which is finally stopped by the clouds. Large variations are seen both from point to point on the surface at a given time, and at a given region from day to day, which are effectively weather variations (*1*). A plausible reason, suggested by A. Young, as to why the detected amount of water is so relatively small at the rather high (240°K) temperature of the atmospheric region in question, is the very low vapor pressure of water over sulfuric acid cloud drops.

As for Mars, an alternative to loss of its water to space is the probability that large amounts of water may be locked in the crust as permafrost, also as ice crystals laid down in the great beds of aeolian deposits and in the polar caps of unknown depth. This picture is supported by the almost continuous subfreezing temperature of nearly all the martian surface, by the nevertheless near-saturation amounts of water vapor which we often find in the martian atmosphere, and by the tendency for the maximum atmospheric water vapor concentration to follow the subsolar point on Mars, both diurnally and seasonally (*2*).

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References

1. E. Barker, *Int. Astron. Union Symp. No. 65* (1974).
2. ———, *Bull. Am. Astron. Soc.* **6**, 371 (1974).

The Demese ef the Ne'enderthels: Wes Lengege e Fecter?

Et seems qwete prebeble thet the Ne'enderthels ked speke less well then ther seccessers, end thet thes wes the resen fer ther demese. Bet even ef we beleve the kempeter reselts (Research News, 15 Nov. 1974, p. 618), et seems emprebeble thet ther speech wes enedeqwete bekes ef the leck ef the three vewels seggested. The kemplexete ef speech depends en the kensenents, net en the vewels, es ken be seen frem the generel kemprehensebelete ef thes letter (*1*).

JEHN H. FREMLEN

Depertment ef Phesecs,
Eneversete ef Bermenghem,
Bermenghem B15 2TT, Englend

References

1. The neutral vowel throughout is "e," as in "her."

Kolata reports on a possible link between the disappearance of the Neandertals and their inability to use an easily understood language. However, there may be an organic cause for the disappearance of the Neandertal in addition to any language difficulties.

The Neandertals had a well-developed burial ritual. In many of the later burials it is evident that the skull had been opened to allow removal of the brain (*1*). Often the long bones are also cracked, apparently for the removal of the marrow. The treatment of the skull and bones suggests the use of rituals similar to those practiced by contemporary cannibalistic tribes in New Guinea and other places as documented by modern anthropologists. Such practices, in one place at least, have led to the development of a slow viral infection, kuru, in the population (*2*). The kuru virus is neurotropic and fatal. The infection leads to a complete degeneration of the nervous system due to the extensive viral multiplication within it. The virus may develop a long time after infection—10 to 30 years. It presumably is spread by the women and children (mainly female) eating the brains of a deceased member of the tribe or by allowing infected material to enter the bloodstream through cuts in the hands when the skull and bones are opened. Gadjusek (*2*), among others, has hypothesized that any tribe practicing cannibalism will develop a similar type of virus. The virus may arise from some animal reservoir but, in general, dies out in humans. However, cannibalism permits serial passage of the virus from human to human, thus increasing its virulence and infecting the population. The prevalence of this disease combined with increased devotion to cannibalism would lead to annihilation of a tribe, similar to that once facing the Fore in New Guinea. It has been suggested that the virus may survive in the earth surrounding the bones. Perhaps incubation of this earth would indicate its continued virulence (*3*).

Retardation in the development of a language on an anatomical basis could, of course, further decrease the chances of survival of the few remaining members of the tribe. A language problem would also isolate them from a larger competing population. We should include the possibility that, if the Neandertals were warring with the Cro-Magnons, their lack of ability to pronounce the vowels [a], [i], and [u] would perhaps have affected a "shib-

boleth" (*4*). Thus "bat" would have been pronounced "bot" by Neandertals, who failed the test (and failed to live).

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References and Notes

1. K. Gorjanovic-Kramberger, *Mitt. Anthrop. Ges. Wein* **29**, 1 (1889), and many others. See C. B. Courville, *Bull. Los Ang. Neurol. Soc.* **15**, 1 (1950) for a review.
2. D. C. Gadjusek, *Trans. R. Soc. Trop. Med. Hyg.* **57**, 151 (1963). See reviews in J. D. Matthews, R. Glasse, S. Lindenbaum, *Lancet* **1968-II**, 444 (1968); *Am. J. Pathol.* **68**, 626 (1972).
3. D. Regan, personal communication.
4. Judges 12:6.
5. I thank Susan C. Smith and B. Anderson, Jr., for their assistance.

Delaney Clause for Birth Defects

The letters from Bowne (18 Oct. 1974, p. 195), a chemist, and Barus, an engineer, which in essence support a Delaney clause for birth defects, miss the point of the Teratology Society resolution (Letters, 6 Sept. 1974, p. 813) cautioning against attempts to implement such a regulation.

Substances such as sugar, salt, and vitamin D have all been shown to be teratogenic in some species in some doses (*1*), and there is suggestive evidence that vitamin D in very large doses is teratogenic in humans. Indeed it appears one may postulate as a general principle that for any agent x, one can find a species y and a dosage z, such that at dose z or greater, x is teratogenic in y. Thus any regulation for birth defects which ignores dosage or species considerations, as a Delaney regulation does, is likely to have consequences quite unexpected by those familiar with the pertinent literature. For example, a Delaney regulation for birth defects would probably lead to a ban on a supplement of vitamin D in *any* dose in milk. It is a moot question whether this or any other consequences of such a regulation would diminish the incidence of human birth defects, and the net effect on public health might well be negative.

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References

1. T. H. Shepard, *Catalogs of Teratogenic Agents* (John Hopkins Press, Baltimore, 1973), pp. 1–211.