

EDITORIAL: ON ICE AGE BEHAVIOR¹

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Some public figures assert that scientists should be heard from only on those matters in which they are expert. This emasculating view is freely accepted by many scientists themselves. We retreat in horror from a chaotic world that pessimists assert is hell-bent for disaster. We cling to our specialties, seeing security in some small professional recognition, and often finding sufficient disorder in one discipline not to want to uncover more in another. We love law and order in our lives no less than other members of the "silent majority"; by temperament we prefer to remain "silent scientists," even in the face of what biophysicist John Platt regards as the "crisis of crises."

Platt recently concluded that while we may be close to a leveling-off point in the crisis of transformation, with many growth curves stabilizing in the near future, the trick is to survive the next few years. "The human race today is like a rocket on a launching pad. We have been building up to this moment of takeoff period, we may fly on a new and exciting course for a long time to come. But at this moment, as the powerful new engines are fired, their thrust and roar shakes and stresses every part of the ship and may cause the whole thing to blow up before we can steer it on its way. The rapidly increasing strains and crises of the next decade may kill us all." (*Science* 116:1115)

Platt's foremost crisis, coming on faster than other environmental issues, is war: nuclear—biologic—chemical—radiational. At the bottom of Platt's list, far removed from the all too familiar crises of war, over-population, starvation, pollution, and what he calls "administrative legitimacy," is where most scientists are doing their research. Most are dedicated to basic science problems or to overstudied mission projects of debatable worth, such as man in space. Acknowledging that while some helpful breakthroughs will emerge from the domain of pure science, Platt calls for task force teams to search for peace-keeping mechanisms. Some must develop a biotechnology to feed and care for the children of the world, while yet others seek to control the population explosion. Much must be attempted in psychology, sociology, and game theory.

We, as scientists, are challenged to emulate Alfred Kinsey, who moved from his brilliant but strictly "pure science" career as a taxonomist and evolutionist, monographing species of oak gall wasps, to his vital inquiry into human sexuality.

Meanwhile, time runs out. A new generation of veterans returning from Vietnam, some cited for exceptional heroism under fire, some for premeditated murder of unarmed Vietnamese civilians, some for both (cf. *Look*, August 12, 1969, p. 8). The new generation includes Phoenix College graduate, Rod Ridenhour who did not suppress what he knew of the My Lai massacre (*Parade*, January 18, 1970). We read of rape, torture, assassination and slaughter of Vietnamese by certain American soldiers (cf. *Arizona Daily Star*, May 30, 1970). We know now, if it was ever doubted, that these behaviors can be in the repertoire of any soldier, and are not confined to our enemies.

After the undeclared war comes to its undeclared end, will amnesty be extended to all: to those who fled in frustration to Canada, to those imprisoned for war crimes committed in Vietnam, to those imprisoned for draft resistance at home? Or will we waste our energy in a vengeful effort at establishing fault, at blaming what went wrong in Vietnam on some one or some group?

War as a behavioral phenomenon deserves our closest attention. The vast fascination boys and men have for guns, the intense excitement felt by troops in combat, the letdown some soldiers experience back in civilian life (cf. *Parade*, May 17, 1970) must be explained. What is its origin?

Russell B. Aitken, a leading trophy hunter, asserts: "The compulsion to hunt is as basic a part of man's nature as the mating urge . . . it may be latent, but the urge to hunt is inside every man" (*Great Game Animals of the World*, Macmillan Co., 1969, p. 6). In *African Genesis*, Robert Ardrey suggests that modern man is an innate killer bearing an ice age hunting legacy developed over the last million years. Our behavior patterns are deeply rooted in our pre-history. Man emerged from the Pleistocene as an erect, predatory biped relying on hand-held stone or wooden weapons in place of the enlarged canines typical of other primates.

As Ed Deevey noted (*Scientific American*, 1960, pp. 195-204), an astonishingly large number of people were involved. We are properly impressed with man's historic population explosion from 500 million to 3.5 billion in the last 400 years. But the sum of all these people would be dwarfed by the total number of their stone age ancestors. While any one generation in the stone age may never have exceeded a total of ten million people, there were some 40,000 generations. If the average stone age population were no more than one million, the world population be-

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fore the rise and spread of agriculture 10,000 years ago totals 40 billion.

By 50,000 years ago man had become an especially proficient manufacturer of stone weapons and tools, a keen observer and skillful hunter of large animals, an expert on their anatomy, physiology, and behavior. At this time animal extinctions began, everywhere associated with man's arrival or his development as a big game hunter. First Africa and tropical Asia, then Australia and New Guinea, later temperate and subarctic Asia, followed closely by the New World, the islands of the Mediterranean, the West Indies, and finally Madagascar and New Zealand—each in turn experienced massive extinctions of their native large mammals and birds. If the great lesson of

conservation, of not killing all the geese that lay the golden eggs, was learned by some of the prehistoric hunters, it was lost to their posterity.

Placed in the perspective of the last million years, it would appear that man's normal, natural urge to hunt and his prehistoric worship of weapons led via stone age technological innovations to faunal overkill. In our time modern weapons and an ice age temperament remain no less menacing a combination. The best efforts of behavioral engineers are needed if we are to escape being dominated by a passion for organized killing, whatever its apparent legitimacy.

Finally, our most ingenious brains now dedicated to academically respectable, but overstudied fields of research, including the science of war, must respond to Platt's plea to press the development of a science for survival. To do less is surely to court our own extinction.