

CORRESPONDENCE

Sir:

During 1966 there appeared in two of the leading American ornithological journals papers on the capacity, or lack of capacity, of birds living in arid or desert conditions to maintain themselves on metabolic water or by drinking brine. These papers are:—

“Water economy and salt balance in White-winged and Inca Doves” by Richard E. MacMillen and Charles H. Trost (*Auk*, 83: 441-456, 1966);

“Water economy of the White-crowned Sparrow and its use of saline water” by Richard E. MacMillen and John C. Snelling (*Condor*, 68: 388-395, 1966).

Both of these papers contain much interesting and valuable information, but both are marred by the presence of accounts of experiments of very questionable scientific relevance and of undoubted cruelty. We refer to experiments on the effects of “water deprivation until the point of death”: to put it in plain language, seeing how long it takes captive birds to die of thirst. From the first paper it may be learned that *Zenaida asiatica* takes at least seven days to die of thirst and that it may live more than fifteen days. In the second paper it is recorded that *Zonotrichia leucophrys* can live up to seven days before death comes.

We protest most strongly against these experiments which show an indifference to suffering almost more horrifying than its deliberate infliction. The only possible justification for causing pain or distress to a living creature is that it is impossible to avoid it in gaining knowledge essential to human or animal health or welfare; this defence cannot be advanced in these cases. In these experiments, wherein birds are deprived of opportunities for exertion in search of better conditions, the circumstances are so abnormal that much of the information obtained is of doubtful relevance to the life in the wild of the species concerned. We submit that, even from the purely physiological point of view, the scientific results of the work would not have been diminished in any essential respect by the omission of the particular experiments performed under the heading “water deprivation until the point of death.” In our opinion the publication of papers such as these can but discredit the institutions which permit or tolerate them, and serve only to bring ornithology into disrepute.

Chairman, British Section, The International Council for

Bird Preservation	W. H. THORPE
Chairman, The Fauna Preservation Society	PETER SCOTT
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Chairman, The Royal Society for the Protection of Birds	STANLEY CRAMP
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President, The Wildfowl Trust	NORFOLK

The International Council for Bird Preservation, British Section, c/o British Museum (Natural History), Cromwell Road, London, S. W. 7. 19 December 1967.

Sir:

We welcome the opportunity to reply, simultaneously with its printing, to the letter submitted to you by the International Council for Bird Preservation, British Section. The *Auk* is the only journal in which their letter has appeared that has extended us this courtesy. We are distressed that the I.C.B.P. has made no attempt to lodge their complaint with us directly. Their reliance solely upon indirect communication through journals smacks of a greater concern for influencing editorial policy and animal protection organizations than for dealing actively with the object of their concern.

We cannot agree that studies of water deprivation are "of very questionable scientific relevance." We can, however, assure you that we have never intentionally subjected experimental animals to conditions more rigorous than those inflicted upon them by the environment. Those familiar with the desert environment will realize that water scarcity or absence together with extreme heat are the naturally selective agents operating most consistently and predictably in diurnal species in the desert. Hence one finds a broad spectrum of adaptations enabling such species to cope.

Among these adaptations are varying capacities for water conservation which, unfortunately, are demonstrable, in terms of selective advantage, only through studies of water deprivation. That natural deaths commonly occur in birds in the desert from combinations of heat (which rapidly depletes water reserves when used in evaporative cooling) and the absence of water is indisputable. One of us (R.E.M.) has found doves on the desert floor, incapable of flight and nearly moribund, which, when given an opportunity to regain positive water balance, flew away normally when released; such birds would undoubtedly have perished otherwise. The late A. H. Miller (Proc. 13th Intern. Orn. Congr.: 666-674, 1963) noted "Correlation of experimental work on water balance and temperature tolerance with field observations on tolerance indicates the probable importance to survival of the physiological differentials that have been demonstrated. Observations of species that apparently lack these favorable physiologic adaptations during the heat-stress period of the autumnal migration through Joshua Tree National Monument reveal many individuals succumbing or in a weakened state. Had these migrants from mesic areas possessed slightly improved temperature tolerance and better cooling and water-conserving mechanisms, they might well have shown much less mortality than the 24 percent suggested by the field records."

While we will not deny that experiments involving water deprivation are physiologically stressful to those forms dependent upon exogenous water, they are no more stressful than the environmental selective agents that have produced the broad spectrum of tolerances to water deprivation comprehensible only through such studies. Knowledge of these phenomena is indeed "essential to human and animal health and welfare," and it can be gained in no other way. Please be assured that we are concerned about the well-being of experimental animals, but we are also concerned about understanding and elucidating the adaptive characteristics and variability that commonly are manifested under demanding environmental circumstances.—RICHARD E. MACMILLEN, *Department of Population and Environmental Biology, University of California, Irvine, California 92664*; CHARLES H. TROST, *Department of Biology, Idaho State University, Pocatello, Idaho 83201*; and JOHN C. SNELLING, *Division of Biological Sciences, Cornell University, Ithaca, New York 14850*.

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