

used to estimate the equations; and concluded that some unnecessarily pessimistic assumptions were injected into the Meadows model.

The essential point to note, however, is that *all* of these formulations lead to neo-Malthusian conclusions: strongly voiced in the Meadows model; somewhat muted in the case of Kneese et al. (who speak of the *new* Malthusianism); and long-run in the case of the Sussex team's investigation (rather like Ricardo they seem to suggest that the stationary state is inevitable but a long way off).

The neo-Malthusian results of these studies can be traced back to the Aristotelian form in which the question is posed and the answers constructed. And it is, of course, the ability to depart from the Aristotelian view that gets Marx away from both the short-run and long-run inevitabilities of neo-Malthusian conclusions. Marx envisages the production of new categories and concepts, of new knowledge and understanding, through which the relationships between the natural and social system will be mediated. This relational and dialectical view of things comes closest to impinging upon traditional concerns with respect to the problem of technological change. It has, of course, long been recognized that Malthus was wrong in his specific forecasts because he ignored technological change. Ricardo saw the possibilities of such change, but in the long run he saw society inevitably succumbing to the law of diminishing returns. The difference between the Meadows model and the Sussex team's refashioning of it is largely due to the pessimism of the former and the optimism of the latter. In all of these cases, technological change is seen as something external to society: an unknown that cannot be accounted for. But for Marx technological change was both internal to and inevitable within society; it is the product of human creativity, and stems from the inevitable transformation of the concepts and categories handed down to us. Only if we let ourselves be imprisoned within the system of knowledge handed down to us will we fail to innovate. Further, it is unnecessarily restrictive to think that human inventiveness and creativity apply only in the sphere of technology — human beings can and do create social structures as well as machines. This process Marx regards as essential and inevitable precisely because man could and would respond to the necessities of survival. The only danger lies in the tendency to place restrictions on ourselves and, thereby, to confine our own creativity. In other words, if we become the prisoners of an ideology, prisoners of the concepts and categories handed down to us, we are in danger of making the neo-Malthusian conclusions true, of making environmental determinism a condition of our existence.

It is from this standpoint that Marx's method generates quite different perspectives and conclusions from those generated by simple logical

empiricism, Ricardian-type normative analytics, or contemporary systems theory. Let me stress that I am not arguing that the latter methods are illegitimate or erroneous. Each is in fact perfectly appropriate for certain domains of enquiry. Logical empiricism has the capacity to inform us as to what is, given an existing set of categories. Insofar as we make use of this method, we are bound to construct what I have elsewhere called a status quo theory (Harvey 1973). The Aristotelian manner in which normative, analytical model building proceeds yields 'ought-to' prescriptive statements, but the categories and concepts are idealized, abstracted, and *stationary* tools imposed upon a changing world. Systems theory is a more sophisticated form of modelling relying upon various degrees of abstraction and a varying empirical content. Dialectical materialism, in the manner that Marx used it, is 'constructivist' in that it sees change as an internally generated necessity that affects categories of thought and material reality alike. The relationships between these various methods are complex. The methods are not, obviously, mutually exclusive of each other; but different methods appear appropriate for different domains of enquiry. And it is difficult to see how anything other than a relational, constructivist, and internally dynamic method can be appropriate for looking into the future of the population-resources relation, particularly when it is so evident that knowledge and understanding are such important mediating forces in the construction of that future. Results arrived at by other means may be of interest, only if they are set within the broader interpretive power provided by Marx's method. All of this would be a mere academic problem (although one of crucial significance) were it not for the fact that ideas are social relations, and the Malthusian and neo-Malthusian results arrived at (inevitably) by means of other methods are projected into the world where they are likely to generate immediate political consequences. And it is to these consequences that we now turn.

The political implications of population-resources theory

At the Stockholm Conference on the Environment in 1972, the Chinese delegation asserted that there was no such thing as a scarcity of resources and that it was meaningless to discuss environmental problems in such terms. Western commentators were mystified and some concluded that the Chinese must possess vast reserves of minerals and fossil fuels, the discovery of which they had not yet communicated to the world. The Chinese view is, however, quite consistent with Marx's method and should be considered from such a perspective. To elucidate it we need to