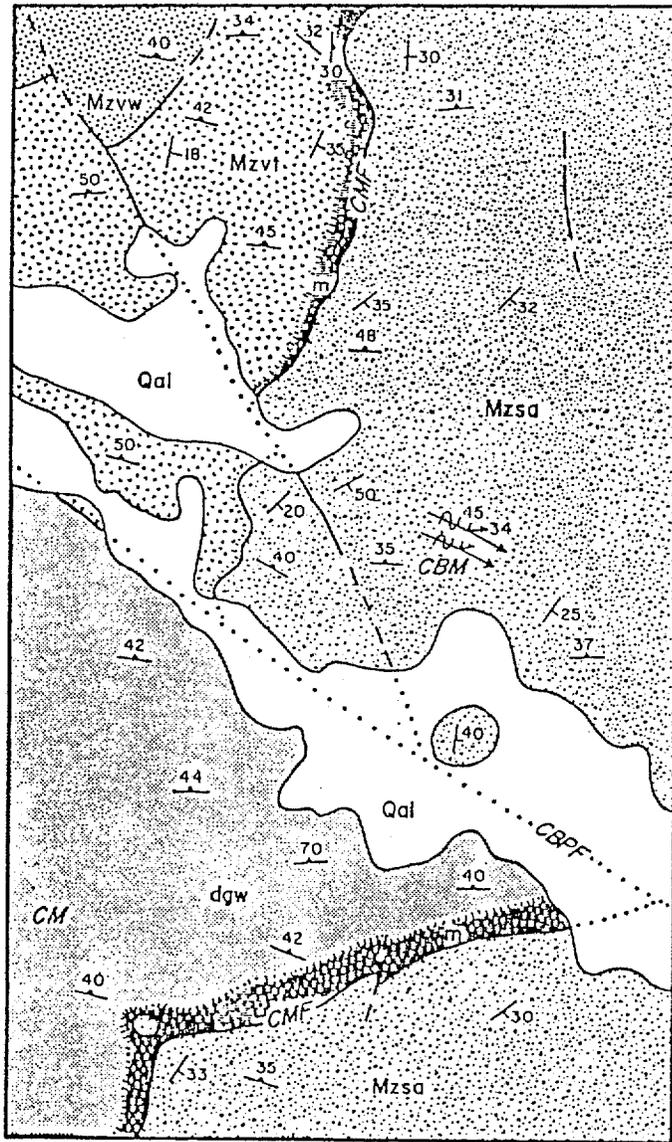
Copper Bottom consists of a series of metamorphic(?) quartz-tourmaline veins perpendicular to bedding in quartzite. The veins die out in the interbedded phyllites. Crude channel samples of veins and wallrock contain scattered anomalies of As, Sb, Te, and rarely Mo and Ag but NO Au. The anomalies are not particularly consistent and they typically occur on developed workings or associated with locally occurring Cu-oxides. A detachment fault occurs at shallow depth beneath the metamorphic veins. A hematized portion of the detachment is anomalous in As, but overall the detachment does not look like a particularly favorable structure. Although intriguing, I do not believe any further work in Copper Bottom is warranted.

*of Cu, Mo, Zn & Ga*

AUTHOR'S SIGNATURE:

DATE: June 11, 1987

*Paul Bantos*



### GENERALIZED GEOLOGIC MAP, COPPER BOTTOM PASS AREA

- QAL QUATERNARY ALLUVIUM
- M MYLONITE SCHIST
- MZSA MESOZOIC SEDIMENTARY ROCKS, UNIT A
- MZVT MESOZOIC META-VOLCANICS, TUFF AND ANDESITE(?)
- MZVW MESOZOIC TAN META-VOLCANIC WACKE
- DGW DARK GREY META-VOLCANIC WACKE OF CUNNINGHAM MT.
- DEPOSITIONAL CONTACT
- GRADATIONAL CONTACT
- FAULT
- STRIKE AND DIP OF BEDDING
- STRIKE AND DIP OF FOLIATION
- FOLD - STRIKE AND DIP OF AXIAL PLANE, TREND AND PLUNGE OF FOLD AXIS SHOWN, WITH DOWN - FOLD PROFILE

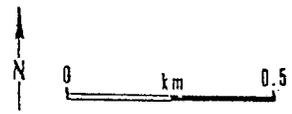
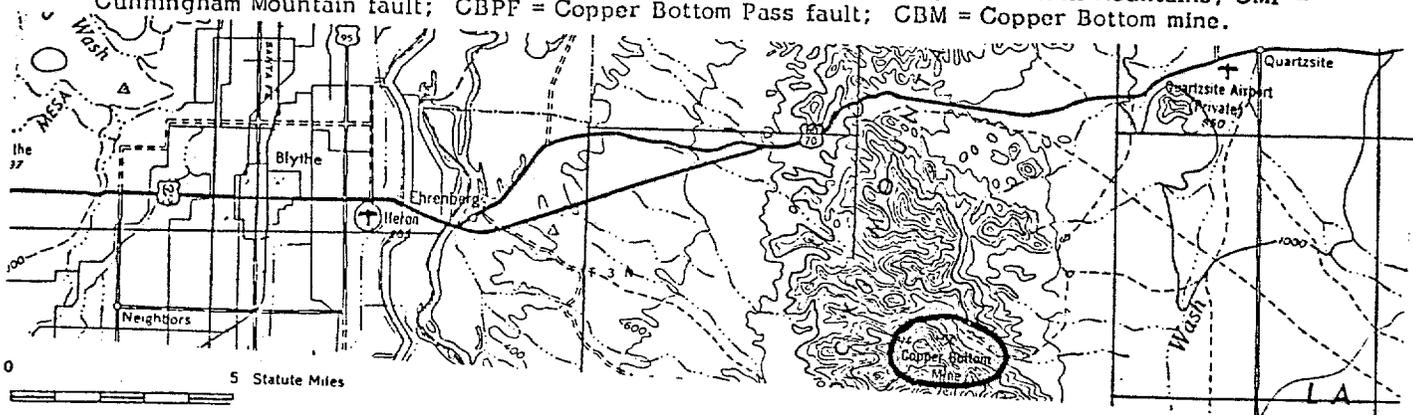


Fig. 4. Generalized geologic map of the Copper Bottom Pass area, Dome Rock Mountains, CMF = Cunnigham Mountain fault; CBPF = Copper Bottom Pass fault; CBM = Copper Bottom mine.





# GEOCHEMICAL ANALYSIS REPORT

LOT ID: ASC-703190

PAGE 1

SAMPLE ID	#	Ag ppm	As ppm	Au ppm	Cu ppm	Hg ppm	Mo ppm	Pb ppm	Sb ppm	Tl ppm	Zn ppm	Bi ppm	Cd ppm	Ga ppm	Pd ppm	Pt ppm	Se ppm	Sn ppm	Te ppm
CB 1	14	.106	<1.30	.003	14.1	<.09	1.31	31.8	1.07	<.45	4.24	<.225	<.249	<.45	<.09	<.225	<.901	<.45	<.45
CB 2	15	.100	<.963	.003	28.5	<.096	1.04	1.90	3.60	<.482	4.71	<.241	<.241	<.482	<.096	<.241	<.963	.507	<.482
CB 3	16	.110	<1.12	.003	10.8	.140	1.39	1.02	2.81	<.433	4.06	<.217	<.217	<.433	<.087	<.217	<.867	.456	<.433
CB 4	17	.087	<2.03	.003	16.2	<.093	1.35	.852	3.86	<.467	3.93	<.234	<.234	<.467	<.093	<.234	<1.31	.469	<.467
CB 5	18	.097	1.26	.003	23.6	<.087	1.14	.691	3.94	<.435	4.29	<.217	<.217	<.435	<.087	<.217	<1.74	<.435	<.435
CB 6	19	.038	1.47	.003	60.6	.217	.845	1.18	1.71	<.462	18.2	<.231	<.231	<.462	<.092	<.231	<1.93	.516	<.462
CB 7	20	.228	<.862	.002	5.49	<.086	.525	1.11	.453	<.431	3.92	<.216	<.216	<.431	<.086	<.216	<.862	<.431	<.431
CB 8	21	.071	4.67	.003	8.44	.139	3.90	3.65	1.20	<.484	21.5	<.242	.311	<.484	<.097	<.242	<1.64	<.484	<.484
CB 9	22	.09	1.65	.003	151.	.105	3.28	2.58	1.20	<.454	7.20	.664	<.227	<.454	<.091	<.227	<.907	<.454	.483
CB 10	23	.071	6.09	.003	40.6	.092	2.13	6.85	4.44	<.453	28.3	.386	.352	<.453	<.091	<.226	<1.93	<.453	<.453
CB 11	24	.932	298.	.024	3973	19.3	3.33	3.04	1167	<.441	419.	<.22	5.53	<.441	<.088	<.22	<.999	<.441	<.441
CB 12	25	.098	8.57	.003	86.0	.363	2.10	1.25	30.1	<.436	32.8	<.218	.256	<.436	<.087	<.218	<1.52	<.436	<.436
CB 13	26	.026	1.25	.003	8.83	<.084	.416	3.29	3.33	<.422	41.2	<.211	<.311	<.422	<.084	<.211	<1.37	.500	<.422
CB 14	27	.118	6.53	.003	88.4	.169	1.64	.915	12.0	<.447	11.1	<.224	<.224	<.447	<.089	<.224	<2.91	<.447	<.447
CB 15	28	.065	3.34	.005	64.5	<.087	1.44	.840	2.34	<.433	8.27	.266	<.217	<.433	<.087	<.217	<.867	.485	<.433
CB 16	29	.067	1.55	.005	116.	<.095	.339	1.27	1.34	<.475	22.3	.295	.416	<.475	<.095	<.238	<2.07	<.475	<.475
CB 17	30	.144	2.98	.002	147.	<.092	2.08	1.16	5.78	<.461	5.90	<.231	.370	<.461	<.092	<.231	<.923	.470	<.461

Ag > 1 As > 10

Hg > 1

Se > 10

Te > 1



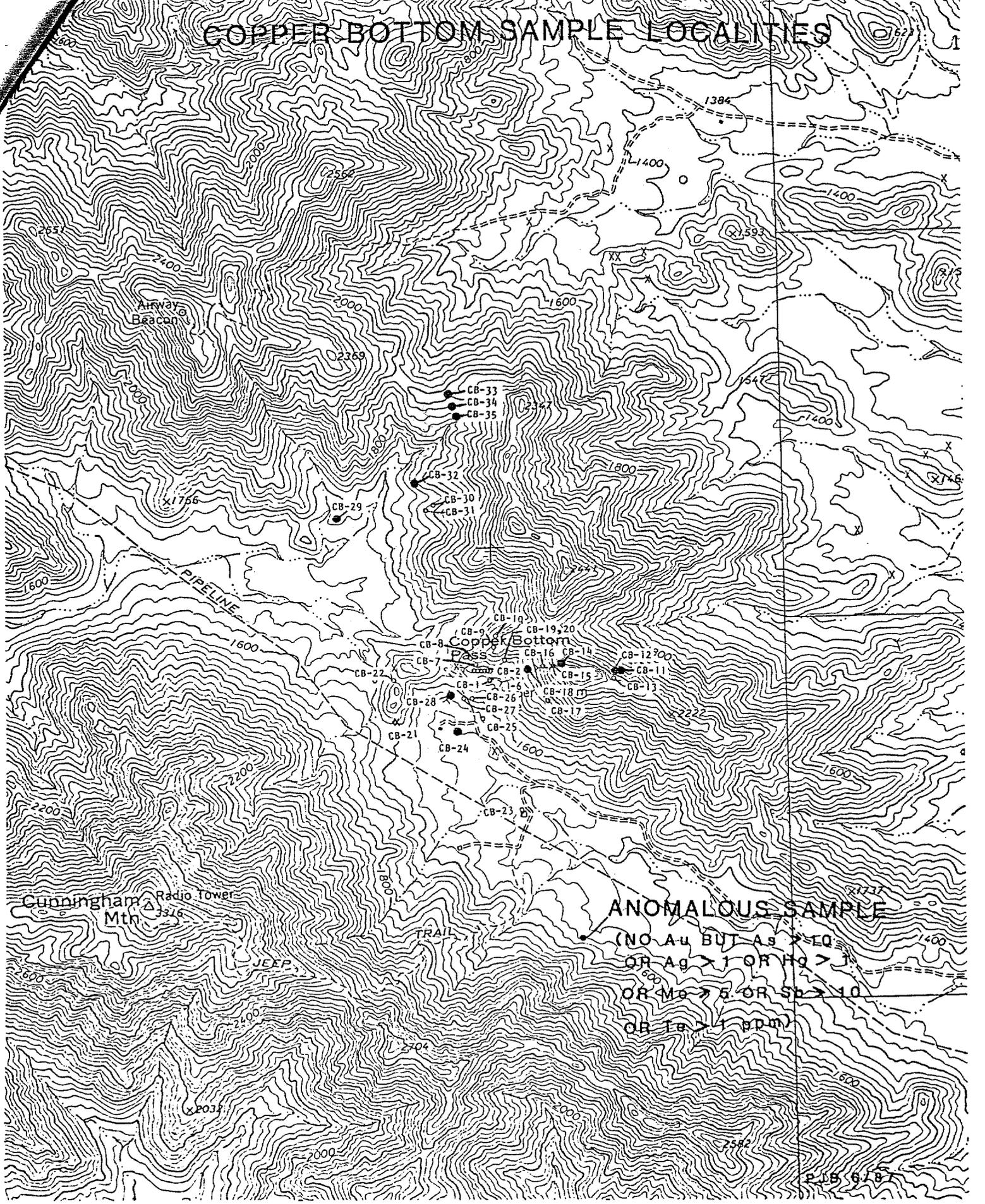
# GEOCHEMICAL ANALYSIS REPORT

LOT ID: ASC-70319D

PAGE 2

SAMPLE ID	#	Ag ppm	As ppm	Au ppm	Cu ppm	Hg ppm	Mo ppm	Pb ppm	Sb ppm	Tl ppm	Zn ppm	Bi ppm	Cd ppm	Ga ppm	Pd ppm	Pt ppm	Se ppm	Sn ppm	Te ppm
CB 18	31	.463	16.7	.004	206.	.171	2.24	14.8	52.2	<.461	75.5	<.231	1.19	<.461	<.092	<.231	<1.07	<.461	1.45
CB 19	32	.136	2.78	.003	95.3	<.087	2.38	2.65	3.55	<.433	5.61	<.216	.340	<.433	<.087	<.216	<.865	.595	<.433
CB 20	33	<.024	<1.17	.003	14.3	<.095	.176	1.96	<.238	<.476	23.9	<.238	<.238	<.476	<.095	<.238	<.952	<.476	<.476
CB 21	34	.049	4.95	.017	3.35	.156	1.70	35.7	<.233	<.466	8.94	.337	.819	<.466	<.093	<.233	<1.33	<.466	8.84
CB 22	35	.066	<.967	.003	5.20	.130	.851	13.9	<.242	<.484	6.57	.717	.985	<.484	<.097	<.242	<1.50	<.484	.696
CB 23	36	.028	.876	.003	7.03	<.084	2.73	5.97	1.38	<.419	8.22	<.21	.283	<.419	<.084	<.21	<1.13	<.419	<.419
CB 24	37	<.022	9.17	.004	42.2	.188	38.3	9.10	3.82	<.43	34.2	97.3	.352	<.43	<.086	<.215	12.4	<.43	47.2
CB 25	38	.143	2.70	.004	60.2	<.095	1.76	6.24	7.65	<.475	6.94	.646	.505	<.475	<.095	<.238	<.987	<.475	<.475
CB 26	39	.084	1.69	.003	33.9	<.088	2.13	2.26	3.21	<.438	6.73	4.62	<.219	<.438	<.088	<.219	<1.12	.572	.557
CB 27	40	.082	<1.06	.003	4.41	<.107	.558	2.65	<.231	<.461	22.4	<.231	.303	<.461	<.092	<.231	<1.38	<.461	<.461
CB 28	41	2.14	9.48	.01	11.7K	10.6	11.0	75.8	8.29	<.488	12.7	1.67	.674	<.488	<.098	<.244	<.984	<.488	<.488
CB 29	42	.100	78.8	.002	96.6	.132	4.35	20.7	<.235	<.47	83.6	.356	.465	2.16	<.094	<.235	<1.39	.569	<.47
CB 30	43	<.023	2.35	.002	22.3	<.091	2.09	3.67	<.229	<.457	5.65	<.229	.256	<.457	<.091	<.229	<.970	.467	<.457
CB 31	44	<.023	5.90	.003	5.17	<.092	<.092	3.58	<.231	<.461	16.0	<.231	.235	<.461	<.092	<.231	<1.90	<.461	<.461
CB 32	45	.026	27.3	.004	70.5	<.094	.953	3.30	<.235	<.471	109.	.241	.345	5.26	<.094	<.235	<1.34	<.471	<.471
CB 33	46	.032	27.8	.003	65.2	<.085	1.58	3.58	<.212	<.423	123.	<.212	.381	5.04	<.085	<.212	<.846	<.423	<.423
CB 34	47	.053	36.0	.004	83.6	<.088	4.47	4.37	<.240	<.44	144.	<.22	.454	6.40	<.088	<.22	<1.76	<.44	<.44
CB 35	48	.057	48.9	.004	126.	<.09	2.34	3.67	<.261	<.448	189.	<.224	.435	9.68	<.09	<.224	<1.10	<.448	<.448

# COPPER BOTTOM SAMPLE LOCALITIES



## ANOMALOUS SAMPLE

(NO Au BUT As > 10  
OR Ag > 1 OR Hg > 3  
OR Mo > 5 OR Sb > 10  
OR Te > 1 ppm)

Copper Bottom  
 La Paz County, Arizona  
 Sample Description

- CB-1 Qtz-tourmaline veins in white bleached(?) qtzite. Veins 1-4" across, strike 340, (NNW) 85°, sample approx. 15', includes wallrock and veins. Vein zone (higher up hill approx. 60' wide). This appears to be hanging wall of Copper Basin Mine.
- CB-2 Same as CB-1, approx. 10' channel sample of veins and qtzite wallrock, approx. 25% qtz vein.
- CB-3 Same as CB-1, approx. 20' channel sample of qtz-tourm veins and qtz wallrock.
- CB-4 Approx. 30' channel sample of qtz-tour veins (1-6") and white qtzite wall, tourmaline principally restricted to vein-wallrock contact.
- CB-5 Same as CB-4 (behind small ridge), approx. 30 ft. of vein zone. Samples started east and in qtzite are working west.
- CB-6 Slightly lower, approx. 20 channel sample of tourmaline bearing, pyritized schist, poorly exposed, mostly covered by talus below qtzite, more or less below sample CB-5, contact: 31S, 45N. Veins pinch down in the phyllite.
- CB-7 Brecciated, sheared qtzite, no qtz veinfilling, zone of shearing (multiple directions) approx. 30'.
- CB-8 Irregular qtz-brown calcite-tourmaline vein pod in sericite-tourmaline-pyrite phyllite and qtzitic ss. Vein pod essentially restricted to coarser grained qtzitic ss.
- CB-9 White qtz stockwork zone at qtzite-phyllite (w/ large py cubes up to 3/4") contact, veins tend to strike 350° -- some veins clearly // to bedding. Most veins die upon reaching the phyllite.
- CB-10 Qtz-(brn cal)-tour stockwork in qtzitic-muscovite tourmaline ss.
- CB-11 Qtz vein stockwork in white qtzite. Local amounts of Cu-oxide veins approx. 2-3 per foot. Veins (1/2-3") are perpendicular to bedding. Phyllite below qtzite has only minimal veins. It appears that the qtz veins are "metamorphic segregations" from the ss bed. Strike of bed: 240, 245. Veins have same strike (approx. vertical dip).
- CB-12 Contact between qtz-tour-(brn calc) veined qtzite and weakly pyritized phyllite which has a feq qtz vnlts. Sample approx. 50% of each rock type.
- CB-13 Grey phyllite above qtzite, sericite py casts (3-5%), essentially no qtz veining.
- CB-14 Qtz-tourmaline vein in qtzite. Again underlying phyllite is qtz vnlts free (but does have pyrite). Sample is of veins and wallrock, approx. 10 ft. channel sample.
- CB-15 Light tan qtzite cut by qtz-tour-brn cal vnlts.
- CB-16 Pyritized (5%) sericite phyllite adjacent to vein adit sunk on 2-3' qtz-brn calc, CuOx stained vein in qtzite. Bornite-chalcoite seen in vein frags.
- CB-17 Qtz-tourmaline-brn cal veins in white qtzite.
- CB-18 Qtz-tour vein zone in qtzite, approx. 10' channel sample, 30% vein, 70% wallrock.
- CB-19 Qtz-tour vein zone through white qtzite.
- CB-20 Grey sericitic phyllite underlying qtzite, tr. py casts, no

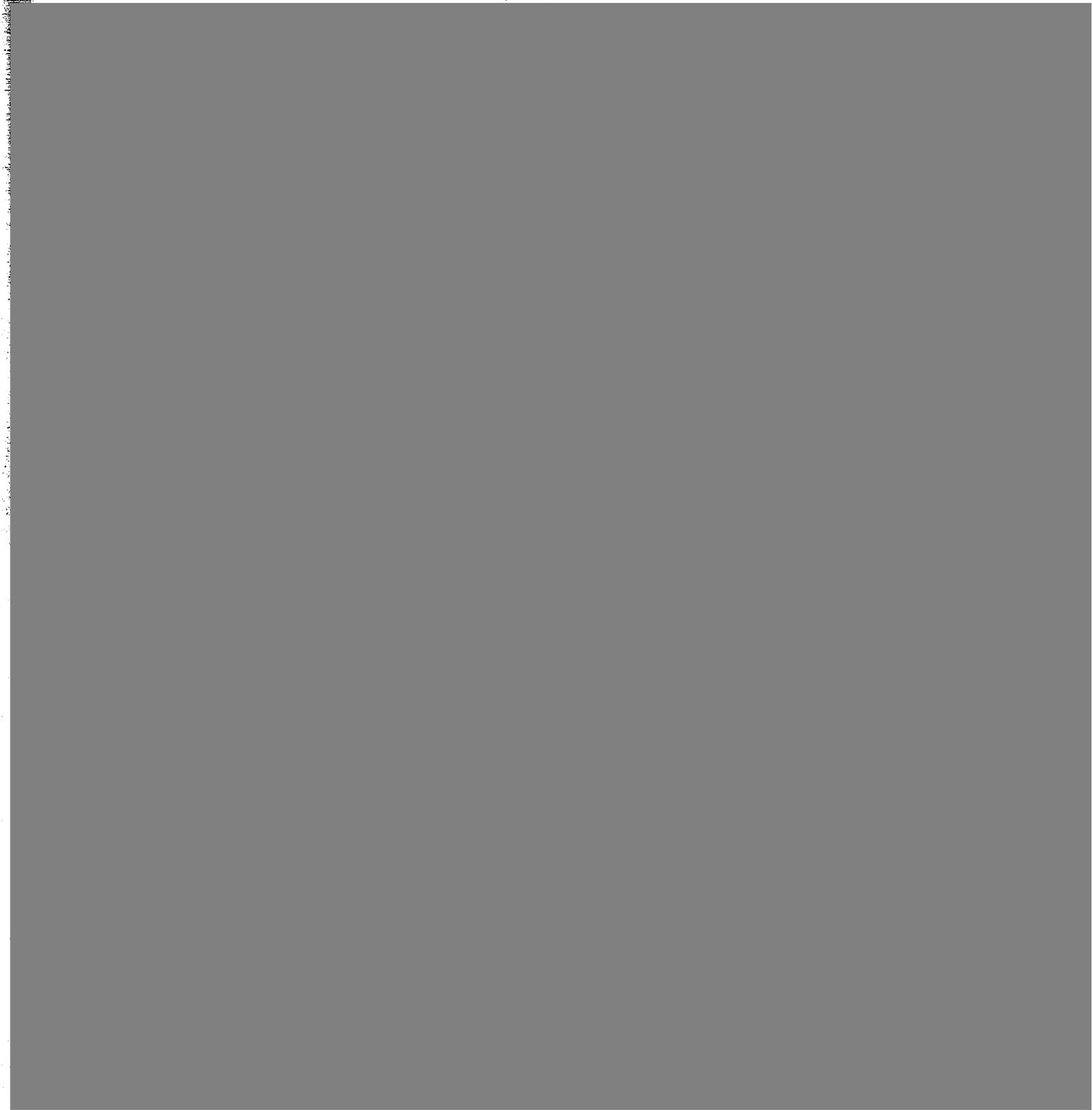
- qtz veining.
- CB-21 Prospect pit: irregular "pegmatite" qtz-brn calc-tour vein in muscovite-tourmaline schist. Sample is approx. 50% vein, 50% wallrock.
- CB-22 40' zone of white qtz-calcite veining. Anastomosing veins, very little wallrock.
- CB-23 Qtzite w/ weak patchy hematite staining.
- CB-24 Qtzite cut by white qtz-brn calcite vnlts (2-3" thick), 1 vein per yard sample across 10 ft.
- CB-25 Massive qtz vein up to 10' wide in tan qtzite, sample taken of a 50' diameter.
- CB-26 Tan qtzite cut by 1' qtz vnlts w/ tour, 1 vein per 4', approx. 30 ft. channel sample.
- CB-27 Grey sericite phyllite, 2-3% py casts, approx. 20' beneath qtz veined qtzite. Phyllite cut by rare 1-2" qtz-tourmaline veins sub// to bedding. Qtzite cut by many qtz veins perpendicular to bedding.
- CB-28 Qtzite cut by abundant stockwork qtz veins & vnlts, patch CuOx (malachite) seen.
- CB-29 Fe-stained phyllite cut by thin qtz vnlts.
- CB-30 1-2" qtz veins in qtzite, 1 vein per foot.
- CB-31 Schist associated w/ Cunningham Mt. (detachment?) fault. Silver grey, near phyllitic. Does not appear to be altered.
- CB-32 Slightly Fe-stained (hem) schist w/in detachment fault? caused by 1% fine py cubes.
- CB-33 Red and green schist, stockwork bleached zone. Strong red hem anomaly approx. 100 ft. wide.
- CB-34 Strongly hematized schist (hem >10%), bleached stockwork, zone approx. 70' across.
- CB-35 Hematite stained schist. Hematite zone strikes 337°, oblique to schistosity.

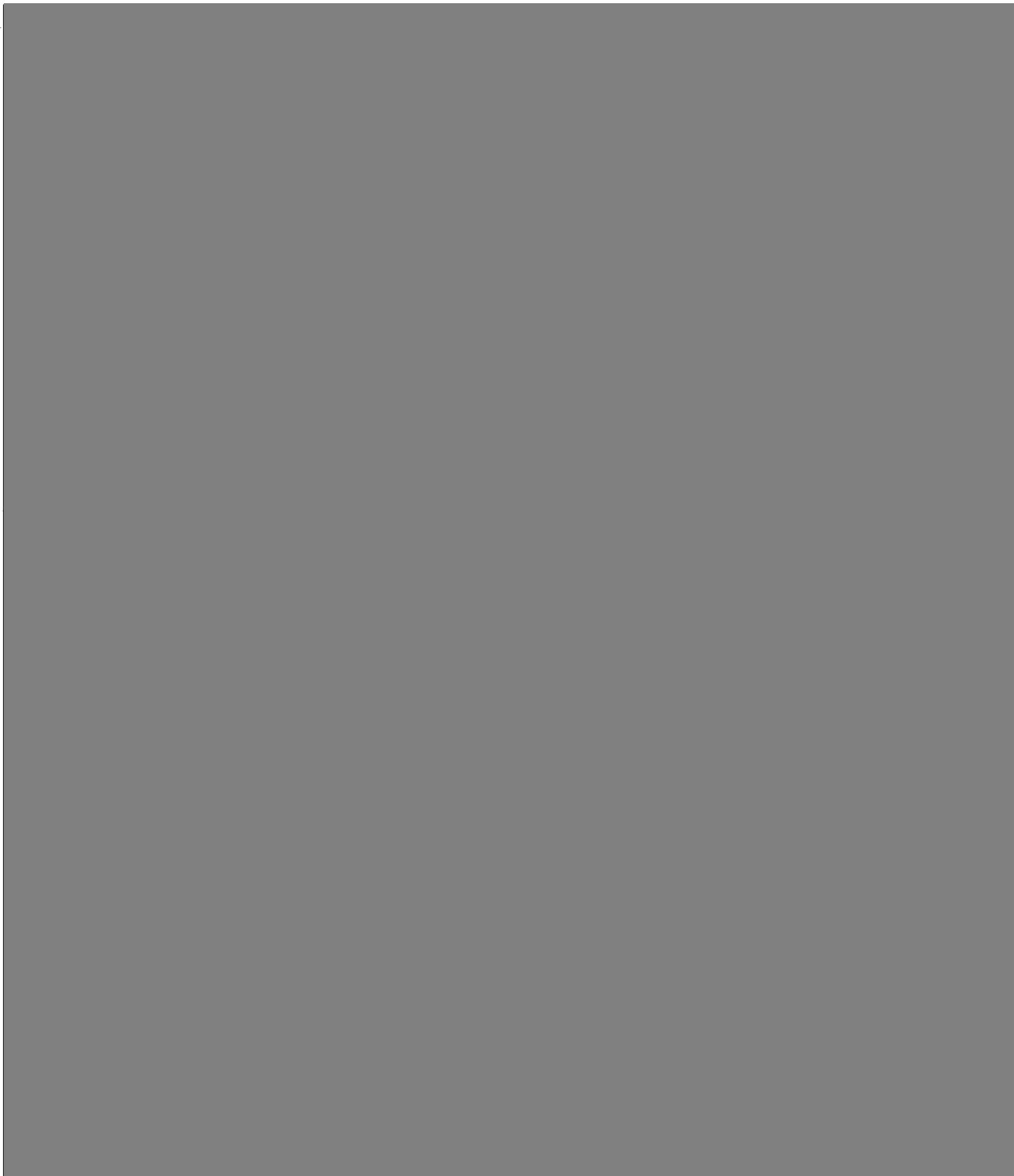
Summary of Cunningham Mt. (detachment?) fault -- not a whole lot to be seen. Difficult to state exactly where the fault is (just that it's probably within a schist zone). Schist doesn't look particularly brecciated or altered. I suspect it would be a poor one hosting structure (but this is based on a limited traverse).

A Preliminary Study of Mesozoic Geology in the Southern  
Dome Rock Mountains, Southwestern Arizona

by

Stephen Marshak<sup>1</sup>

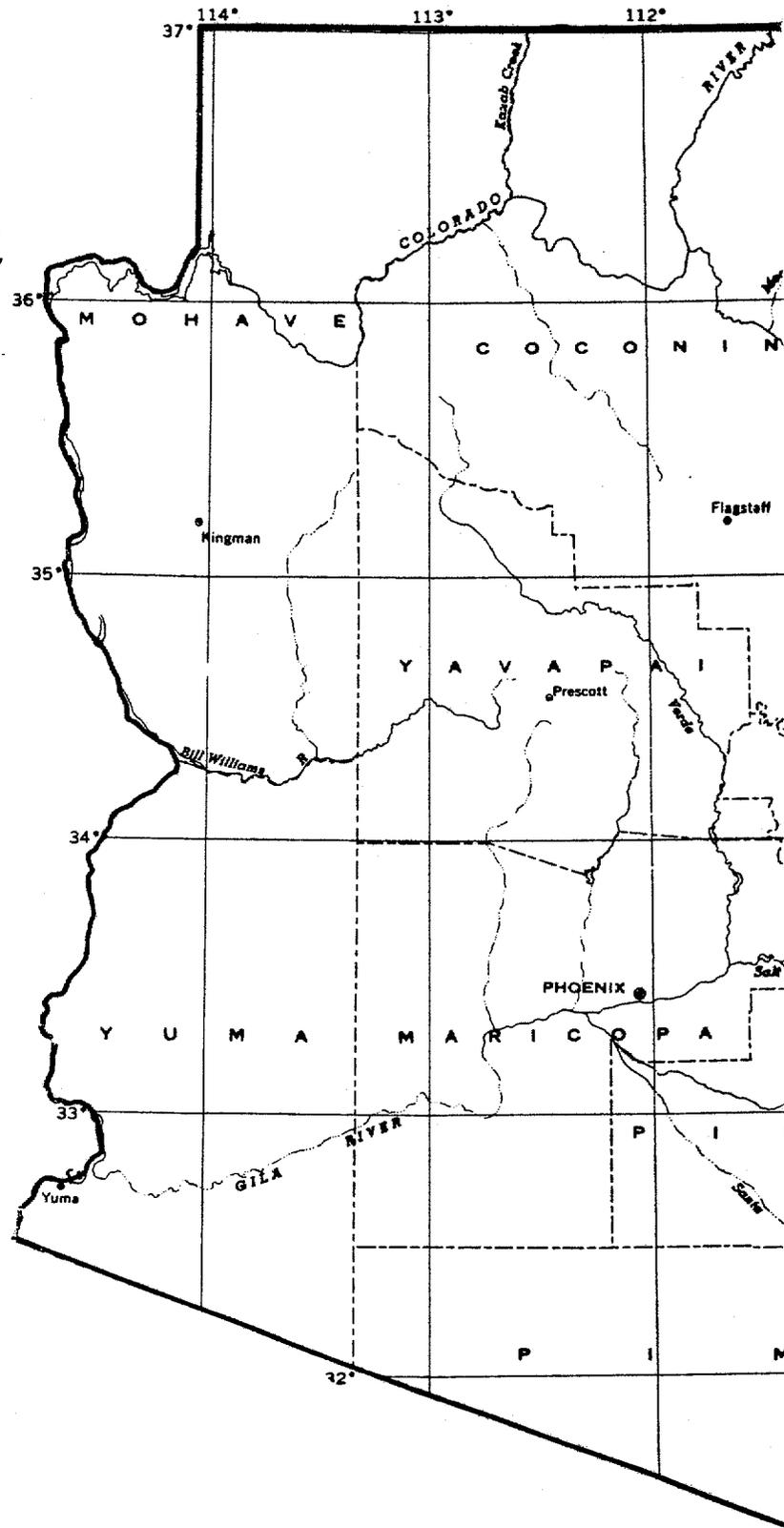




# STUDIES IN WESTERN ARIZONA

Edited by  
Judith P. Jenney  
and  
Claudia Stone

ASARCO  
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ARIZONA

J/2  
12



ARIZONA GEOLOGICAL SOCIETY DIGEST VOLUME XII

Tucson, Arizona

May, 1980

