

nature

April 8, 1976

Superstar technology monitored...or throttled?

SUPERSTAR technology is the name given by a working party of the Council for Science and Society to highly innovative, large scale technical projects. A report just issued (*Superstar Technologies*, 66pp, £2.00) looks at "the social mechanisms by which critical expertise can be concentrated on [such technologies], so that grave defects and dangers, technical, environmental and social can be anticipated and minimised". The problem is said to be that there are inadequate mechanisms, particularly at the conception stage of superstar technologies, to monitor possibly disastrous consequences; this is partly because the technology may practically monopolise the employment and commitment of relevant experts, thus weakening the forces of criticism or even commercial competition, and partly because these relevant experts will, being only human, suffer from occasional frailties of intellect, conscience and vision. How, asks the council, can we spot any weaknesses before the project is irresistible?

The answer, with a certain amount of hand-wringing about yet another public institution, is a Technology Implications Commission (TIC) which would "foster the discovery, assessment and diffusion of reliable information about proposed advanced technical projects, so as to provide conditions for effective monitoring, with appropriate public participation at all stages of development". The TIC would neither replace nor interfere with present monitoring facilities further down the line such as select committees or inspectorates. Information would come to it by way of scrutiny of the technical press, patents and so on, "on the lookout for items whose significance might easily be ignored". It would also use independent consultants, and would be a place to which a 'whistle-blower' could turn. The TIC would, if there seemed to be a *prima facie* case for a possible danger, pursue its own independent research and could follow this up, if necessary, either by publicising its findings or holding a conference to generate public debate. The TIC would not have legal power to force the adoption of any policy or the abandonment of any project.

It would be pleasing to be able to give such a modest and mild proposal a wholehearted welcome, firm in the knowledge that it had been hammered out by a representative group after extensive international inquiries. Careful reading of the report suggests otherwise and casts some doubts that the council put together the right sort of mixture. The working party comprised a lawyer, an architect, a professor of physics, a physics research student, a professor of materials science and two science writers. A curious group, markedly, maybe fatally, deficient in practising technologists who might be presumed to know superstar technology from the inside.

It is sad also to relate that the concept of a superstar technology never really comes into focus. Various apparent

candidates put in anecdotal appearances—Flixborough chemical works, the DC-10, Ronan Point (a high-rise block of flats that was severely damaged by a gas explosion), high alumina cement, the Comet, natural gas, supertankers, motor cars, large electrical generating sets, organic chemicals, Browns Ferry, Concorde, boxgirder bridges, thalidomide, Windscale and even groundnuts. All of these are, of course, coupled with disasters, and a mood of disaster informs much of the report. We are told that "the personal safety of thousands . . . and the prosperity of millions may depend upon the engineering success and environmental acceptability of a single enormous project". But the real superstar technologies, on this reckoning, are probably things of the past—railways, electricity and gas distribution, tunnels, sewers, steamships, telephones and transatlantic flight.

The working party claim that changes in the social and financial organisation of industry have weakened some of the forces controlling innovation; Brunel or Edison, for instance, carried heavy personal responsibility for safety and success, which was a continual check on their projects. This is a doubtful argument; Brunel and indeed all Victorian engineers lived with disaster and failure on a scale unknown these days. Society has since then gradually deemed human life less expendable and commercial failure more ignominious. But there has to be a limit to the amount of restraint (even if only moral) on a technologist's freedom of action or else he will give up practising or emigrate. The TIC might come dangerously near to snuffing out what enthusiasm a technologist has.

It is asserted that the control of advanced projects on behalf of society "must depend on the same principle as does science"; this means peer-review and mutual criticism. However well this has served science, it is doubtful whether scientists should go round trying to impose their way of reaching decisions on another community, where decision making is not just a matter of establishing the facts but also of assessing political, social and economic factors. And even 'the facts' are of a different order in technology—the report acknowledges as much when it speaks of the almost impossible task of judging the real weight of innumerable, often contradictory, warnings.

The real danger in all this is, first, that a monitoring agency be generated with which technologists cannot live and, second, that the institutionalising of monitoring may actually create a false public impression that everyone else can relax a little.

There are lots of good intentions behind the council's initiative, and few would quarrel with a call for more open decision making. But the TIC, for all its worthy beavering, might just prove the last straw that broke the not-entirely-wicked camel's back. □