AN INERT GAS "BORSCHT" FROM THE TAURUS-LITTROW SITE,
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Three samples from the trench at Sta. 9 show a decrease of trapped gas content with depth, but little change of elemental and isotopic ratios (Table 1). PET (1) reports that fines near the top contain twice as much agglutinates than those near the bottom of the trench. This could mean that the former are more "mature" than the latter. We suggest another possible explanation: near the top of the regolith, where shock waves occur probably more frequently than elastic sound waves the rate of production is greater than the rate of comminution of agglutinates. With increasing depth this relationship becomes rapidly reversed and comminution becomes the dominant process. Also, agglutinates must lose appreciable amounts of their trapped gases upon communition.

Fines from the dark mantle are generally richer in trapped He and Ne than fines from the bright mantle (Table 1). Hence the 4/20 ratios of the former are systematically greater than those of the latter, but this is normal for fines principally derived from mare vs. highlands materials. The grey fines from the trench at Sta. 4 (74241) are unlike fines elsewhere in the valley, as shown by their large 4/20 and 40/36 ratios.

Cosmogenic Ne-21 contents of >500 μm particles from various locations (Table 2) show the occurence of materials with (20±6) Paneth (2) of Ne-21 (cosm.). This is roughly the amount expected for the exposure age of Camelot, 85 myr (3). Camelot debris appears to be widely distributed as it occurs near Victory and Steno craters.

(1) Apollo 17 Preliminary Examination Team, Science 182, pp. 659-690 (1973).
(2) One Paneth = 10^{-8} cm^3 STP/g.
(3) T. Kirsten, P. Horn, D. Heymann, W. Hübner, D. Storzer, EOS Transactions, 54, pp. 595-597 (1973).

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TABLE 1

Inert gas contents (cm^3 STP/g), element and isotope ratios of Apollo 17 fines

Sample	He^3 (10^{-5})	4/3	Ne^{20} (10^{-3})	20/22	21/22	Ar^{36} (10^{-4})	36/38	40/36	Kr^{84} (10^{-8})	Xe^{132} (10^{-8})	He^4/Ne^{20}
<u>Dark Mantle</u>											
79221.16	8.55	--	3.81	12.9	.035	6.23	5.33	1.85	16.5	3.28	--
79241.16	6.93	2530	2.84	13.1	.035	3.77	5.32	1.76	12.6	2.36	62
79261.22	5.01	2460	2.12	12.9	.035	2.72	5.31	1.92	8.84	1.58	58
75081.30	6.89	1980	2.15	13.3	.037	3.11	5.31	2.81	13.7	2.42	63
75121.8	6.04	2380	2.18	13.2	.034	4.39	5.36	2.04	20.3	3.34	66
<u>Intermediate</u>											
72141.10	5.70	2610	2.34	13.0	.035	4.01	--	1.52	15.5	2.89	64
72161.8	6.78	2460	2.80	12.8	.034	4.92	5.34	1.56	18.4	2.70	59
<u>Bright Mantle</u>											
72321.6	1.87	--	1.50	13.1	.034	3.28	5.39	1.87	12.8	1.78	--
72441.4	2.24	3030	1.68	13.2	.036	3.60	5.37	1.56	12.8	2.27	48
72461.4	2.76	2680	1.55	13.1	.034	3.27	5.40	2.04	12.2	1.87	40
72501.51	3.25	2670	1.84	13.1	.035	3.65	5.38	2.48	14.4	2.54	47
73121.8	2.80	2620	1.60	13.1	.036	3.67	5.41	1.70	13.4	2.23	47
73141.1	2.26	2630	1.24	13.1	.035	2.53	--	2.60	10.4	1.84	46
<u>Shorty</u>											
74241.38	5.02	3340	1.44	12.9	.034	1.77	5.32	7.93	4.49	1.63	117
74220.58	0.43	2570	0.13	13.2	.037	0.15	5.31	22.2	1.68	0.32	84

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TABLE 2

He and Ne in Particles >500 μm
(cm^3 STP/g)

Sample	Weight (μg)	He^3 (10^{-5})	Ne^{21} (10^{-6})	4/3	20/22	21/22	4/20	Ne^{21}_c (10^{-8})	Description
75121,8,1	4060	1.56	1.94	2330	13.0	.037	54	30	Bulk >500 μm
75121,8,1,0	4260	.028	.354	8300	12.2	.087	46	23	Feldspar concentrate
75121,8,1,1	4220	.195	.207	1130	12.3	.090	78	14	basaltic lithic
75121,8,1,2	2040	8.10	4.07	1087	13.0	.035	59	43	breccia
75121,8,1,3	1650	1.42	2.61	2870	12.7	.036	45	34	agglutinates
75121,8,1,4	4115	1.34	1.92	2710	12.5	.037	55	26	dark particles
75081,30	4985	.681	.814	--	12.1	.087	--	53	Rim of Camelot, Sta. 5
75111,7	4575	.356	.561	2160	12.3	.051	56	22	Apex of Victory Crater, LRV 7
71501,20	4949	.922	1.08	2860	13.0	.039	73	20	near Steno, Sta. 1A
72501,51	7610	.146	.393	2150	12.9	.049	30	14	Sta. 2
72161,8	2350	1.19	1.89	2290	12.6	.042	48	48	LRV 3
72321,6	755	1.50	2.84	2290	12.9	.043	40	77	Sta. 2
72141,10	4775	.641	1.07	2110	12.8	.046	46	35	LRV 2

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