TABLE 6.—*Semiquantitative spectrographic analyses of metamorphosed igneous rocks from the Kelso Junction quadrangle*

Analyses by H. W. Worthing, 1961–62. M, major constituent—greater than 10 percent; 0, looked for but not detected; ..., not looked for. For samples marked with an asterisk (*) the analyses are to the nearest number in the series 1, 0.7, 0.5, 0.3, 0.2, 0.15, and 0.1 for other samples, analyses are to the nearest number in the series 7, 3, 1.5, 0.7, 0.3, and 0.15. The numbers represent approximate midpoints of group data on a geometric scale. For samples marked with asterisk the assigned group for semiquantitative results will include the quantitative value about 30 percent of the time, for the others, about 60 percent of the time. Field number is indicated in parentheses under sample number]

	West Kiernan sill																Quartz-bearing metagabbro dike					Metarhyolite porphyry (extrusive)	Quartz porphyry (intrusive)	From table showing distribution of the elements in the earth's crust by Turekian and Wedepohl (1961)			
	Upper part									Central part	Lower part													"Igneous" rocks			
	Granophyre			Magnetite-rich differentiate			Metagabbro			Metagabbro	Ultramafic differentiate													Granitic		Basaltic	Ultrabasic
	1 (KW-40-56)	2 (KW-45A-56)	3 (KW-90-57)	4 (KW-14-60)	5 (KW-15′-60)	6* (KW-15-60)	7 (KW-52A-58)	8 (KW-7A-57)	9 (KW-16A-57)	10 (KW-62A-58)	11 (KW-10-58)	12 (KW-12A-58)	13 (KW-13A-58)	14 (KW-24′-60)	15* (KW-24-60)	16 (KW-25′-60)	17* (KW-25-60)	18 (KW-25A-57)	19 (KW-27A-57)	20 (KW-29A-57)	21 (KW-33-57)	22 (KW-43-57)	23 (KW-19-60)	24 (KW-20-60)	Low Ca	High Ca		
In percent																											
Si	M	M	M	7	M	10	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	34.7	31.4	23	20.5
Al	7	7	7	3	3	2	7	7	7	7	3	3	1.5	3	1.5	1.5	1	7	7	7	7	7	7	7	7.2	8.2	7.8	2
Fe	3	3	3	M	M	M	3	7	M	7	7	7	7	7	10	7	10	M	7	7	7	M	3	3	1.42	2.96	8.65	9.43
Mg	.3	.7	.3	.3	1.5	3	1.5	1.5	1.5	1.5	7	7	7	7	10	7	10	1.5	.7	1.5	.7	1.5	.7	.3	.16	.94	4.6	20.4
Ca	1.5	1.5	1.5	1.5	3	5	3	3	3	3	1.5	.7	.7	.7	.7	.7	.7	3	3	3	3	3	1.5	.7	.51	2.53	7.6	2.5
Na	3	3	3	.15	.07	.1	1.5	1.5	1.5	1.5	.07	.015	0	.015	.02	.015	.02	1.5	1.5	1.5	1.5	1.5	.3	3	2.58	2.84	1.8	.42
K	1.5	3	3	1.5	.7	0	1.5	.7	.7	.7	.3	.3	.3	.3	0	.3	0	1.5	1.5	1.5	1.5	1.5	3	3	4.2	2.52	.83	.004
Ti	.3	.3	.3	3	1.5	>2.6	.7	1.5	1.5	.7	.3	.3	.3	.3	.3	.3	.2	1.5	1.5	1.5	1.5	1.5	.7	.3	.12	.34	1.38	.03
P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.7	.3	0	0	0	0	0	.06	.092	.11	.022
Mn	.07	.07	.07	.7	.3	.1	.15	.3	.3	.15	.15	.15	.15	.15	.1	.15	.1	.3	.3	.3	.3	.3	.07	.07	.039	.054	.15	.162
In parts per million																											
Ag	0	0	0.15	1.5	0.3	1	0.15	0.3	0.3	0.15	0.15	0.15	0.15	0	0.2	0	0.2	0.3	0.3	0.15	0.15	0.3	0	0	0.037	0.051	0.11	0.06
B	0	0	0	30	30	30	30	30	30	30	30	30	70	30	70	30	70	30	30	30	30	30	30	0	10	9	5	3
Ba	700	1,500	1,500	300	15	10	700	15	700	300	3	3	3	3	7	7	7	1,500	1,500	1,500	1,500	700	1,500	1,500	840	420	330	.4
Be	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.5	1.5	1.5	3	1.5	3	3	3	2	1	.X
Ce	150	150	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	150	150	0	150	0	0	300	92	81	48	.X
Co	3	0	7	30	70	300	30	70	70	30	70	70	70	70	70	70	70	30	30	30	30	70	7	3	1.0	7	48	150
Cr	3	3	3	30	30	70	30	3	3	70	700	700	700	700	>1,800	700	>1,800	3	3	7	3	70	3	15	4.1	22	170	1,600
Cu	7	7	7	7	7	50	70	7	70	15	15	15	15	7	50	30	70	30	15	30	7	15	3	3	10	30	87	10
Dy	30	30	30	30	0	----------	0	0	0	0	0	0	0	0	----------	0	----------	0	30	0	30	0	0	30	7.2	6.3	3.8	.X
Ga	7	7	7	7	7	10	7	7	7	7	1.5	1.5	1.5	1.5	7	1.5	7	7	7	7	7	7	7	7	17	17	17	1.5
Ho	15	15	15	15	0	----------	0	0	0	0	0	0	0	0	----------	0	----------	0	0	0	0	0	0	15	2.0	1.8	1.1	.X
La	70	70	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	70	30	70	30	70	150	55	45	15	.X
Mo	0	0	0	15	7	15	0	3	3	0	3	3	0	0	5	0	5	3	3	3	3	7	0	3	1.3	1.0	1.5	.3
Nb	15	15	3	0	0	7	0	0	0	0	0	0	0	0	0	0	0	3	3	0	3	0	15	70	21	20	19	16
Nd	150	150	150	0	0	----------	0	0	0	0	0	0	0	0	----------	0	----------	150	150	150	150	150	0	150	37	33	20	.X
Ni	0	30	30	0	0	30	150	0	0	150	1,500	1,500	1,500	1,500	700	1,500	700	30	30	70	0	150	70	150	4.5	15	130	2,000
Pb	1.5	15	15	0	7	50	3	7	150	7	0	15	0	15	15	3	15	70	15	30	7	15	0	15	19	15	6	1
Sc	7	7	7	15	15	30	15	15	15	15	7	7	7	7	10	7	10	15	15	15	15	15	7	7	7	14	30	15
Sn	0	0	0	15	7	5	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	3	1.5	1.5	.5
Sr	70	70	150	3	7	5	300	300	700	300	3	3	3	0	0	0	0	300	700	300	300	300	15	30	100	440	465	1
Sm	150	150	0	0	0	----------	0	0	0	0	0	0	0	0	----------	0	----------	0	0	0	0	0	0	150	10	8.8	5.3	.X
V	0	0	3	700	700	1,000	70	300	150	70	30	30	30	30	150	30	70	70	30	150	15	150	15	3	44	88	250	40
Y	70	70	70	7	7	30	7	7	7	7	0	0	0	0	0	0	0	70	70	15	30	15	30	70	40	35	21	.X
Yb	7	7	7	0	0	3	0	0	0	0	0	0	0	0	0	0	0	7	7	1.5	3	1.5	3	7	4	3.5	2.1	.X
Zr	700	700	700	300	150	100	150	150	150	150	150	150	150	150	30	150	30	300	300	150	300	150	700	700	175	140	140	45

[1] Looked for but not found: As, Au, Bi, Cd, Cs, Er, Eu, Gd, Ge, Hf, Hg, In, Ir, Li, Lu, Os, Pd, Pr, Pt, Rb, Re, Rh, Ru, Sb, Ta, Tb, Te, Th, Tl, Tm, V, W, and Zn. Not looked for in samples 6, 15, 17: Cs, Dy, Er, Eu, Gd, Ho, Ir, Lu, Os, Nd, Pr, Rb, Rh, Ru, Sm, Tb, and Tm.

SAMPLE LOCALITIES

[Samples 6, 15, and 17 were part of same rock powder split as was used for chemical analyses shown in tables 4 and 5. Samples 5, 14, and 16 were each a separate rock chip broken from the samples submitted for the chemical analyses]

Sample	Distance (feet) from corner of section				T.N.	R.W.	Sample	Distance (feet) from corner of section				T.N.	R.W.
	North or south	East or west	Corner	Section				North or south	East or west	Corner	Section		
1	1,800 S.	500 E.	NW	12	43	32	13	800 S.	2,000 W.	NE	22	44	32
2	2,600 N.	1,400 E.	SW	12	43	32	14	700 S.	100 E.	NW	26	44	32
3	1,700 S.	100 W.	NE	32	44	32	15	700 S.	100 E.	NW	26	44	32
4 [1]	1,200 S.	400 E.	NW	12	43	32	16	1,300 N.	2,600 E.	SW	15	44	32
5 [1]	1,200 S.	400 E.	NW	12	43	32	17	1,300 N.	2,600 E.	SW	15	44	32
6 [1]	1,200 S.	400 E.	NW	12	43	32	18	100 S.	100 W.	NE	16	43	32
7	2,600 S.	1,200 W.	NE	33	44	32	19	500 N.	1,600 W.	SE	9	43	32
8	2,400 S.	1,600 W.	NE	11	43	32	20	1,500 N.	1,500 E.	SW	9	43	32
9	200 N.	200 W.	SE	3	43	32	21	2,100 S.	1,600 E.	NW	8	43	32
10	1,100 S.	2,100 E.	NW	2	43	32	22	900 S.	300 E.	NW	7	43	32
11	300 S.	300 W.	NE	27	44	32	23	600 N.	600 W.	SE	4	44	32
12	100 S.	2,000 W.	NE	22	44	32	24	400 S.	1,300 E.	NW	12	44	32

Test pit; all others from outcrop.