



PROBLEMS FROM THE BREAKFAST TABLE

“Commentaries” appearing in *Nuclear Applications* are intended to be thoughtful essays on subjects that are or should be of interest to the nuclear scientist or engineer. Written by a guest, they can inform and educate, particularly if the subject is one on which the guest has spent much time. Written by the editors, they are less likely to teach, not because the editors admit to feelings of inferiority but because the extent of the work involved in trying to produce a good journal and the requirement that this occur in one’s “spare time” leave little time for the study that should precede an editorial that attempts to answer questions.

Still, before a question can be answered, it must be asked. Granted that the formulation of an intelligent question often requires much time, this time often need be spent only in thought rather than in reading and, hence, can be found during mechanical periods (like shaving or eating breakfast) that require no concentration. In this spirit, we offer the following.

Of much concern today is direction of effort, particularly of federally supported effort: basic/applied research, industry/national laboratories/universities, immediate/long-range problems, etc. Before decisions are reached we ought to ask what problems face mankind as a whole in the foreseeable future. Properly done, their listing would provide a valuable perspective and a useful guide. For proper perspective it would include problems not solvable by physical research.

Inherent in this compilation would be the problem of whether there are important omissions or incorrect ordering by relative importance. Thus, before the problems can be tackled, the overall tabulation itself should be discussed. As a starter, we offer our own list with the reminder that it was conjured up “at breakfast” and that if we have overlooked comprehensive studies already made we will be grateful for that information:

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| <p>I. Over-population and its resulting shortages:</p> <p>A. food</p> <ul style="list-style-type: none"> .. total quantity .. distribution <ul style="list-style-type: none"> - transportation - storage/preservation <p>B. water, domestic, industrial</p> <ul style="list-style-type: none"> .. total quantity .. distribution <p>C. energy/fuel</p> <ul style="list-style-type: none"> .. total quantity .. distribution .. proper form (portability where necessary) | <p>D. space</p> <ul style="list-style-type: none"> .. total quantity (see IV,C) .. distribution (urban congestion) <p>E. clean air</p> <ul style="list-style-type: none"> .. total quantity^a .. distribution (smog problem in congested areas) <p>II. Deterioration of human stock by</p> <p>A. possible radiation damage to genes if ambient radiation level increases sufficiently</p> <p>B. allowing physically or mentally unfit to propagate</p> | <p>III. Man’s inhumanity to man</p> <ul style="list-style-type: none"> A. war B. addiction to drugs, alcohol, tobacco C. crimes of violence <p>IV. Depletion of (nonenergy furnishing) natural resources</p> <ul style="list-style-type: none"> A. coal (for coal-tar derivatives) B. minerals for metal production C. land for growing <ul style="list-style-type: none"> .. forests (for lumber, paper pulp, watersheds, wild life refuges, recreation) .. edible crops. |
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Note that prolonging life through prevention and cure of disease or postponement of the effects of aging, while desirable when considered on an individual basis, is not necessary for mankind as a whole and, in fact, only multiplies, rather than reduces, its problems.

Note also that the arrangement is in order of decreasing importance of the problem, *insofar as a problem exists*. However, nothing is implied regarding the relative acuteness of the problems. Thus, careful extrapolation may show that an item relatively low on the list will become an acute problem long before a higher listed item. The logical order in which to tackle the problems would be based on both their relative importance and the estimated date when they will become acute.

By definition, this list includes only problems for which specific solutions are needed. The omission of mention of the search for truth for its own sake is not intended to suggest that pure fundamental research be reduced or omitted. On the contrary, we believe that vigorous support of basic research will always be needed.

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^aRefers to the effect of the buildup of CO₂ on the overall climate.