

Industry Technology and Democracy

By Tony Benn



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"I would address one general admonition to all; that they consider what are the true ends of knowledge, and that they seek it not either for pleasure of mind, or for contention, or for superiority to others, or for profit, or fame or power, or any of these inferior things; but for the benefit and use of life; and that they perfect and govern it in charity.

For it was from lust of power that the angels fell, from lust of knowledge that men fell; but of charity there can be no excess, neither did angel or man ever come in danger by it."

Thus wrote Francis Bacon in his preface to *The Great Instauration*. Since his words of warning are equally applicable to scientists and statesmen it seemed most appropriate to take them as my text.

My theme covers the relationship between Industry and Democracy and examines some of the means by which society handles the issues raised by science and engineering within the framework of our democratic political traditions. I should like at one stage to illustrate these processes by reference to my own Ministerial experiences.

Science and Society

Bacon also said that 'knowledge is power' and few would dispute that society and technology in discovering the laws of nature and making it possible for mankind to use those laws for its own purposes, has played an important part in industrialisation, and has greatly influenced the modern state in its various and different forms throughout the world.

In Britain, industrialisation was accompanied by the emergence of Capitalism, modern Trade Unionism, Socialism and Parliamentary democracy, through which major political decisions are now argued out in the light of values and interest of the electorate.

Today public concern about the development of technological and industrial power has focussed upon the uses to which that power is put, raising moral as well as economic or technical considerations. We reflect these concerns through our democratic institutions.

On moral choices scientists cannot be neutral. Indeed the historic traditions of integrity and independence which characterise science are a part of our inheritance

and may help us to enrich, deepen and develop democracy so that the power knowledge has released can be used for the benefit of man.

The task of scientists in acquiring knowledge has never been easy, nor free from risk.

The knowledge uncovered by science, and the conclusions drawn from it, often led in the past to direct clashes with established religion which had different explanations to offer for natural phenomena, and which saw in science a dissident challenge to its own monopoly of wisdom.

Moreover scientists have frequently been suspected by those enjoying political power. Rulers often fear that their power might be undermined by a spread of knowledge among the populace.

Science has had its martyrs over the centuries and their sacrifices in the service of truth, as they saw it, have contributed directly to the advance of civilisation.

The Scientific Tradition

Science had to overcome all these difficulties in order to establish itself, and in the process the scientific tradition of integrity and independence developed in a way that makes it highly relevant for the present generation.

It seems to me as a layman that the scientific tradition derives from six main principles.

First an insistence upon maintaining a rigorous regime of accurate scholarship.

Second a practice of subjecting hypotheses arising from research to the critical scrutiny of the scientific community which then judges those results by the highest possible standards.

Thirdly a determination to defend and entrench academic freedom to protect scientists from improper external pressures which might lead them to abandon their research, or worse still to corrupt these results to suit the powers-that-be.

Fourth an acceptance of the importance of dissent within the scientific tradition allowing scientists to seek to establish new hypotheses, even though these may run counter to the conventional scientific wisdom of the day.

Fifth the maintenance of an international outlook which overrides political, theological or ideological divisions that may exist between nations in the contemporary world.

Sixth the assertion of the importance of publishing results so that the whole world may benefit from new knowledge as it is acquired.

It is these characteristics of science which give it its authority and which make it a valued part of the rich tradition that we have inherited from the past, and which we need in full measure in order to develop society in the future for the widest possible benefit of its people.

Technology and Industrialisation

It is no exaggeration to say that the impact of science and technology upon society has been genuinely revolutionary. But it would be a mistake to suppose that the

changes which have occurred originated solely, or even primarily, in the laboratories of the pure scientist. Technical changes have also stemmed from those possessed only of practical experience.

The *Scientific American* reporting a lecture given by Dr Lyon Playfair to the Midland Institute quotes as follows:

November, 1870: "Dr Lyon Playfair, MP, the new President of the Midland Institute in Birmingham, in succession to the late Mr Charles Dickens, has given an eloquent and thoughtful address on the union of science and labour. Ridiculing the idea that advances in science have been the result of accident, he points out that man's wants led to the industrial arts, and that the practice of these arts and long-continued experience gave birth to science. Such advances were not prompted by a leisured aristocracy but as a rule by men rising from the industrial classes. Stephenson was a collier, Davy and Dalton were druggists, Faraday was a bookbinder, Harrison a carpenter, Watt as instrument maker and Arkwright a barber."

From the beginning of time until today many of the most significant changes have stemmed from this inter-mixture of theory and practice.

Britain was the first country to undergo the industrial revolution and has the great advantage of having had the longest experience of the effects of technology upon its industrial system.

Trade and industry up until the turn of the 18th and 19th centuries were conducted under outdated semi-feudal conventions. Had these conventions been allowed to continue they would have held back the industrial revolution. In the event this was not to be the case.

The Birth of Capitalism

Adam Smith, in the *Wealth of Nations* recognised the gains that might be obtained by the specialisation of labour within a market economy permitting these new technologies to be developed.

Capitalism, as a philosophy, was born to meet the needs of that new technology, or to be more precise it was evolved to ensure that the new technology served the interests of those who commanded political power.

My predecessor, as MP for Bristol, Edmund Burke, spelled it out with characteristic clarity:

"To provide for us in our necessities is not in the power of government. It would be a vain presumption in statesmen to think they can do it. The people maintain them, and not they the people . . . (the rich) are the pensioners of the poor, and are maintained by their superfluity.

Labour is a commodity like every other, and rises or falls according to the demand . . . When a man cannot live and maintain his family by the natural hire of his labour, ought it not to be raised by an authority? I premise that labour is, as I have already intimated, a commodity and, as such, an article of trade . . . When any commodity is carried to market, it is not the necessity of the vendor, but the necessity of the purchaser, that raises the price. The extreme want of the seller has rather (by the nature of things with which we shall in vain contend) the direct contrary operation . . . The impossibility of the subsistence of a man who carries his labour to a market is totally beside the question, in this way of viewing it. The only question is, what is it worth to the buyer?"

Inevitably the institutions formed to permit this technology to develop in this

way opened up conflicts of interest as between those who benefited from this method of economic development and those who believed themselves to be the losers by it.

The Birth of Trade Unionism and Socialism

Modern Trade Unionism grew as a response to this sense of deprivation. So too did the first explicit adoption of Socialist ideas.

Robert Owen although equally concerned with the development of the new technologies asserted that these should be guided by different principles. In his report to the County of Lanark Owen wrote:-

“From this principle of individual interest have arisen all the divisions of mankind, the endless errors and mischiefs of class, sect, party, and of national antipathies, creating the angry and malevolent possessions, and all the crimes and misery with which the human race have hitherto been afflicted.

In short if there be one closer doctrine more contrary to truth than another, it is the notion that individual interest, as that term is now understood, is a more advantageous principle on which to found the social system for the benefit of all or of any, than the principle of union and mutual co-operation.”

Arguments about the Franchise

Similarly, the campaign for the franchise – for the extension of the vote from the tiny majority who enjoyed it before 1832 – towards the Universal Adult Suffrage which we now have, was in response to a felt need for a greater control over the industrial power of Capitalism. The authors of the Great Charter of 1842 set it out thus:

“Labour must no longer be the common prey of masters and rulers. Intelligence has beamed upon the mind of the bondsman, and he has been convinced that all wealth, comfort and produce, everything valuable, useful and elegant, have sprung from the palm of his hand, he feels that his cottage is empty, his back thinly clad, his children breadless, himself hopeless, his mind harassed, and his body punished, that undue riches, luxury and gorgeous plenty might be heaped in the palaces of the taskmasters, and flooded into the granaries of the oppressor. Nature, God and Reason have condemned this inequality, and in the thunder of a people’s voice it must perish for ever.”

The franchise, like the Trade Unions, provided a countervailing power brought into play to moderate the excesses of industrialisation. It was not welcome to those whose power it challenged.

Walter Bagehot, in his introduction to the English Constitution warned of what might happen:-

“In plain English, what I fear is that both our political parties will bid for the support of the working man; that both of them will promise to do as he likes if he will only tell them what it is; that, as he now holds the casting vote on our affairs, both parties will beg and pray him to give that vote to them. I can conceive of nothing more corrupting or worse for a set of poor ignorant people than that two combinations of well-taught and rich men should constantly offer to defer to their decision, and compete for the office of executing it. Vox populi will be Vox diaboli if it is worked in that manner.”

The Factories Acts and the development of other safeguards against the exploitation of man by the industrial system were a production of this parallel growth of Trade Unionism and Parliamentary Democracy.

William Morris set out the choice simply, when he wrote in 1888:

“We should be the masters of our machines and not their slaves, as we are now. It is not this or that tangible steel or brass machine which we want to get rid of, but the great intangible machine of commercial tyranny.”

Science and Government Today

Science and technology, working within the power structures of their time played their part in helping to create Capital, Labour and Democratic government. How have they been affected by the interplay of these forces? And in particular how are democratic influences felt by the scientific community?

The establishment first of publicly financed education and then of the National Health Service may be regarded as the most significant products of Parliamentary democracy. Both had been demanded as long ago as the 17th century by the Levellers. Both services were originally subject to the normal play of market forces restricting access to those who could afford to pay.

It was because of public pressure expressed through the ballot box that these two key services were re-organised and expanded to provide access for people as of right and according to need.

Thus, for the first time the community as a whole consciously withdrew essential services from the market-place and set up new institutions which made scientific knowledge generally available – and it did so without infringing in any way, the independence or interests of science.

Scientists have certainly been able to retain a high degree of self-management insofar as their own research is concerned.

Their legitimate claim to academic freedom has been upheld by all governments.

Education has been publicly funded since the 1870 Act and scientists and teachers of science generally have been seen as a public resource available to students at school or university.

Nobody seriously disputes that the overall allocation of public resources for basic science must be seen within a general framework of public expenditure priorities, but the actual direction of such publicly funded scientific work is handled by people who enjoy the confidence both of the scientific community and those responsible for public policy, including Parliament.

Within this self-regulating system basic science is free to pursue its researches subject to any checks it may place upon itself.

Those checks are intended to maintain the highest quality of work and to monitor dangerous tendencies that might emerge from scientific research – as for example in the risk inherent in genetic manipulation.

It is however also accepted that the community must be free to provide a legislative or administrative framework of control over the application and use of scientific knowledge.

Nobody questions the need for legislation governing the use of explosives, or drugs, or poisons.

Similarly, planning procedures, involving public inquiries, or zoning, or regulations concerned with, say, pollution, also emerge from Parliament. But apart from regulation Government funds research and development in industry to stimulate certain sections of the economy that might otherwise be starved of money.

The most notable example of this in the past lay on the fields of high technology, as with aircraft or electronics. The establishment of the National Research Development Corporation, or the National Enterprise Board have opened up a new source of funds, some of which will help to support scientific work, particularly in application.

Government itself is also a major employer of scientists and many issues which it has to deal with require expert scientific advice, to meet the objectives of public policy that have been accepted by Cabinet and the House of Commons. For this purpose the Scientific Civil Service was created.

The public sector too employs many scientists and engineers in the nationalised industries, and other public authorities.

Government interest in scientific policy is also expressed through a plethora of bodies set up to provide a source of independent advice for the purpose of helping the community to arrive at the right decisions on matters involving technical expertise.

These Commissions are too numerous to name but as the beneficiary of the advice of many of them I want to put on record my indebtedness to those who, like Sir Brian Flowers, have devoted so much time and effort to this work.

Scientists, engineers and the whole range of social scientists concerned with the development of social, economic and industrial policy, make up a formidable combination of advice available to Government, Parliament and people.

The principles of Parliamentary Democracy

How does the democratic process actually operate in practice – to bring these policies into existence. Since I attempted earlier to identify the main characteristics of the scientific tradition I should like to summarise the essentials of Parliamentary democracy as they appear to someone working within that framework and subject to the disciplines of public consent.

The Parliamentary democracy we have developed and established in Britain is based, not upon the sovereignty of Parliament, but upon the sovereignty of the people, who, by exercising their vote, lend their sovereign powers to members of Parliament, to use on their behalf for the duration of a single Parliament only – powers that must be returned intact to the electorate to whom they belong, to lend again to the Members of Parliament they elect in each subsequent General Election. Five basic democratic rights derive from this relationship.

One. Parliamentary Democracy means that every man and woman over 18 is entitled to vote to elect his or her Member of Parliament to serve in the House of Commons, and the consent of the House of Commons is necessary before Parliament can pass any Act laying down new laws or imposing new taxation upon the people.

Two. Parliamentary Democracy means that Members of Parliament who derive their power directly from the British people, can change any law and any tax by majority vote.

Three. Parliamentary Democracy means that British Courts and Judges must uphold all laws passed by Parliament, and if Parliament changes any law the Courts must enforce the new law because it has been passed by Parliament which has been directly elected by the people.

Four. Parliamentary Democracy means that all British Governments, Ministers and the Civil Servants under their control, can only act within the laws of Britain and are accountable to Parliament for everything they do, and hence, through Parliament to the electors as a whole.

Five. Parliamentary Democracy, because it entrenches the rights of the people to elect and dismiss Members of Parliament, also secures the continuing accountability of Members of Parliament to the electorate obliging Members of Parliament to listen to the expression of the British people's view at all times, between as well as during, General Elections, and thus offers a continuing possibility of peaceful change through Parliament to meet the people's needs.

These five rights have protected us in Britain from the whole abuse of power by Government, safeguarded us against the excesses of bureaucracy, defended our basic liberties, offered us the prospect of peaceful change, reduced the risk of civil strife and bound us together by creating a national framework of consent for all the laws under which we were governed.

It is the knowledge that the power of dismissal is vested in the electorate as a whole that compels all Governments and all MPs to listen to the people, even if they cannot follow policies that attract public support.

I would like to emphasise in passing that the relationship between Government and Governed is a subtle one which in my judgement would be seriously disturbed if, by changing our electoral system, the power to dismiss Governments were reduced, weakened or removed.

In countries that have proportional representation the electorate can only stir the mixture of political parties forming the governing coalition, but can rarely get rid of the whole bunch and replace them with others. It would alter the balance of power to the disadvantage of the voters and in favour of the politicians if we adopted proportional representation here.

Parliamentary and Ministerial Experience assessed

I should like to add some personal comments on the way this system works in practice.

The sole qualification for a politician — which is not without its own difficulties — is the capacity to be selected as a candidate, elected as a Member and chosen as a Minister. For those who have worked so long to acquire the highest academic honours this may seem to be a very simple route to power. Having fought eleven Parliamentary elections and with another election campaign the outcome of which is uncertain lying ahead, I cannot entirely share that view.

Nor can any Cabinet Minister who has held office at the complete discretion of the Prime Ministers of the day — a role not without personal risk — be easily persuaded that his survival is assured. Indeed it is the very tenuous nature of all political power held in a Parliamentary democracy which safeguards the rights of the electorate.

My Ministerial work over the years has been almost exclusively concerned with industrial problems and particularly with issues that have connected science and technology with industry and society.

A minister is not by training an administrator, nor can most Ministers claim expert knowledge of the subjects with which they can be expected to deal.

They are primarily representatives who have been pitch-forked into an executive role. On appointment they pass through the iron-gateway of official secrecy and the great doors clang shut behind them. From that moment everything they do, and think and write and say is officially secret.

This convention has long been honoured more in the breach than in the observance. But it remains true that the new Minister finds himself isolated at the heart of a great machine staffed by powerful administrators, top scientists and thousands of officials who have more or less successfully protected themselves, their work and their opinions from public scrutiny.

All policy issues are then supposed to be settled in private discussions between Ministers and Civil Servants and for major policies between Ministers collectively — each backed by his own formidable battery of professional advisers securely based in the great departments of state.

My own experience has certainly hammered home *two* lessons.

The Importance of Ministerial Interrogation

First that Ministerial control of a department must begin with interrogation. Unless a Minister can put the right questions and receive satisfactory answers he cannot even discover the true nature of the policy choices that he has to make.

Eight years ago I drafted ten questions to serve as a basis for this questioning of projects and policy and they still seem relevant today.

1. Would your project — if carried through — promise benefits to the community, and if so what are these benefits, how will they be distributed and to whom and when would they accrue?
2. What disadvantages would you expect might flow from your work; who would experience them: what, if any, remedies would correct them; and is the technology for correcting them sufficiently advanced for the remedies to be available when the disadvantages began to accrue?
3. What demands would the development of your project make upon our resources of skilled manpower, and are these resources likely to be available?
4. Is there a cheaper, simpler and less sophisticated way of achieving at least a part of the objective that you have in mind; and if so what would it be and what proportion of your total objective would have to be sacrificed if we adopted it?

5. What new skills would have to be acquired by people who would be called upon to use the product or project which you are recommending, and how could these skills in application be created?
6. What skills would be rendered obsolete by the development you propose and how serious a problem would the obsolescence of these skills create for the people who had them?
7. Is the work upon which you are engaged being done, or has it been done, or has it been started and stopped, in other parts of the world and what experience is available from abroad that might help us to assess your own proposal?
8. If what you propose is not done what disadvantages or penalties do you believe will accrue to the community and what alternative projects might be considered?
9. If your proposition is accepted what other work in the form of supporting systems should be set in hand simultaneously, either to cope with the consequences of it, or to prepare for the next stage and what would that next stage be?
10. If an initial decision to proceed is made, for how long will the option to stop remain open and how reversible will this decision be at progressive stages beyond that?

Constructing a framework of support

The second lesson was equally important and it is this. No Minister can achieve any significant change in policy unless he is able to work with his colleagues in Parliament or party or public who are of like mind and share his assumptions and his views.

Dick Crossman, in his diaries – which are probably the most important political textbook of our times – never appeared to grasp this latter point. His account of gladiatorial combats with his senior civil servants make compelling reading. But he never seemed to realise that his natural allies were just outside the doors of his own department not knowing what was going on because of official secrecy, waiting to be called in to reinforce him if he would only tell them what was going on. Dick Crossman's defeats always remind me of what might have happened at Waterloo if Wellington had forgotten to ask Blucher to send his troops in to help.

I have always seen it as my task in each department to which I have been sent to try to identify – by questioning – the central issues of policy that had to be decided, and then to assemble the necessary support to secure a successful outcome. Without such a strategy it is easy first to flounder and then to be outflanked and outgunned by the formidable array of pressures, private and public, that can so easily be assembled in support of established official thinking or special interests.

Postmaster-General 1964-66

The first Department for which I had responsibility was the Post Office. Here was a vast Government department dating back over 300 years which had begun as a Royal messenger service for the carriage of mail and remained under the control of the Crown for reasons of economy and security surveillance.

In the 1830s Rowland Hill's penny post made possible an immense expansion of the service, at a cost that was within the means of citizens. Hill was properly seen as a social reformer on the grand scale.

To this postal service came to be added the telephone, born out of science and technology, which required a very different form of organisation and investment and became the most rapidly growing technological industry in the early 1960s.

Traditionally the management of the Post Office had been entrusted to those who were brought up in an almost military tradition of discipline, working alongside trade unions that, in the case of the UPW, was one of the first to adopt guild socialism as its objective for the future of the service.

Within this organisation were many distinguished scientists and technologists working at Dollis Hill who had pioneered important work in electronic exchanges and the mechanics of letters and parcels.

I decided that three major issues required attention. *First* the establishment of closer links with the Unions and consumers; *second* the expansion of technical services and *third* re-organisation.

The establishment of regular consultations with Unions and consumers was relatively easy to achieve. It just meant organising meetings with a framework set up for that purpose. The rest followed.

The Post Office already had the technology to develop new services which would be of value to the public.

One was the National Data Processing Services designed to meet the need for expanded computer use, and the other was the development of the GIRO which would build upon the Post Office outlets that already existed with their simple money transfer systems and create a new national banking service.

These two services grew naturally out of what was already in existence, were warmly welcomed by the trade unions that had long urged their introduction, and provided an outlet for technical skills that had already been developed within the service.

The negotiations that preceded the emergence of these two services brought into play unions, the banking community, Parliament and a wide range of potential customers, and paved the way for an extension of public enterprise, to meet an identifiable need.

The second issue involved a re-examination of the structure of the Post Office itself. It was then an ordinary Government department that earned revenue from selling its services, transferred that revenue to the Treasury and then received back the money it needed to do the job.

A major fast-growing industrial enterprise was thus confined within a management system devised for quite different purposes which had evolved over three centuries.

Having read all the memoirs of my predecessors from all parties I discovered that each, when freed from the responsibilities of his office, had advocated the transformation of the Post Office from a Government department to a Public Corporation. This I resolved to do while still in office and eventually my Cabinet colleagues agreed.

The completion of all this work took place 8 years later in 1974 when the Post Office unions agreed at my suggestion by then as Minister of Posts and Telecommunications, to prepare proposals for industrial democracy within the Post Office by then a Corporation. Only last year the three streams of policy finally converged.

One. The Post Office Corporation had come into being to replace the old Government department.

Two. This Corporation had expanded its technical capacity into new areas made possible by its own technical skills.

Three. The Board of the Post Office was reconstituted to include Trade Union and consumer representatives who have brought to the highest direction of the Corporation the interests of those who work in the Corporation, and of those who make use of the services it provides.

This experience persuaded me that it was both necessary and practical to bring the role of employees into play, to share power and responsibility for the services in such a way as to realise a hitherto untapped potential of ability and skill.

Each public service is different and no lessons can be generalised from one experience. But the Post Office is worth studying as an example of what can be achieved when Government, management, technologists and employees are prepared to work together to meet a clear objective of public policy.

Minister of Technology 1966-1970

At the Ministry of Technology the range of responsibilities was much wider. Although the department had been set up to promote science and technology it seemed clear to me that its real task was industrial regeneration, and that its research responsibility had to be harnessed to that task.

It also became apparent that it could only succeed if it worked in the closest partnership with both management and unions in industry.

The department was very new. It consisted of parts of the Ministry of Supply, some functions from the Board of Trade, the sponsorship of the NRDC (National Research Development Corporation) with overall management responsibility for a wide range of civil research establishments, including the National Physical Laboratory, the Royal Aircraft Establishment at Farnborough and for the whole Atomic Energy Authority including Harwell and Aldermaston.

The late Lord Blackett who had played a considerable role in developing the idea of a Ministry of Technology had won a great deal of political support for the concept that science and technology harnessed to the purposes of industrial regeneration would be able to thrust the nation forward to recapture its old pre-eminence in production and export markets. In order to back up and support this a policy of industrial mergers was permitted to take advantage of the benefits of scale and an Industrial Reorganisation Corporation was launched with financial resources to bring about some of this restructuring and to fund new developments directly.

The Ministry of Technology was given more and more responsibility, taking over first the Ministry of Aviation, then the Ministry of Power and was finally given responsibility for regional policy when the Department of Economic Affairs was wound up in September 1969.

This Ministry with its clear objectives of promoting industrial success seemed set to carry Britain's industry into the second half of the 20th century.

Some of its major decisions are still there to see.

ICL was created to be the chosen instrument for the nation's computer industry by merging the interests of ICT, English-Electric and Plessey. This company has done as much as can be expected to hold its own against the strength of international – mainly American – competition.

Similarly the decision to fund the Rolls Royce RB211 engine, now, ten years later, seems to have been fully vindicated. Rolls Royce now in public ownership is a worthy leader in large aero engines also capable of other applications on land and on sea.

By contrast, the central control of publicly owned research and development organisations proved unsuccessful. R & D can only be seen as an aspect of the functions it serves, and MINTECH research and development establishments were progressively transferred back to the Departments (Defence, Housing, Transport etc.) which had a responsibility for policy in those fields.

It also became clear that although mergers might produce a larger scale of production, they did not necessarily produce the investment. Profitability cannot be the only test by which manufacturing industry should be judged in the short term. Closures of manufacturing capacity designed to improve stock exchange ratings can actually accentuate a cycle of contraction which weakens the country's industrial performance and its balance of payments.

Indeed in one respect disaggregation began. The Atomic Energy Authority which had built up a massive skill first in military, and then in civil nuclear power, required a new structure that allowed its activities to be redeployed to better effect.

Thus in 1969 I recommended the establishment of a separate fuel company, British Nuclear Fuels Limited and to a separate Radio Chemical Company (TRC) which, like the GIRO and the National Data Processing Service, grew as fully fledged enterprises out of 100% publicly funded research and development.

Most important of all it became clear to me that industrial relations needed to be looked at in a completely different light. It was neither sensible nor practical to shut out from public policy-making the active contribution that skill and experience of the workforce could make in the development of industry policy. By 1968 the first beginnings of tripartitism in which management and unions worked in parallel with Government were being developed, and out of that came later policy proposals for planning agreements. This could only be meaningful as part of a conscious strategy for industrial democracy.

Policy Work in Opposition 1970-74

The years 1970-74 were spent in Opposition, as a Shadow Minister watching over the policy of the same department, under different political management; reviewing past experience and preparing future plans. The industrial policy put forward in 1974 stemmed directly from those influences.

It was based upon an analysis of de-industrialisation in Britain which had con-

tinued to take place, despite all the efforts made to check and reverse it, and much more detailed work on the development of industrial democracy.

It had become apparent that public investment would be needed on a much larger scale both to preserve manufacturing capacity weakened both by years of under-investment, and by the onset of the world slump. This could sustain and then expand employment and thus help to finance public services.

Where this public investment took place and money went in on public account there should be public accountability and an appropriate amount of public ownership.

Secretary of State for Industry 1974-75

In the 15 months that I served as Secretary of State for Industry the need for this policy was very obvious.

Some of the best-known firms in Britain, many of them employing the highest quality scientists and engineers, found themselves in difficulties and came forward for financial help.

Alfred Herbert, once the greatest machine tool company in Europe was one of the earliest to seek assistance which it received. It is perhaps paradoxical that British Leyland which might have given Alfred Herbert orders that would have kept it afloat had it been re-equipping its motor car production lines, itself ran into acute financial difficulties partly because it had not re-equipped itself when its foreign competitors had done so. The Government was also called upon to rescue British Leyland. Ferranti with its high technological content ran into similar difficulties. The National Enterprise Board was formed and a new Industry Act found its way on to the Statute Book to formalise a relationship between Government and industry that I doubt can ever be reversed.

In supporting the production that would otherwise have been lost the Government was also supporting the scientists and technologists working for these great firms, and hence maintaining a capacity which Britain must necessarily have as the foundation for its future prosperity. Industrial democracy, too, moved into the centre of public policy discussion. The debates that took place about it became very fundamental indeed and as a result the whole value-structure of industry came under scrutiny.

Whereas basic trade unionism had always seen its role as principally defensive in protecting the interests of its members, it has long been apparent that a new balance between ownership rights and employee rights needed to be struck.

The defensive role of the unions became more urgent when major companies found themselves in difficulties. The massive recruitment of highly-skilled scientific, technical and managerial staffs into the trade union movement was in part attributable to their sudden realisation of their own vulnerability as compared with those skilled and unskilled industrial workers who had the benefit of trade union support in times of difficulty.

Thus public investment in manufacturing industry, and a growing awareness of the need for stronger trade union representation led on to the development of a

new tripartitism in industrial policy. I am not here concerned to argue for any particular out-turn in the discussions now in progress about industrial democracy. Each group of employees will have to find their own way forward according to their own experience.

But the old principle that those who invest their lives in industry are entitled to at least as much control as those who invest their money in industry is beginning to catch on among more and more employees on every level – right to the top.

Whether it be through formal Board representation as in the Post Office, or in the birth of a new co-operative out of the collapse of an old company as in Meriden, or through the development of an alternative industrial strategy as by the Lucas Aerospace Workers, this process is on the move and, in my judgement, cannot be checked.

Inside the publicly owned industries too urgent discussions are also in progress. In the two new industries, Aircraft and Shipbuilding, which have been brought into public ownership recently, the issues of industrial democracy are now seen as being as important as the issues made of public investment. Some of these issues became somewhat controversial, and it was just at the moment that these policies were maturing that I was dismissed and moved to another department.

Secretary of State for Energy 1975-78

The key issues of policy in the Department of Energy were somewhat different. All the industries – bar oil – were already in public ownership. The prime tasks seemed to lie in three areas.

First to develop an open public discussion about all aspects of Energy policy so as to tap every possible source of knowledge.

Second to evolve towards a genuinely tripartite structure of control within each industry and over the whole sector bringing management, unions and consumers together under Government chairmanship.

Third to seek to resolve the questions relating to Energy and the environment especially, but not exclusively, in respect to nuclear power.

The Energy sector looks a decade or more ahead and invests to meet long-term need without suffering from the anxieties about “business confidence” which haunt the private sector.

Here scientists and technologists can be reasonably satisfied that if their projects measure up to those strict technical and economic criteria that are applied to them, they will be backed by the necessary investment.

But because some traditional conflicts of interest now fall to be resolved within a new institutional framework it does not mean that the decisions that Ministers have to make are any less complex or difficult.

Two examples from the field of nuclear policy pin-point the nature of some of these arguments.

First the choice of the new nuclear reactor which has occupied a great deal of time and public attention over the last four years.

Any Minister with the responsibilities that fall to him is soon made aware of the

massive industrial, scientific and official pressures which such a choice generates, inside as well as outside Whitehall.

The supporters of various nuclear systems were in some cases fanatically attached to a particular reactor and invested their arguments with almost theological passion.

Industrial pressures were easier to identify, but nonetheless overwhelming in the impact that they could make both in the corridors of power and in public propaganda.

I can hardly think of a better example of a technical decision being argued out in public with every move recorded and interpreted according to the interests of the protagonists.

The proposed new re-processing plant at Windscale was another nuclear issue of major importance. Here the issue was not between competing systems, but between the interests of energy policy which seem to require a growing nuclear component and the interests of environmentalists and ecologists who felt that certain issues involving safety, waste disposal, proliferation and security with its civil liberties implications had been inadequately taken into account in past policy-making.

The report of the Flowers Commission, the appointment of the Parker Inquiry, the open debate that these two events triggered off and the publication of all the relevant information enabled this decision to be brought back from the secret recesses of Whitehall, from power bases of industry or the hallowed halls of high science, and transferred to the chamber of the House of Commons for a final decisive vote.

It was a remarkable example of the vitality of Parliamentary democracy and its capacity to settle complex issues of public policy, within a framework of public acceptance.

From now on that public assent has to be sought and won for all major nuclear developments involving Windscale and the Fast Breeder proposal. New criteria for scientific and industrial and medical developments have been put upon the agenda for public policy and they can never be settled internally and secretly again. The frame of the discussion has been permanently extended.

Science and Politics at the disposal of Society

Today Ministers who exercise power and scientists and those with special expertise must increasingly see themselves as a resource at the disposal of the community and not seek to use their power or expertise to impose their will upon the community.

In politics it may be tempting to oversimplify complex issues to preserve the power of those at the top and to keep the electors from asking difficult questions.

Experts may similarly be tempted to mystify complex matters to keep the laymen at bay.

But a mature democratic society cannot work properly if the people are fed on a diet of oversimplification or mystification. What is required is clarification so that the community can be helped to distinguish between the important and the unimportant, and grasp the central issues, rather than become confused by the technicalities, so that real choices can be widely understood and wisely made.

The scientific community trained to sift the evidence, to measure the relevant factors and to analyse objectively where that evidence leads is supremely well qualified to assist in that task.

This is one way in which we can respond to Francis Bacon's admonition.

For science and technology can help to confer more power and more wealth upon the already powerful and wealthy; or it can show us ways by which we can move towards greater social justice.

It can develop techniques which help to entrench tyranny; or advance democracy. It can equip men to destroy life or to save it.

Science and technology can serve almost any end which men adopt as their objective. The values and power structure of any society determine the ends to which science is used and motivate the development of scientific knowledge itself. In this sense science cannot be entirely neutral. No scientist can be indifferent to the power structure of society within which he works, or the causes he helps to advance. None of us can shelve responsibility that way, any more than we can by assuming either that moral values are themselves determined by the progress of technology, or that the application of science in a free market economy is guided by an invisible hand which ensures that its benefits are used for the good of all.

It is very important to acknowledge that the integrity of science has not suffered in any way from the evolution of democracy over the years; despite the growing role of the Government as patron and employer.

The insistence on accurate scholarship, on public judgement of work by other scientists, on academic freedom, on internationalism and the recognition of the importance of dissent within the scientific tradition are accepted by the whole community as central to the success of scientific activity as well as making an important contribution to democracy itself.

Conclusions

May I end by setting out some of the conclusions to which my own experience has led me.

First that no society can develop its potential to the full unless it recognises the prime importance of the skills and experience of all who work by hand or brain and respect their values and their opinions.

The general case for political democracy applies with equal force to industrial life.

Industrial democracy, workers' self-management, must develop to permit the sharing of power and responsibility at the national level and at all places of work in industry – including technological work places, and those in academic institutions.

Second that a large and growing part of our national investment in science technology and industry will necessarily have to be financed by public funds if we are to return to full employment, meet human needs and protect the planet of which we are stewards. The costs of this and the financial risks involved are beyond the capacity, and the responsibilities, of private financial resources.

Third the major decisions about the way these funds are to be used must be consciously made by representatives accountable to the community.

This accountability cannot be achieved while an obsessive secrecy obscures so much official and technical decision-making and the discussions which lead up to the. Legislation to confer the right to know is now long overdue.

Scientists and engineers must expect growing pressures from their recommendations and work to be publicly accountable too and to be subject to scrutiny and criticism.

Fourth there will need to be a major shift of power between Government and governed through the strengthening of the role of Parliament, and the equipment of Members of Parliament with the necessary means for controlling Ministers. Here too scientists can put their analytical powers to good use by suggesting lines of public interrogation.

The Select Committee system has proved its worth, especially in the fields of Science and Technology, the Nationalised Industries, Public Expenditure and Public Accounts.

Select Committees for every department, reviewing and monitoring the work of Ministers, Civil Servants and the machinery of government itself, would greatly assist this process.

These changes are entirely compatible with the historic integrity and independence of the scientific tradition.

Indeed, in my submission, science can best flourish in a democratic society which shares power and responsibility more widely and in which the knowledge science has at its disposal is used to strengthen the people as a whole and allow them to harness this power to the advancement of mankind.

IWC Pamphlet No. 60

30 pence