

## APPROPRIATE TECHNOLOGY AND INAPPROPRIATE POLITICS: A COMMENT ON BROWN'S "GRASS ROOTS" AND DAVIS'S REPLY

**R**ICHARD Harvey Brown's essay, "Appropriate Technology and the Grass Roots," advocates a program of engineered populism as a solution to poor countries' ills [6]. Brown begins by discussing limits of major theoretical orientations, especially neoclassical econometrics and functionalism, and their incumbent policies of intensive capitalization, sophisticated technology, and trickle-down distribution. He dismisses as "romantic," however, the alternative approaches supposedly favored by radicals. Brown then distinguishes "inward looking autarchy" and "outward looking autonomy," and advocates the latter as the optimal orientation for maximizing both national independence and economic growth. In the rest of the paper, and its bulk, he develops the concept of appropriate technology as a comprehensive social-technical system and outlines an operational program for its implementation.

Brown's agenda of discourse seems harmless enough on the surface, and it generally is articulate and instructive. Yet the paper has major and minor flaws that make its conclusions misleading. Some of these limits are ones of specificity at the micro-level, and these have been noted by Professor Davis. The major flaws, however, lie in Brown's simplifications and omissions on the macro-theoretical level.

Brown aptly criticizes conventional theories of development, but does not go on to a close analysis of the main alternative, neo-Marxian theories of the global political economy. Such a discussion could have yielded an alternative set of analytic categories within which Brown might have cast, or criticized, his discussion of appropriate technology. Instead, his discussion of appropriate technology presupposes certain basic concepts and assumptions that are part and parcel of the very economism that he had just rejected. The result, despite many provisos and qualifying footnotes, is that Brown's program for appropriate technology is ultimately technicist, for it fails to adequately examine the inevitable political and economic contexts of any proposals for development or liberation.

For more than ten years scholars in Africa and Latin America (as well as the "developed" countries) have been elaborating a model of the "world capitalist system," and the role and prospects of their respective countries within it [24]. The subject matter of these theorists is not development but dependency. Their task has been twofold. First, to demystify the economism and developmentalism of bourgeois social scientists, and particularly their assumption that "Third World" nations will eventually join the ranks of the prosperous "First World" or that, if they do not, the fault lies within their own characters or polities. Second, these neo-Marxist scholars have sought to specify the mechanisms by which such states have been absorbed into the world capitalist system, and how

this absorption has transformed their internal structures (for example, by creating dependency, generating an indigenous bourgeoisie, destroying the previous agricultural economy, engendering an urban proletariat, and providing profits to global corporations). In this vision (to be found variously in the works of such writers as Samir Amin [3] [4], Fernando Cardoso [7], Arghiri Emmanuel [11], André Gunder Frank [14] [15], Pierre Jalée [16] [17], Pierre-Philippe Rey [23], Immanuel Wallerstein [27], and others), the world is divided into "core," "semi-peripheral," and "peripheral" states, depending on their role and status in the global economic system, a system that proscribes the limits of possible action within any member state.

These neo-Marxist assumptions provide a basis for criticizing Brown's postulates and conclusions, and hint at a possible reformulation of his ideas. Such a critique is entirely admissible, I believe, in that Brown himself stresses the necessity of linking theoretical and practical activities and claims himself to respect the radicals' perspective. Having posited such a perspective above, I am now able to enumerate some specific criticisms of Brown's essay that can be generated from it.

1. Brown takes the nation state as his basic unit of analysis. This is gratuitous on both empirical and theoretical grounds. Empirically, though some 127 entities have legal parity and status as nations, as defined by membership in the United Nations [25], this hardly describes the norms and forms of polity in many parts of the world, especially in geographic areas where "nations" are largely the product of recent colonial boundaries.

Theoretically, the use of the nation as the basic unit of analysis directs attention away from the world system, actions in which heavily constrain choices within individual states. This world system is not essentially a political order, but an economic one. The focus thus should be modes of production and division of labor between subeconomies within this system, rather than on nations as such. Talk of nations as the basic unit suggests a sovereign center of decision-making that is illusory for most essential economic issues. Thus, to the extent that Brown's proposals for appropriate technology depend on the volition of national elites, he has invoked a political *deus ex machina* to insure the prospects of his proposals. This is misguided and, in any case, is no substitute for an adequate political-economic theory.

2. Another of Brown's key assumptions is "self-development," and this also undervalues the degree to which particular states are embedded in the global economy. The power of international capital to create dependency and to perpetuate relations of unequal exchange has been discussed for over a decade, and many mechanisms have been identified. For example, Rey has described the modes of violence used to establish capitalist modes of production [22]; Dowidar has examined the function of policies of "import substitution" in making dependent economies even more dependent [10]; O'Donnell and Linck have explained how global corporations' marketing techniques depress the market for local products [20]; Merhav and Vernon have shown how "technology transfer" results in technological stagnation [19] [26]; Fajnzylber has analyzed

how foreign investment leads to domestic oligopolization [12]; Alschuler and Ferrer have discussed how investment by guests leads to net capital outflows from hosts [2] [13]; Braun has described how foreign capital penetration encourages devaluation and inflation of the host country's currency [5]; Castells and Lojkin have shown how capitalist penetration creates urban "pathologies" [8] [18]; Wallerstein has argued that within the present world economy the only options for dependent states are to move up or down somewhat in the hierarchic global division of labor, not to get out of it [28]; and so on. These studies of course can be criticised. But what can we do with an approach to self-development through appropriate technology that does not even take them into account?

3. Brown's goal of preserving traditional culture even while encouraging economic growth contains a number of unexamined postulates. First, he appears to presume a value laden, bourgeois notion of "culture." An anthropological conception would have better fit his ostensive purpose. Second, Brown reifies "tradition" into a static entity that is presumed to exist in and of itself. More fitting would have been to conceive "tradition" as a rhetoric invoked by various groups seeking to legitimize their political claims and actions, a view that accords with contemporary anthropological theory. Finally, Brown's proposal for joining dignity with bread, though laudable, is weakened by his failure to consider the structural scarcities that impede the joint achievement of these often divergent goals [1]. These flaws render his recommendations more hortatory than analytic.

4. As pointed out by Professor Davis, Brown appears to assume a free market as the context for appropriate technology strategies. But such an assumption is neither explicit, nor defended, nor necessary. Such unclarity, however, follows naturally from the ambiguity of Brown's theoretical apparatus and his failure to develop a political economic framework for his programmatic suggestions. Such a theoretical framework would have to include, at the least, an analysis of power, of competition between elites, of different modes of production and the interests they serve, of ethnic and class struggle, and of how all such processes influence, and are constrained by, their relations with the "external" global economy.

The absence of such a framework is especially evident in Brown's assertion that appropriate technology is appropriate to revolutionaries and insurgents, as well as to progressive national leaders already in place. Putting aside the possibilities that "appropriate" is defined tautologically here, and that revolutionaries may not be progressive, Brown's assertion reflects a naive understanding of the *politics* of revolution. Central to such a politics is elite direction and violence [21]. What do these have to do with Brown's appropriate technology? This is little examined. Instead, Brown generally *assumes* consensus to already exist, and then focuses on the "how to" aspects of social change. Such a procedure is like that of a doctor who assumes his patient not to have cancer before prescribing a cure for the patient's fatigue; and, despite Brown's apparent intentions, this method leaves him open to criticisms of economism and technicism.

5. Professor Davis's comments on Brown's essay constitute an elaboration and specification of Brown's position, but not a critique that either reformulates

Brown's original assumptions or fills in his theoretical gaps. As such, Davis's remarks share the same limitations as Brown's.

It should be understood that my discussion above intends neither to reject appropriate technology as such nor to advance neo-Marxian theory as an ultimately adequate vision. My point, instead, had been to stress that technology—big, little, intermediate, appropriate, or whatever—expresses existing political and economic systems [9, p. 28]. Even when defined broadly by Brown as a social-technical system, appropriate technology can't change anything. Certainly a *politics* that *includes* appropriate technology might bring about important changes. But the politics must come first. If the relationship is reversed, appropriate technology becomes a phoney issue. Indeed, in the name of humanistic change it can mask reactionary politics by implying that new sorts of techniques can improve the political economy. Thus, Brown's portrayal of appropriate technology is not incorrect so much as upside down. His remaining task is to turn appropriate technology rightside up, and to stand his argument on its political and economic feet.

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#### REFERENCES

1. ADELMAN, I., and MORRIS, C. T. *Economic Growth and Social Equity in Developing Countries* (Stanford: Stanford University Press, 1973).
2. ALSCHULER, L. "Satellization and Stagnation in Latin America," *International Studies Quarterly*, Vol. 20, No. 4 (March 1976).
3. AMIN, S. *Accumulation on a World Scale: A Critique of the Theory of Underdevelopment*, trans. Brian Pearce, 2 Vols. (New York: Monthly Review Press, 1974).
4. ————. *Unequal Development: An Essay on the Social Formations of Peripheral Capitalism*, trans. Brian Pearce (New York: Monthly Review Press, 1976).
5. BRAUN, O., comp. *El capitalismo argentino en crisis*. (Buenos Aires: Siglo XXI, 1973).
6. BROWN, R. H. "Appropriate Technology and the Grass Roots: Toward a Development Strategy from the Bottom Up," *Developing Economies*, Vol. 15, No. 3 (September 1977).
7. CARDOSO, F. H. *Politique et développement dans les sociétés dépendantes* (Paris: Anthropos, 1971).
8. CASTELLS, M. *Monopolvilles: L'Entreprise, l'état, l'urbain*. (Paris: Mouton, 1974).
9. COCKBURN, A., and RIDGEWAY, J. "The Myth of Appropriate Technology," *Politics & Other Human Interests*, December 6, 1977.
10. DOWIDAR, M. "Les possibilités reeles de développement économique dans les sociétés dépendentes," paper prepared for the conference on "Le problème de l'inégalité dans le système mondiale contemporain: origines et perspectives," McGill University, Montreal, May 15-18, 1974.
11. EMMANUEL, A. *Unequal Exchange: A Study of the Imperialism of Today*, trans. Brian Pearce (New York: Monthly Review Press, 1972).

12. FAJNZYLBER, F. "La empresa internacional en la industrialización de América latina," *Comercio Exterior*, Vol. 22, No. 4 (April 1972).
13. FERRER, A. *La economía argentina* (Buenos Aires: Fondo de Cultura Económica, 1973).
14. FRANK, A. G. *Capitalism and Underdevelopment in Latin America* (New York: Monthly Review Press, 1969).
15. ————. *Lumpenbourgeoisie and Lumpenddevelopment* (New York: Monthly Review Press, 1972).
16. JALÉE, P. *Le pillage du Tiers Monde* (Paris: François Maspero, 1968).
17. ————. *Le Tiers Monde dans l'économie mondiale, l'exploitation impérialiste* (Paris: François Maspero, 1968).
18. LOJKINE, J. "Contribution à une théorie marxiste de l'urbanisation capitaliste" *Cahiers internationaux de Sociologie*, Vol. 52 (1972).
19. MERHAV, M. *Technological Dependence, Monopoly and Growth* (Oxford: Pergamon Press, 1969).
20. O'DONNELL, G., and LINCK, D. *Dependencia y autonomía* (Buenos Aires: Amorrortu, 1973).
21. REJAI, M. *The Comparative Study of Revolutionary Strategy* (New York: David McKay, 1977).
22. REY, P. P. *Colonialisme, néo-colonialisme, et transition au capitalisme* (Paris: François Maspero, 1971).
23. ————. *Les alliances de classes* (Paris: François Maspero, 1973).
24. SICA, A. "Review Essay: Dependency in the World Economy," *American Journal of Sociology*, Vol. 84, No. 3 (November 1978).
25. United Nations. *Yearbook of the United Nations* (New York: United Nations Office of Public Information, 1970).
26. VERNON, R. "International Investment and International Trade in the Product Cycle," *Quarterly Journal of Economics*, Vol. 80, No. 2 (May 1966).
27. WALLERSTEIN, I. *The Modern World-System: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century* (New York: Academic Press, 1974).
28. ————. "Dependence in an Interdependent World: The Limited Possibilities of Transformation within the Capitalist World-Economy," paper prepared for the Conference on Dependence and Development in Africa, Carleton University, Ottawa, February 16-18, 1973.