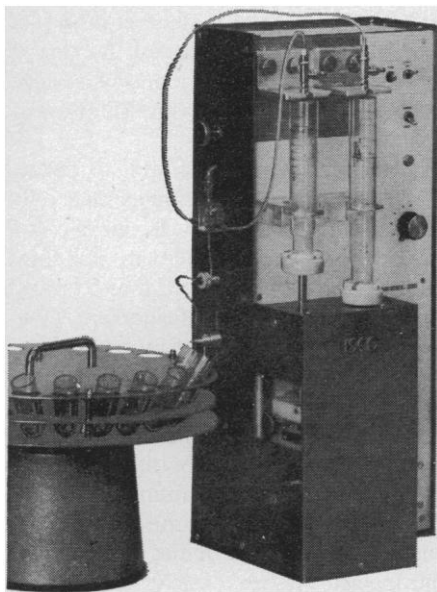


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bilities to their minimum"), it is highly rational to turn to an oracle to terminate the decision process ("after that, do as you please" to "bring the decision to uniqueness"). In fact, failure to appeal to chance when the possibilities of analysis have been exhausted is clearly irrational, since continued circular thinking about unsolvable problems only leads to dithering and frustration.

First, the effectiveness of transcendental meditation is demonstrated (27 Mar., p. 1751). Now, the use of the I Ching seems to be rational. Is science slowly finding its way back to the wisdom of the ancients?

WILLIAM OPHULS

*Department of Political Science,
Yale University,
New Haven, Connecticut 06520*

Hooke's Premises

The issue of political stands by scientific societies is naturally important, but I believe Robert Hooke's letter to *Science* (17 July) decrying any political action ought to have been rejected on grounds of prior publication, for, in a document regarding the founding of the Royal Society, he states its ends (1):

To improve the knowledge of natural things, and all useful Arts, Manufactures, Mechanick practices, Engynnes, and Inventions by Experiments (not meddling with Divinity, Metaphysics, Moralls, Politics, Grammar, Rhetorick or Logic).

Anyone dead 267 years is probably out of touch with the present situation anyway.

E. J. DEVINNEY, JR.

*Department of Astronomy,
University of South Florida,
Tampa 33620*

Reference

1. A. Pannekoek, *A History of Astronomy* (Interscience, New York, 1961), p. 250.

Vietnam: Judged by Reason

Carroll E. Izard in his editorial "The Cambodian crisis: Reason and emotion" (5 June, p. 1157) is pretty shaky in his reasoning. I object to the implication that one must abandon reason to oppose the Asian war. Nixon's Cambodian decision may indeed have been in accordance with reason, but it was based on shaky assumptions. Aristotle said 2200 years ago: "The chain of reason must begin somewhere, other-

wise it would be endless. We begin with assumptions that are agreed on, but not proven. These are called axioms, or first principles." Thus, if it can be proven, it is not a first principle. Principles cannot be derived logically, but they can be examined in the light of their logical consequences, and thus reason can assist emotion in arriving at them.

A simple assumption would permit us to withdraw from the Asian war and stay out of others like it, while still adhering to reason. This would be the recognition that a corrupt and self-serving military dictatorship such as that in South Vietnam is not preferable, either to its own people or to ourselves, to its Communist alternative. There are capitalist democracies worth defending, besides our own, in which the creation of wealth is the ruling economic motivation, such as those of Western Europe and Japan. Other so-called capitalist regimes still play the old zero-sum game of exploitation of the poor, and they do not deserve our support. Fortunately, those worth defending are strong enough not to need much bolstering by us of their regimes.

We might well consider the assumption that we could do ourselves the most good by helping those regimes which are helping their own people, without regard for whether or not they are Communist.

FREDERICK J. HOOVEN

*Thayer School of Engineering,
Dartmouth College,
Hanover, New Hampshire 03755*

Hooven has presented some cogent arguments for ending the Indochina war, but he has misunderstood a central point in my editorial. He missed the distinction between rejecting reason for emotion and allowing the emotions to play their proper role in human affairs. Hooven's rationale for ending the war is indeed admirable. I am concerned with a more general point—the need to be careful not to dehumanize our logic and reason or to deceive ourselves into thinking that being completely rational and nonemotional will end war and other human problems. Our modern age of rationalism and science has been as war-torn and bloody as the Dark Ages. Our age has produced a superabundance of rational-logical information including the "technologic" for a superkill, an Armageddon. It has failed to produce the means to predict and prevent wars. Paradoxically, it is illogical and irrational to

attribute the failure to lack of logic and reason.

The psychobiological unity of human personality makes it very improbable that there is such a thing as reason totally uninfluenced by emotion. When the rationalistic view of man leads to undue suppression of the emotions or inadequate utilization of their inherently adaptive functions, they tend to become mysterious and adventitious forces that misguide our thoughts and overdetermine our actions.

CARROLL E. IZARD

Department of Psychology, Vanderbilt University, Nashville, Tennessee 37203

Crude Altimeter

While flying at altitude in an unpressurized airplane a few years ago, I was surprised to discover that by using my mouth I could improvise a crude altimeter. Because I have yet to run across anyone who has noticed this, it is perhaps worth describing.

I first became aware of this phenomenon while flying at 7.5 km waiting to make measurements above a growing cumulus cloud. As we flew back and forth, for something to do I idly produced a suction in my mouth by retracting my tongue with my lips closed. At lower altitudes, it is impossible to pull the tongue back very far because of the strong force exerted by the atmosphere. At altitude, to my surprise, I found that I could pull it back rather easily, thus creating a cavity filled with airless vacuum, or, more accurately, with water vapor, which at body temperature has a partial pressure of 47 torr. On subsequent flights I could begin to observe this effect at altitudes of 6 km or even a little lower.

In laboratory experiments it is possible to reduce pressure in one's mouth by about 400 torr. This indicates that at altitudes above 5.4 km, where the total pressure is this value or less, it is possible to overcome the force of the atmosphere and produce a vacuum, thus forming a rudimentary aneroid barometer. It would be interesting to know if some organisms, for example, leeches, may be capable of producing similar vacuums against even higher pressures, perhaps utilizing this phenomenon to some advantage.

BERNARD VONNEGUT

Department of Atmospheric Science, State University of New York at Albany, Albany 12203



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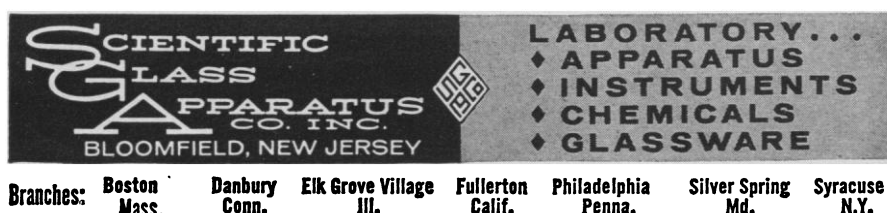
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