to $M_D = 1580\ m_e$ (m_e denotes the electron mass). All told, the end points of 500 K^+-meson tracks were found. The K^+ mesons were identified by the decay and by grain density. Out of the 500 K^+-meson decays found, 470 were accompanied by the emission of one charged particle, i.e., they must be classed as $K_{\pi 2}$, $K_{\mu 2}$, $K_{\mu 3}$, and K_{e3} decays. Decay into three pions (τ decay) was observed in 30 cases (6%). Upon tracing the tracks of these K^+ mesons for about 15 mm, production stars were found in 98 cases, and in 402 cases the K^+ meson had a range greater than 15 mm. The energy spectrum of K^+ mesons with ranges ≤ 15 mm in emulsion is as follows:

T_K, MeV	0—10	10—20	20—30	30—40	40—50
Number of K^+ mesons	—	16	31	24	27

This spectrum has not been corrected for the edge effect due to the finite dimensions of the emulsion stack; the corresponding correction is small, since the stack was sufficiently large.

No cases of production of a K^+ meson in the decay of a heavier particle were observed. Thus, it follows from the results of the present work that the probability for the production of slow D^+ particles (which decay into K^+ mesons) by 9-BeV protons amounts to less than 1/500th of the probability for the production of slow K^+ mesons (which come to rest in an emulsion stack of the indicated dimensions). One can note for comparison that, under the conditions of the present experiment, the number of slow K^+ mesons amounts to approximately 1/300th of the number of charged pions stopped in the emulsion stack. It must be voted that if the D^+ meson decays into a K^+ meson according to the scheme (1), then in virtue of isotopic spin invariance and the $\Delta T = \frac{1}{2}$ rule the decay $D^+ \rightarrow K^0 + \pi^+$ also takes place with a probability twice that of decay (1); of course, we have not detected this decay mode of the D^+ meson in our experiment.

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TEMPERATURE DEPENDENCE OF THE EFFECT OF ISOTOPIC COMPOSITION ON THE SIZE OF THE LATTICE CONSTANT IN LITHIUM

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THE data available in the literature[1] on the effect of isotopic composition on the size of the lattice constant in Li refer to a temperature of 300°K. At this temperature the lattice constant for the light isotope [$a(Li^6) = 3.5107 \pm 0.0009$ Å] is 0.0015 Å larger than the lattice constant of the heavy isotope [$a(Li^7) = 3.5092 \pm 0.0006$ Å], while the relative volume change $\Delta V/V \approx 0.1\%$).

As was shown for the Ni isotopes,[2] the excess of the lattice constant of the light isotope over the lattice constant of the heavy one decreases with rising temperature and may even go to zero or change sign. Thus one can possibly expect to find a larger effect of the isotopic composition in Li at low temperatures than the one discovered for 300°K. To this end a series of x-ray photographs of the Li isotopes were produced at 20, 78, and 300°K. The low temperature runs were made in a cryostat where the sample as well as the film were immersed completely (for the runs in liquid hydrogen) or partially (for the runs in liquid nitrogen) in the liquid coolant. The x-ray beam entered the cryostat through beryllium windows in the form of flat slides[3] sealed in the walls of the Dewar. The cell diameter equalled 57.3 mm. The precision with which the lattice constants were determined ($\Delta a = \pm 0.001$ Å) was insufficient to state confidently that a difference

exists for the Li isotopes at room temperature. At low temperatures, however, the difference in the size of the lattice constants for the Li isotopes is clearly pronounced:

$T = 20°K$	$a(Li^6) = 3.480$ Å,	$a(Li^7) = 3.478$ Å,
$T = 78°K$	$a(Li^6) = 3.483$ Å,	$a(Li^7) = 3.482$ Å.

Despite some increase of the effect of isotopic composition in Li for lower temperatures, its size remains as before one order of magnitude smaller than in Ne, whose relative isotopic mass difference is smaller than that of Li. The isotope effect in Ni[2] was found to be still smaller. Apparently the character of the binding forces in a lattice shows up in the size of the isotope effect in a decisive dependence, and in metals this effect is much more weakly expressed than in crystals with purely van-der-Waals binding forces such as Ne[4] or the hydrogen isotopes.[5]

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