A CANINE MODEL OF PSYCHOPATHOLOGY

William G. Reese, Joseph E. O. Newton*, and Charles Angel

Department of Psychiatry and Behavioral Sciences
University of Arkansas for Medical Sciences
4301 W. Markham, Little Rock, Arkansas 72205
*Department of Psychiatry and Behavioral Sciences
University of Arkansas for Medical Sciences, and
Veterans Administration Medical Center
North Little Rock Division

Periodically, under external, non-scientific pressure for "relevance," we have proposed that the Arkansas Line of Nervous Pointer Dogs may be a suitable model of human psychopathology (1) or even of more specific human disorders such as anxiety or phobia (2, 3) or schizophrenia, especially catatonic (4). G. R. Smith, Jr., of our institution, sees strong parallels with the conservation-withdrawal phenomena of Engel and Schmale (5). Perhaps this paper should be entitled "a dog hunting a model." Many of our past papers are referenced in the summary articles cited above and more recently by L. Lucas, et al., (6). Rather than burden this paper with a long bibliography, we refer the interested reader to the specific references cited (1, 3, 6). Statements of fact are backed up by experiments reported in the primary papers.

In this communication, we shall return to more basic consid-
erations but will omit the interesting results related to neurochemical, autonomic and sleep studies and concentrate, instead, on behavioral findings, especially on the mobility/immobility parameter, with some attention to cardiovascular correlates. Without drawing parallels, we shall note only (1) that increased or reduced activity is highly relevant to such human conditions as hyperkinesis in children, depressions, hypomanic and manic states, effects of prescribed and illicit drugs and (2) that sustained immobility, often with bizarre posturing, is the spectacular sign of catatonic schizophrenia. According to Gallup and Maser (7), the "tonic immobility" induced in many vertebrate and invertebrate species is an impressive model for the catalepsy of catatonic schizophrenia. As we shall see, our nervous dogs, unlike other dogs, demonstrate induced catalepsy.

Major survival techniques for threatened dog, man and most animal species are flight, fight, or freeze. "Freezing," or immobility reactions, occur in both predator and prey and, thus, deserve a separate category and, indeed, a number of subcategories which are beyond this scope of this paper. (Some of the significant unconscious mental mechanisms in humans may be complex derivatives of anxiety-induced immobility). By selection and selective breeding, Dykman, Peters, Murphree (8) and their colleagues developed a line of pointer dogs which respond to familiar and unfamiliar humans, despite innumerable contrary experiences, as if man is a dangerous predator. These dogs flee, if possible, but when cornered by man, they freeze rather than fight. In twelve generations over twenty years, there have been very few "biters" in almost 400 nervous E-dogs (E's). Nor have an equal number of normal A-dogs (A's) been aggressive toward man. However, these normal animals relate to man in friendly fashion and show no signs that they are threatened by his presence. We might note in passing that pointers are not aggressive as a breed and also that they have the capacity to demonstrate the strong inhibition required of the hunting dog "on point." Our E's provide a very useful model for the study of freezing behavior without practical and theoretical complications of aggression.

The nature of the beast

If you walk down the corridor of the University/Veterans Administration dog research laboratory at North Little Rock, one dog meets you at the gate with tail wagging. If you enter his bin, he stays close to you and nuzzles your hand. To sportsmen, scientists and unsophisticated observers, he looks like a good normal pointer. A dog in the next bin slinks to a far corner as you approach and crouches with tail against belly. He may urinate, defecate and/or move rapidly in tight circles. When cornered, he becomes immobile. If you touch the animal, he feels very rigid, although quivering. He may be so rigid like a hunting dog "on point", that you can raise