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Technological Law: Societal Control of Technology and the Potential of the World Standards Movement

By Edward Hamilton Hitchcock December 1979

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TECHNOLOGICAL LAW

Societal Control of Technology
and the Potential of the World Standards Movement

by

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In two volumes :

- VOLUME I -

A T H E S I S

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Auckland
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Man himself has become our greatest hazard - - and our greatest hope.

John Steinbeck,
accepting the Nobel Prize for literature.

But there are two other sciences which are much more important . . .
Ethics and Politics - and these, neglected by men of genius, have made
little way in the course of 2000 years . . . let the ablest men consecrate
their talents to the science of government.

J.B.Bury,
discussing the philosophy of the Abbé de Saint Pierre (1773).

Thus, convinced of the wholly human origin of all that is human, a
blind man eager to see who knows that the night has no end, he is still on
the go. The rock is still rolling The struggle itself towards the
heights is enough to fill a man's heart. One must imagine Sisyphus happy.

Albert Camus

ABSTRACT

Over the last three centuries the rapidly increasing influence of technology has come to dominate every aspect of human life. Progressive realization of adverse effects has led to increasing demand for and imposition of control measures. The concept of common law embodied in legal tradition have been found inadequate, and forced a change to "enacted law". The regulatory explosion necessitated delegation from legislative to executive agencies.

The resulting techniques of control developed in the United Kingdom, New Zealand, Australia, Canada and the United States are examined. One common factor stands out, the extensive dependence of law-making bodies on independent technical specification material from non-government sources, and the confused, conflicting, and inconsistent methods of utilizing those specifications in law-making.

Most of this independent material comes from Standards bodies. Their basic concept, the establishing of acceptable practice by prior agreement, is outlined, and the growth of the movement traced from the original development in Britain to a World-wide movement. Their processes of consultation and consensus represent a practical democratic system of self regulation.

Studies of these aspects are rare, but a number of those relevant are reviewed, ranging from the Robens committee in Britain, through Building Code Reform in New Zealand, to a whole series of very recent reports from the United States, including a Presidential Task Force, an attempt to establish a National Standards Policy, a Federally commissioned study by a Professor of Law, and a Presidential Executive Order.

From these emerge the pattern of complaint: Regulatory control is excessive, rigid, and liable to cause economic waste. It tends to be ineffective, and fails to achieve primary aims. As technology development exposes society to greater risks, efficiency becomes more vital, and failure to achieve control a serious danger. Problems arise from the failure of traditional legal approaches to adapt to the newer challenge of technology, particularly the legal acceptance of law "as it is" without recognition that the task calls for developing the law-making process to meet the needs of the changed situation.

It is contended that many of the problems in regulatory control of technology come from the practice of making technical specification material direct legal command. The various reports reviewed comment on the limitations inherent in negative legislative control, the irrelevance of litigation, Court action and punishment, to the fundamental problem of achieving successful control. There is need for the encouragement of self regulation, and establishment of appropriate links with law.

The special characteristics and responsibilities of law controlling technology are brought out, and call for identification as a separate branch of law: "Technological Law". Such law, it is contended, needs to make optimum usage of (a) the factors that have contributed to the dominance of technology, including the scientific approach, and the practice of prior agreement and (b) the essential components of democratic society, including participation, consensus, decentralized control, and self regulation associated with a formal method of determining acceptability.

Practical proposals are developed involving the recognition of the practice of legislating by reference to independent technical specifications the encouragement of self regulation processes through statutory backing, and their linking by recognition of the dyad in law, a separation of fundamental aims and principles appropriate to law from the means of meeting these aims.

There is detailed examination of the three themes of reform. Techniques of the reference process, the legal objections, and the range of practices are examined, and acceptable technique suggested. The significance and importance of self-regulation is examined, and the contribution of "Standards" developed. A detailed examination is made of the various examples of two part law found in legislation,

or in the studies reviewed. The framing of law in terms of general requirements is considered in relation to the problem of certainty and the idealization of the performance concept. The prerogative of the law-maker to designate certain practices as complying with general requirements is established as fundamental. The objection that this is a function of interpretation which lies exclusively with the Courts is discussed and the principle advanced that the vital Court function should never be called into the routine observance area.

Technological law has as its essential aim the achievement of observance. Punishment, and court action is indication of failure. The emphasis must be on understanding and facilitating compliance. The second part of the dyad calls for sets of interrelated, interdependent specifications of acceptable practice, serving equally differing specialized laws, technical practices, commercial practices and education, and clarifying in positive fashion that which complies with law.

The existing, established mechanisms of the world Standards movement are seen as providing the sets of technical specifications to fulfil this second function. This industry-developed process of self-regulation utilizes the techniques of prior agreement and in practical form, the elusive concept of consensus.

Studies have emphasised the superior ability of the system to call in technical resources and voluntary effort to the service of law-making, in comparison with the resources of a governmental agency. The desirable aim is partnership, and the utilization of substantial measures of voluntary compliance.

The question of recognition and authority for Standards and their producing organizations is seen as essential, and criteria are developed from the examples reviewed, notably from the pioneer New Zealand Act of 1941.

The study emphasises the little recognised function of Standards organizations of identifying acceptable practice, providing what has become an essential component of the machinery of government of a modern state.

The mechanism provides a basis of certainty for commercial operations, and, through the strength of consumer or purchaser choice, an effective method of control as an alternative to yet more complex regulatory activity.

PREFACE AND ACKNOWLEDGEMENTS

The concluding quotation in this study suggests that the major problem facing modern government over the next twenty years is the regulatory process. The initiation of this study dates from 12 years ago when the newly formed Standards Association of New Zealand faced problems with its protégé, the Model Building Code. The remarkable innovation of 1934, a participatory system of developing legislative control of building, was threatened by legal objections and complaints of failure to provide for technological change. The likelihood was for yet another take-over by central government regulation and the loss of a significant democratic process.

Investigations revealed a number of reforms offering solutions to the basic problem, the misuse of the technical specification as direct legal command, the common theme encountered being an alternative use of the technical specification, not as command, but as criterion of compliance with law. Proposals were developed and discussed widely. The late Andrew Todd, Law Draftsman and author of the examples of the technique in New Zealand legislation read the draft and approved. Don Paterson, then lecturer in Law at Otago University offered helpful comment. Jack Northey, Dean of the Faculty of Law at Auckland University arranged discussion with a prominent Auckland Q.C. and with a retired magistrate. The author's paper (1968a) advancing principles and suggesting further research was discussed at many meetings throughout New Zealand.

A scheme for practical adaption and application to the Building Code followed, described in the author's papers (1969b and c and 1970a). The Standardised Model Code Adoption procedure introduced the annual schedule system for updating, developed with generous aid from the Lower Hutt City Council and Neill Gillespie, their legal adviser. Forums for discussion were provided by professional engineers, architects, the Institute of Public Administration, service clubs, local government inspectors, and a Building Research Congress in Australia. The Commission of Inquiry into Housing formally commended to Government the application of its principles to the revision of the Plumbing Regulations.

The Standards Council decision in 1969 approved its application to the Building Code and the Schedule system was introduced immediately to permit progressive introduction of the principles.

However, in 1972, the State Services Commission imposed an extensive re-organization of the theoretically independent Standards organization, abolishing the technical directorship from which it had been possible to initiate the Code reforms. The drive towards reform languished for the next five years. The Health Department ignored the Commission's recommendation

There was concern lest the ideas should lapse. John Roberts, Professor of Public Administration, suggested a doctoral thesis as a method of undertaking and recording the necessary research, and a proposal for research in the School of Public Administration was approved by Victoria University. Funding proved an obstacle, and the project lapsed. In 1975 George Beca, of the Auckland consulting engineering firm of Beca Carter, Hollings and Ferner, revived the proposal by offering a basic grant. The work behind the scenes of many sympathisers then led to Government sponsorship in the form of a research contract between the Department of Scientific and Industrial Research and the University of Auckland. The New Zealand Institution of Engineers added their support.

The project was made possible by the sympathetic reception from Professor A.L. Titchener, Dean of the School of Engineering, by the willingness of Professor R.F. Meyer to undertake the task of supervision and by continuing help from Professor J.F. Northey who arranged for so many of the facilities of the School of Law to be available. For four years there was perhaps some symbolism in the regular crossing of the of the physical barrier between the Schools of Engineering and Law: the busy thoroughfare of Symonds St. Could it be further symbolic that there is now under construction a linking underpass?

Early in the programme, Lord Robens, in the course of a rush visit to New Zealand, made time available for a short discussion, took the point that his Committee of Inquiry had left undefined the practical mechanism to implement their central theme, the use of voluntary standards rather than regulations, and offered an introduction to the British Safety and Health Executive. In my later visit to Europe, Charles Neale, of the Executive was most helpful, and arranged a discussion session with his senior staff. There were valuable meetings with the Chief Factory Inspector, the Alkali Inspectorate, and finally with John Locke, the Director-General.

London was friendly and helpful, with particular interest from the Institution of Electrical Engineers, the British Standards Institution, the Building Research Establishment, the Royal Institute of British Architects, London City Council, the Department of the Environment, and the Department of Prices and Consumer Protection. In No 36 Whitehall, the Law Drafting Office, Terence Skemp, Parliamentary Counsel, discussed techniques. Some four months of research in London was made possible by the generous hospitality of Harold and Gertrude Bull.

In Belgium wartime friend and electrical engineer Jean Duisburg arranged meetings with Belgian Standards, the Electrotechnical Committee, and, in the "Eurocracy", with M. Faure whose task involved the problems of international technology control. In the Cologne office of DIN, Herr Dr Ing H Nitsche and in Zurich, the Swiss Standards Director, discussed the problems and provided helpful material. In Geneva, ISO staff were hospitable and made available much information.

From the United Kingdom the Department of Energy sent further examples of control problems, and the Scottish Development Department, digging deep into old files, found material on the early development of the Building Codes "deemed to satisfy" techniques.

From Canada Paul Webb despatched a copy of his paper, and other material; the Standards Council some of their publications; and the Labour Department copies of their regulations.

From the United States ASTM has been a tower of strength, sending extensive material including the proposed Act S.823. The Nuclear Regulatory Commission sent material on Regulatory Guides and their legal consideration. The Administrative Conference mailed a copy of Professor Hamilton's paper and the modified recommendations.

In Australia, the SAA through Ian Stewart and John Paton made available extensive material from their own long experience of standards and law, and the Building Section, NSW State Government, a copy of Ordinance 70 and comment on building control operations.

In Canberra, G.Kolts, Parliamentary Counsel, discussed a variety of measures and the Trade Practices review. At the Legislative Drafting Institute, the Director, N.T. Sexton, provided opportunity for my addressing the current training course consisting of Parliamentary Counsel from a number of countries overseas. The Building Section, ACT, made available a copy of the Building Manual and material on its operation, and the Electricity Authority their legislation.

In New Zealand special acknowledgements are due to those members of the Standards Association staff who have offered willing help and encouragement, in particular to Denys Pinfold, incoming Director, the Librarian, technical and publications staff. Generous assistance came from the Chief Parliamentary Counsel and Compiler of Statutes, Mr W. Iles, and Counsels Hamilton, and Hurrell. The Department of Labour made available copies of relevant publications.

Invaluable help came from Libraries, at Auckland University, and in the Schools of Law and Engineering. There was generous provision of material from the American Information Services in Auckland and Wellington, and copies of some volumes of the Code of Federal Regulations were lent by the Auckland consulate. Material and help came from the General Assembly Library and that of the Building Research Association.

The Report thus produced emerges into a world becoming increasingly aware of the problem of technology control. The nine United States documents reviewed in part seven were all published since this project began. There has been a crescendo of technology induced disaster, reminding us, as Lord Brabazon remarked about modern aviation, that technological development consists of taking greater and greater risks. There has been continuing publicity about the effects of technological development on the environment and human activity.

Reaction has appeared in two directions. Dissatisfaction with regulatory control is regularly ventilated on the news Media, but alongside demands for yet more controls. Lack of interest in practical remedy was illustrated by the New Zealand Listener. Geoffrey Palmer, then Professor of Law at Victoria University, drew attention to the "fearful domination of the Executive" but could offer as remedy only a lawyer's solution by the further complications of a Bill of Rights "try it and reject" system. Members of Parliament, and the former Chief Law Draftsman sprang to the defence of current law-making, largely on the grounds that the situation was not really as bad as that portrayed. The Editor rejected an article by the author suggesting practical solutions on the lines developed in this study.

The second direction of reaction had appeared in Western society with the revival of fundamentalist religious activity, challenging accepted scientific thought. In the Moslem World there had been considered attempts to adapt Western methods such as in banking to reconcile with religious precept. But over recent months the violent eruption of protest against the patterns of Western technological society has demonstrated the strength of concern, to a degree no longer possible to ignore.

In many parts of the world, this reaction against aspects of Western technology-dominated society has led to breakdown in stable patterns of government and loss of concepts of democracy which had been developed in that society. And this democracy seems to have become preoccupied with one aspect, the system of electing representatives, with insufficient attention to real mechanisms of decision.

This study puts forward a process to restore elements of participation into a critical aspect of governmental control, decisions on the acceptability of practices, based on the empirical system for establishing prior agreement on technological matters developed by technologists and drawn upon by law-makers, called the Standards movement. The innovative Standards Act of 1941 blessed the self-regulatory process with statutory authority, but the concepts were not understood or generally applied.

Current trends evidence all too frequently a changed attitude appearing in a bureaucracy becoming more powerful, moving from appreciative use of the valuable services of the Standards movement, to rivalry or even hostility. But society urgently needs the stimulation of individual responsibility if democracy is to remain a reality. The consumer and the citizen need an escape from advertisement-manipulated puppetry, from the ever increasing smothering blanket of regulations, an escape which can be provided by energy devoted to self-regulatory processes.

A groaning world cries out for practical effective control of technological development: this study sets out the potential of a mechanism to embody the principles of healthy self-regulation and democratic participation.

The research process has suffered from isolation: the lack of opportunity to engage in discussion to develop significant points and polish the logic of approach. This results from the very factor emphasised, that Technological Law stands unsponsored in the gulf between technology and law and that, in general, society does not see the law-making process as a field susceptible to conscious improvement. It seems too that the University has lost its role of providing such forums for discussion, under the tremendous pressures of internal administration and external involvement. So particular appreciation is due to Professor Northey for his contributions and for his reading of the principal sections of final draft. On Professor Meyer fell the four year burden of supervision, carried lightly and with good humour, even when confronted with a massive interim draft. To him I am indebted, not only for valuable comment, but for assistance with all the machinery aspects of research. The principal part of conversion into final type was meticulously done by secretary Joy Wallace.

The greatest debt to be acknowledged is that to my wife, who, after bearing for so many years the burden on the home of part-time research and tedious preparation of papers for publication, accepted cheerfully my reversion to student status. From qualified teacher and nurse, she translated to full time typist, dealing with typing in draft of the whole work, and final typing of tedious appendices. And, above all she provided support and encouragement necessary to the undertaking of an extensive work to contribute in some small measure to the science of government.

E.H.Hitchcock

Auckland, December 1979

THE REFERENCE SYSTEM

Notes

Notes in reference to points in text are grouped in a separate section, appended to each Volume.

References

The Havard System has been used, where the reference appears in the text in the form of the author's name followed by the year of publication in parentheses. Where a page reference is needed this may be provided in the Notes or, if unobtrusive, in the text. The full details of the various sources then appear in the "Reference to Sources" appended to Volume I.

Initials

The use of initials as contraction for full names in text has been unavoidable, but the first reference is given in full. In most cases the full names appear in the alphabetical list of sources.

Emphasis

Where a word is used in an unusual sense to which attention is to be drawn, or where it is held exposed for discussion of attributed meanings, quotation marks are used.

Underlining is used where emphasis is to be added, or to aid in understanding or ease of reading.

Economy and Emphasis

When quoting examples of legislation there is frequently encountered the repetition of complex phrases. The recent regulatory explosion has produced some fallout in the form of laws described as some special form of "standard". There are "occupational safety and health standards" or "mobile home construction and safety standards". Wearisome repetition has been avoided by contraction to initials, and references to (o.s.h.) standards or (m.h.c and s) standards to achieve both economy and emphasis.

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