(109) Item 18-D

REPORT ON RESULTS OF MINE SAMPLING
CONSOLIDATED CORTEZ SILVER MINES COMPANY
CORTEZ, NEVADA
by
H.J. EVANS
October 20, 1922

Part "D"

Cortez, Nevada,
October 20, 1922.

Mr. W. H. Englebright, Gen. Sup't.,
Consolidated Cortez Silver Mines Company,
Cortez, Nevada.

Dear Sir:

I hereby hand you a report on the results of the recent sampling of various parts of your mine.

As you know, it was originally intended to sample the entire mine and to take, possibly, 5000 samples. However, the very favorable results obtained from its preliminary work, especially in the Ferguson Stopes, made it unadvisable to prolong the work to completion at this time, when the construction of the Mill and preparatory work requires all possible attention.

At the time of my sampling, we were unable to secure the ladders and timber necessary to scale many of the old workings, and this is one of the reasons for the somewhat incomplete work and for not placing an estimate on some of the territory where, I believe, a substantial one would be justified.

The results are gratifying to me, and I believe will far exceed the expectations of even those familiar with the mine. From the information gained, I consider it advisable to place a definite estimate on the Ferguson Region only. By this, I do not wish to infer the lack of ore in the other regions of the Mine, for they possess exposures of very good ore, and the possibilities are excellent.

I am of the opinion that a final and more thorough sampling to verify the preliminary work will prove a very large tonnage of profitable ore in the existing workings, left by the earlier operators. For this final work, it will be necessary to furnish means of support and safety to scale the high, inaccessible old workings. As was previously stated, it was thought advisable to postpone this final stage of the work until later, and carry it on with the regular operating work of the Mine. There is an ample supply of very good ore in easily accessible places.

I am unable to furnish assay maps for any of these workings, except the "Ferguson Region - No. 7 Level", as the existing old maps are incomplete, and time would not permit the revision of them.

About three thousand two hundred samples were taken from the following stopes and development workings:

1. Ferguson Region.
2. Fitzgerald Region.
3. No. 1, 2, 3, 4, 5, Foster, and 6 Levels.
4. Major Raise Region.
5. Red Breast (Flat Orebody).
6. " " (Steep Vein).
7. Cap's Break (Not sampled personally).

The estimate and report follows.

Faithfully yours,

HJE:W.

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1. FERGUSON REGION

1. FERGUSON REGION

Under the above heading is included that part of the Mine known as the "Ferguson Stopes". The orebodies are located in the limestone under the quartzite, following on both sides of the No. 1 Porphyry Dyke above the No. 6 and No. 7 levels, and extending to the surface.

As it is expected that the larger portion of the ore for the Mill, during the immediate future, will come from these Stopes, it was thought advisable to become more familiar with them than other portions of the Mine. Practically all the raises, manways, and ore-passes have been located. Very little work, other than that connected with the equipment of the cage shaft, will be required to put this region in condition to supply ore regularly.

The results of the sampling of this territory show that practically all the old pillars, all the waste filling, and a large portion of the Porphyry Dyke in this region, and the bedding-planes, can still be Mined and treated with a good profit.

The sources of ore are as follows:

1. Pillars, in old stopes.
2. Waste Filling, in stopes.
3. Bedding Planes, over stopes.
4. No. 1 Porphyry Dyke.
5. Margins of entire region.
6. Footwall Orebodies.

These estimates have not been calculated by the theoretical "dollar-feet" method, as such would be superfluous where the values are so erratic and irregular.

A plan of the region will be found attached to the report, and the "key" letter, or number to the position of each estimate, marked thereon.

ORE ESTIMATION

NO. 6 LEVEL

FERGUSON REGION

10,385 tons @ 19.3 ozs. per T. = 200,740 ozs.

ORE ESTIMATED ON #6 LEVEL

FERGUSON REGION

KIND OF ORE	TONNAGE	VALUE	OUNCES PER TON
Pillars	515	14,200 ozs.	25.8
Waste Filling	3,765	45,540 "	12.0
Bedding Plane	1,705	59,000 "	34.6
Porphyry Dyke	4,400	82,000 "	18.6
Totals	10,385	200,740 "	Av. 19.3

ORE ESTIMATION

NO. 7 LEVEL

FERGUSON REGION

42,410 tons	@	18.1 ozs. per T.	=	761,965 ozs.

ORE ESTIMATED ON #7 LEVEL

FERGUSON REGION

KIND OF ORE	TONNAGE	VALUE	OUNCES PER TON
Pillars	11,195	168,995 ozs.	15.0
Waste Filling	12,340	149,045 "	12.0
Bedding Plane	10,050	268,675 "	26.7
Porphyry Dyke	8,825	175,250 "	19.8
Totals	42,410	761,965 "	Av. 18.1

TOTAL ORE ESTIMATED IN FERGUSON REGION

KIND OF ORE	TONNAGE	% WEIGHT	VALUE	OUNCES PER TON	% VALUE	
Pillars	11,710	22%	183,195 ozs.	15.4	19%	
Waste-Filling	16,105	31%	194,585 "	12.1	20%	
Bedding Planes	11,755	22%	327,675 "	27.8	34%	22½
Porphyry Dyke	13,225	25%	257,250 "	19.3	27%	15
Totals	52,795		962,705 "	Av. 18.2		
				23		
				20		

Total ore estimated in Ferguson Region is 52,795 tons containing 962,705 ozs. silver.

1½ gm @ 100% daily

FERGUSON REGION

1. P I L L A R S

#6 and #7 Levels

Tonnage - 11,710 Value - 183,195

FERGUSON REGION

1. Pillars.

The ore contained in the Pillars of these old stopes represents about 22% of the whole amount estimated.

Most of these pillars contain ore of sufficient high grade to have been worked by the earlier operators and were, apparently, left as means of support and safety. The widths of the pillars vary from 5 feet to 18 feet.

This source of ore is estimated for the reason that it seems a system of mining them can be devised whereby all of these valuable pillars can eventually be mined out with safety.

The estimate of tonnage and value, showing the "key" letter to the position of each pillar, follows below:

FERGUSON REGION

P I L L A R S

NO. 6 LEVEL

Tonnage - 515 Value - 14,200 ozs.

PILLAR

Location - No. 6 Level - A

Samples

1117	- 3'4"	- 13.4	ozs.
1118	- 3'11"	- 18.8	"
1119	- 3'	- 30.2	"
1120	- 5'6"	- 28.0	"
1122	- 3'6"	-246.0	"
1123	- 3'4"	- 30.0	"
1124	- 5'	- 5.0	"
1125	- 4'	- 25.0	"
1132	- 4'3"	- 35.0	"
1133	- 3'10"	- 11.0	"
1136	- 3'6"	- 4.0	"
1137	- 4'8"	- 68.0	"
Av.	- 4'	- 42.0	"

Estimated - 150 tons.

150 tons @ 30.0 ozs. = 4500 ozs.

PILLAR

Location - No. 6 Level - B

Samples

1128	-	4'8"	-	14.2 ozs.
1129	-	2'8"	-	5.0 "
1130	-	3'2"	-	36.2 "
1131	-	3'10"	-	30.2 "
1138	-	4'	-	51.2 "
1140	-	2'4"	-	9.2 "
1141	-	1'10"	-	19.0 "
1148	-	1'6"	-	70.2 "
1149	-	3'	-	17.8 "
1150	-	4'5"	-	27.2 "
Av.			-	28.0 "

$\frac{22 \times 16 \times 5}{12}$ = 147 tons

140 tons @ 25.0 ozs. 3,500 ozs.

PILLAR

Location - No. 6 Level - C

Samples

1059 - 3' - 36.0 ozs.
1095 - 4' - 90.0 ozs.

2 | 126
63

Estimated - 75 tons

75 tons @ 40.0 ozs. = 3,000 ozs.

N.F.C

SMALL PILLARS

Location - No. 6 Level - D

Samples

1143	- 3'	-	67.0	ozs.
1144	- 2'6"	-	36.8	"
1145	- 2'	-	70.0	"
1146	- 2'2"	-	10.6	"
Av.	- 2'5"	-	46.3	"

Estimated - 50 tons

50 tons @ 40.0 ozs. = 2,000 ozs.

PILLAR

Location - No. 6 Level - E

Samples

1022	-	3'	-	4.0 ozs.
1035	-	4'	-	4.0 ozs.
1036	-	3'2"	-	15.8 "
1037	-	2'5"	-	39.0 "
1038	-	3'6"	-	16.0 "
1039	-	5'	-	2.4 "
Av.	-	3'6"	-	13.5 "

$\frac{32 \times 13 \times 3}{12}$ = 104 tons

100 tons @ 12.0 ozs. = 1,200 ozs.

FERGUSON REGION

P I L L A R S

NO. 7 LEVEL

Tonnage - 11,195 Value - 168,995 ozs.

PILLAR & ROOF

Location - No. 7 Level - A

Samples

464	-	4'9"	-	18.0 ozs.
466	-	4'6"	-	28.0 "
469	-	3'4"	-	10.0 "
471	-	2'4"	-	11.0 "
Av.	-	3'5"	-	17.0 "

$\frac{50 \times 15 \times 3}{12}$ = 187 tons

180 tons @ 15.0 ozs. = 2,700 ozs.

PILLAR

Location - No. 7 Level - B

Samples

469	-	3'4"	-	10.0 ozs.
479	-	4'6"	-	38.0 "
480	-	3'	-	24.0 "
Av.	-	3'6"	-	24.0 "

Estimated - 40 tons

40 tons @ 20.0 ozs. = 800 ozs.

PILLARS

Location - No. 7 Level - C

Samples

490	-	4'	-	10.0 ozs.
493	-	3'9"	-	9.0 "
494	-	4'8"	-	7.0 "
Av.	-	4'5"	-	8.6 "

$\frac{35 \times 15 \times 4}{12}$ = 175 tons.

175 tons @ 8.0 ozs. = 1,400 ozs.

PILLAR

Location - No. 7 Level - D

Samples

385	-	3'6"	-	18.6 ozs.
386	-	3'4"	-	5.6 "
399	-	3'3"	-	19.0 "
400	-	4'3"	-	5.4 "
555	-	4'9"	-	44.0 "
556	-	3'	-	16.0 "
560	-	2'10"	-	22.4 "
561	-	2'9"	-	11.0 "
Av.			-	17.7 "

$$\frac{15 \times 12 \times 8}{12} = 120 \text{ tons}$$

120 tons @ 15.0 ozs. = 1,800 ozs.

PILLAR

Location - No. 7 Level - E

Samples

373	-	4'2"	-	14.2	ozs.
566	-	3'	-	6'0	"
569	-	3'4"	-	4.6	"
572	-	4'2"	-	16.3	"
583	-	3'4"	-	6.0	"
584	-	2'6"	-	3.6	"
593	-	3'7"	-	5.2	"
594	-	2'10"	-	54.0	"
596	-	3'	-	30.2	"
610	-	4'4"	-	6.6	"
2940	-	5'8"	-	56.8	"
2942	-	7'7"	-	7.8	"

Estimated - 200 tons

200 tons @ 15.0 ozs = 3,000 ozs.

PILLAR

Location - No. 7 Level - F

Samples

615	-	2'5"	-	29.4	ozs.
982	-	3'3"	-	14.0	"
2944	-	3'6"	-	15.2	"
2945	-	3'4"	-	5.6	"
2946	-	3'4"	-	17.3	"
Av.	-	3'2"	-	16.3	"

$\frac{15 \times 10 \times 5}{12}$ = 63 tons

60 tons @ 15. 0 ozs. = 900 ozs.

PILLAR

Location - No. 7 Level - G

Samples

896	-	3'	-	13.4	ozs.
898	-	1'9"	-	3.8	"
899	-	4'	-	8.6	"
924	-	3'6"	-	14.2	"
925	-	3'	-	6.6	"
928	-	2'8"	-	2.0	"
933	-	1'4"	-	28.0	"
934	-	4'	-	9.0	"
937	-	3'8"	-	20.0	"
938	-	4'	-	13.0	"
939	-	3'	-	38.0	"
942	-	4'	-	24.0	"
943	-	3'8"	-	12.4	"
945	-	1'3"	-	20.2	"
946	-	1'10"	-	11.4	"
949	-	1'9"	-	12.2	"
3000	-	2'2"	-	4.6	"
3051	-	5'4"	-	16.8	"
3052	-	2'8"	-	8.0	"
3055	-	3'9"	-	15.8	"
Av.	-	3'	-	14.1	"

$\frac{50 \times 30 \times 2}{12}$ plus $\frac{20 \times 20 \times 2}{12}$ = 317 tons.

300 tons @ 12.0 ozs. = 3,600 ozs.

PILLAR

Location - No. 7 Level - H.

Samples

H.W.			F.W.		
906 - 2'7"	- 12.2	ozs.	907 - 3'	- 12.0	ozs.
910 - 2'4"	- 29.0	"	911 - 2'8"	- 20.6	"
912 - 3'7"	- 6.6	"	913 - 3'6"	- 3.8	"
914 - 10"	- 20.6	"	916 - 4'	- 7.8	"
915 - 3'2"	- 11.4	"			
919 - 3'5"	- 7.0	"	Av. - 3'3"	- 11.0	"
Av. - 2'8"	- 14.5	"			

$\frac{20 \times 22 \times 5}{2 \times 12}$ = 92 tons

90 tons @ 12.0 ozs. = 1,080 ozs.

PILLAR

Location - No. 7 Level - I

Samples

H.W.				F.W.		
547	- 2'8"	- 4.6	ozs.	548	- 3'4"	- 10.2 ozs.
549	- 2'	- 19.2	"	550	- 4'	- 10.2 "
861	- 4'7"	- 6.4	"			
1073	- 3'4"	- 3.0	"			
1074	- 3'	- 10.0	"			
Av.	- 3'	- 8.6	"	Av.	- 3'8"	- 10.2 "

$$\frac{20 \times 15 \times 6}{12} = 150 \text{ tons}$$

150 tons @ 8.0 ozs. = 1,200 ozs.

PILLAR

Location - No. 7 Level - J

Samples

545 - 3' - 55.2 ozs.
546 - 2'2" - 10.2 "

Estimated - 25 tons

25 tons @ 40.0ozs. = 1,000 ozs.

PILLAR & MARGIN

Location - No. 7 Level - K.

Samples

875 - 1'	-	29.0	ozs.
876 - 3'	-	2.0	"
879 - 2'	-	7.0	"
880 - 2'6"	-	26.0	"
881 - 4'6"	-	12.0	"
882 - 3'4"	-	16.0	"
1068 - 3'8"	-	1.0	"
1069 - 3'	-	15.6	"

Estimated - 250 tons

250 tons @ 15.0 ozs = 3.750 ozs.

PILLAR

Location - No. 7 Level - L

Samples

H.W.				F.W.			
537	- 4'6"	- 5.6	ozs.	538	- 2'10"	- 19.2	ozs.
539	- 2'4"	- 14.4	"	541	- 3'6"	- 23.6	"
540	- 3'5"	- 7.0	"	543	- 2'2"	- 14.8	"
542	- 3'3"	- 4.0	"	556	- 2'2"	- 10.2	"
841	- 3'	- 6.4	"	842	- 2'5"	- 42.2	"
850	- 4'2"	- 6.0	"	954	- 4'6"	- 18.4	"
3105	- 1'5"	- 17.4	"	3107	- 1'10"	- 2.0	"
3106	- 3'	- 4.0	"	3111	- 2'10"	- 20.4	"
3110	- 1'3"	- 4.4	"	3113	- 4'10"	- 20.0	"
3112	- 2'10"	- 9.2	"				
Av.	- 2'8"	- 7.8	"	Av.	- 3'	- 17.3	"

$\frac{35 \times 40 \times 7}{12}$ = 817 tons

800 tons @ 14.0 ozs = 11,200 ozs.

PILLAR

Location - No. 7 Level - M

Samples

HW

741	- 1'	- 13.3	ozs.
744	- 8"	- 4.1	"
749	- 4'	- 7.4	"
837	- 4'	- 33.6	"
839	- 3'3"	- 9.0	"
841	- 3'	- 6.4	"
954	- 4'6"	- 18.4	"
3097	- 10"	- 76.4	"
3100	- 1'	- 11.8	"
3101	- 1'5"	- 24.8	"
3103	- 2'9"	- 22.6	"
3108	- 3'6"	- 2.8	"
3109	- 3'5"	- 2.0	"
3219	- 3'	- 15.4	"
3221	- 2'7"	- 19.6	"
3242	- 10"	- 8.0	"
3247	- 1'4"	- 15.2	"
3250	- 3'2"	- 5.2	"
Av.	- 2'6"	- 16.4	"

Cen.

742	- 3'7"	- 7.4	ozs.
745	- 4'3"	- 1.4	"
750	- 3'4"	- 19.8	"
752	- 3'	- 8.2	"
753	- 2'9"	- 8.4	"
840	- 2'10"	- 29.4	"
842	-2' 5"	- 42.2	"
3098	- 3'9"	- 8.2	"
3102	- 4'2"	- 28.6	"
3220	- 5'7"	- 7.4	"
3240	- 5'	- 8.6	"
3248	- 4'5"	- 2.0	"
Av.	- 3'7"	- 14.1	"

F.W.

743	- 3'	- 2.8	"
746	- 2'7"	- 4.4	"
835	- 4'2"	- 10.0	"
836	- 4'6"	- 10.0	"
838	- 3'11"	- 19.2	"
3096	- 2'8"	- 24.2	"
3099	- 4'8"	- 1.6	"
3234	- 3'10"	- 4.6	"
3241	- 5'3"	- 14.4	"
Av.	- 3'4"	- 10.0	"

$\frac{50 \times 45 \times 10}{12}$ = 1875 tons

1875 tons @ 14.0 ozs. = 26,250 ozs.

STOPE MARGIN

Location - No. 7 Level - N

Samples

HW			F.W.		
884	- 4'11"	- 14.6 ozs.	885	- 3'	- 22.8 ozs.
3085	- 1'7" -	- 34.8 "	3086	- 2'8"	- 18.4 "
3092	- 1'5"	- 131.6 "	3093	- 4'	- 9.2 "
3094	- 6"	- 37.6 "			

Estimated - 75 tons

75 tons @ 25.0 = 1,875 ozs.

PILLAR

Location - No. 7 Level - 0

Samples

889	- 1'2"	- 24.4	ozs.
3081	- 1'4"	- 35.3	"
3083	- 1'4"	- 56.0	"
3087	- 4"	- 76.0	"
3221	- 2'7"	- 19.6	"
Av.		- 42.2	"

$\frac{35 \times 35 \times 1}{12}$ = 102 tons

100 tons @ 35.0 ozs. = 3,500 ozs.

Probable large tonnage underlies this seam.

PILLAR

Location - No. 7 Level - P

Samples

HW				F.W			
789	- 2'7"	- 17.0	ozs.	892	- 2'4"	- 14.0	ozs.
790	- 1'6"	-133.0	"	895	- 2'6"	- 14.0	"
791	- 2'2"	- 68.0	"	3066	- 4'10	" 21.0	"
792	- 4'	- 7.0	"	3068	- 3'4"	- 14.0	"
793	- 2'6"	- 26.0	"	3075	- 3'	- 25.0	"
891	- 1'8"	- 31.0	"				
894	- 3'3"	- 7.0	"	Av.	- 3'2"	- 19.4	"
3065	- 2'3"	- 8.0	"				
3067	- 2'8"	- 11.0	"				
3069	- 2'10"	- 8.0	"				
3070	- 3'	- 29.0	"				
3071	- 1'1"	- 7.0	"				
3072	- 1'	- 21.0	"				
3074	- 3'2"	- 24.0	"				
3076	- 3'	- 7.0	"				
3149	- 4'	- 17.0	"				
3150	- 3'4"	- 28.0	"				
3152	- 3'10"	- 15.0	"				
3153	- 4'7"	- 28.0	"				
3465	- 2'7"	- 24.0	"				
Av.	- 2'9"	- 18.0	"				

$\frac{50 \times 50 \times 6}{12}$ = 1250 tons

1250 tons @ 18.0 ozs. = 22,500 ozs.

PILLAR

Location - No. 7 Level - Q

Samples

788	-	4'4"	-	21.0 ozs.
794	-	3'6"	-	17.0 "
796	-	5'3"	-	21.0 "
3135	-	6'3"	-	11.0 "
3136	-	5'6"	-	19.0 "
3142	-	6'2"	-	10.0 "
3149	-	4'	-	17.0 "
3151	-	5'	-	38.0 "
3155	-	3'	-	9.0 "
3157	-	5'3"	-	13.0 "
3158	-	6'3"	-	32.0 "
Av.			-	19.0 "

$\frac{50 \times 30 \times 10}{12}$ = 1250 tons.

1250 tons @ 18.0 ozs. = 22,500 ozs.

PILLAR

Location - No. 7 Level - R

Samples

HW			FW		
782	- 4'	- 6.8 ozs.	776	- 3'5"	- 10.0 ozs.
3062	- 4'4"	- 17.0 "	778	- 5'	- 21.0 "
3063	- 3'1"	- 20.0 "	3077	- 4'6"	- 24.0 "
3064	- 4'	- 18.0 "	3078	- 3'7"	- 21.0 "
3120	- 3'3"	- 70.0 "	3121	- 6'	- 21.0 "
3122	- 3'	- 19.0 "	3123	- 8'	- 6.0 "
3162	- 3'	- 6.0 "	3146	- 5'10"	-156.0 "
3164	- 2'6"	- 6.0 "	3148	- 6'8"	- 70.0 "
Av.	- 3'6"	- 20.3 "	Av.	- 5'	- 28.6 "

$$\frac{30 \times 30 \times 8}{12} = 600 \text{ tons}$$

600 tons @ 25.0 ozs. = 15,000 ozs.

PILLAR

Location - No. 7 Level - S

Samples

HW

722	- 2'4"	- 9.0	ozs.
726	- 3'	- 12.0	"
727	- 4'	- 5.0	
731	- 3'	- 5.0	"
735	- 4'6"	- 16.0	"
736	- 2'11"	- 16.0	"
738	- 3'	- 10.0	"
751	- 4'6"	- 6.0	"
752	- 3'	- 8.0	"
759	- 3'6"	- 5.0	"
3117	- 2'4"	- 2.0	"
3137	- 2'	- 3.0	"
3236	- 3'5"	- 10.0	"
3237	- 3'8"	- 23.0	"
3238	- 2'6"	- 6.0	"
3243	- 4'	- 16.0	"
Av.	- 3'3"	- 9.0	"

Cen.

719	- 3'0"	- 11.0	ozs.
720	- 4'4"	- 20.0	"
721	- 1'	- 16.0	"
723	- 2'1"	- 8.0	"
728	- 3'7"	- 5.0	"
724	- 3'	- 3.0	"
732	- 2'	- 2.0	"
737	- 2'8"	- 17.0	"
747	- 3'	- 4.0	"
760	- 3'4"	- 19.0	"
761	- 2'2"	- 0.5	"
3127	- 5'	- 4.0	"
3128	- 6'7"	- 2.0	"
3135	- 6'3"	- 11.0	"
3138	- 4'6"	- 67.0	"
3139	- 4'8"	- 7.0	"
3140	- 4'	- 32.0	"
3239	- 3'1"	- 8.0	"
3235	- 2'4"	- 5.0	"
Av.	- 3'6"	- 12.8	"

FW

725	- 2'9"	- 3.0	ozs.
729	- 5'	- 8.0	"
730	- 3'4"	- 8.0	"
748	- 4'	- 2.0	"
797	- 3'9"	- 30.0	"
798	- 1'11"	- 16.0	"
799	- 3'	- 36.0	
800	- 2'10"	- 2.0	"
801	- 3'4"	- 3.0	"
803	- 4'7"	- 23.0	"
829	- 2'7"	- 21.0	"

FW (Cont'd)

830	- 4'	- 56.0	ozs.
832	- 3'8"	- 14.0	"
3129	- 3'10"	- 5.0	"
3136	- 5'6"	- 19.0	"
3141	- 7'	- 4.0	"
3142	- 6'7"	- 10.0	"
3143	- 4'4"	- 6.0	"
3144	- 4'8"	- 41.0	"
3145	- 4'2"	- 12.0	"
3246	- 3'3"	- 2.0	"

Av. - 4' - 15.3 ozs.

$$\frac{80 \times 50 \times 10}{12} = 3333 \text{ tons}$$

3,000 tons @ 12 ozs. = 36,000 ozs.

PILLAR

Location - No. 7 Level - T

Samples

HW

685 - 2'3" - 15.4 ozs.
695 - 2'6" - 50.0 "
703 - 2'5" - 27.2 "

Av. - 2'5" - 30.9 "

CENTER

686 - 2'3" - 1.4 ozs.
696 - 2'4" - 30.2 "
704 - 4' - 20.4 "

Av. - 2'10" - 16.6 "

F.W.

687 - 4' - 11.0 ozs.
697 - 2'5" - 20.0 "
705 - 3'5" - 5.4 "

Av. - 3' - 12.0 "

$\frac{10 \times 12 \times 8}{12}$ = 80 tons.

80 tons @ 18.0 ozs. = 1,440 ozs.

PILLAR

Location - No. 7 Level - U

Samples

HW

683	- 3'9"	- 6.6	ozs.
688	- 2'3"	- 11.4	"
690	- 3'9"	- 38.0	"
698	- 2'7"	- 14.6	"
700	- 2'10"	- 17.4	"
710	- 3'8"	- 36.6	"
3169			
Av.	- 3'	- 20.7	"

CENTER

689	- 2'5"	- 5.2	ozs.
691	- 3'2"	- 10.2	"
701	- 3'	- 2.0	"
707	- 2'[illegible]"	- 10.3	"
3133	- 4'6"	- 10.4	"
3134	- 3'6"	- 15.2	"
3170	- 3'4"	- 30.8	"
Av.	- 3'	- 12.0	

F.W.

692	- 5'	- 5.4	ozs.
699	- 2'6"	- 10.0	"
702	- 2'4"	- 11.4	"
708	- 2'11"	- 5.8	"
3171	- 3'3"	- 6.2	"
Av.	- 3'	- 7.7	"

$\frac{25 \times 20 \times 8}{12}$ = 333 tons

300 tons @ 12.0 ozs. = 3,600 ozs.

PILLAR

Location - No. 7 Level - V

Samples

HW

667 - 2'2" - 1.4 ozs.
671 - 2'7" - 7.6 "
675 - 4' - 7.0 "
678 - 3'- - 7.4 "

Av. - 3' - 6.0 "

CENTER

668 - 2'4" - 23.6 ozs.
672 - 2'4" - 1.6 "
679 - 2'8" - 7.0 "

Av. - 2'4" - 10.6 "

F.W.

670 - 4' - 13.0 ozs.
676 - 3'10" - 16.0 "
680 - 2'5" - 20.8 "

Av. - 3' - 19.9

$\frac{30 \times 10 \times 8}{12}$ = 200 tons

200 tons @ 12.0 ozs. = 2,400 ozs.

PILLARS - Margins

Location - No. 7 Level - V

Samples

650	- 1'8"	- 70.2	ozs.
651	- 2'4"	- 17.4	"
652	- 2'5"	- 8/8	"
653	- 2'6"	- 2.6	"
654	- 2'2"	- 37.0	"
666	- 3'11"	- 15.2	"
Av.		- 25.2	"

Estimated - 75 tons

75 tons @ 20.0 ozs. = 1,500 ozs.

FERGUSON REGION

O L D F I L L I N G

#6 and #7 Levels

Tonnage - 16,105

Value - 194,585

2. OLD FILLING

The ore from this source represents 31% of the whole. The value of these stope-fillings vary between wide limits--even in the same pile. The lowest value, averaging about 5.0 ozs and the highest, 40.0 ozs.

Due to the inaccessibility of so many of these stopes, it is impossible to give even a fair estimate of the total amount, but I feel confident it is very much greater than that which is given below.

So many filled raises and undetermined workings underlie the Ferguson stopes, that it is not now practical to place any estimate on the total amount of ore to be expected from this source.

The estimate and "key" number to the visible waste-filling in these stopes, follow below:

FERGUSON REGION

F I L L I N G

#6 LEVEL

Tonnage 3,765 Value 45,540 ozs. (12 oz)

FILLING

Location - No. 6 Level - 1

Samples

416	-	13.0 ozs.
1183	-	4.0 "
1186	-	11.2 "

$\frac{25 \times 13 \times 8}{20}$ = 130 tons

130 tons @ 9.0 ozs. 1,170 ozs.

FILLING

Location - No. 6 Level - 2.

Samples

415	-	18.0 ozs.
1174	-	14.4 "
1176	-	34.4 "
Av.	-	22.3 "

$$\frac{55 \times 15 \times 12}{20} = 495 \text{ tons}$$

495 tons @ 20.0 ozs. = 9,900 ozs.

FILLING

Location - No. 6 Level - 3

Samples

414	-	6.0 ozs.
1114	-	12.0 "
1115	-	5.0 "
av.	-	7.66 "

$\frac{60 \times 30 \times 6}{20}$ = 540 tons.

540 tons @ 7.0 ozs. = 3,780 ozs.

FILLING

Location - No. 6 Level - 4

Samples

1103	-	22.0 ozs.
1104	-	24.0 "
Av.	-	23.0 "

Estimated - 75 tons

75 tons @ 20.0 ozs. = 1,500 ozs.

FILLING

Location - No. 6 Level - 5

Samples

1101	-	5.0 ozs.
1102	-	9.0 "
1154	-	5.0 "
1160	-	30.0 "
Av.	-	12.25 "

$$\frac{50 \times 10 \times 6}{20} = 150 \text{ tons}$$

150 tons @ 12.0 ozs. 1,800 ozs.

FILLING

Location -No. 6 - Level - 6

Samples

410	-	6.0 ozs.
411	-	5.0 "
1106	-	7.0 "
Av.	-	6.0 ozs.

Estimated - 400 tons

400 tons @ 6.0 ozs. = 2,400 ozs.

FILLING

Location - No. 6 Level - 7

Samples

409	-	18.0 ozs.
1108	-	6.0 "
Av.	-	12.0 "

$\frac{50 \times 15 \times 5}{20}$ = 187 tons.

180 tons @ 10.0 ozs. = 1,800 ozs.

FILLING

Location - No. 6 Level - 8

Samples

406	-	19.0 ozs.
408	-	9.0 "
1000	-	11.0 "
1051	-	14.0 "
1052	-	12.0 "
1053	-	18.0 "
1054	-	24.4 "
1055	-	26.0 "
1056	-	8.0 "
1057	-	16.8 "
1109	-	29.0 "
1110	-	22.0 "
1111	-	14.0 "
Av.	-	17.0 "

$\frac{55 \times 45 \times 5}{20}$ = 619 tons

600 tons @ 15.0 ozs. = 9,000 ozs.

FILLING

Location - No. 6 Level - 9

Samples

404	-	11.0 ozs.
998	-	15.4 "
1030	-	17.6 "
1058	-	4.2 "
1063	-	30.0 "
Av.	-	15.6 "

$\frac{50 \times 30 \times 5}{20}$ = 373 tons

370 tons @ 12.0 ozs. = 4,440 ozs.

FILLING

Location - No. 6 Level - 10

Samples

1147	-	22.8 ozs.
1149	-	9.0 "
1150	-	12.6 "
Av.	-	14.8 "

$\frac{60 \times 50 \times 5}{20}$ = 750 tons

750 tons @ 12.0 ozs = 9,000 ozs.

FILLING

Location - No. 6 Level - 11

Samples

407 - 9.0 ozs.
1041 -15.0 "
1049 - 9.0 "
1050 -12.6 "

Av. - 11.8 "

$\frac{20 \times 15 \times 5}{20}$ = 75 tons

75 tons @ 10.0 ozs. = 750 ozs.

FERGUSON REGION

F I L L I N G

No. 7 Level

Tonnage - 12,340 Value - 149.045 ozs. (12 g)

FILLING

Location - No. 7 Level - 1.

Samples

491	-	4.0 ozs.
492	-	5.0 "

Estimated - 400 tons

400 tons @ 5.0 ozs. = 2,000 ozs.

FILLING

Location - No. 7 Level - 2

Samples

463	-	12.6 Ozs.
502	-	28.2 "
505	-	36.0 "
506	-	8.0 "
508	-	10.6 "
510	-	11.2 "
Av.	-	17.7 "

$$\frac{50 \times 7 \times 6}{20} \text{ plus } \frac{45 \times 5 \times 4}{20} \text{ plus } \frac{20 \times 6 \times 5}{20} \text{ plus } 50 = 230 \text{ T.}$$

230 tons @ 14.0 ozs. = 3,220 ozs.

FILLING

Location - No. 7 Level - 3

Samples

357	-	16.0 ozs.
471	-	10.0 "
497	-	11.6 "
498	-	16.2 "
992	-	12.0 "
Av.	-	12.7 "

$$\frac{90 \times 20 \times 8}{20} = 720 \text{ tons.}$$

720 tons @ 12.0 ozs. = 8,640 ozs.

FILLING

Location - No. 7 Level - 4

Samples

357	-	16.0 ozs.
358	-	30.0 "
359	-	17.6 "
360	-	30.2 "
361	-	14.0 "
362	-	16.6 "
363	-	36.6 "
364	-	21.8 "
365	-	31.6 "
991	-	10.2 "
Av.	-	22.5 "

$$\frac{45 \times 20 \times 12}{20} = 540 \text{ tons.}$$

540 tons @ 20.0 ozs. = 10,800 ozs.

FILLING

Location - No. 7 Level - 5

Samples

366	-	10.0 ozs.
367	-	8.0 "
369	-	46.0 "
990	-	13.2 "
Av.	-	19.3 "

$$\frac{40 \times 15 \times 10}{20} = 300 \text{ tons.}$$

300 tons @ 12.0 ozs. = 3,600 ozs.

FILLING

Location - No. 7 Level - 6

Samples

370	-	13.3 ozs.
371	-	10.2 "
372	-	8.0 "
Av.	-	10.5 "

$$\frac{25 \times 15 \times 5}{20} = 94 \text{ tons}$$

90 tons @ 10.0 ozs. = 900 ozs.

FILLING

Location - No. 7 Level - 7

Samples

389	-	16.4	ozs.
390	-	13.4	"
391	-	12.2	"
393	-	7.4	"
395	-	10.0	"
396	-	6.8	"
397	-	5.8	"
398	-	14.2	"
389	-	5.8	"
Av.	-	10.3	"

$\frac{25 \times 14 \times 10}{20}$ = 175 tons

175 tons @ 10.0 ozs. = 1,750 ozs.

FILLING

Location - No. 7 Level - 8

Samples

589 - 22.0 ozs.

Estimated - 50 tons

50 tons @ 15.0 ozs. = 750 ozs.

FILLING

Location - No. 7 Level - 9.

Samples

601	-	9.2 ozs.
607	-	13.8 "
608	-	37.8 "
609	-	13.2 "
Av.	-	18.5 "

$$\frac{30 \times 20 \times 10}{20} = 300 \text{ tons.}$$

300tons @ 15.0 ozs. = 4,500 ozs.

FILLING

Location - No. 7 Level - 10

Samples

620	-	12.4 ozs.
627	-	19.2 "
988	-	10.8 "
2974	-	7.0 "
2975	-	14.0 "
2976	-	14.4 "
2977	-	13.0 "
2978	-	20.6 "
2979	-	13.4 "
2980	-	13.4 "
Av.	-	13.8 "

$\frac{35 \times 30 \times 20}{20}$ = 1,050 tons.

1050 tons @ 12.0 ozs. = 12,600 ozs.

FILLING

Location - No. 7 Level - 11

Sample

2987 - 8.0 ozs.

Estimated - 50 tons

50 tons @ 8.0 ozs. = 400 ozs.

FILLING

Location - No. 7 Level - 12

Samples

649	-	16.0 ozs.
931	-	30.0 "
Av.	-	23.0 "

$$\frac{15 \times 20 \times 4}{20} = 60 \text{ tons}$$

60 tons @ 16.0 ozs. = 960 ozs.

FILLING

Location - No. 7 Level - 13

Samples

903	-	20.6	ozs.
904	-	12.6	"
922	-	15.8	"
923	-	8.3	"
Av.	-	14.8	"

$$\frac{25 \times 25 \times 4}{20} = 125 \text{ tons}$$

125 tons @ 15.0 ozs. = 1,875 ozs.

FILLING

Location - No. 7 Level - 14

SAMPLES

781	-	6.8 ozs.
905	-	32.6 "
908	-	10;8 "
909	-	12.0 "

$$\frac{35 \times 30 \times 20}{20} = 1{,}050 \text{ tons.}$$

105 tons @ 14.0 ozs. = 14,700 ozs.

FILLING

Location - No. 7Level - 15

Samples

846	-	17.0 ozs.
847	-	15.2 "
848	-	5.0 "
849	-	4.4 "
853	-	6.0 "
854	-	4.4 "
855	-	2.2 "
857	-	24.0 "
858	-	8.4 "
994	-	2.6 "
Av.	-	8.92 "

$$\frac{35 \times 27 \times 8}{20} = 378 \text{ tons}$$

375 tons @ 8.0 ozs. = 3,000 ozs.

Above can be sorted to a higher grade.

FILLING

Location - No. 7 Level - 16

Samples

851	-	4.4 ozs.
852	-	6.8 "
3089	-	2.0 "
3090	-	4.6 "
3233	-	3.0 "
Av.	-	4.1 "

$$\frac{70 \times 65 \times 8}{20} = 1{,}820 \text{ tons}$$

1800 tons @ 4.0 = 7,200 ozs.

Above can be sorted cheaply to a satisfactory grade and excellent ore lies over it in Bedding Planes.

FILLING

Location - No. 7 Level - 17

Samples

757	-	24.6 ozs.
758	-	22.0 "
843	-	14.0 "
844	-	14.2 "
845	-	18.2 "
995	-	7.8 "
Av.	-	16.8

$$\frac{60 \times 25 \times 15}{20} = 1125 \text{ tons}$$

1125 tons @ 15. ozs. = 16,875 ozs.

FILLING

Location - No. 7 Level - 18.

Samples

952	-	14.0 ozs.
953	-	23.4 "
955	-	5.8 "
956	-	12.6 "
3114	-	18.6 "
3115	-	11.0 "
Av.	-	14.7 "

$$\frac{65 \times 10 \times 6}{20} = 195 \text{ tons}$$

195 tons @ 15.0 ozs. = 2,925 ozs.

FILLING

Location - No. 7 Level - 19

Samples

754	-	9.4	ozs.
755	-	37.0	"
756	-	14.0	"
758	-	22.0	"
815	-	15.6	
816	-	7.8	"
821	-	17.2	"
822	-	24.6	"
823	-	13.0	"
824	-	21.3	"
995	-	7.8	"
Av.	-	17.2	"

$\frac{60 \times 40 \times 10}{20}$ = 1,200 tons.

1200 tons @ 15.0 ozs. = 18,000 ozs.

FILLING

Location - No. 7 Level - 20

Samples

810	-	11.0 ozs.
811	-	34.0 "
812	-	12.0 "
909	-	53.2 "
Av.	-	27.5 "

$\frac{25 \times 25 \times 6}{20}$ = 336 tons

330 tons @ 25.0 ozs. = 8,250 ozs.

FILLING

Location - No. 7 Level - 21

Samples

766	-	7.6 ozs.
767	-	21.6 "
768	-	12.2 "
769	-	21.6 "
996	-	16.0 "
Av.	-	16.0 "

$\frac{45 \times 20 \times 8}{20}$ = 360 tons

360 tons @ 15.0 ozs. = 5,400 ozs.

FILLING

Location - No. 7 Level - 22

Samples

711 - 47.0 ozs.

Estimated - 25 tons

25 tons @ 40.0 ozs. = 1,000 ozs.

FILLING

Location - No. 7 Level - 23

Samples

733	-	26.8 ozs.
734	-	16.2 "
739	-	14.0 "
740	-	11.8 "
Av.	-	17.2 "

$$\frac{50 \times 12 \times 8}{20} = 240 \text{ tons}$$

240 tons @ 15.0 ozs. = 3,600 ozs.

FILLING

Location - No. 7 Level - 24

Samples

669	-	10.0 ozs.
677	-	15.0 "
682	-	12.4 "
712	-	19.4 "
713	-	12.4 "
714	-	11.0 "
Av.	-	13.3 "

$$\frac{50 \times 20 \times 6}{20} = 300 \text{ tons}$$

300 tons @ 12.0 ozs. = 3,600 ozs.

FILLING

Location - No. 7 Level - 25

Samples

693	-	11.2 ozs.
694	-	1.6 "
3104	-	53.2 "
3462	-	10.4 "
3463	-	5.0 "

Estimated - 100 tons

100 tons @ 10.0 ozs. = 1,000 ozs.

FILLING

Location - No. 7 Level - 26

Samples

664	-	12.2	ozs.
665	-	8.6	"
1198	-	10.0	"

Estimated - 200 tons

200 tons @ 10.0 ozs. = 2,000 ozs.

FILLING

Location - No. 7 Level - 27

Samples

3037	-	7.6 ozs.
3038	-	25.2 "
3193	-	2.6 "
3194	-	12.4 "
Av.	-	12.0 "

$$\frac{50 \times 20 \times 5}{20} = 250 \text{ tons}$$

250 tons @ 10.0 ozs. = 2,500 ozs.

DRIFT - FILLING

Location - No.7 Level - 28

Samples

1199	-	16.6 ozs.
1200	-	14.4 "
3251	-	7.0 "
3252	-	10.0 "
Av.	-	10.5 "

$\frac{70 \times 40 \times 5}{20}$ = 700 tons

700 tons @ 10.0 ozs. = 7,000 ozs.

FERGUSON REGION

B E D D I N G P L A N E S

#6 and #7 Levels

Tonnage - 11,775 Value - 327,675

3. BEDDING PLANES

Under this source is included the material making up the bedding planes between the quartzite and lower limestone.

The maximum width of these planes is not exposed to a great extent, but where section samples were obtainable, they gave high values. The silver-bearing minerals are contained in the small quartz seams that follow the planes and appear disseminated through the gangue itself. In width, they vary from 1 foot to a maximum of 12 feet where exposed and as a rule the value is high grade, often going as high as 100 ozs.

The contrast between ore and gangue in these planes is so vivid that the material can very easily be sorted to make a high grade product.

This plane covers the entire margin of the stoped area and can be expected to carry valuable ore wherever an orebody underlies it. Its position--following over the worked out area--will enable it to be worked cheaply and safely.

I would advise sampling these planes thoroughly as soon as air is available for stoping drills. The mining of these ores may possibly influence the system or method used for the other sources of ores in this region.

Below is given the location, tonnage and value of positive ore from this source.

FERGUSON REGION

B E D D I N G P L A N E S

No. 6 Level

Tonnage - 1,705 Value - 59,000 ozs. (34 1/2 g)

BEDDING PLANE

Location - No. 6 Level, over Chamber, southwest of Filling 3.

Samples

1155	-	90.0 ozs.
3405	-	113.2 "
3406	-	4.6 "
3407	-	9.6 "
3408	-	47.0 "

Estimated - 100 tons

100 tons @ 60.0 ozs. = 6,000 ozs.

BEDDING PLANE

Location - No. 6 Level - East of Pillar "A"

Samples

1151	-	3'10"	-	22.0 ozs.
1161	-	3'8"	-	25.0 "
1165	-	2'2"	-	14.0 "
2851	-	3'6"	-	18.0 "
2852	-	4'0"	-	41.0 "
2854	-	1'6"	-	5.0 "
Av.	-		-	20.8 "

$$\frac{65 \times 45 \times 4}{12} = 975 \text{ tons.}$$

975 tons @ 20.0 ozs. = 19,500 ozs.

BEDDING PLANE

Location - No. 6 Level, over "Filling 4 and 6"

Samples

1139	-	3'5"	-	40.0 ozs.
2844	-	2'6"	-	36. "
2845	-	2'	-	70.0 "
2856	-	3'	-	46.0 "
2858	-	2'	-	67.0 "
2860	-	1'6"	-	85.0 "
av.	-	2'5"	-	57.0 "

$$\frac{60 \times 20 \times 2.5}{12} = 250 \text{ tons}$$

250 tons @ 50.0 ozs. = 12,500 ozs.

BEDDING PLANE

Location - No. 6 Level, over "Pillar D and Filling 10"

Samples

1146	-	2'2"	-	10.6 ozs.
2859	-	2'	-	67.4 "
2860	-	1'6"	-	85.4 "
Av.	-	1'10"	-	54.5 "

$\frac{50 \times 50 \times 1.5}{12}$ = 312 tons

300 tons @ 50.0 ozs. = 15,000 ozs.

BEDDING PLANE

Location - No. 6 Level, over "Filling 8 and 9".

1029	-	1'2"	-	188.6 ozs.
3046	-	8"	-	72.2 "
3047	-	1'6"	-	40.0 "
Av.	-	1'	-	100.0 "

$\frac{50 \times 20 \times 1}{12}$ = 83 tons

80 tons @ 75.0 = 6,000 ozs.

FERGUSON REGION

BEDDING PLANES

No. 7 Levels

Tonnage - 10,050 Value - 268,675 ozs. (27.8)

BEDDING PLANE

Location - Over Filling 1 and 2.

Samples

487	-	3'	-	20.0	ozs.
488	-	2'10"	-	25.0	"
495	-	2'	-	21.0	"
496	-	1'6"	-	96.0	"
499	-	3'6"	-	34.0	"
515	-	3'7"	-	16.0	"
516	-	1'6"	-	10.0	"
2871	-	1'	-	163.0	"
2872	-	1'	-	3.0	"
2873	-	4'	-	10.0	"
2875	-	5'	-	33.0	"
Av.	-			37.4	"

$$\frac{70 \times 20 \times 7}{12} = 816 \text{ tons}$$

800 tons @ 25.0 ozs. 20,000 ozs.

BEDDING PLANE

Location - Over Filling 3.

Samples

500	-	4'	-	32.0	ozs.
501	-	2'9"	-	7.0	"
518	-	2'6"	-	98.0	"
519	-	5'6"	-	53.0	"
520	-	2'	-	24.0	"
521	-	1'6"	-	16.0	"
522	-	3'10"	-	43.0	"
Av.				39.0	"

$$\frac{90 \times 20 \times 5}{12} = 750 \text{ tons}$$

750 tons @ 30.0 ozs. = 22,500 ozs.

BEDDING PLANE

Location - Over Filling 4, 5, 6, 7 and Pillars D and E

Samples

379	-	2'	-	5.0	ozs.
385	-	3'6"	-	18.0	"
535	-	4'3"	-	33.0	"
555	-	4'9"	-	44.0	"
556	-	3'	-	16.0	"
558	-	3'	-	13.0	"
559	-	3'11"	-	10.0	"
563	-	3'11"	-	18.0	"
565	-	3'	-	22.0	"
566	-	3'	-	6.0	"
567	-	3'10"	-	4.0	"
569	-	3'4"	-	4.0	"
560	-	2'10"	-	22.0	"
571	-	4'6"	-	20.0	"
572	-	4'2"	-	16.0	"
576	-	3'9"	-	23.0	"
578	-	3'9"	-	28.0	"
588	-	4'9"	-	4.0	"
590	-	1'	-	14.0	"
591	-	2'4"	-	18.0	"
595	-	3'	-	26.0	"
600	-	2'	-	69.0	"
Av.				19.7	"

$$\frac{75 \times 70 \times 4}{12} \text{ plus } \frac{50 \times 25 \times 5}{12} = 2271 \text{ tons}$$

2250 tons @ 18.0 ozs. = 40,500 ozs.

BEDDING PLANE

Location - Over Filling 9 and 10
and Pillar F.

Samples

600	-	2'	-	69.20	ozs.
605	-	2'4"	-	15.60	"
611	-	3'6"	-	31.2	"
617	-	1'6"	-	109.0	"
2880	-	3'	-	10.0	"
2881	-	3'	-	31.6	"
2882	-	4'	-	24.4	"
2943	-	4'5"	-	21.4	"
2947	-	6'5"	-	3.8	"
2948	-	3'6"	-	4.3	"
2949	-	5'3"	-	9.8	"
2950	-	5'	-	45.8	"
2961	-	5'	-	53.8	"
2967	-	4'4"	-	19.4	"
2968	-	4'3"	-	119.2	"
2969	-	5'3"	-	38.2	"
2970	-	3'6"	-	129.8	"
2971	-	3'10'	-	27.4	"
2972	-	4'6"	-	57.0	"
2981	-	5'6"	-	8.0	"
2983	-	3'	-	36.6	"
Av.				40.7	"

$$\frac{90 \times 35 \times 10}{12} = 2625 \text{ tons}$$

2600 tons @ 35.0 ozs. = 91,000 ozs.

BEDDING PLANE

Location - Over Filling - 16

Samples

882	-	3'4"	-	16.0	ozs.
1071	-	1'	-	3.0	"
1075	-	1'	-	70.0	"
1076	-	7"	-	31.0	"
1077	-	2'	-	77.0	"
1078	-		-	50.8	"
3091	-				
3095	-	1'7"	-	7.0	"
3222	-	1'	-	28.0	"
3223	-	1'2"	-	24.0	
3224	-	2'8"	-	6.2	"
3225	-	1'	-	7.0	"
3226	-	1'2"	-	16.0	"
3227	-	1'10"	-	10.4	"
3228	-	1'	-	36.2	"
3229	-	2'5"	-	2.0	"
3230	-	2'6"	-	58.0	"
3231	-	2'2"	-	14.6	"
3232	-	1'	-	8.2	"
Av.			-	25.3	

$$\frac{120 \times 90 \times 3}{12} = 2{,}700 \text{ tons}$$

2,700 tons @ 25.0 ozs. = 67,500 ozs.

BEDDING PLANE

Location - No. 7 Level - Over
Filling 21.

Samples

762	-	1'6"	-	121.0	ozs.
763	-	3'7"	-	6.0	"
764	-	2'	-	48.0	"
765	-	2'6"	-	37.0	"
771	-	3'	-	27.0	"
3118	-	4'5"	-	16.0	"
3119	-	5'	-	52.0	"
Av.			-	34.0	"

$$\frac{50 \times 35 \times 5}{12} = 729 \text{ tons}$$

725 tons @ 35.0 ozs. = 25.375 ozs.

BEDDING PLANE

Location - No. 7 Level, Over Filling 26.

Samples

674	-	2'	-	11.4 ozs.
681	-	1'2"	-	2.0 "
1083	-	2'	-	3.4 "
1084	-	1'4"	-	6.3 "
3175	-	3'2"	-	7.2 "
3176	-	1'3"	-	17.6 "
3177	-	2'6"	-	7.0 "
3178	-	1'3"	-	10.0 "
3180	-	2'	-	12.0 "
3181	-	1'6"	-	23.2
3182	-	2'5"	-	4.8 "
3183	-	2'	-	3.2 "
Av.	-	1'10"	-	9.0 "

$$\frac{60 \times 40 \times 1}{12} = 200 \text{ tons}$$

200 tons @ 9.0 ozs. = 1,800 ozs.

FERGUSON REGION

NUMBER 1 PORPHYRY DYKE

4. No. 1 PORPHYRY DYKE

Here, I have estimated ore only on that part of the Porphyry Dyke which extends along the dip of the contact between the quartzite and lower limestone within the Ferguson Region.

Under the contact, the smaller mineralized quartz stringers have been partly worked. Samples taken from the margins of these old workings show values ranging from 10.0 ozs. to 75.0 ozs.

The width of the dyke varies from 12 feet to 22 feet, and, as will be seen by reference to the sample values in the section cuts in the estimates following, indications point to the possibility of mining the entire width of the dyke above these levels.

Unfortunately, no work has been done in the dyke above the plane of the contact, except a small stope, which shows on the map, above No. 7 level, and this is now wholly inaccessible and could not be sampled. However, if the faces of ore exposed in the dyke within the quartzite area on the lower levels is any criterion, splendid chances exist for the finding of ore in the virgin dyke above the Ferguson stopes.

The No. 7 level is caved near the cage shaft, but the drift was sampled for a distance of 200 feet west of the contact, showing good values for the entire distance.

There seems to be a large mass of mineralized quartz following beside the dyke, if not actually part of the dyke itself, in this locality. I have been able to trace this quartz, in some places, up to the contact, through the Ferguson stopes, and the values are consistantly around 10.0 or 12.0 wherever exposed.

The above notes refer to the dyke above the No. 6 and No. 7 levels under the Ferguson Stopes only, and should not be confused with the lower levels which will be treated under the heading of "levels".

Below will be found the separate estimates, which make up 27% of the whole tonnage.

FERGUSON REGION

PORPHYRY DYKE

Nos. 6 and 7 Levels

13,225 tons - @ 19.3 ozs. per ton = 257,250 ozs.

PORPHYRY DYKE

No. 6 Level

Tonnage - 4,400 Value 82,000 ozs.

DYKE

Location - No. 6 Level - 165' east from #7 Level

Below is given sectional samples of the following block of ore in Porphyry Dyke.

Samples

1.

#-Sample	3042	3043	3044	3045
Width	1'6"	3'2"	5'	4'8"
Value	5.6	13.2	14.0	9.4
				16.0

2.

979	978	2867	3049	3050
2'11"	3'4"	3'10"	2'8"	3'
9.6	11.0	52.0	33.8	13.6

3.

Sample #	3255
Width	6'
Value	86.0

4.

3257	3256
2'9"	6'6"
17.0	50.0

5.

5. Sam.#	1063	1064	1065	3258
Width	3'6"	4'3"	3'	5'
Value	9.0	11.0	12.0	17.0
	15.0			

6.

3261	3260	3259
3'	4'5"	4'10"
9.0	18.0	5.0

7.

Sample #	1091	1090	1089
Width	4'	3'3"	2'
Value	46.0	39.0	5.0

8.

3276	3275	----	3274
6'	2'	4'	3'6"
18.0	52.0	Ore	16.0

9.

Sample #	1094	1093	3281	3280	3279
Width	5'	2'4"	3'	7'	3'
Value	10.0	42.0	36.0	8.0	18.0

10.

1098	3286	
4'8"	4'	
22.0	29.0	

11.

Sample #	3298	1156	1157	1158	1159
Width	3'10"	2'8"	5'	3'10"	5'6"
Value	4.0	14.0	16.0	18.0	10.0

12.

-

13.

Sample #	3360	3354	3355	3356	3357	1163	3358	3359
Width	2'	3'6"	3'10"	1'	3'	3'7"	4'	2'6"
Value	27.0	38.0	22.0	15.0	2.0	41.0	20.0	13.0
						18.0		

$\frac{165 \times 25 \times 12}{12}$ = 4,125 tons

4000 tons @ 18.0 ozs. - 72,000 ozs.

PORPHYRY DYKE

#7.

Tonnage - 8,825 Value - 175,250 ozs.

DYKE

Location - No. 7 Drift. Contact to 1st Raise.

The following block of ore is exposed by two drifts separated from each other by 3' to 5' of ore and by one raise and one x-c.

Below are some typical sectional samples.

Samples

1.

Sample #	966	965	3015
Width	3'	2'9"	4'8"
Value	30.0	29.0	8.0
		54.0	

2.

3012	3011	974	4'	3016
1'9"	2'10"	1'7"	unex-	3'10"
6.0	6.0	57.0	posed	29.0

3.

Sample #	3014	3013	4'	971	970
Width	1'	1'4"	unex-	1'9"	1'2"
Value	9.0	3.0	posed	44.0	22.0

4.

3039	3040	3041
4'5"	5'	2'5"
75.0	42.0	7.2

5.

Sample #	975	976	977	2869
Width	1'8"	2'9"	3'5"	5'10"
Value	7.0	9.0	12.0	22.0

$\frac{40 \times 25 \times 8}{12}$ = 666 tons

650 tons @ 20.0 ozs. = 13,000 ozs.

DYKE

Location - No. 6 Level North of Filling 9.

Samples

1066	-	3'6"	-	30.0	ozs.
1067	-	5'	-	25.0	"
1086	-	4'	-	46.0	"
3266	-	3'	-	14.0	"
3267	-	2'6"	-	32.0	"
3268	-	2'5"	-	61.0	"
3270	-	3'2"	-	17.0	"
3271	-	3'8"	-	2.0	"
	-	3'	-	32.7	"
		4'	-	13.3	"
		4'	-	50.0	"
		1'8"	-	43.0	"
		3'5"	-	25.0	"
		7'	-	20.0	"
		3'	-	23.0	"
Av.	-	3'8"	-	29.0	"

$\frac{60 \times 30 \times 3}{12}$ = 225 tons

200 tons @ 25.0 ozs. = 5,000 ozs.

DYKE

Location - No. 6 Level - Down to Level below Filling 5.

Samples

3366	-	2'6"	-	42.0 ozs.
3367	-	1'	-	21.0 "
3369	-	1'6"	-	20.0 "
3362	-	8"	-	24.0 "
3363	-	2'10"	-	26.0 "
Av.	-	1'8"	-	28.0 "

$\frac{40 \times 30 \times 2}{12}$ = 200 tons

200 tons @ 25.0 ozs. = 5,000 ozs.

DYKE

Location - No. 7 Drift - 1st Raise to 2d Raise

Samples

DRIFTS

North Side					South Side				
960	-	4'1"	-	27.0 ozs.	961	-	2'6"	-	20.0 ozs.
3024	-	5'	-	27.0 "					
963	-	2'11"	-	16.0 "					
3018	-	5'2"	-	42.0 "	964	-	2'6"	-	7.0 "
973	-	1'8"	-	54.0 "					
965	-	2'9"	-	29.0 "	966	-	3'	-	30.0 "

RAISES

					3034	-	4'	-	22.0 "
3033	-	4'8"	-	28.0 "	3032	-	5'	-	38.0 "
962	-	2'6"	-	18.0 "					
3195	-	1'4"	-	52.0 "					
3194	-	1'	-	34.0					

$$\frac{50 \times 50 \times 7}{12} = 1{,}458 \text{ tons}$$

1400 tons @ 25.0 ozs. = 35,000 ozs.

DYKE

Location - No. 7 Drift, 2d Raise west to Large Chamber

Samples

1.

Sample #	3446	3447
Width	1'7"	2'8"
Value	10.0	13.0

2.

Sample #	3448	3449
Width	1'6"	4'8"
Value	11.0	9.0

3.

Sample #	3443	3444	3445	3427
Width	10"	1'8"	4'3"	2'2"
Value	17.0	27.0	23.0	17.0

4.

Sample #	3324	3325	3333
Width	3'10"	4'9"	4'
Value	21.0	12.0	19.0

5.

Sample #	3318	3319	3320
Width	1'11"	3'8"	3'7"
Value	18.0	43.0	25.0

6.

Sample #	3321	3322
Width	3'8"	2'9"
Value	14.0	13.0

7.

Sample #	3026	3027	3028
Width	2'	2'8"	3'
Value	7.0	20.0	8.0

The above are a portion of the section samples taken across the Porphory Dyke, and below is the estimate on this block of ore.

$$\frac{80 \times 55 \times 10}{12} = 3,666 \text{ tons}$$

3,500 tons @ 15.0 ozs. = 52,500

DYKE

Location - No. 7 Level, Beside "Filling 4 & 9.

Below is given result of samples from "two" sections across the porphyry dyke from north to south.

This is a continuation of orebody estimated on page 111.

Samples

Sample #	2878	2879
Width	4'2"	1'6"
Value	32.4	15.0

Sample #	2935	2936	2937	2938
Width	5'4"	2'8"	4'	3'5"
Value	90.0	66.0	7.0	20.0

Dangerous ground prevents sufficient samples being taken from this ground, but I feel justified in making the following estimate.

$$\frac{70 \times 20 \times 10}{12} = 1,166 \text{ tons}$$

1000 tons @ 25.0 ozs. = 25,000 ozs.

DYKE

Location - No. 7 Level, Beside "Filling-10".

Samples

Below is given the results of samples from four sections across the porphyry dyke, from north to south.

Samples

Sample #	2969	2968	2967	2966		
Width	5'3"	4'3"	4'4"	3'5"		
Value	38.0	119.0	19.0	16.0		
Sample #	2972	2971	2970			
Width	4'6"	3'10"	3'6"			
Value	57.0	27.0	129.0			
Sample #						
Width	2'2"	3'3"	3'2"	3'	3'10"	3'
Value	22.0	25.0	8.0	3.0	25.0	47.0
					41.0	61.0
Sample #						
Width	2'	3'	5' for	7'		
Value	14.0	17.0	drift	7.0		
		12.0				

$\frac{35 \times 25 \times 15}{12}$ = 1094 tons

1000 tons @ 25.0 ozs. = 25,000 ozs.

DYKE

Location - Beside "PILLAR U".

Samples

709	-	3'5"	-	16.0	ozs.
3130	-	2'	-	11.0	"
3131	-	3'7"	-	5.0	"
3132	-	3'6"	-	10.0	"
3165	-	1'6"	-	24.0	"
3166	-	4'6"	-	12.0	"
3167	-	5'	-	12.0	"
3173	-	6'2"	-	14.0	"
3174	-	4'7"	-	10.0	"
Av.				12.6	"

Actual width of ore shoot is much wider than samples indicate and feel justified in making the following estimate.

$$\frac{50 \times 30 \times 6}{12} = 750 \text{ tons.}$$

750 tons @ 12.0 ozs. - 9,000 ozs.

DYKE

Location - No. 7 Level, Beside "Filling 14".

Samples

780	-	2'4"	-	15.0	ozs.
2891	-	2'	-	98.0	"
2892	-	2'	-	44.0	"
2893	-	2'6"	-	25.0	"
2894	-	3'	-	34.0	"
2895	-	2'	-	16.0	"
2896	-	2'6"	-	12.0	"
3060	-	2'7"	-	31.0	"
3159	-	6'6"	-	50.0	"
3163	-	2'	-	10.8	"
Av.	-	2'8"	-	33.2	"

$$\frac{70 \times 30 \times 3}{12} = 525 \text{ tons}$$

525 tons @ 30.0 ozs. = 15,750 ozs.

FERGUSON REGION

5. MARGINS OF STOPES

5. MARGINS OF STOPES

Under this source, only a very few scattered estimates have been made and these in the re-entrant angles between development headings.

The samples taken along the margin or ourter-wall of these stopes give encouraging values over various widths for nearly the entire area. The possibilities for further extension of these orebodies are excellent, especially on the northern side of the porphyry dyke above the No. 7 Level, where the present workings do not extend more than one-half the distance away from it, that those on the southern side do. On No. 6 Level, I was unable to find any indications that these stopes have been worked north of the dyke, and here also the conditions are favorable for ore to be found. South of the Premium Fault, very little development work has been done, and the indications point to the continuation of these orebodies to the opposite side of the Fault.

The contact on No. 6 Level is insufficiently explored or inaccessible and the lower portion of the stopes are filled with waste, so am unable to make any conclusion as to what can be expected in a southeast direction.

In conclusion, will say that every front along the walls of these stopes seem favorable to an extension of the orebodies alread worked out.

No. 5 Contact

Although this is not included in the "caption" of margins, I wish here, to point out a few fissures on the No. 5 Level which seem to be associated with the Ferguson Stopes or with their possible downward extension along the contact.

By referring to the attached map, a northeasterly striking fissure, having a 60 degree dip, will be noticed on the No. 5 and No. 6 Levels. As shown on the plan of No. 5 Level, this fissure has been worked to a height of 75 feet for a length of about 100 feet along its strike, and the margin of the stops shows ore of milling grade. Samples taken over a width of 2 feet, gave returns varying from 10.0 to 30.0 ozs.

These present workings appear to be about 75 feet west of the contact. The lower portion of this fissure cuts a bedding plane and the values seem to be above the junction and in the fissure.

No. 5 Contact (Cont'd.)

The westward continuation of this fissure, possibly to the south side of the porphyry dyke, joins with a small but well defined rich vein paralleling the dyke and about 5 to 10 feet from it in the limestone. Irregular stopes of high grade ore on this vein meander upward above the Foster Level and join the Ferguson stopes near No. 6 "Pillar A".

It seems to be a rule that where the limestone orebodies meet the contact, there are located larger chambers of ore, and I am of the opinion that the "Northeast upraise" contributed in a large way to forming the huge orebodies of the Ferguson stopes.

The point where these fissures from No. 5 Level meet the contact should also be a favorable locus for ore similar to these stopes on No. 6 and No. 7 Levels.

FERGUSON REGION

6. FOOTWALL OREBODIES

6. FOOTWALL OREBODIES

The term footwall I have used to include the masses or projections of ore which seem to dip into the floor of these flat stopes or have been exposed in cross-cuts or masses left on the bottom by the earlier operators.

It would seem advisable to examine these masses thoroughly as they may be the top of a pipe or similar orebody coming up through the lower limestone.

No estimate of ore on that which I have designated Footwall has been made in this report. Some excellent samples were obtained from these masses and they possess possible future sources of ore.

2. FITZGERALD REGION

2. FITZGERALD REGION.

Under the above heading is included the area following the upper limestone-quartzite contact, from the surface down along the Fitzgerald incline to No. 4 Level.

Next to the Ferguson Stopes, this region can be considered the greatest source of developed ore for the immediate future,

There is ore here, following the contact in the porphyry dyke, in several branch fissures of good size and in the upper limestone on both sides of the dyke.

Altogether, there were four hundred samples taken within the immediate vicinity of the Fitzgerald incline between the No. 4 and No. 6 Levels. These samples gave a very good average value and disclosed some high grade material remaining which can be mined easily and cheaply.

I have not, at this time, placed an estimate on the tonnage here, as the ore is quite irregular and the lenses not well defined. A great number of pillars and stope margins could not be sampled on account of insufficient staging to reach them.

A large body of ore, located on the Fitzgerald No. 5 Level between the dyke and a northern branch fissure, has a vein-like appearance; is 10 feet to 15 feet wide, and shows no indication of having been worked below No. 5 Level. As Mr. Burgess suggests in his geological report on this region, these fissures should continue downward and prove a fruitful source of good ore.

The sampling results show the territory to be distinctly favorable for the taking out of much more good ore.

There has also been considerable development work and some stoping done along the porphyry dyke on the #4, #5 and #6 levels and extending to the surface, in the quartzite, west of the contact. Much of this is now inaccessible, but I was able to sample a part of it and the results were very encouraging. Messrs. Clark & Cramer estimated some 6,000 tons of very good ore within a small radius in this territory during their examination of the property about ten years ago. Conditions are favorable, and the territory above and below is of sufficient size to warrant the extension of these ore shoots.

3. Numbers, 1, 2, 3, 4, 5, Foster & 6 Levels.

(East of Cage Shaft)

Level - East of Cage Shaft

3. The 2d, 3d, 4th, 5th, Foster, and 6th Levels immediately east of the Cage Shaft, wherever accessible, were sampled.

A great deal more work has been done on these levels than the present maps indicate, especially on Levels 3, 4 and 5. Like other portions of the dyke which have been developed, only the richer ore has been extracted. The outline of the stopes are very irregular, and ore, as a rule, open and easily accessible.

Levels No. 3 and No. 4 show much higher average value than the others and No. 2 Level contains small shoots of ore of very good grade.

Although these levels are on the dyke are fairly well developed and considerable ore has already been extracted, there still remains a large amount of material in the pillars and untouched ground which will make good present-day milling ore.

MAJOR RAISE REGION

4. Major Raise

That ground under the bottom of the Fitzgerald Incline, extending from No. 4 level down to No. 1 Level, is known as the region around the Major Raise. It has a horizontal length of about 300 feet, along the No. 1 Porphyry Dyke, and is a downward extension of the upper orebodies along the quartzite.

Here there are two, and possibly three, distinct streaks of mineralized quartz and vein material following through the dyke. Widths of the pay shoots vary from 1 foot to 10 feet. The values are very irregular, some running quite high.

The ore is of sufficient high grade, however, that much of it can be mined with a profit, and extension of intermediate levels should disclose more as good as has already been taken out.

Two sub-levels extending under this same region are reported to contain good ore.

RED BREAST REGION

RED BREAST REGION

5. Flat Orebodies.

These stopes run upward from the Bass Crosscut, on the No. 1 level, about 360 feet southwest of the Cage Shaft, on a plane that dips 15 to 20 degrees to the south. This flat orebody has been mined to an elevation nearly equal to that of the #3 level, and is here cut by a vertical fissure known as the Red Breast steep vein.

The ore, apparently, does not terminate at this junction as a few samples taken from seams and small kidneys on the opposite side show some very good values.

The possibilities for other ore chambers along the north and east margins of these stopes are excellent and the ore should be high grade.

On the west side, these stopes are filled with waste and it is not now possible to tell how extensively they were worked in that direction.

Below is given the returns of some samples taken along the margin of these stopes.

2734	-	7"	-	13.4	ozs.
2740	-	10"	-	13.6	"
2745	-	7"	-	9.0	"
2746	-	8"	-	115.0	"
2754	-	6"	-	18.2	"
2758	-	5"	-	53.2	"
2768	-	2'6"	-	17.2	"
2769	-	1'2"	-	71.6	"
2775	-	2'5"	-	6.0	"
2782	-	1'10"	-	20.2	"
2798	-	2"	-	10.8	"
2817	-	7"	-	66.8	"
2832	-	9"	-	2.4	"
2834	-	6"	-	540.0	"
2837	-	7"	-	107.4	"

6. Steep Vein

It is difficult to tell just what the earlier operators were following when they drove a 100 ft. inclined raise on what is known as the Steep Vein.

6. Steep Vein (Cont'd.)

I am of the conclusion that this is a pipe and all the ore was extracted as they extended the working. A number of small fissures, containing ore, brach away from this pipe, at different skikes and dips and show some encouraging values. They may lead to other profitable orebodies.

This pipe joines a large body of mineralized quartz when it reaches an elevation about the same as No. 4 Level. The pipe-ore turns upward and seemingly follows the quartz in a vertical direction.

Some ten samples cut from this quartz show it to have a value of about 15.0 ozs. At the time it was opened up the ore proved too low grade to work and was abandoned before having determined its size.

The location of this ore is 100 feet south of the porphyry dyke, 150 feet southwest of the No. 4 station, and 50 feet west of the Hog Trail workings on No. 4 Level. It may possibly be connected with the Hog Trail orebody, I did not sample that region and am not familiar with the character of its ore.

However, I have concluded that this quartz may prove to be a pipe of the "northeast upraise" type and my reasons for same, are: its position, constant medium value, and its dissimilisrity to the Red Breast Orebodies in value, appearance and structure.

Company work to ascertain its value and size, before turning over to Tributors, is advisable.

Below is given the assay returns from various section-samples cut in this body of quartz.

Samples.

2776	-	3'4"	-	15.0	ozs.
2777	-	1'	-	16.0	"
2778	-	4'	-	10.0	"
2879	-	2'5"	-	12.0	"
2880	-	2'5"	-	16.0	"
2881	-	4'	-	17.0	"
2882	-	1'10"	-	20.0	"
2883	-	3'10"	-	4.0	"
2884	-	2'	-	12.0	"

CAPS BREAK REGION

CARR'S BUNAK REGION

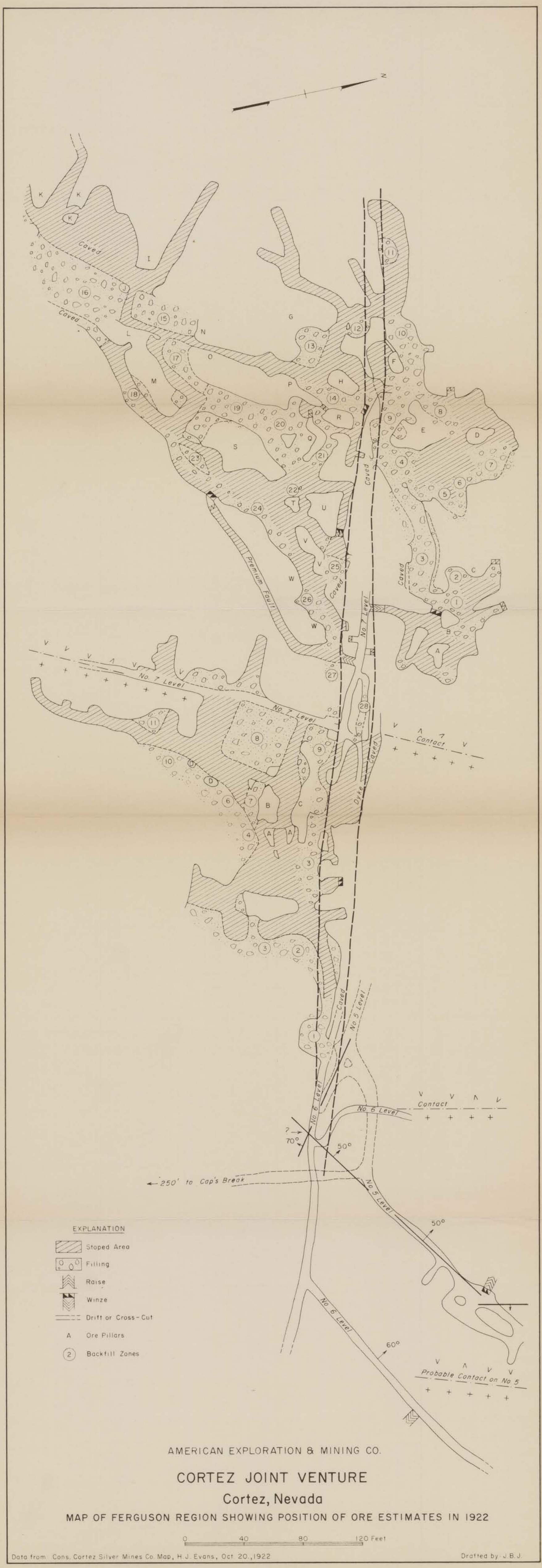
7. These stopes, I did not sample personally, but inspected the workings, referring, meanwhile, to the sample returns.

[illegible] show values about the same as the other deposits of similar character in the Mine.

The fissure which this ore-body follows, likely joins the contact above it, making orebodies under the quartzite which may be similar to the Ferguson Stopes or may even connect with them.

The entire margin of this pipe-like fissure, presents excellent values and fair widths from top to bottom.

This is naturally, a lessors paradise, but before allotting this ground to a Tributor, I would think it advisable to either reserve the upper portion for company work, or to determine its value at the contact before giving it out.



AMERICAN EXPLORATION & MINING CO.

CORTEZ JOINT VENTURE

Cortez, Nevada

MAP OF FERGUSON REGION SHOWING POSITION OF ORE ESTIMATES IN 1922

Data from Cons. Cortez Silver Mines Co. Map, H. J. Evans, Oct. 20., 1922

Drafted by J. B. J.