extrapolating the equation of state to higher pressures.

In conclusion, I wish to thank V. N. Zharkov for proposing and discussing this subject.

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TWO CASES OF HYPERFRAGMENT DECAY

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Up to now only several decays of hyperfragments with $Z \geq 6$ has been described in the literature.[1-5] In three cases the binding energy of the Λ^0 particle has been estimated:

$$^{C}B_{\Lambda} = (13 \pm 6), \quad ^{N}B_{\Lambda} = (20 \pm 11),$$
$$^{O}B_{\Lambda} = (19.0 \pm 14.0)\ \text{Mev}.$$

In a stack of Ilford G5 emulsions, exposed in the stratosphere, we have observed a heavy hyperfragment which decayed by emission of a fast proton. This hyperfragment was interpreted as being F_{Λ} or Ne_{Λ}. A mesonic decay of a hyperfragment was also observed in this stack.

Case 1. A multiply charged hyperfragment is emitted from a star of the type 15 + 2n with a range R = 127μ. The absence of δ rays near the end of the track and the narrowing of the track indicate that the hyperfragment came to rest. The charge of the hyperfragment is estimated from the length of the narrowing to be $Z = 8 \pm 2$. At the end of its track the hyperfragment decays into three charged particles (a, b, c in Fig. 1).

Particles a and b stop in the same emulsion after travelling 204 and 20μ respectively. From the number of gaps and of δ rays, the charges of these particles were determined to be 1 and 1 — 2 respectively.

Particle c leaves the stack after penetrating 8 emulsions. The grain density and the multiple scattering yield a mass of $(2170 \pm 300)\ m_e$. Particle c thus can be identified to be a proton. Its energy is (117.3 ± 12.4) Mev.

The residual momentum of the three charged particles was computed for all possible types of particles allowed for a and b. Assuming that no neutral particles participate in the decay, the momentum unbalance has to be taken up by recoil of the residual nucleus leading to a range $R \leq 0.8\mu$.

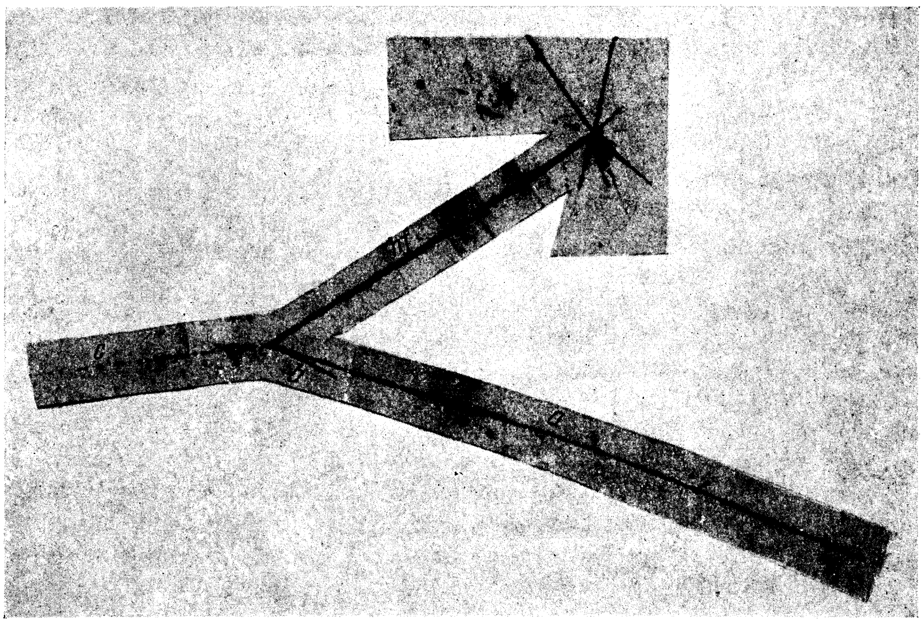

FIG. 1. Decay of a heavy hyperfragment.

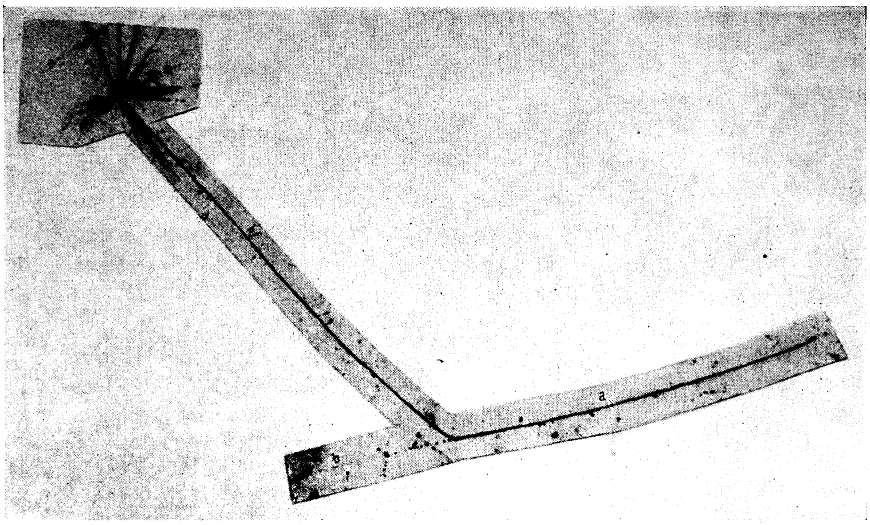

FIG. 2. Mesonic decay of a hyperfragment.

(A range $R = 0.8\mu$ is the largest range a particle can have without producing a visible track.)

The binding energy of the Λ^0 particle was determined for all possible decay schemes and those leading to positive binding energies were selected. This analysis leads to the following decay schemes of the hyperfragment:

$$ {}_{\Lambda}\mathrm{F}^{18,19,20} \to d\,(t) + p\,(d, t) + p + \mathrm{C}, \quad (1)$$

$$ {}_{\Lambda}\mathrm{Ne}^{20,21} \to p\,(d, t) + p(d, t, \mathrm{He}^3, \mathrm{He}^4) + p + N\,(\mathrm{C}) \quad (2)$$

with the following values for the binding energy: for decay scheme (1), ${}^{F}B_{\Lambda} = (18.9 \pm 16.3)$ Mev; for (2) ${}^{Ne}B_{\Lambda} = (21.8 \pm 17.7)$ Mev.

If a neutral particle participated in the decay the possibility is not excluded that the hyperfragment was actually lighter than F.

Case 2. A light hyperfragment is emitted from a star of type 21 + 8p. After travelling 276μ it decays into two particles (Fig. 2). The scattering of the hyperfragment indicates a decay at rest. From the number of gaps and of δ rays its charge was determined to be $Z = 2 - 3$.

Particle a has a range of 218μ and was identified to have a charge 1. Track b leaves the stack after traversing $(12{,}320 \pm 500)\ \mu$ in 13 emulsions.

A comparison of the track density with calibration curves showed that the track was due to a π meson with an energy of (32.8 ± 5.0) Mev.

A kinematical analysis yields the schemes

$$\mathrm{He}^5_{\Lambda} \to p + \pi^- + \mathrm{He}^4 + Q_1, \quad (3)$$

$$\mathrm{Li}^{7,8}_{\Lambda} \to p + \pi^- + \mathrm{Li}^{6,7} + Q_2, \quad (4)$$

with $Q_1 = Q_2 = (39.0 \pm 5.0)$ Mev.

Taking $Q_{\Lambda} = 36.9$ Mev[6] we obtain $B_{\Lambda} = (-2.1 \pm 5.0)$ Mev.

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THE EFFECT OF COULOMB CORRELATIONS ON THE SPECTRUM OF ELECTRON-PLASMA OSCILLATIONS

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THE numerous articles on the collective oscillations of plasmas have thus far, to our knowledge, not clarified the role of Coulomb correlations. This problem can be approached in several ways. For example, a kinetic equation which takes the correlations into account can be used to derive the dispersion equation for small density oscillations. This dispersion equation would express the oscilla-