

NOTES AND COMMENTS

TECHNOLOGY AND THE LEGAL PROCESS--AN ANALYSIS OF THE TECHNOLOGY ASSESSMENT ACT, 1972 OF THE UNITED STATES

NEARLY HALF a century ago Bertrand Russell wrote that if a scientific civilization is to be a good civilization it is necessary that increase in knowledge should be accompanied by increase in wisdom. I mean by wisdom a right conception of the ends of life. This is something which science in itself does not provide. Increase of science by itself, therefore, is not enough to guarantee any genuine progress, though it provides one of the ingredients which progress requires.¹

Increase in wisdom should enable us to gather from the whole store of things such as make for the uses of life.² When we tend to give first place to science and technology and the second place to man, we actually incline to be unscientific in our approach.³ For "science which is objective knowledge has no social existence without man who is the subject of knowledge".⁴ It is in the context of man and the quality of his life that technology has to be looked at and assessed. And law, as the ultimate instrument of social control, has a legitimate and necessary role to play in this assessment and in a process of control which may be found essential.

The Technology Assessment Act, 1972 of the United States⁵ may be considered a fine example of the need felt by a modern state for making such an assessment. The Act provides for the establishment of an Office of Technology Assessment for the U.S. Congress "as an aid in the identification and consideration of existing and probable impacts of technological application"⁶. The purpose of the enactment is declared to be that, as technology continues to change and expand rapidly, its applications are large and growing in scale, and increasingly extensive, pervasive and critical in their impact, beneficial and adverse, on the natural and social environment, it is essential that, to the fullest extent possible, the consequences of technological applications be anticipated, understood, and consi-

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1. Bertrand Russell, *The Scientific Outlook* 9 (1931).
 2. Francis Bacon, *The Advancement of Learning* 206-209 (The World's Classics ed., reprint, 1960).
 3. See D.S. Kothari, *Science and Man* 17 (1975).
 4. J. Pulpampil, *Science and Society* 28 (1978).
 5. *Public Law* 92-484, 86 Stat. 797.
 6. Preamble of the Act.

dered in determining public policy on existing and emerging national problems.

Congress also averred that the federal agencies then responsible directly to it were not designed to provide the legislative branch with adequate and timely information, independently developed, relating to the potential impact of technological application, and that the then mechanisms of the Congress did not and were not designed to provide the legislative branch with such information.

It was, therefore, found necessary for the Congress to equip itself with new and effective means for securing competent unbiased information concerning the physical, biological, economic, social and political effects of such applications; and utilise this information, whenever appropriate, as one factor in the legislative assessment of matters pending before the Congress, particularly in those instances where the federal government might be called upon to consider support for, or management or regulation of, technological applications.⁷

The office is declared to be within, and responsible to, the legislative branch of the government.

Under the scheme envisaged in the Act, Congress is to be the ultimate assessor. But an initial assessment is made by the Office of Technology Assessment consisting of a Technology Assessment Board and a director. The board is composed of six members from the Senate appointed by the President and six members from the House appointed by the Speaker. Three of the six members selected from each of the House are to be from the majority party and the other three from the minority party. The director is appointed by the board for a period of six years. He serves as the thirteenth member, but has no voting rights.

The standards to be applied by the office are set out in section 3 (a) of the Act, which runs :

The basic function of the Office shall be to provide early indications of the probable beneficial and adverse impacts of the applications of technology and to develop other coordinate information which may assist the Congress. In carrying out such function, the Office shall

- (1) identify existing and probable impacts of technology or technological programs;
- (2) where possible, ascertain cause-and-effect relationships;
- (3) identify alternative technological methods of implementing specific programs;
- (4) identify alternative programs for achieving requisite goals;
- (5) make estimates and comparisons of the impacts of alternative methods and programs;

7. *Id.*, s. 2.

- (6) present findings of completed analyses to the appropriate legislative authorities;
- (7) identify areas where additional research or data collection is required to provide adequate support for the assessments and estimates described in paragraph (1) through (5) of this subsection

The Act sets out the procedures to be followed in the process of assessment. They include : contracting and otherwise arranging for studies to be made by governmental or private agencies;⁸ requiring any executive department or agency of the government to furnish, at the request of the office, information, suggestions, estimates, statistics, and technical assistance for the purpose of carrying out its functions under the Act;⁹ utilising the assistance of the Congressional Research Service of the Library of Congress;¹⁰ and coordinating research activities with the National Science Foundation.¹¹

The Technology Assessment Board is authorised to hold hearings and make recommendations. It is invested with power to require by *subpoena* or otherwise the attendance of witnesses and the production of books and documents.

The Act also provides¹² for the establishment of a Technology Assessment Advisory Council consisting of ten members from the public, to be appointed by the board, who shall be persons eminent in one or more fields of the physical, biological, or social sciences or engineering or experienced in the administration of technological activities, or who may be judged qualified on the basis of contributions made to educational or public activities; the Comptroller-General; and the Director of the Congressional Research Service of the Library of Congress. On a request made by the board,¹³ the council is required to review and make recommendations to the board on activities undertaken by the office or on its initiation, review and make recommendations to the board on the findings of any assessment made by or for the office; and undertake such additional related tasks as the board may direct.

The Act provides¹⁴ for information, surveys, studies, reports and findings produced by the office to be made available to the public. Matters of national security and those of a sensitive nature are naturally exempted from the purview of this provision.

8. S. 6 (a).

9. S. 6 (b).

10. S. 8

11. S. 10.

12. S. 7 (a).

13. S. 7 (b).

14. S. 3 (c).

According to two commentators, the sanctions implicit in the Act for application of technology which are adversely assessed are (i) denial of affirmative congressional support in the form of funding, and (ii) prohibition or regulation of deleterious aspects of privately-funded applications.¹⁵ They also express the view that in the technological society in future, the "good life" will be increasingly dependent on legal standards, processes and structures. They proceed to state: "if technology is to be tamed, the law is its tamer. Law, as a tamer, has a lot to learn."¹⁶

It is precisely because law has a lot to learn about the application of technology that an enactment of the type discussed above becomes necessary. It is, however, doubtful whether this method of assessment is the best suited for the purpose. The constitution of a science court with recommendatory powers has been suggested as a more effective alternative for the purpose of making a similar assessment. It is in the composition of the court that a crucial difference is to be perceived. The court consists of scientists. It has no resemblance to a joint committee of the legislature. In assessing the adverse aspects of application of technology scientists are perhaps to be considered more dependable. Theirs would be first hand information, not received through *subpoena* from busy, reluctant experts.

A science court would consist of a panel of scientist-judges who would attempt to resolve disputes of a factual nature submitted and argued before them by expert proponents of opposing scientific viewpoints. The science court would not make any policy decision or value choices; it would present its findings on the current state of technical knowledge to the appropriate political agency which would be entrusted with the very responsible task of taking final decisions.¹⁷ Scientists, no doubt, are uniquely competent to resolve scientific factual issues. But as Chief Judge Bazelon has put it, "their special competence does not extend to value choices; with respect to those choices, the opinions of scientists are entitled to no greater weight than those of the rest of us."¹⁸ While supporting the goals of the proposal for a science court, Bazelon enters a caveat. He says that experts usually disagree not so much about the objectively verifiable facts, but about the inferences that can be drawn from those facts and that they disagree precisely because it is impossible to say with certainty which of the inferences are "correct".¹⁹ He is

15. K. L. Hanslowe and W.E. Oberer, *Science, Technology, Law : The Good Life*, 26 *Journal of Legal Education* 32 at 40 (1974)

16. *Id.* at 43

17. See D.L. Bazelon, *Coping with Technology Through the Legal Process*, 62 *Cornell Law Review* 817 at 826 (1977). See also A. Kantrowitz, *The Science Court Experiment*, 13 *Trial*, No 3, March 1977, p. 48; J. A. Martin, *The Proposed "Science Court"*, 15 *Michigan Law Review* 1058 (1977).

18. D.L. Bazelon, *id.* at 827.

19. *Ibid.*

opposed to the idea that some sort of systematic instruction in science may be given to the members of the judiciary, or that expert science advisers may be appointed to sit with the judges when they hear disputes with scientific overtones.

Graftstein suggests the institution of a new adversary system for assessment of future technology.²⁰ He thinks that the development of an adversary system utilising technologists in the adversary process might be a positive element in screening technology. Instead of science court, he would have technological assessment issues raised "within the context of common law damage suits and by extraordinary remedies brought by *amicus curiae*". He says :

The adversary system has certain advantages. It can develop a social awareness, develop options, expand the scope in decision-making and materially enhance the legitimacy of any decision.

If equal access to technological expertise were available, different technological options could be developed through this form of public debate. The public could participate in the debate for creating better futures.²¹

Others have suggested the establishment of a technological ombudsman to survey continually all areas of technological development. Grafstein, however, thinks that though this may prove suitable in the short run, the centralisation of his activity has inherent dangers. "Technology is too pervasive to be surveyed by a central source".²²

Grafstein's most important suggestion, among many others, is that a technological bill of rights should be adopted with a view to redressing the present imbalance created by technology through developing technological rights. As these rights cannot be developed by political institutions alone, he emphasises that while this new strategy for developing new norms can be started by lawyers and judges, an acceptance of the need of new definitions of rights postulates that there should be dialogue and debate with economists, technologists and auditors with a view to reforming our system by consent.²³ He also points out that a new recognition of rights creates a natural re-assessment of values, a re-organisation of our institutions and a public advocacy of a different order. He says :

It will call for rights to protect the common wealth—our streets, our parks—our natural environment. Our economic norms will

20. J.S. Grafstein, *Law and Technology: A Technological Bill of Rights*, *The Canadian Bar Review* 221 at 238 (1973).

21. *Ibid.*

22. *Id.* at 244.

23. *Id.* at 241.

require redefinition. This will require not only a repeated articulation of these rights but the creation of different institutions supported by a different legal infrastructure. Technological rights for better amenities should now become inviolate—the right to clean air, clean water, a healthy and inviolate body, livable space, quietude, privacy, creative work and equitable access to leisure and clean common areas The acceptance of these rights can only be strengthened by new agencies acting as new legal counterweights. New mechanisms must be developed to develop new remedies.²⁴

Among the agencies he suggests includes advocates who are financed by the producer of technology. They should be able to intervene in the technological process and determine whether technological rights are threatened or being transgressed.²⁵

After having suggested a number of agencies for technological assessment and programmes for technological protection, including social auditing, public interest representation on the board of directors of corporations, assemblies of experts to screen new technology, *etc.*, he addresses lawyers and judges :

If economists, the purveyors of the “dismal science”, can, without legislative edict, come to grips with the dangers of technology, is it not equally open for lawyers and judges to refurbish our own legal environment to create, through the consensus of the common law and voluntary action, a pluralistic strategy that will bring us closer to a desirable future?²⁶

How far some or any of the suggestions outlined above can be successfully implemented in India is anybody's guess. Lack of personnel to man a science court or any other body for assessment of technology may not prove a problem, but popular acceptance of the need for such assessment and for consequent action may not be readily forthcoming. Perhaps it is in this context that one has to pay adequate attention to certain views expressed by the Harvard psychologist, B. F. Skinner. According to him in order to survive, man must develop an elaborate behavioural technology based on the principle of operant psychology. This technology is assumed to enable man to control his behaviour much more precisely than he has been able to do until now.²⁷ Skinner considers survival the most important

24. *Id.* at 241-42.

25. *Ibid.*

26. *Id.* at 245.

27. See B.F. Skinner, *Behaviour of Organisms* (1966).

aim in life and regards the redesigning of culture as an imperative need for survival.²⁸ He says :

It is hard to imagine a world in which people live together without quarrelling, maintain themselves by producing the food, shelter and clothing they need, enjoy themselves and contribute to the enjoyment of others in art, music, literature and games, consume only a reasonable part of the resources of the world and add as little as possible to its pollution, bear no more children than can be raised decently, continue to explore the world around them and discover better ways of dealing with it, and come to know themselves effectively. Yet all this is possible.²⁹

All this is possible, in his view, if we redesign culture by applying the technology of behaviourism. One should assume this is a suggestion worth pondering, even if one is not inclined to concede that it is a remedy crying for immediate practical application.

Until some such strategy is evolved, we may have to be content with more tangible devices which may produce immediate palpable results. It is in this connection that the various suggestions made above, especially those regarding a science court and a technological bill of rights, appear to deserve attention.

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28. See B.F. Skinner, *Beyond Freedom and Dignity* (1971).

29. Quoted in C.P. Chacko, Defining Man's Role in Nature's Scheme, *The Times of India*, 18 February 1979, p. 8.

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