tending to imply that they are correct:

$r_\kappa = \frac{1}{3}$, $\tau_{0\kappa} = 2\times 10^{-9}$ sec, $m_\kappa = 1200m_e$, and $\lambda_\kappa = \lambda_p$.¶¶¶¶

Accordingly, $E_{0\kappa} = 2.2\times 10^{12}$ ev. Values of $\epsilon$ were obtained by the procedure described in Section G. The expected temperature effect $\alpha$, and the difference of the exponents $m$ and $n$ in the dependence of intensity on depth and zenith angle, were calculated under the assumption that only $\kappa$-mesons are produced at high energies, and also under the more likely assumption that equal numbers of $\kappa$- and $\pi$-mesons are produced. The results are shown in Figs. 4 and 8, along with the values of $m-n$ and $\alpha$ to be expected if only $\pi$-mesons are produced.

In the case of equal production of $\kappa$'s and $\pi$'s, it appears that the presence of the $\kappa$-mesons probably does not change remarkably the expected values of $m-n$ and $\alpha$. At depths less than 700 m.w.e., the average energies are too small for competition between decay and nuclear absorption of $\kappa$-mesons to be appreciable, but most of the $\mu$-mesons are created by $\pi-\mu$ decay. At depths greater than 700 m.w.e. most of the $\mu$'s are created by decay of $\kappa$-mesons, but the energies are high enough for the competition between decay and absorption of the $\kappa$'s to produce effects comparable to those expected from $\pi-\mu$ decay. If the assumed value of $\tau_{0\kappa}$ is too long and $\lambda_\kappa$ too short, corrected values of $m-n$ and $\alpha$ would go through a broad maximum at a depth around 500 m.w.e. and decrease slowly thereafter, going through a minimum at a greater depth and then rising again. At depths of 800 and 1600 m.w.e., the values of $m-n$ and $\alpha$ would still be respectively about $\frac{1}{2}$ and $\frac{1}{3}$ of the values expected on the basis of $\pi-\mu$ decay only. Only by assuming that less $\pi$-mesons than $\kappa$-mesons are produced can the expected values of $m-n$ and $\alpha$ at these depths be made very small.

¶¶¶¶ The reasons for these values are as follows: $m_\kappa$ is derived from the mass measurement by O'Ceallaigh (see reference 15). For $\tau_{0\kappa}$, a minimum value of about $1\times 10^{-9}$ sec is inferred because $\kappa$-mesons apparently have a high probability of coming to rest in emulsions before decaying. If $\kappa$-mesons are identical with "charged $V$ particles," the observations of decay in the gas of cloud chambers imply that the lifetime is not very long compared with $10^{-9}$ sec. If this identification is wrong, $\tau_{0\kappa}$ could be much greater than the value assumed, but not much less. $r_\kappa \simeq 1/3$ is inferred from the fact that the charged decay product does not have a unique energy and is light compared with the $\kappa$-meson. $\lambda_\kappa \simeq \lambda_p$ seems to be necessary (unless the $\kappa$-meson is itself a decay product of a heavier meson) in order to be consistent with the assumption of a high rate of production of $\kappa$-particles.

## Erratum: The Diamagnetism of Ions

[Revs. Modern Phys. **24**, 15 (1952)]

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The heading for Table VIII should have read as follows:

Table VIII. Ionic diamagnetic susceptibilities.

| | Free | Experimental Dissolved | | | Crystal | Theoretical | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| $F^-$ | 10.5 | — | 12.1 | — | 9.4 | 8.1 | 16.9 | 8.1 | 7.1 |
| .... | ..... | ... | ... | ... | ...... | ... | ... | ... | ... |