TABLE 1. Diffusion coeffficient $D \times 10^7$ cm^2/sec

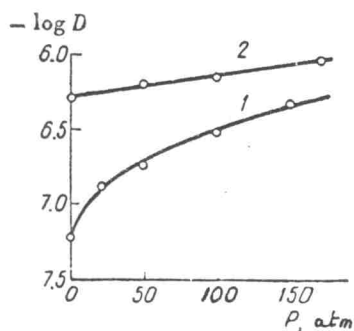| № sample	T, °C	Pressure, atm.					
		1	20	50	100	150	170
1	950	0.58	1.25	1.56	3.54	4.26	—
2		0.66	1.34	1.59	2.61	3.98	—
3		—	1.09	2.22	3.06	5.25	—
4		—	1.49	1.92	2.78	4.76	—
Sr		0.62	1.29	1.82	3.00	4.56	—
1	1200	5.05	—	6.44	6.63	—	8.38
2		5.60	—	5.38	7.60	—	9.17
3		—	—	7.39	7.13	—	8.83
Sr		5.33	—	6.40	7.12	—	8.76

FIG. 1. Dependence of log D on pressure in a titanium alloy with 4 at.% iron at temperatures:
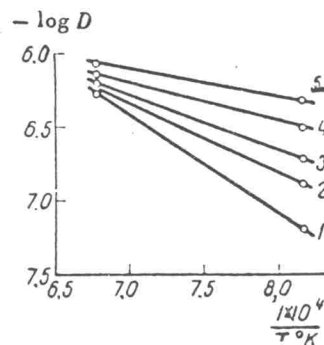1 — 950°;
2 — 1200°.

FIG. 2. Dependence of log D on $1/T$ for a titanium alloy with 4 at.% iron at pressures:
1 — 1 atm; 2 — 20; 3 — 50;
4 — 100; 5 — 150 atm.

orientation of the straight lines log $D = f(1/T)$ (although they are each plotted through two temperature points, because of the large interval between them (250°) and the considerable scatter of the values of D from the mean, they are good enough to provide a basis for qualitative conclusions) show that at a certain temperature T_0 the effect of pressure will be zero. It follows from this that increase in pressure will cause a regular reduction in the activation energy of diffusion. The permits the hypothesis, that the energy expended in the development of plastic microdeformation in a polycrystal

is due to reduction in the potential barrier in the path of the diffusing atoms and that easier paths are then created for their diffusion movements.

The reduction in the effect of hydrostatic compression on the diffusion process at elevated temperature is apparently due to reduction in the number of crystal lattice defects arising in the course of plastic microdeformation, as a result of the more rapid healing of the defects.

The data presented here are in complete agreement with those obtained earlier [1, 2] and reveal a fully determinable dependence of the diffusion