aged, its radiations became poisonous and produced debility and death. Most of the Lemurians abandoned Earth. Some remained, one branch becoming our own ancestors. The other branch degenerated completely, withdrew to a vast system of caverns, and became a misshapen, evil race of "deros." Coming upon some devices left behind by the Lemurians which project mind-controlling rays, the deros have amused themselves ever since by causing all types of aberrant thought and behavior in mankind.

Obviously Shaver has predicted (i) solar particle emission, (ii) the aging and mutagenic effects of ionizing radiation, and (iii) recent findings as to the effect of direct electrical stimulation of various brain centers. In view of these prognostications, his other conclusions must be objectively re-examined—unless, that is, one simply feels, as I do, that while one bad apple spoils the rest, the accidental presence of one or two good apples does not redeem a spoiled barrelful.

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The Possibility of Compound Formation by Helium

The recent letter "On the chemistry of inert gases" by George Wald (*1*) contains many points which deserve discussion. We wish to comment only on Wald's proposition that "it should be exceedingly difficult to prepare compounds of helium, in which the . . . 1*s* orbital is filled and no others are available. . . ." The statement is undoubtedly correct if one considers only ionic bonding, as in the first reported xenon compound, $Xe^{+}PtF_6^{-}$ (*2*), or covalent bonding with heavy atoms, such as appears to be present in XeF_4 (*3*).

However, helium has long been known to form covalent bonds in the species HeH^{+} and He_2^{+}, first observed in mass spectrometric studies of ionized gases. Recent mass spectrometric studies of the beta-decay of HT and T_2 gases have shown that the predominant products are $^3HeH^{+}$ and $^3HeT^{+}$, respectively (*4*). About 90 percent of the helium-3 product of the decay reactions is found as helium hydride molecule ions which survive the 10^{-4} sec transit time of the mass spectrometer (*5*).

A qualitative explanation can be given for the stability of these diatomic

ions. Bonding in HeH^+ results from overlap of the 1*s* atomic orbitals of the two atoms. Only two electrons are present, and both lie in a bonding molecular orbital (the σs *orbital*). No inner electron shells are present to shield the nuclei, and the nuclei can therefore approach each other closely; this results in large overlap of the 1*s* wave functions and so in large covalent exchange energy. The same factors lead to strong bonding in the isoelectronic hydrogen molecule (heat of dissociation = 103 kcal/mole).

The same considerations apply to He_2^+, with the exception that an antibonding electron is also present, reducing the effect of the two bonding electrons. However, the equivalence of the nuclei is favorable, and the most recent quantum mechanical calculations suggest that dissociation energies for both species are in the range 40 to 50 kcal/mole (*6*). These estimates offer some hope that compounds of HeH^+ or He_2^+ with anions may be isolable, although they will probably be endothermic. The availability of $^3HeT^+$ from tritium gas may make it possible to detect very small quantities of helium hydride compounds radiochemically.

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References and Notes

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5. It is possible that ~ 90 percent represents an upper limit on the proportion of HeH^+ species generated, but in any event the proportion must be high. For a discussion see S. Wexler, *J. Inorg. Nucl. Chem.* **10**, 8 (1959).
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Physical Contact between Mother and Young

In the article "Critical periods in behavioral development" [*Science* **138**, 949 (1962)] J. P. Scott suggests that there must be negative mechanisms, including perhaps fear responses and rejection of strange young, which prevent or bring to an end the social relationship between mother and young.

To these components I would add a third possible factor—lack of physical