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SCIENTISTS, TRADE UNIONS AND LABOUR MOVEMENT
POLICIES FOR SCIENCE AND TECHNOLOGY : 1947-1964

VOL II

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VOLUME II

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PART II

SCIENCE AND TECHNOLOGY POLICY AND THE LABOUR MOVEMENT:

1956 - 1964

CHAPTER 5

THE ASSOCIATION OF SCIENTIFIC WORKERS : SCIENTIFIC TRADE UNIONISM AND SCIENCE POLICY

1. Introduction

I have shown in Part I of this study the external and internal pressures to which the Association of Scientific Workers was subjected in the period 1948 to 1956. The result of these pressures was the dampening of the AScW's enthusiasm for science policy work particularly where this had broader political rather than professional implications. The continued dominance of the left-wing within the union was expressed in more conventional trade union ways such as the criticism of government economic policy rather than in the development and pursuit of overtly radical science policy.

Wooster, retiring as honorary general secretary of the Association, wrote in 1957 that:

Though our negotiation work has increased in recent years, the other aspect of the Association, namely, the application of science to the benefit of the community, has declined. We have always had a Science Policy Committee in one form or another but it has become increasingly difficult to find the people who will devote the time and thought necessary for such work.¹

The political rupture of the Cold War had prevented the growth of a succeeding generation of the scientific Left. The pre-occupation of some of the senior members with international organisations such as the World Federation of Scientific Workers and the Pugwash movement deprived the Association of some of its most eminent represen-

tatives. Bernal, for example, was president of the proscribed World Peace Council and a vice-president of the World Federation of Scientific Workers while C.F. Powell was involved with the setting up of the Pugwash conferences. Blackett was taking a very active part in the work of the National Research and Development Corporation - he resigned from the TUC's Scientific Advisory Committee in 1957.²

One effect of these other pre-occupations was the weakening of the Association's representation at the TUC. From its affiliation to the mid-1950s the Association's delegates to the annual Congresses, although small, had partly commanded attention by the scientific eminence of its members such as Bernal, Blackett and Powell. This was, however, not the case in the period from 1956 to 1964.³

In the present Chapter I outline the continuing, though more marginal, efforts of the AscW to combine its trade union responsibilities with the social responsibility of scientists. The centre of gravity, however, of labour movement attempts to form a socialist science policy had decisively shifted towards the Labour Party and away from the scientific Left associated with the Communist Party.

The international crisis of 1956 led to a renewal of internal conflict for the AscW as the politics of its leadership again came under scrutiny. This political conflict was matched by a failure to increase substantially the union's membership which remained relatively static throughout the 1950s. The science policy initiatives attempted under the auspices of the Association's newly created Science Policy Planning Committee (SPPC) also had little

impact and the committee was wound up in 1959.

The themes of the AScW's science policy activities were science education, atomic energy, fuel and power, and industrial research. These were reflected in the resolutions it moved at the TUC: University Grants (1958); Protection Against Radiation Risks (1959); Radioactive Waste Disposal (1960); Teaching of Science (1960); Industrial Scientific Research (1961); Grants to Universities (1962); Medical Research Finance (1963) and Education Facilities (1964).

The AScW also responded to the renewal of political debate concerning the national organisation of civil science in the early 1960s. However, its contribution to the debate surrounding the Trend Committee lacked the depth of its post-war contribution to the national science policy debate.

2. Politics and Organisation

2.1. Crisis

The general crisis for the communist movement in 1956 had its repercussions for the leadership of the AScW as it did for other unions dominated by the Left. There were renewed attacks on the Association's continued affiliation and support for the World Federation of Scientific Workers. And the Executive Committee's statement on the Hungarian uprising and the Suez crisis also became a focus for the right-wing opposition within the union.

As I have shown there had been consistent attempts to

instruct the Association's Executive Committee at Council meetings to arrange for disaffiliation from the WFScW. These attempts had, however, been successfully resisted and the AScW had continued to play an important part in the affairs of the Federation. At its request, for example, the AScW had written to Unesco to support the WFScW's application for the restoration of its consultative status. But the level of the AScW's support was less than was wished by the Left within the union and this had led to reference back of the WFScW section of the Executive Committee's report for 1955.⁴ This was reflected in a greater level of activity for the preparations for the Federation's 4th General Assembly which was held in East Berlin in September 1955.

The Association submitted two resolutions to the Assembly; the first welcoming the issuing of the Russell-Einstein Manifesto and the second calling on the Assembly to prepare a charter for inventors and authors.⁵ The Association also proposed that London should be the meeting place for the Western European Regional conference of the Federation in 1956. However, because of continuing uncertainties as to whether the British government would grant visas to scientists from the Eastern Bloc, the conference was held in Paris on 16th-17th February 1957. The conference had also suffered a postponement from November due to the international situation. The Association was represented by J.K. Dutton, the recently appointed General Secretary, and F. Cope. Their submissions to the meeting concentrated on professional and trade union issues affecting scientists - the regulation of working conditions in laboratories, pension

provisions and the general economic status of scientific workers in Great Britain - rather than broader political questions.⁶

In addition to its affiliation to the WFScW the Association had also developed links with a number of Eastern European scientific workers organisations. Prior to 1956, for example, exchange visits had been arranged with the Hungarian Federation of Scientific and Technical Societies. These links had been fostered in a period when the 'normal' relationships within the international scientific community had been disrupted by the Cold War. The politically sensitive nature of these links is suggested by the fact that the Association felt it necessary to decline an invitation from the East German organisation, Gewerkschaft Wissenschaft. The Association's Executive Committee issued a statement of policy on international exchanges which stressed that their appropriateness depended on the character and objects of foreign organisations corresponding to those of the AScW.⁷ A further visit by the Hungarian Federation of Technical and Scientific Societies had been due to take place in October 1956. This was prevented by the uprising and the subsequent Soviet intervention.⁸

The Association's Executive Committee met in November to discuss the international crisis. The Committee resolved to support the TUC appeal for financial help for Hungarian refugees and to circulate all branches with the TUC's appeal. And a special appeal was also made for funds to help Hungarian scientists who might come to Britain. It was decided to approach the WFScW to organise a commission to visit Hungary and report on the situation.⁹

The Executive Committee published a resolution on the international situation dealing both with the Anglo-French action at Suez and the crisis in Hungary. The statement whilst condemning the intervention in Suez was more ambiguous in its attitude to the Hungarian situation.

This statement generated a fierce debate within the union and the Executive Committee was forced to issue a further statement in December clarifying its position and emphasising its political even-handedness.¹⁰

An anti-communist campaign within the union culminated in bitter exchanges at the Council meeting in May 1957. The retiring President, Prof. D.M. Newitt had attempted to diffuse the conflict in an address in which he asserted that the Association had no political views - and particularly not the views attributed 'by our friends in the Press'.¹¹

A resolution from Cray Valley Branch defended the Executive's position. It stated that:

Council views in the most serious light the political issues made out of the Executive Committee's statements on Hungary and the Middle East by certain branches and deploras action taken by those branches which resulted in adverse publicity for the Association in the national press.¹²

The resolution's supporters argued that a deliberate campaign had been initiated by some branches to suggest that the Executive's statements had reflected the communist sympathies of a section of its members. The resolution was carried by 83 votes to 54 with

26 abstentions.

During the debate allegations had been made that 'some present had been told by their communist masters what to say at the meeting'.¹³ Dutton took strong exception to this charge:

I have been named in the press as a communist. Whether I am or am not, I object to the statement; I carry out instructions from the Executive Committee.¹⁴

And the rancorous exchanges were only brought to an end by the passing, without dissent, of a vote of confidence in Dutton. An editorial comment in the Times on these proceedings reflected the nature of the press attacks on the ASw's leadership:

The union has been for many years under strong communist influence but recently there has been a campaign to eradicate it. Delegates yesterday, including the general secretary, objected to officials of the union being labelled as communists. Everybody knows that officials of a union have considerable influence within it, and everybody knows that the C.P. uses its members in the unions to further its own policy, which it in turn derives from the Soviet Union, but apparently such evidence could be ignored.¹⁵

A further indication of the ignoring of such 'evidence' was the defeat of a challenge to the Association's continued affiliation to the WFSw.

A resolution put by four branches (Bristol No.2, Blackpool and Fylde, Liverpool University, and Manchester University) called on the Executive Committee 'to discontinue affiliation to the World Federation of Scientific Workers'.¹⁶ J.P. Bentley

(Manchester University) the proposer argued that the Eastern European affiliates of the WFSw reflected the political character of their communist governments. The Association through its continued affiliation facilitated 'the propagation of ideas and methods with which Western institutions did not agree'. P.J. Alder (Liverpool University) pointed out that the Federation was an organisation proscribed by the TUC and as such constituted a barrier to the recruitment of members by the Association.¹⁷

The response of the resolution's opponents was to argue that the Federation provided a valuable means of contact and collaboration with scientific workers with different ideologies and was an opportunity to promote the ideas of British trades unionism. Dr. Tordai for the Executive Committee argued that for the Council to approve disaffiliation would be a purely futile gesture. The resolution was defeated by 86 votes to 60 votes.¹⁸

The political struggle within the union was further reflected in a resolution which sought to advise area committees to discourage the election of communists to posts of responsibility. A negating amendment suggested that the interests of the Association would be best served by ensuring that those elected 'are members genuinely wishing to serve the Association and to advance its declared aims'.¹⁹

Although the various attempts to circumscribe the influence of the Left were defeated a further effort was made at the 1958 Council meeting to implicate the Executive Committee in a 'communist conspiracy'. A.C. Mason for the East Malling Branch

(which had been one of the branches which had consistently campaigned for the disaffiliation from the WFScW) moved a resolution calling for candidates to the Executive Committee to submit election addresses indicating their political views. Mason alleged that:

...a considerable number of the Executive Committee regularly meet together before the full Committee and go through the agenda to decide how to handle the business of the Committee to gain political ends.²⁰

F.B. Cope, an honorary general secretary, suggested that such a procedure would in fact encourage Communist Party members to be dishonest. He would not be prepared to disclose his own political views - not so that he would be elected - but to prevent that information perhaps being given to his employer. 'Next business' was moved and no vote was taken on the resolution.²¹

In spite of these continuing internal political wrangles the AScW remained firmly aligned with the left-wing of the trade union movement. This was evident from a number of interventions by the Association's general secretary, John Dutton, in major TUC debates on general economic policy. At the 1963 Congress the union sponsored a resolution on wages, prices and profits which opposed any incomes policy which imposed wages restraint without at the same time limiting corporate profits and capital gains:

This Congress views with concern the advocacy in the National Economic Development Council Report "Conditions favourable to faster growth" of policies to ensure that wages, salaries and profits rise substantially less than in the past. I believe that all past experience of

such policies indicates that no real limitation is put on profits while strict limitations are imposed on salaries and wages, particularly in the public sector.²²

Dutton, with others on the left, was critical of the General Council's enthusiasm for the newly created NEDC. It was criticised both for its lack of power and advisory status and more substantially that its composition ensured that its policies would reflect merely the lowest common denominator of agreement between trade unions and employers. The NEDC had considered the relationship between investment in research and development and economic growth but the AScW's leadership did not appear to consider it a useful forum for the discussion of science policy issues.

During the debate Dutton said that:

We are...in favour of the planning of economic development, and I personally would hope that a Labour Government would give essential priority to such planning, and if the fulfilment of a real plan for the national economy on socialisation, calls for a measure of intelligent restraint on our part, well and good; but while the greater part of industry and land itself is privately owned, any restraint on our part, we say, must be accompanied by enforceable limitations on profits and capital gains by taxation, price controls and any other necessary means. This is the only way in which the formula of restraint on the part of trade unions which will not simply increase profits can be put into practice.²³

Similarly at the Congress of 1964, on the eve of the election of the Labour Government, Dutton was again conspicuous in support of a resolution advocating economic planning and opposing wage restraint. The resolution argued that 'trade union negotiations with employers backed by strong trade union organisation, and free from arbitrary Government interference, are the most effective medium for improving

living standards and working conditions'.²⁴ The resolution was moved by J.E. Mortimer for the Technicians' union, the Draughtsmen's and Allied Technicians' Association (DATA) and called for cooperation between the trade union movement and a Labour Government to plan industry in the interests of the community and not for the benefit of private monopolies. It envisaged the planning of the economy based on the extension of public ownership and with popular control with trade union participation.

The only acceptable form of incomes policy would be one which was consciously designed to redress injustices in the existing wages structure and Congress 'would have to establish its own system of priorities to achieve these aims'. Dutton remarked that:

If scientists in private industry would realise the need for trade union organisation, there would not be quite such a need for complaint about the way they are treated and the salaries they are paid. And if the scientists working in the universities would make their trade union organisation more effective and affiliate to Congress, then the rate of the 'brain drain' might be decelerated.²⁵

2.2. Membership and Organisation

The political crisis within the AScW only served to emphasise its failure to recruit new members in a period of aggregate growth in scientific and technical occupations.²⁶ The AScW's membership between 1950 and 1955 had remained relatively stable at between 11,000 and 12,000 with recruitment only just matching membership losses. This had been in spite of various recruitment drives

and attempts to modernise the union's image. However, in its Annual Report for 1956-57 the Executive Committee was able to observe that membership loss was at its lowest level since records had been kept.²⁷ This might have signalled an upturn in the fortunes of the union in line with the steady rise in its potential membership. But the aftermath of the internal dissension revealed by the Council meeting of May 1957 and its attendant adverse publicity hardly provided the conditions for growth. In 1957 the union's membership dropped to its lowest level since the Second World War at 10,874.²⁸

The AScW was unable in the remaining years of the 1950s to raise its membership above 12,000 whilst ASSET, for example, achieved an increase in membership between 1956 and 1960 of 16,532 to 22,945.²⁹ It was this failure to grow which partly underlay the continuing decline in science policy activities of the late 1950s. The attention of the union's leadership was increasingly focused on industrial matters. The AScW's main concentrations of membership continued to be in the engineering industry, the chemical industry, the National Health Service and the universities. Although the level of membership remained static the pattern of recruitment continued to emphasise the union as now principally representing technicians. The union had two grades of membership still but recruitment to Section II for unqualified technical workers continued to predominate over Section I for qualified scientists and technologists.³⁰

In its pamphlet The Rate for the Job (March 1959)³¹ the Association attempted to bring up to date its arguments for the unionisation of scientific and technical workers which it had

advanced a decade earlier in The Economic Status of the Scientific Worker.³² It briefly reviewed the impact of science and technology on Britain's economic and social development giving particular emphasis to the increases in productivity resulting from technological innovation. This, however, formed the prelude to two arguments; firstly, that in the context of their contribution to the national economy the majority of scientific and technical workers were relatively underpaid. This argument was supported by the presentation of detailed evidence of salary scales for all grades of technical workers represented by the AScW. Secondly, the pamphlet drew attention to the national need for more scientists and technologists. It pointed out the obstacles, especially to working class children, which the grants system and selection at eleven constituted to wider access to higher education.³³ A further factor contributing to the shortage was the relatively lower status accorded to scientific and technical workers in comparison to other professional and white-collar workers. For example, the civil service administrative class, which was drawn almost exclusively from non-scientists, enjoyed salary scales which were superior to those of the scientific civil service.

The dissatisfaction of technical workers with their general economic position was increasingly expressed in the early 1960s. This was reflected in a dramatic change in the fortunes of the Association with a rapid growth in membership which was comparable to its period of rapid growth during the Second World War. From a membership of 12,000 in 1960 the Association grew to a membership of over 20,000 in 1964. This was part of a more general

trend of union growth amongst white-collar unions.³⁴

The political divisions which had to some extent inhibited the union's growth in the mid-1950s no longer had the same prominence and were offset by the pressures of the new economic circumstances. The Association was active with other white-collar unions in opposing the Conservative Government's imposition of a 'pay pause' policy. In August, 1961, for example, the union's Executive Committee issued a statement saying that:

We believe that science and technology are the essential basis for expansion and are at present insufficiently rewarded to attract enough of the talents of our young people, and that our special task is to negotiate higher standards for scientific workers.³⁵

The statement went on to declare that the Association would, despite the Government's policy, continue to press salary claims already made on behalf of members both in industry and the public service. It declared that the Association:

...condemns utterly the Chancellor's interference with the negotiating machinery operating in the public services and with established arbitration procedures...It will combine with all other trade unions and staff associations who are prepared to resist the Chancellor's policy and to campaign for the restoration of proper negotiation and the determination of salary claims on their merits.³⁶

The Executive's position received strong support at the Association's Council meeting in May 1962 with a unanimous resolution opposing the 'pay pause'.³⁷

However, internal opposition remained to broader policies which had been adopted by the union. For example, the ASaW had supported

the renunciation of the use of nuclear weapons by Britain as a step in the disarmament process. At its Council meeting in 1961 the Association by a vote of 74 to 54 had declared its opposition to the U.S. Polaris submarine base at Holy Loch and had instructed the Executive Committee to support the public campaign for the removal of the bases.³⁸ Opponents of these policies had attempted to have the issue of nuclear disarmament submitted to the whole membership in a referendum. This move was defeated. Similarly a motion was defeated which urged:

That Council believe the association should limit its activities to matters relating directly to the terms of employment of its members. In particular, it should cease to express opinions on political matters e.g. nuclear disarmament.³⁹

The growth of the Association also underpinned a renewed emphasis on science policy in this period, for example, with the publication of its policy statement Science in Government and Industry (January 1962) and the presentation of evidence to the Trend Committee. However, its policies in this field lacked the radical edge of earlier years.⁴⁰

Many new branches of the union were established to accommodate the increased membership either around a nucleus of existing members or as a result of setting up completely new organisations. In a survey of branches conducted in 1966 the reasons given for the formation of new branches related to dissatisfaction with working conditions and salary scales.⁴¹ Typical of the branches established in this period were, for example, at Associated Electrical Industries (High Openshaw), British Drug Houses (Poole) and the

British Ceramic Research Association which organised principally laboratory assistants and technicians but also some senior scientists and engineers. In some cases special circumstances led to the formation of new branches. For example, a group of technicians formed an AScW group at the Bradford Institute of Technology in response to its proposed conversion to university status. The technicians felt that AScW was better equipped to represent them in these new circumstances as compared with their existing union NALGO. Typical of an area branch organised by an old established member was the Brighton and District Branch which was formed in 1963 by bringing together scattered members. Between 1963 and 1965 the membership of this branch rose from 15 to roughly 150. Primarily it was composed of university, technical college and medical laboratory technicians.

Similar growth was also experienced by older established branches. For example, Bristol Central Branch increased its membership from 38 in 1963 to 140 in 1966. Cambridge Health Services Branch doubled in size from 1961 to 1964, from 73 to 140 members. The branch had been established in 1951 with a nucleus of 16 members after a split on political grounds from Cambridge Senior branch. Three members had resigned from the union because of the left-wing domination of the Senior Branch. They had, however, agreed to rejoin on the understanding given by Ben Smith and John Dutton that they could try and form a branch of their own; this had become the Cambridge Health Services Branch which was a mixed branch organising technicians and scientists working for the National Health Service and the Medical Research Council.

The increased mood of militancy among technical workers in the early 1960s was illustrated by the fact that AScW conducted its first major strike in 1962.⁴² The strike took place at British Nylon Spinners at Gloucester and arose from the refusal of the management to recognise AScW. The nature of the dispute was given a public airing by a collective letter from Paul G. Esspinaae, the union's President, and Vice-presidents Lord Boyd Orr, E.J. Russell, Harold Jeffreys, C.L. Oakly, J.D. Bernal, C.F. Powell and W.A. Wooster to the Times.⁴³ Several members of the Association had been suspended and threatened with dismissal after taking token action to support the unions right to represent the company's scientific and other staff employees in negotiations on conditions and salaries. An official strike lasting several months had resulted until a compromise was reached which, nevertheless, conceded AScW's basic demand for official recognition.⁴⁴

In this, its first official dispute, the Association had received the support of a number of unions through its membership of the Confederation of Shipbuilding and Engineering Unions.⁴⁵ The benefits of closer relationships with appropriate unions for joint negotiations was again on the agenda. A motion at the Association's Council meeting in 1962 proposed federation with the two other unions representing technical staff in the private industrial sector, ASSET and DATA. The Executive Committee had advised against the idea of amalgamation on the grounds that it would not get the required $\frac{2}{3}$ support from the membership.⁴⁶ (This view partly reflected the failure of its negotiations to amalgamate with ASSET in the early 1950s).

Four unions with members employed as technicians began to hold talks on developing closer working relationships. These included DATA, ASSET, the Society of Technical Civil Servants and the AScW.⁴⁷ It was these moves which were to break the ground for the merger which eventually took place between ASSET and AScW to form the Association of Scientific, Technical and Managerial Staffs in January 1968.⁴⁸ The logic of the merger sprang from the continued growth of both unions; their combined membership had reached 80,000. The major obstacle to amalgamation in the 1950s had been AScW's unique role in promoting a distinctive view of the social relations of science. By the mid 1960s the base for this within the union had been eroded by the increasing domination of collective-bargaining issues.

3. Science Policy : The Lost Initiative

The failure of the 'constructive use of science' campaign to raise the level of activity within the Association or to achieve any significant public impact resulted in the replacement of the Science Policy Committee by a 'streamlined' Science Policy Planning Committee (SPPC) in 1955.⁴⁹ A sub-committee of the Executive Committee had been set up following criticisms of the Association's science policy work at the 1955 Council meeting. Roy Innes, in particular, had criticised the old Science Policy Committee for its lack of leadership.⁵⁰ Prof. D.M. Newitt, the President of the Association and chairman of the sub-committee, recommended the formation of the new committee to plan science policy work. This was to be composed of specialists in the main fields of policy with

the added representation of appropriate EC members. The aim would be to concentrate science policy work on subjects of current importance. Thus, as the AScW Journal put it 'the old Science Policy Committee, its health for years undermined by chronic indigestion, had a quiet burial'.⁵¹

Newitt was appointed chairman of the SPPC with R.G. Forrester as Secretary. Three working parties directly responsible to the committee were established; these were Automation, Scientific Education and Manpower, and Fuel and Power. The working party on automation was to prepare speakers' notes on the subject 'as a matter of priority' in view of the widespread concern within the trade union movement. The fuel and power working party would be responsible for the revision of the Association's existing policy in this area. As in the case of automation the topic of education and manpower was also under discussion by the TUC and thus the AScW's policy needed to be carried forward.⁵²

The Atomic Sciences Committee which had been in existence for some ten years continued to function separately although reporting to the EC and the SPPC. The responsibilities of this committee included advising on 'any technical, social or political development in the field of atomic energy which might influence any aspect of the union's work'.⁵³ In addition to the three working parties and its links with the Atomic Science Committee the new SPPC had to liaise with the Association's representatives on the Joint Parliamentary and Scientific Advisory Committee (JPSAC). This body had emerged as the principal parliamentary forum of the scientific and technical trades unions.⁵⁴

The SPPC met five times in 1955 and four times in 1956 and organised an enlarged meeting involving Area Science Policy Officers. The EC's annual report for 1957, however, noted that:

Many of the currently accepted catchwords of the day regarding the importance of science and the shortage of scientists were foreshadowed by the Association's policy statements ten years ago. Yet the recognition this merits has not been secured. It has to be said that this side of the Association's work has proceeded rather slowly.⁵⁵

Similarly the links between the TUC's Scientific Advisory Committee and the AScW's Science Policy Planning Committee remained weak in spite of Newitt's membership of both committees. AScW activists were critical of the Scientific Advisory Committee in that its role was confined to providing advice on scientific issues as and when called for by the General Council rather than 'studying new developments in the scientific and technical field as affecting conditions of workers in industry and drawing the General Council's attention to scientific matters that could be taken up'. However, the Association was resigned to the fact that no change could be expected in the immediate future in the role and composition of the committee and that they should 'make a practice of passing to the TUC our comments on relevant matters, such as our views on the Report of the ACSP'.⁵⁶ For example, the SPPC had endorsed the view in the Advisory Council report in 1958 concerning the inadequacy of government expenditure on civil research and development. The report emphasised the extent to which scientific resources were committed to defence research; $\frac{2}{3}$ of total expenditure of private industry on research and development in 1955-1956 (£185 millions) was provided by government mainly through the Ministry of Supply.

The SPPC's view was that scientific unemployment would result from a reduction in defence work if the turnover was not planned well in advance.⁵⁷

The career of the SPPC's working party on automation was short-lived in spite of the widespread and important debate which was taking place over its implications with the trade union and labour movement. The working party had prepared a draft discussion document in preparation for the Association's 1957 Council meeting. This was published in the AScW Journal and comments sought from the membership generally.⁵⁸ However, by the time of the Council meeting only two contributions to the discussion had been received. And in view of this apparent lack of interest the working party was wound up and the issue dropped from the SPPC's agenda.⁵⁹ Thus, the Association issued no policy statement on automation.

The working party on scientific education and manpower likewise had only a brief existence in its original form.

3.1. Science and Education

Education and manpower policies had become by the mid-1950s an important concern of government with the publication of the White papers on Technical Education (1956) and Scientific and Engineering Manpower (1956). A central issue in this debate was whether the country should look to the universities or the major technical colleges for the increasing numbers of scientists and technologists needed. The TUC in 1956 had published a major policy statement, Technical Education which advocated a programme of major expansion

for the technical colleges.⁶⁰ An AScW resolution to the 1956 TUC annual conference criticised the conservative Government's approach for its lack of overall planning and failure to define clearly the objectives of its policy.⁶¹

The Association's advocacy of a coordinated expansion of scientific and technical education united its interests as a scientists' and technicians' trade union with its broader aims to create a national and institutionalised science policy. The working party on scientific education and manpower produced a supplementary report for the Association's Council meeting which summarised the information available from published sources on national manpower needs, the expansion of educational facilities and the need to take further urgent steps. In spite of the fact that the AScW had been a pioneer in this (for example, in the work of its Universities Advisory Committee) there was again a disappointing lack of response from the membership generally.⁶²

In 1948 a TUC conference resolution, 'Access to higher education', moved by the AScW had called for the fullest implementation of the Barlow Report (1946) and the Percy Report (1944).⁶³ In 1953 the Association had issued A Policy for Technological Education in which it had reflected its appreciation of the centrality of technological education (as distinct from basic science). The policy proposed the creation of a 'technological university' and the extension of existing university departments of technology. This was to be combined with increasing the use of technical colleges. To achieve this end the statement proposed a new institutional mechanism. It argued that it was essential to

place the financial responsibility of selected major technical colleges on a body of equivalent standing to the University Grants Committee so that technical colleges might become responsible degree granting institutions either through affiliation to universities or independently. The Association's policy also argued for improving facilities for university research as well as strengthening contact between industry and the universities (for example, through post-graduate courses and vacation courses).⁶⁴

The Association's proposals were criticised in the columns of Nature for lack of specificity on how many technical colleges should be developed, on student numbers and the financial resources involved. Similarly the lack of specific recommendations on the content of higher technological education was also criticised.⁶⁵

Although the results of the working party's efforts to develop this aspect of the Association's policy had been disappointing it was felt to be too important to allow to lapse. In July 1957 the Science and Education Committee was set up as a sub-committee of the EC. This was to coordinate education work previously undertaken by the Universities Advisory Committee and the Science Policy Planning Committee. The terms of reference included advising on the training of scientists, the place of science in general education, the changing pattern of needs of scientists, technologists and technicians, and the preparation of material for campaigns on these issues both within and outside the Association.⁶⁶

Roy Innes was appointed as secretary of the Science and Education Committee and it was largely through his energetic activity

that the Association was able to present to its Council meeting in May 1960 comprehensive proposals for a policy on science education.⁶⁷ The proposals argued for the crucial importance of the teaching of science in the school curriculum. The concern to make science a central subject throughout the school lives of all children reflected the tone and terms of the 'two cultures' debate which had been initiated by Snow's Rede lecture of 1959. However, the objective of propagating a general understanding of science was linked to egalitarian aspirations. A major criticism made of higher education was that, historically, educational opportunity had been restricted by both social class and gender. The Association's objective was to greatly expand educational opportunities for children beyond the age of 15. This expansion was linked to the need to overcome the potentially critical shortage of scientists and engineers.

The policy spelt out the need to achieve a far larger annual output of scientists, engineers and technicians than the government's stated targets. It stressed the economic and social penalties for underestimating the country's needs. And in order to meet these objectives a long term education policy would be required in which (a) comprehensive system of education was dominant; (b) the school leaving age was 16; (c) the content of school education was fundamentally reviewed; (d) 'county' colleges and day continuation colleges would be developed; (e) there was a national plan for the coordinated development of universities, technical colleges and teacher training colleges.⁶⁸

The specific proposals on science education were also placed in the wider perspective of an overall national policy for the planning of scientific and technological development. The statement argued that:

It is essential to ensure that the scientists, technologists and technicians that are trained are fully and efficiently used. Several weaknesses exist at the present time, including a lack of clear policy by the Government on the application of science. A Scientific and Technical Planning Board should be set up in order to give better direction to our scientific effort.⁶⁹

This criticism of the laissez faire approach of the newly appointed Minister of Science, Quentin Hogg, reflected the fact that many of the AScW's science policy activists (Innes among them) were involved in the discussions of the Labour Party's science advisory groups. And the proposal, for example, to set up a Scientific and Technical Planning Board was incorporated in the Labour Party's Science and the Future of Britain (March 1961).⁷⁰ The Association also raised its education proposals at the 1960 TUC with a resolution, 'the teaching of science' which stated that:

...the teaching of science should have a more important place in all our schools and universities, and that our country must achieve a greatly increased output of technicians, technologists and scientists, (Congress) views with dismay the present crisis in the supply of science teachers...⁷¹

The resolution called on the Government immediately to improve the salaries and conditions of work of teachers and lecturers, drastically to improve the teaching of mathematics and science in the training colleges, to initiate a special programme to encourage scientists and mathematicians from other fields of work (including

many more married women) to teach in schools and increase the supply of science and mathematics teachers.

The AScW was in fact responsible for initiating a joint campaign with teachers' organisations to try to remedy the shortage of science teachers. A conference on Science and Education was arranged by the AScW in 1961 in conjunction with the Association of University Teachers, the Association of Teachers in Technical Institutions, the National Union of Teachers and the Science Masters' Association.⁷² And although a number of deputations put the arguments before the Minister of Education there was little immediate action taken.⁷³

The Association also pressed a number of other resolutions which reflected the concerns of some of its education constituency. A motion on grants to universities in 1962 condemned the Government for insufficient funding of the university sector. And called on Congress to press for an increase in finance for the universities to enable them both to expand teaching and research and to pay salaries comparable with those paid elsewhere in the public service.⁷⁴

In 1964 the Association moved a resolution which welcomed the decision to raise the school-leaving age to 16 as recommended by the Newsom Report. However, it went on to argue that:

...there is an urgent need for a vast improvement in scientific and technological education in these schools, both as a part of general education and in order to make it possible for far more children (particularly girls) to take up careers in science.⁷⁵

The AScW's arguments and resolutions on science education were readily accepted by Congress since they largely fell within the existing boundaries of TUC policy on education.⁷⁶

Similarly the Association's work on the technical aspects of fuel and power policy were broadly in line with the policy of the TUC.

3.2. Fuel and Power

The third of the science policy working parties established in 1955, dealing with fuel and power, was again concerned with the revision and development of existing policy. The memorandum A Scientific and Technical Service for the Fuel and Power Industries (1946) had formed the basis for contributions to the TUC's discussions in this field and Labour's Minister for Fuel and Power in the aftermath of nationalisation. In the early 1950s the Association's Fuel and Power Sub-committee had also contributed to the preparation of evidence for the TUC's submission to the Ridley Committee.⁷⁷

The new working party, however, had considerable difficulty in gathering information and opinion to undertake a comprehensive revision of policy.⁷⁸ The principal contributions to the working party were drawn from AScW members at the National Coal Board and from the Association's Atomic Sciences Committee. In 1960 a new policy statement, A National Fuel and Power Policy, was eventually prepared and issued.⁷⁹

This was a wide ranging policy statement taking in the coal industry, the electricity supply industry, gas and coke, the oil industry, transport and planning. The document established a number of criteria by which existing sources of power might be deployed in the best interests of the national economy. These criteria included the social consequences of the inevitable technical changes, the needs of consumers and the necessity for coordination. On these criteria the main emphasis of the statement was on the development of efficient coal production founded on increased expenditure on scientific research in the industry. The market for coal, it was argued, should be sustained by direct state intervention. Government policy should be to ensure that the generation of electricity was primarily based on coal. Oil should only be used to meet short term variations in fuel requirements.

The statement also recommended that no further nuclear power stations of the Calder Hall type, beyond those already planned, should be constructed while encouragement was given to the development of new and more economical types of station:

The number of nuclear power stations to be constructed should be limited to that necessary to permit the requisite constructional and operating experience to be obtained from the various types of reactor as they become available for large scale testing. This may need modification, of course, if it should develop that advance designs depend upon a supply of plutonium to be provided by the Calder Hall type.⁸⁰

An appendix to the statement presented an assessment of the contribution to be made by nuclear power took into account a number of

factors including the high investment costs as opposed to fuel costs, the possibility of the development of the 'fast reactor', the interlocking nature of the defence and civil nuclear programmes and the need for a balanced nuclear power programme. It concluded that:

...any agreement to abandon nuclear weapons or even to suspend their development could lead to very important gains for the nuclear power industry.⁸¹

The statement proposed an overall planning organisation for the fuel and power industries which would continually review national needs. This planning organisation would be composed of representatives from the relevant industries, the Ministry of Power, trades unions and independent scientists and economists. A Joint Board, responsible to this planning organisation, would be charged with coordinating and expanding research in the coal, chemical, gas and electricity industries.

A major focus of criticism was the dependence of Western European countries on oil imports. The policy statement argued that Britain's dependence on oil was potentially dangerous to its national economy. The oil industry was regarded as an international industry dominated by a few large producers with price fixing arrangements typical of a cartel.

The statement argued that one response to the challenge of oil should be a substantial increase in technological research into coal utilisation. It was critical of the fact that the National Coal Board had been given little responsibility for utilisation. Proposals were put forward for the formation of a National Coal Chemical Board and for the expansion of the British

A forum for the discussion of AScW's proposals was provided by the Joint TUC/Labour Party Committee on Fuel and Power which was formed under the chairmanship of Professor Newitt to discuss the implications of scientific and technological development for the fuel and power industries.⁸³ The report of this group followed the general line which had been laid down in the AScW's policy statement. This was particularly evident in its emphasis on the coal industry as the 'keystone of a national fuel policy'. Its most emphatic recommendation was for a 'coordinated comprehensive fuel and power policy' in which the interests of individual industries would be subordinate to nationally formulated interests and objectives. The Minister of Power would have the power to intervene through pricing mechanisms to stimulate or dampen down the demand for particular fuels. Collaboration rather than competition would regulate the growth of these industries.⁸⁴

However, despite the considerable support of the TUC for this approach, it was not adopted by the Labour Party.⁸⁵

3.3. Atomic Sciences Committee

The final area of policy which continued under the auspices of the SPPC was that of atomic energy. The Association had pioneered the criticism of Britain's independent military development of atomic energy and the issue of radiation hazards whether from military or civil sources.⁸⁶ As the 1950s progressed the issue of the military use of atomic energy increasingly moved into

the political arena. The Atomic Scientists' Association, essentially in response to the pressures of the Cold War, had adopted a position of neutrality confining itself to the discussion and popularisation of the scientific and technical aspects of atomic energy.⁸⁷ In contrast the AScW through its Atomic Sciences Committee had sustained a more critical position attempting to address the social and political implications.

Following the re-organisation of the Association's committee structure in 1954 the Atomic Sciences Committee had been reconstituted as a sub-committee of the EC under the chairmanship of E.H.S. Burhop with D.G. Arnott as secretary. The EC noted that:

It is satisfactory to be able to report that, following reorganisation, the committee will be able to meet any demands on it in the immediate future. The increasing impact of nuclear energy on industry increased the importance of the committee within the Trade Union movement generally as there is no other committee which covers this field.⁸⁸

The Association had expressed its support for the civil nuclear programme, for example, in its resolution on nuclear power moved by Burhop at the 1955 annual conference of the TUC. Its policy was concerned with achieving a shift of effort and resources from the military application of atomic energy to its peaceful exploitation.⁸⁹

D.G. Arnott represented the Association at the Geneva conference on the peaceful uses of atomic energy in 1955 which was the first of the United Nations' 'Atoms for Peace' conferences. Arnott's report of the conference was subsequently published in conjunction with the Labour Research Department.⁹⁰

The Atomic Sciences Committee had also published The Peaceful Uses of Atomic Energy. Nature compared this pamphlet favourably with the Central Office of Information's Nuclear Development and the Government White Paper A Programme for Nuclear Power.⁹¹

An important theme of the Geneva conference had been that of radiation hazards. The question of occupational radiation hazards was an issue which the Association was instrumental in bringing to the attention of the TUC with two resolutions: 'radiation hazards' (1956) and 'protection against radiation risks' (1959). The Association's aim was to promote comprehensive legislation to control the use of radioactive materials. This policy was adopted by the TUC and the AScW's specific recommendations ultimately were influential in the formulation of codes of practice by the Ministry of Health.⁹²

The Atomic Sciences Committee also made its contribution to the growing movement for unilateral disarmament in Britain with the publication in 1958 of Nuclear Nightmare. Why nuclear weapons are so dangerous.⁹³ However, a new focus for scientists' political action on these issues was provided by the creation of the Scientists' Group of the Campaign for Nuclear Disarmament. This attracted older AScW activists such as N.W. and Antoinette Pirie. Science for Peace had disintegrated under the impact of a political split between its communist supporters who opposed the unilateralist position of CND and the Labour Left who tended to support CND.⁹⁴

The Association's science policy work was a diminishing portion of its overall activities. The practical support of the membership and the theoretical coherence which had sustained its earlier positions was no longer evident by the end of the 1950s. The pre-occupations of the overwhelming majority of the membership appeared to be with the basic trade union and professional issues rather than the broader questions raised by the social relations of science. This situation was signalled by the Executive's decision in 1959 to dissolve the Science Policy Planning Committee and to deal, henceforth, with science policy directly themselves.

This did not, however, mark entirely the Association's withdrawal from the arena. It participated in the 'science policy debates' of the early 1960s and, for example, presented evidence to the Trend committee.

4. The AScW and the Science Policy Debates

During the late 1950s there was a significant shift of government expenditure from military research and development to the civil sector and an increasing emphasis on the need to increase research expenditure in private industry. This contrasted with the period 1951-1957 in which most governmental research and development expenditure was on defence projects and the costly and prestige fields of civil research and development (such as nuclear energy and aviation) - a situation which AScW had documented and criticised.⁹⁵ Increasingly in the context of international competition the evidence was that this large research and development effort was not paying off in terms of economic growth. By 1961-1962 these problems (which had already been under discussion by the Labour Party's Science Advisory Groups) emerged more fully into the public domain.

The crux of the problem was the question of priorities; expenditure on research and development had reached such a magnitude that the rate of expansion could not be maintained without some attempt to coordinate and rationalise the increasing demands on research budgets. Vig has pointed out that:

It was the scale and techniques of government support for civil research and development in private industry which became the focus for much of the science policy controversy, and which led to the principal innovation of 1965 - the replacement⁹⁶ of DSIR by the Ministry of Technology.

These concerns were evident on both sides of industry. For example, the Federation of British Industries' Industrial Research Committee

published a survey, Industrial Research in Manufacturing Industry 1959-1960 (December 1960) which revealed gross imbalances in the distribution of research effort in British industry. Excluding aviation four fifths of research and development and scientific manpower was spread over only six industries which represented less than half of the total employed in manufacturing industry.⁹⁷

In January 1962 the Executive Committee of the AScW issued a policy statement, Science in Government and Industry, which also identified a number of imbalances in the distribution of research and development effort.⁹⁸ These included the continuing imbalance in resources given to military as opposed to civil research and development, imbalances between industrial sectors and imbalances as between support for the physical as opposed to the biological sciences. The EC's statement followed on from a resolution sponsored by the Association at the TUC annual conference in 1961. This had expressed concern at 'the limited amount of research undertaken in industry vital to the national economy' - including the nationalised industries.⁹⁹ The resolution called for substantial increases in government expenditure for research in the nationalised industries. In his moving speech L.H. Wells presented figures for 1958-1959 for expenditures of research and development. Of the total expenditure of £480 millions, £250 millions were spent on military research; of the £230 millions spent on civil research and development £100 millions came from government sources. He also presented figures for various industrial sectors showing the percentage of net output spent on research and development. For the aircraft industry this was 36%

for precision instruments 10%, for textiles 0.9%, for wood, paper and paint 0.3%, for metals 1.2% and bricks, glass and cement 1.1%. The situation was no better in the nationalised industries; for example in the coal industry only 0.74% of net output was spent on research and development.¹⁰⁰

The resolution was remitted to the General Council for further discussion and consultation with the AScW.

The General Council discussed AScW's resolution in November 1961 and reservations were expressed about criticising government expenditure on research in view of the rate of increase over previous years and in view of the absolute sum now spent. The General Council agreed with its Scientific Advisory Committee that the 'limiting factor was shortage of qualified manpower'. The difficulty was of assessing the adequacy of research in different industries simply on the basis of sums spent. The nationalised industries had kept pace with other industrial sectors and there was little apparent dissatisfaction from the industries or unions on this issue. After these preliminary discussions the General Council issued an invitation to the AScW for further consultation in March 1962.¹⁰¹

In the interval the AScW issued its statement Science in Government and Industry. In the area of governmental responsibility for scientific research the statement criticised the Ministry of Science for failing to fulfill a planning role in assessing the research needs of the economy. It argued for a strongly interventionist role for the state in the sponsorship

of research in the private sector. It used the government's own statistical surveys of research and development expenditures to criticise levels of expenditure in the private and nationalised industries. (The argument and figures which had been used by Wells in his speech to Congress).

The AScW's Executive Committee proposed that targets should be established for the nationalised industries and where it could be shown that those targets could not be met from revenue, special grants for research should be made. Special steps should also be taken in the case of industries such as textiles and shipbuilding which were well behind the national average in the percentage of their net output spent on research and development. These measures would include incentives to companies to spend on research, strengthening the Research Associations and, if necessary, placing development contracts for specific projects with selected firms.

In March 1962 AScW representatives met the TUC's Production Committee to present their views on civil science research policy. However, the TUC's position was that AScW had not presented its case in a specific enough way. A more detailed assessment of research needs was required than the general case advanced by the Association. The Association's representatives agreed but argued that only the government had the resources to do that. However, they accepted a suggestion that they should inform the General Council about any particular areas of research that it regarded as vital. The General Council's conclusion was that it did not think that an approach to government on research generally was appropriate.¹⁰²

The Association's policy on science in industry and government also came under attack in an editorial in Nature where the EC's statement was described as a 'somewhat superficial policy statement'.¹⁰³ Although the statement implied that government expenditure was based on an insufficient appreciation of the country's research needs no supporting evidence was advanced and no examination made of the choice of research projects. The statement was also convicted of assuming that expenditure on research in itself ensures development and successful application. Nature criticised the Association's assumption of the correctness of state intervention rather than allowing 'the process of competition to take its full course'. The editorial also defended the Ministry for Science arguing that the Association had given no justification for the assertion that it was not fulfilling its 'proper' functions. These criticisms whilst reflecting Nature's own ideological position in this period, nevertheless, drew attention to the need for a sounder quantitative and qualitative basis for science policy.

J.D. Bernal in an address to the North West Area conference of the Association in September 1962 returned to the theme of industrial scientific research. He argued that:

It is difficult even for government officials or industrialists to claim ignorance of the weakness of science in Britain: it has been well documented by the publications of the Parliamentary and Scientific Committee and, on the economic side, by the works of Carter and Williams.¹⁰⁴

Bernal, however, felt that a 'deeper analysis' was needed and that organisations such as ASw and IPCS were the most appropriate to undertake the task. For Bernal the major problem was that both

government and industrial management were ignorant of science.

He concluded that:

The result is that scientific workers are in no position of authority and have to acquiesce and work with policies they know to be futile.¹⁰⁵

This gave rise to a situation in which scientists were frustrated and their originality and enterprise were checked. Thus he continued to advocate that scientists should organise to take action to assert their rights and responsibilities in the determination of scientific policy. The question of organisation and the development of a 'deeper analysis' on which to base science policy were interlinked.

In response to the internal stresses and pressures arising from the growth in state expenditure on science (and the growing political interest demonstrated by the Labour Party in the issue) the Prime Minister appointed a Treasury Committee under Sir Burke Trend, Secretary to the Cabinet, to examine the organisation of government civil science. This (potentially) provided an opportunity for the scientific and technical trade unions to present their views on the organisation of civil science by government agencies. The TUC made no representations to the Trend Committee although the Federation of British Industries submitted the so called 'Knollys Report' which received a great deal of attention and fuelled the Labour Party's criticism of government policy.¹⁰⁶ The IPCS and the AScW took the opportunity to put their views to the Committee.

The IPCS which organised professional, scientific and technical civil servants had a history of concern with similar

government enquiries such as those of Jephcott, and Gibb and Zuckerman. As the sole bargaining agent for scientists in the DSIR, IPCS's interests were closely bound up with the fate of government science organisation.¹⁰⁷

The IPCS initially welcomed the setting up of the Trend Committee and submitted proposals which, in emphasising the role of the Minister for Science, would strengthen its own position as the organiser of scientific workers in the civil service. The Minister for Science (of Cabinet rank) should be supported by a major scientific Department of State based on the DSIR which would be kept intact and expanded. The functions of the Science Ministry would be to survey national research needs, establish, administer and coordinate functional research institutes. This, according to the Institution, implied changes in the existing organisation of the civil service and the introduction into the Ministry's staff of a large number of experienced scientists. In addition the Minister would have the job of ensuring cooperation with the Ministry of Education to encourage the best possible use of resources for the education and training of scientists.¹⁰⁸

The proposals put forward by IPCS forged a link between its own organisational interests and those of the state's organisation of civil science. However, AScW's position was revealed as more problematic. As Vig has pointed out it had 'neither the material nor human resources to engage in political activities on a significant scale'.¹⁰⁹ The Association had evolved principally into a technicians' trade union and its scientist membership was largely confined to industry. It was no longer in a position to

aspire to be either the organisational or intellectual representative of most scientists. The ideological hegemony enjoyed by the left-wing within the union no longer obtained.

These problematic aspects of the Association's position were to some extent reflected in the discussions which took place around the submission to the Trend Committee. Bernal was critical of the approach and content which had been initially adopted by the Executive Committee. He wrote to Dr. Tordai (who was preparing the papers for the Association's submission) that:

It seems to me that if the AScW expects to be listened to at the Trend Committee it must put forward evidence based on the particular position of its members, as scientists largely in industry. The Trend Committee is concerned only with Government science. Where the AScW may come in is indicating how Government can improve science in industry through, for example, research and development contracts.¹¹⁰

The notion of development contracts was one of the proposals which Bernal also had grave reservations about. He felt that the analogy between military and civil contracts was weak and that the awarding of development contracts to private industry could either take the form of Government direction of industry or alternatively would effectively be a 'concealed subsidy':

A development contract has some logic when it is applied to production of goods which are purchased directly by the nation; so far, however, this applies only for military purposes. To do so for civilian industry is only a matter of lending out Government money to private firms and allowing them later to profit by selling them to the public and is, inevitably, discriminatory. Some firms will become, in a way, parasitic on Government funds and, as such, might just as well be nationalised.¹¹¹

The conflict between public and private interests raised by research and development contracts revealed a problem, for Bernal, which was 'in principle, insoluble under capitalism'.

Bernal was also critical of the lack of definition of the proposed National Research Planning Board. He wrote that:

The only good recommendation I can see is for a Ministry of Science with a vote, which I think most people including the conservative science organisation committee agrees.¹¹²

He also felt that the issue of military research had not been sufficiently addressed. The Executive Committee had taken up a position against the setting up any new research councils, a position which Bernal also disagreed. Similarly Bernal advocated additional functions for the DSIR. The draft submission prepared by Tordai contained no serious discussion of Trend's third term of reference which related to financing of government civil research agencies. Bernal's advice was that:

I think we should hold out for a system of Government science that encourages research and science all along the line from fundamental to applied but an organisation that can plan a strategy of scientific research related, on the one hand, to the present scientific potential thus bringing in the universities, and on the other, the national economic needs.¹¹³

The final draft of the Association's submission to the Trend Committee was prepared by February 1963. It made reference back to AScW's earlier policy statement, Science in Government and Industry, and to the FBI report for the evidence for government concern and intervention in industrial research. The statement attacked the Minister of Science, Quintin Hogg, whose basic philosophy it

defined as a belief that scientific activities could not be coordinated for 'consciously preferred needs'.¹¹⁴ However, much of Bernal's criticism had not been taken on board and some of its proposals were very close to those of Robert Carr's Conservative Party Science Committee. For example the idea that the Cabinet should establish a Scientific and Technical Policy Committee to review the overall scale of scientific and technological effort (including defence).¹¹⁵

The call for the setting up of a Scientific and Technical Planning Board (already made in the Association's statement Science and Education) was made. The function of the STPB would be to carry out studies and make recommendations to the Cabinet committee, the Economic Planning Board and/or the National Economic Development Council. Departmental science groups would deal with relevant research and development and channel information to the STPB for strategic decision making.

Ministries would continue to run their own research establishments (for example, fuel and power, transport, aviation etc.). In an anodyne reference to military research it commented that 'the possibility of a fall off in defence research may liberate resources and personnel which should not be dissipated'.

Research contracts in the civil field should be awarded on an increasing scale:

It being understood that when the Government has been party to a successful development it should also be a party to the final rewards of the exploitation of the development.¹¹⁶

The fundamental approach now being adopted by the Association was to seek to diffuse rather than concentrate responsibility for science policy decision making:

In our view it would be sounder to have a scientific group inside each Department... than to try and artificially enlarge the responsibilities of the Minister for Science. We feel that this office should have a vote but that by and large its responsibilities in the new organisation should not be very different from those obtaining today. It is vital, however, that scientific and technical thinking should permeate the administration.¹¹⁷

The proposals advanced by the Association hardly measured up to Bernal's call for a 'deeper analysis' or indeed took on board many of his criticisms (for example of the idea of research and development contracts). Bernal's view was closer to that put forward by the Institution of Professional Civil Servants which argued that civil science should be the responsibility of a strong Minister of Science heading a department of state which would be responsible for the whole spectrum from pure to applied research and development and for the application of defence research in civil industry with the redeployment of redundant defence research staff to civil projects.

The report of the Trend Committee was published in October 1963 and although its recommendations were confined to some 'administrative reforms within narrowly defined bands' they provoked bitter opposition from the IPCS. Trend had recommended that the DSIR should be dissolved and replaced by three new research councils - a Science Research Council, a Natural Resources Research

Council and an autonomous Industrial Research and Development Authority (IRDA). The DSIR research stations together with support for industrial research generally would be the responsibility of the IRDA. The Minister for Science would become responsible for all the research councils and would be assisted by a new advisory body made up of independent members, half of whom would be scientists. The research agencies would be directed by professionally qualified, full-time chairmen. The Office of the Minister for Science would be strengthened by an increase in scientific staff which would then be interchangeable between the ministry, the headquarters of the agencies and the research stations operated by them.¹¹⁸

The Institution found much of Trend's recommendations 'ill-considered and largely illogical'. It was vehemently opposed to the dissolution of the DSIR and reiterated that its work should be expanded in the context of a reformed Ministry for Science. The re-organisation of research agencies, it was claimed, would disrupt applied research and development.¹¹⁹

The IPCS with the support of the AScW launched a campaign to persuade the Government not to implement the Trend proposals. A major channel for the opposition to Trend was the Joint Parliamentary Scientific Advisory Committee of which the IPCS and the AScW were the most prominent members.¹²⁰

The IPCS expressed its opposition to the Prime Minister, Sir Alec Douglas-Home, directly. He replied that 'it was not the Government's intention to break up individual research stations of the DSIR to conform to some arbitrary division between basic and

applied research' and that any proposals for reorganisation the interests of staff would be fully taken into account.¹²¹ Home indicated that it was the Government's intention to accept and implement the main recommendations of the Trend Committee. The IPCS replied that this decision had 'caused wide dismay in the professional, scientific and technical Civil Service'.¹²² The DSIR itself was also strongly opposed to incorporation into some new departmental structure. While the IPCS opposed the Trend proposals as a threat to the interests of its membership, the TUC also joined in this opposition because of the close working relationship it had established with the DSIR.

The controversy was, however, suspended with the imminence of the October general election and the new proposals which emerged from the victory of the Labour Party. Vig has commented that:

In the event, IPCS accomplished no more than to delay final decision on reorganisation in both Labour and Conservative Parties, and gain assurances from the Government that the employment status of scientific civil servants would be safeguarded by full consultations with the Institution.¹²³

5. Conclusion

The AScW's marginality in the controversy over the Trend report reflected its lack of any substantial constituency within the scientific civil service - the bulk of its membership now consisting of either industrial scientists and technologists or technicians. It also lacked the support of eminent scientists which it has enjoyed in the immediate post-war period. It had

effectively ceased to be 'an intellectual center for left-wing scientists'.

However, as Vig has pointed out, the scientific unions were the only scientists' organisations to engage in public lobbying and debate over the proposed reforms and rationalisations in an attempt to represent scientists' interests. He has suggested that in addition to their obvious vested interests they had developed 'broad sociological and theoretical doctrines about government-science relations' which they consciously sought to promote:

Their primary tenet is that scientists should occupy high administrative and policy-making posts; in short, the 'on top and not on tap' doctrine...In the sphere of science policy, they should participate in regularised procedures for planning and coordinating the use of scientific resources. Funds should be allocated on a stable, long-term basis for projects judged important to the national economy and general interest; and within this framework the scientists should be given maximum freedom and mobility in carrying them out.¹²⁴

These principles underlay much of the science policy work of the AScW which I have discussed in this chapter. They reflected to a limited extent the pre-occupations of the earlier radical tradition of the social relations of science particularly with the emphasis on the planning and coordination of scientific resources.

But clearly what was absent was the broader theoretical and political perspective which had been developed by the scientific Left. The new 'doctrines' were more closely hitched to the professional interests of scientific and technical workers rather than to an understanding of the social implications of scientific

and technical change and the idea of the social responsibility of scientists as bound up with a process of democratic transformation in alliance with the labour movement.

The trend towards the subordination of the discussion of science policy and issues of social responsibility was particularly marked following the merger of AScW and ASSET in 1968. Although following the merger John Dutton and Clive Jenkins jointly held the post of general secretary, Jenkins quickly gained the ascendancy. Dutton retired in 1970 to take up a post with the British section of the World Federation of Scientific Workers.¹²⁵

Roberts, Loveridge and Gennard have written of ASTMS that:

The structure and leadership style adopted by the new union is largely that of ASSET. The amalgamation was achieved by a ballot of members conducted in 1967 in which 11,705 of the AScW's 21,000 book membership participated and 12,500 of ASSET's 50,375. The fact that such a high proportion of the long-term membership of AScW voted for the merger demonstrated their anxiety to link up with a large and effective union after their failure to amalgamate with DATA.¹²⁶

Chapter 5

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9. Ibid., p.11.
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11. 'Communist Masters Taunt', Times (20 May 1957), p.14f.
12. Association of Scientific Workers, 'Agenda, Motions and Amendments, 40th Annual Council', 1957, p.18, AScW Archive, ASW/1/1/22.
13. 'Communist Masters Taunt', Times (20 May 1957), p.14f.
14. Ibid.
15. 'Scientists in the Red', Times (20 May 1957), p.11c.
16. Association of Scientific Workers, 'Agenda, Motions and Amendments, 40th Annual Council', 1957, p.18.
17. 'Communist Masters Taunt', Times, p.14f.
18. Ibid.
19. Ibid.

20. 'Science Workers want Pay Rise', Times (19 May 1958), p.6b. The Council meeting also passed resolutions calling for 'substantial salary increases for scientific workers at all levels' and on the radiation hazards resulting from nuclear testing.
21. Ibid.
22. Trades Union Congress, Annual Report, 1963, p.393.
23. Ibid., p.395.
24. Trades Union Congress, Annual Report, 1964, p.444.
25. Ibid., p.451.
26. Roberts, Loveridge and Gennard have written that 'between 1951 and 1961 numbers of laboratory technicians grew from 69,000 to 96,000, many being employed in large units under 'industrial' conditions'. They ascribe the AS_{ScW}'s failure to grow in this period to organisational and leadership failures. See B.C. Roberts, R. Loveridge and J. Gennard, Reluctant Militants : A Study of Industrial Technicians (London : Heinemann Educational Books, 1972), p.95.
27. Association of Scientific Workers, 'Report of the National Executive Committee', 1957.
28. See Appendix 1.
29. G.S. Bain, The Growth of White-Collar Unionism (Oxford ; Oxford University Press, 1972).
30. Bain reported that in 1963-64 roughly 25% of the AS_{ScW}'s membership was composed of qualified scientists and engineers - the remainder being technicians. The distinction between professional/non-professional membership was not abolished until 1966.
31. Association of Scientific Workers, The Rate for the Job (London : AS_{ScW}, March 1959).
32. Association of Scientific Workers, The Economic Position of the Scientific Worker (London : AS_{ScW}, 1950). This was a report adopted by the Association's Annual Council of May 1949.
33. The AS_{ScW}'s policy on science and education in this period is dealt with in more detail in section 3.1.below.
34. Bain, The Growth of White-Collar Unionism, Appendix A, Table 3A.1, the Growth of White-Collar Unionism affiliated to the TUC, 1948-64.
35. 'Scientists will press claims', Times (30 August 1961), p.6c.

36. Ibid.
37. Times (21 May 1962), p.6g.
38. 'Union move to ban politics fails', Times (29 May 1961), p.7e.
39. Ibid.
40. These matters are dealt with in more detail in section 4.
41. See the file of Dr. Amicia Young for a projected history of the ASw, 1964-66, ASw Archives, ASW/3/20/1-172. Amicia Young had conducted a survey by questionnaire of ASw branches in 1966 for the projected history. I have drawn upon some of the replies from branches.
42. Roberts, Loveridge and Gennard point out that 'the first official strike is believed to have occurred as recently as 1962, and it is clear that the left-wing stance of the leadership did not automatically lead to a militant bargaining strategy'. See Reluctant Militants p.95.
43. 'Scientific Staffs', Times (19 June 1962), p.11f.
44. K. Prandy, Professional Employees : A Study of Scientists and Engineers (London : Faber and Faber, 1966), p.139.
45. 'Scientific Workers Representation', Times (4 July 1962), p.13g.
46. See the report of ASw Council, Times (21 May 1962), p.6g.
47. 'Four Unions Plan Closer Ties', Times (25 May 1964), p.10e.
48. See Roberts, Loveridge and Gennard, Reluctant Militants, pp.106-117, for an account of the convergence, competition and amalgamation of the various technicians unions.
49. For an account of the ASw's 'constructive use of science' campaign see chapter 1 section 4.2.2.
50. Association of Scientific Workers, Science Policy Committee - Sub-committee minutes, 15 July 1955, ASw Archive, ASW/1/4/3.
51. 'Improving Science Policy Work', ASw Journal 1 (September 1955), p.11.
52. Association of Scientific Workers, 'Report of the National Executive Committee', 1956, pp.22-24.
53. Association of Scientific Workers, Science Policy Committee minutes, M.52/52, 16 May 1952, ASw Archive, ASW/1/4/2/23.
54. The Joint Parliamentary and Scientific Advisory Committee had been formed in 1954 and consisted of representatives of IPCS, ASSET, MPU and ASw together with a number of sympathetic (Labour) M.Ps. Its objects were to enable the unions to

54. cont'd.

- bring matters of concern to Parliament and to brief M.P.s on scientific and technical issues. For example, the JPSAC had helped to stimulate a Parliamentary debate on the shortage of scientific manpower. See Association of Scientific Workers, 'Report of the National Executive Committee', 1956, p.24.
55. Association of Scientific Workers, 'Report of the National Executive Committee', 1957, p.25. See also 'What we mean by Science Policy', AScW Journal 1 (November 1955), pp.5-6.
56. Association of Scientific Workers, Science Policy Planning Committee minutes, M.15/59, 15 January 1959, AScW Archive, ASW/1/4/3.
57. Association of Scientific Workers, 'Report of the National Executive Committee, 41st Annual Council', 1958.
58. 'Automation', AScW Journal 3 (January 1957), pp.8-10.
59. Association of Scientific Workers, 'Report of the National Executive Committee', 1958.
60. Trades Union Congress, 'Statement on Higher Education', Annual Report, 1956, pp.496-511.
61. Trades Union Congress, Annual Report, 1956, pp.390-393.
62. Association of Scientific Workers, 'Report of the National Executive Committee', 1957, p.25.
63. Trades Union Congress, Annual Report, 1948, pp.352-53. Bernal had moved the resolution on behalf of the AScW.
64. Association of Scientific Workers, A Policy for Technological Education (London : AScW, 1952). See also Science in the Universities. A memorandum (London : AScW, 1951).
65. 'Technological Education in Great Britain', Nature 171 (17 January 1953), p.109.
66. Association of Scientific Workers, 'Report of the National Executive Committee', 1958, 'Science Policy', pp.25-27.
67. Association of Scientific Workers, Science Education : A Policy Statement (London : AScW, August 1960). See also (More Scientists into Schools', Times (23 May 1960), p.6b. R. Innes was at this time a science teacher at the Holland Park Comprehensive School. He had served as AScW's general secretary from 1942-1949.
68. Association of Scientific Workers, Science Education, p.10.

69. Ibid., pp.14-15. See also 'A Science Planning Board', Nature 189 (11 February 1961), p.453.
70. This matter is dealt with in more detail in chapter 7 section 2 below.
71. Trades Union Congress, Annual Report, 1960, p.432.
72. 'Announcement', Nature, 189 (18 February 1961), p.534.
73. Trades Union Congress, Annual Report, 1964, p.489.
74. Trades Union Congress, Annual Report, 1962, p.354.
75. Trades Union Congress, Annual Report, 1964, p.488.
76. See, for example, the TUC's welcoming comments on the report of the Robbins report on higher education. Annual Report, 1964, pp.220-26.
77. This has been dealt with in more detail
78. Association of Scientific Workers, 'Report of the National Executive Committee', 1957, p.25.
79. Association of Scientific Workers, A National Fuel and Power Policy (London : AScW, September 1960).
80. Ibid., p.8.
81. Ibid.
82. R.J. Sarjant, 'Western dependence on oil', Nature 189 (25 February 1961), pp.626-27. Sarjant argued that the AScW's statement did not answer the question as to whether a manufacturer who finds the use of oil more economical than alternative fuels, mainly the derivatives of coal, should hold off conversion of his plant to oil because of the longer term possibility of price increases.
83. Labour Party, Science and Industry Sub-committee minutes RD186, November 1961, 'Remit from Joint TUC/NEC Committee on Fuel and Power : Effects of development in Science and Technology on the Fuel and Power Industry', Blakett Papers, The Royal Society, London, E38.
84. Labour Party, 'Fuel and Power - Draft Final Report of a Group of Scientists under the Chairmanship of Professor Newitt', RD480, January 1963, (Mimeographed), Blakett Papers, E39.
85. N.J. Vig, Science and Technology in British Politics, (London : Pergamon Press, 1968), p.86 and 89.
86. See, for example, 'British Atom Bomb', the statement agreed by the AScW's executive committee in September 1952, reported in the Times (16 September 1952), p.3d.

87. The Atomic Scientists Journal was incorporated as a separate section of the recently founded New Scientist in January 1957. The remaining and most active section of the Atomic Scientists' Association, its Radiation Hazards Study Group, was absorbed into the British Association in 1958 and the Association was subsequently officially wound up. A former editor of its journal wrote: 'With Pugwash active in the international sphere ; the British Association active at home, and the New Scientist maintaining a high standard of scientific journalism, members could best serve the aims of the Association by supporting one or more of the larger organisations'. See P.E. Hodgson, 'Atomic Scientists and the Public', New Scientist 6 (6 August 1959), pp.156-57.
88. Association of Scientific Workers, 'Report of the National Executive Committee', 1955, p.15. Burhop was also involved with Science for Peace and the efforts of the World Federation of Scientific Workers to secure the international control of atomic energy.
89. Trades Union Congress, Annual Report, 1955, p.409.
90. Atomic Sciences Committee, Association of Scientific Workers, A World to Gain. The Story of the International Conference on the Peaceful Uses of Atomic Energy at Geneva, 1955. (London : AScW and LRD, 1956).
91. 'Peaceful Uses of Atomic Energy', Nature 177 (14 January 1956), p.69.
92. This matter is dealt with in more detail in chapter 6 section 3.2.2. below.
93. Atomic Sciences Committee, Association of Scientific Workers, Nuclear Nightmare. Why nuclear weapons are so dangerous (London : AScW, 1958).
94. N.W. Pirie to the author, 8 December 1983. See also G. Werskey, The Visible College (London : Allen Lane, 1978), fn. pp.324-25.
95. R. Innes, Science and Our Future (London : Lawrence and Wishart, 1954) and Association of Scientific Workers, The Constructive Use of Science (London : AScW 1954).
96. Vig, Science and Technology in British Politics, p.60.
97. See S.D. Fisher, 'Organised Business Interests and Science and Technology Policy' (M.Sc.Dissertation, Aston University, 1983), pp.103-108.
98. Association of Scientific Workers, Science in Government and Industry A Policy Statement (London : AScW, January 1962).
99. Trades Union Congress, Annual Report, 1961, p.457.

100. Ibid.
101. Trades Union Congress, Annual Report, 1962, p.230.
102. Ibid.
103. 'Science and the National Economy', Nature 194 (19 May 1962), pp.615-16.
104. J.D. Bernal, 'Science in British Industry', Draft and typescript of address to AScW North West Area Conference, 1 September, 1962, Bernal Papers, I.7.1.
105. Ibid.
106. Fisher, 'Organised Business Interests and Science and Technology Policy', pp.108-117.
107. Vig, Science and Technology in British Politics, pp.132-34. See also J.E. Mortimer and V. Ellis, A Professional Union : The Evolution of the Institution of Professional Civil Servants (London : George Allen and Unwin, 1980).
108. Mortimer and Ellis, A Professional Union, pp.242-44.
109. Vig, Science and Technology in British Politics, p.131.
110. Bernal to Tordai, 12 December 1962, Bernal Papers, I.7.1. Bernal at this time was a vice-president of the AScW.
111. Bernal to Dutton, 23 January 1963, Bernal Paper, I.7.1.
112. Bernal to Tordai, 12 December 1962.
113. Ibid.
114. Association of Scientific Workers, 'The Committee of Enquiry into the Organisation of Science', G.42/63, 21 February 1963, (Final Draft), Bernal Papers, I.7.1.
115. Vig, Science and Technology in British Politics, pp.131-32.
116. Association of Scientific Workers, 'The Committee of Enquiry into the Organisation of Science', p.3.
117. Ibid.
118. B.St.J. Trend, Committee of Enquiry into the Organisation of Civil Science (London : HMSO, 1963) Cmnd 2171.
119. Mortimer and Ellis, A Professional Union, p.243.
120. Vig, Science and Technology in British Politics, pp.119-20.
121. Mortimer and Ellis, A Professional Union, p.243.
122. Ibid.

123. Vig, Science and Technology in British Politics, p.133.
124. Ibid.
125. Interview with Dr. W.A. Wooster, Cambridge, 8 January 1984.
Wooster was president of the AScW at the time of its
amalgamation and was far from happy with the direction
taken by the new organisation.
126. Roberts, Loveridge and Gennard, Reluctant Militants, p.115.

CHAPTER 6

THE TRADES UNION CONGRESS AND SCIENCE AND TECHNOLOGY POLICY

1. Introduction

Martin has pointed out that:

...there was little to distinguish the Conservative governments of 1951-64 from the Attlee government, so far as their consultative relationship with the TUC was concerned. Ad hoc consultation at all levels of government remained frequent and, for the most part, free of difficulty.¹

The trend of the TUC's official policy throughout the 1950s was to seek close association with the processes of government and state administration. This general strategy had been formulated in the wake of the Conservative's election victory of 1951. In addition the majority of the TUC's General Council were firm in their rejection of the use of 'political strikes' to defeat government policy.²

There was in the mid-1950s an attenuation of the virulent anti-communism which had characterised the trade union movement at the height of the Cold War. At the same time there occurred a shift to the left in some of the major trade unions. Deakin, Bevin's successor at the head of the Transport and General Workers' Union, died in 1955. This opened the way for the emergence of the more radical Frank Cousins. The effect of such changes was to limit to some extent dealings on the broader aspects of domestic economic policy such as wage restraint policy. The political

effects were also briefly evident in the debates on unilateral nuclear disarmament at the end of the 1950s.

However, the General Council's drive to consolidate the machinery of consultation was reflected in its approach to policies relating to science and technology. In addition to science and technology as areas which the TUC saw further opportunities for enhancing its consultative role within the state, Fisher, a former secretary of the TUC's Scientific Advisory Committee, has argued that:

In all this the trade union interest remained clear. What mattered on the shop floor was not so much science as such but its implications for workers. This theme runs through all the work of the TUC Scientific Advisory Committee. Science Policy was important because of the inter-relationship between scientific development and economic and social policy.³

The TUC's science policy in this period was marked by a lack of internal dissent which complemented the collaborative and constructive approach to state bodies. A conspicuously close relationship developed between the TUC and the Department of Scientific and Industrial Research as I will show below. This relationship was evident in the TUC's submission to the Jephcott Committee of 1955 and in its later opposition to the proposals of the Trend Committee to dismember the DSIR. The General Council sought to encourage a consultative role for unions in industrial research through representation on the governing bodies of the research associations. In this objective the TUC received considerable support from the DSIR.

There was much common ground on the question of the link between scientific industrial research and Britain's industrial performance between the TUC and the Federation of British Industries. This was evident in their mutual concern expressed through the medium of the National Production Advisory Council on Industry (NPACI). To different degrees both organisations advocated a more interventionist role for government for industrial research.

While the TUC's scientific concerns were linked principally to applied industrial research, it was also fully supportive of technological change. It supported the civil nuclear energy programme and the introduction of automation into Britain's factories. The TUC's policy on nuclear energy was to some extent qualified by a growing awareness of potential hazards. The Association of Scientific Workers played a significant role in drawing attention to the potential hazards to workers in the industry and to the environment.

It was, however, the development of TUC policy on automation which was characterised by a fierce internal debate between the right- and left-wings of the movement. The core of this debate was concerned with the nature of the political framework which could ensure that the transformation of the labour process through automation would be in the long term interests of the labour movement. The Left maintained that the long term interests of the movement lay in public ownership and central planning. Nevertheless, the official policy which emerged from the debate looked for an accommodation within the existing social and

economic framework.

The Scientific Advisory Committee throughout this period was closely associated with the formulation of official policy. The resignation of P.M.S. Blackett from the committee due to the pressure of other commitments weakened its links with the older generation of left-wing scientists. Prof. D.M. Newitt remained a pivotal figure on the committee with strong links with the AScW and the Labour Party's science advisory groups. Other members of the committee such as Winifred Raphael, the industrial psychologist, Prof. K.F.H. Murrell, inventor of the term ergonomics, and L.H.C. Tippett were appointed as scientist members because of their expertise in the relationship of the workers to the production process. Further evidence of the close relationship of the TUC to the DSIR was the appointment of J. Knox of the DSIR to the Scientific Advisory Committee in 1962.

In spite of prompting from the AScW the TUC did not play a conspicuous role in the science policy debates of the early 1960s nor was it an active participant in the formation of Labour Party science policy. The TUC sought to pursue its aims through direct liaison with industry and government rather than through the political and parliamentary wing of the labour movement.⁴

2. The TUC and Science Policy.⁵

2.1. Civil Research Policy.

The General Council's view of the importance of industrial research had been expressed in Congress in 1954 when it had reported that:

The General Council have continued their keen interest in industrial research, which they regard as fundamental in helping to maintain and improve Britain's position in world markets and in providing continuity of employment and raising of living standards.⁶

The TUC's interest in the question of the government's role in the organisation of science was subordinate to its fundamental interest in 'the inter-relationship between scientific development and economic and social policy'.⁷ In the post-war period the General Council and the Scientific Advisory Committee had promoted a close relationship with the Department of Scientific and Industrial Research (DSIR).⁸ The extent to which this relationship went beyond matters of form to agreement on substantive issues was illustrated, for example, by the clear similarities between their respective positions on the implications of automation. The cooperative nature of the relationship was enhanced by the appointment, by the Lord President, of two members of the General Council to serve on the Advisory Council of the DSIR and subsequently on its successor the Council of Scientific and Industrial Research.⁹

Although there was considerable growth in funding for the DSIR in the 1950s there was little change in the structures for the administration of civil science. (The major innovation was

the setting up of the Atomic Energy Authority in 1954). However, a committee under Sir Harry Jephcott was established by the Lord President of the Council in August 1955 to inquire into the efficiency of the DSIR. The TUC was invited to submit evidence to the committee as was the Federation of British Industries.¹⁰

Mortimer and Ellis have suggested that there was a strong lobby which wished to curtail the direct involvement of the state in industrial research. Basic research, it was argued, should be confined to the universities and applied research was the sole concern of industry within its own laboratories. The Institution of Professional Civil Servants (IPCS) reacted strongly to the criticisms of the Department contained in the interim report of the committee.¹¹ In its evidence to the committee the FBI had not opposed the principle of some state support for industrial research. It was, however, critical of the DSIR's performance in a number of areas including the provision of scientific grants, the industrial research associations and the DSIR research establishments. The main criticisms were directed at the DSIR research establishments and the direction and control of their research programmes. The principal charge was that the establishments were not sufficiently in contact with the real problems of industry and there was insufficient experience in the DSIR to compensate for this lack.¹²

The TUC's submission to the Jephcott Committee fully supported the continuation of the DSIR's work and elaborated the General Council's view of its future direction.¹³ It stated the General Council's belief that:

...cooperation with the Department is one of the most effective ways of giving expression to the joint interest of employers and trade unions in industrial development.¹⁴

The statement emphasised the need for close collaboration between the DSIR and industry generally and saw the need for industrial research 'to create strong and efficient industry'. The statement also welcomed the increased security given to the DSIR's research programmes with the provision of its grant now established on a five yearly cycle.

The General Council was keen to see more detailed research on the impacts of new technology:

The application of technological and scientific research in the workplace, together with other industrial developments creates psychological, physiological and sociological problems. Too little is known of these problems; they are deserving of detailed and objective investigation.¹⁵

The statement stressed the responsibility of government in the sponsoring of research into a wide range of areas including health and safety, the supply of technical manpower and the dissemination of information (especially to smaller and medium sized firms).

The areas of cooperation between the TUC and the DSIR were indicated, for example, the investigations which were being carried out, with the DSIR's assistance, into automation and the 'efficient and inefficient firms' and their implications for trade unions. One of the strongest links had been developed in a joint DSIR/TUC approach to the greater involvement of trade unions in the work of the research associations (RAs). The

General Council saw the failure of some RAs to involve trade unions as 'limiting the ready acceptance of research developments'.

There was a need for unions to know, at the earliest possible stage of research and development, likely effects on workers. The DSIR had an important role in encouraging such participation and thereby facilitating the acceptance of technological change.¹⁶

The General Council were critical of the RAs record when it came to questions of health and safety:

Hitherto, both DSIR and the various Research Associations in receipt of DSIR grants have been mainly concerned with research into technical production problems: too little attention has been given to research into occupational health and safety.¹⁷

A further area which the TUC claimed a strong interest in was that of 'human factors' research. It argued that knowledge about 'human factors' in technical change were crucial in accelerating the pace of industrial research and development. Thus the TUC strongly advocated the continued financing of the joint DSIR/MRC Human Relations Committee and Individual Efficiency Committee on both of which the General Council was represented.¹⁸

The statement to the Jephcott committee also supported the work of the DSIR's Industrial Operations Unit which was concerned with securing the fullest use of existing productive resources. The General Council also felt that individual affiliated unions could make greater use of the technical information services which the DSIR provided.

The issues raised in the TUC's submission to the Jephcott



committee reflected many of the subjects which had been under active consideration by the TUC's Scientific Advisory Committee such as automation, the research associations and human factors research. It also reflected the General Council's desire to maintain and develop its close relationship with the DSIR. The principal outcome of the Jephcott inquiry was the replacement of the DSIR's Advisory Council by an executive body, the Council for Scientific and Industrial Research, which retained a similar representative base. This reform of the existing structure can be seen as a concession to the criticisms mounted by the FBI with the creation of a stronger executive body with industrial representation aimed at improving the industrial relevance of the DSIR's work. The TUC, which retained its representation on the new Council for Scientific and Industrial Research, welcomed this outcome of the Jephcott inquiry.¹⁹

An alternative forum for the representation of the TUC's interest in industrial research was the National Production Advisory Council on Industry (NPACI) which had been established by the first post-war Labour Government. This was a tripartite body with representatives from the FBI, the TUC and government. It was used on a number of occasions by the TUC's General Council to raise issues of science policy as they related to Britain's industrial performance.

In 1957 the General Council again restated its rationale for an active trade union interest in industrial research:

They (the General Council) believe that scientific and industrial research is fundamental to industrial progress in Britain and to promoting better standards of living. In the post-war years particularly increasing attention has been given to basic and applied research and there are many outstanding examples of new products and materials and improved processes to justify the spending of time and resources.

These are matters of considerable significance to trade unions and their members in view of the impact of science and technology on skills and conditions of work on the one hand and, on the other, the longer term prospects offered by the development of new industries and expanding employment opportunities.²⁰

However, despite this awareness and interest the TUC was far from having developed a distinctive trade union perspective on the issues raised by the increasing pace of technological change. The General Council had in the past stressed through the NPACI the importance of industrial research and had opposed ceilings on government expenditure in this field.²¹ However, Vig considers that 'in retrospect, the TUC's most significant act in science policy matters occurred in 1958, when it requested a paper on industrial research from the Federation of British Industries for discussion in NPACI'.²² The TUC had in fact requested an official government paper dealing with steps which could be taken to increase productivity and efficiency in industry.

The growing concern within the TUC which motivated this request was also evident in the Federation of British Industries. The FBI's Industrial Research Committee was exercised with the future finance and organisation of industrial research:

A fundamental reappraisal had become necessary on account of the gradual cessation of much research on defence projects sponsored by

Government Departments. It had been found, in discussions at the National Production Advisory Council on Industry, that HM Government's Office, required a detailed statement of industry's point of view.²³

As a result of the TUC's initiative two documents were submitted to the NPACI. An official paper which blandly confined itself to documenting existing government action in the field of scientific and technological research and education, produced by the Lord President's office. The FBI submitted its own memorandum 'The Organisation and Finance of Industrial Research' which broached some criticisms of existing policies. In particular the FBI was concerned about the relative balance between industrial research and non-commercial defence research and 'whether the country's total research effort was organised to the best advantage in the light of modern conditions'.²⁴

The TUC's General Council representatives on the NPACI expressed the view that there was a need for more government finance for industrial research and also 'a more organised and effective approach to research effort and for closer working between scientists and managements'. H. Douglas, L.T. Wright and E. Fletcher of the General Council went on to have informal discussions with the Lord President. The topics discussed included the trade union interest in research and included trade union participation in the work of the industrial research associations.²⁵

Similarly, following upon the discussions within the NPACI the FBI with the aid of the National Institute of Economic and Social Research had undertaken the preparation of a report whose

aim would be to:

...shed more light on differences between the research patterns in different industries, to provide more information on the effect of Government expenditure on research in industry, to find out how far firms, especially the smaller ones, use other research channels than their own and, most important, to find facts which will throw light on the effects of research on the industrial economy.²⁶

The results of this work appeared in December 1960 under the title Industrial Research in Manufacturing Industry 1959-60.²⁷

The evidence in the report of the unevenness in the pattern of Britain's industrial research was an important contribution to the gathering public debate on science policy in general.

In the wake of the creation of the new post of Minister for Science the TUC's Production Committee and Scientific Advisory Committee invited Lord Hailsham to a joint discussion which took place in March 1960. The TUC's Annual Report noted that:

The Minister referred to his appointment as Minister of Science as reflecting the Government's recognition of the importance of increasing the pace of scientific and technological development. While his post carried little or no executive power, he maintained a close interest in industrial research through DSIR and the Research Associations and Establishments associated with the Department.²⁸

Lord Hailsham alluded to the problems of balance and choice in the allocation of resources to research and to the educational task of producing more scientists and technologists. He considered that the shortage of qualified scientists and engineers was the fundamental constraint on the expansion of research activities rather than the level of financial resources available.

The TUC delegation indicated to the Minister their own view of the inadequacies in the national research effort. They suggested that a levy might be applied to industries where a failure to adequately promote research and development could be demonstrated. They also brought to the Minister's attention the need for increased participation, for example, in the activities of the RAs.²⁹

Hailsham rejected the idea that a compulsory levy on industry would promote research and development in backward sectors. In his view the principal problem remained that of qualified manpower. The General Council found it difficult to accept the Minister's assertion that finance was not a significant factor limiting research. Hailsham's implicit espousal of a laissez faire approach to science and technology was not only at odds with the TUC's view of the need for state intervention but also with a growing trend of thinking within the FBI which supported appropriate forms of intervention linked to indicative planning.

However, attempts within the TUC to get the General Council to adopt a more thorough going commitment to a massive expansion of funding for science and technology were resisted. The issue of industrial scientific research was raised at the TUC annual conference in 1961. A resolution from the AScW urged Congress to press the Government 'to increase substantially the funds allocated for research in nationalised industries if necessary by special grant'.³⁰ The conference remitted the resolution to the General Council for further discussion with the Association. And, as I have described elsewhere, the General Council ultimately rejected AScW's arguments on the grounds that it did not believe

an approach to Government would be appropriate at that time.³¹

The rejection of the position advocated by the ASwW signalled an increasing change of emphasis in TUC policy which was to stress the adequate supply of scientific and technological manpower as the key factor. This change of emphasis brought the TUC's position closer to that of the Minister for Science. The discussions within the TUC's Scientific Advisory Committee also drew upon and coalesced with the results of work done by the FBI's Industrial Research Committee. In commenting on the FBI's survey of industrial research in manufacturing industry the Industrial Research Committee had identified the limits on the further expansion of industry's research efforts:

The main limitations on expansion are finance and men...there is no single factor which could have so large and so immediate effect on industry's research activity as an increase in the number of qualified scientists and engineers available to it.³²

This view was echoed by the TUC's General Council in its annual report for 1963:

The limits to further expansion are notably now set not so much by lack of finance, but by a scarcity in trained manpower, equipment and facilities and by the failure of many firms to apply the knowledge that has already been gained by research.³³

The General Council again initiated a discussion within the NPACI. The change of emphasis in its position reflected a recognition that 'the amount of money spent on research and development more than doubled (to £634 million) between 1955-56 and 1961-62'.³⁴ In 1961-62 the research in all fields carried out in private

industry amounted to £368 million whilst the proportion financed by private industry was £213 million. (Defence departments' expenditure in the same year accounted for £264 million). The TUC welcomed these figures as representing a substantial rate of increase in research and development in the civil field but argued that this expenditure was spread with 'undesirable unevenness' with the aircraft, electronics and electrical engineering industries accounting for much of the total expenditure. (An argument which had been advanced by the AScW in a recent policy statement).³⁵ The General Council requested from the Minister for Science a paper on scientific research in industry for discussion at the NPACI.

The paper was discussed by the NPACI in May 1963. It catalogued a number of specific problems; deficiencies in management training; inadequacies in university research facilities; insufficient contact between research establishments and industry; organisational defects in the structure of industrial RAs; reluctance of firms to pursue meritorious projects that were not financially attractive in the short term; inadequate information services to keep industry informed of research work and results; and the need for more qualified scientists and engineers.³⁶ The paper was remitted to the newly formed National Economic Development Council which had met for the first time in March 1963.

The intention was that the issue of industrial research should be discussed in the context of the NEDC's proposals for future economic growth. However, it was a number of years before the structure of the NEDC was to be fully elaborated:

In accordance with the TUC's long-held view that planning ought to be concerned with particular industries and that the appropriate trade unions must be associated with all planning developments, agreement was reached towards the end of 1963 on the establishment of planning machinery for individual industries. The task of the Economic Development Committee - little Neddies - was to coordinate activities in the various industrial sectors within the requirements of the overall national economic targets.³⁷

In the meantime the FBI had followed up its finding of its survey on industrial research in manufacturing industry with a conference, 'The Pattern of Research in British Industry', which was held in April 1962. The conference had included speeches from Lord Hailsham (Minister of Science), Aubrey Jones MP, Sir Harold Roxbee Cox (DSIR), Sir Norman Kipping (FBI) and G.A. Dummett of the FBI's Industrial Research Committee. Dummett in his address referred to 'the unevenness in R and D activity and how the lack of technical knowledge in one industry could hinder the use of advanced techniques provided by other industries waiting to serve it'.³⁸

In May 1963 the TUC had proposed to hold a similar conference but this was postponed because of the possibility of a rail strike. In the event the conference was held in December 1963 and followed to a large extent the pattern of the FBI's meeting. The conference was chaired by S.A. Robinson of the TUC's Scientific Advisory Committee but the speakers represented government, industry and the trade unions. G.A. Dummett spoke on behalf of the FBI's Industrial Research Committee on 'Research in Private Industry'; Sir Charles Goodeve, FRS, Director of the British Iron and Steel Research Association, spoke on 'The Work of the Industrial Research

Association'; Lord Hailsham spoke on 'The Government, Science and Industry'; and L.T. Wright chairman of the TUC's Scientific Advisory Committee, spoke on 'Trade Unions and Scientific Developments in Industry'. Wright merely outlined the TUC's concerns for science policy as revolving around general industrial problems such as productivity and economic growth and the research carried out in industry especially cooperative research through the RAs. In addition he drew attention to trade union concerns with the introduction of automation and its effects on employment, and the studies on 'human factors' especially the development of ergonomics.³⁹

Thus whilst the TUC maintained close touch with discussions which were taking place both in government and industry on policy its failure, for example, to submit evidence to the Trend Committee illustrates a narrowness in its approach.

The FBI had established a working party under Viscount Knollys to prepare its position for submission to the Trend Committee. The Knollys Report, published in June 1963, was highly critical of the existing level of support for industrial research and of the existing government's organisation of science. Its critique of Tory science policy was subsequently drawn upon by the Labour Party and also reflected in some of the recommendations proposed by Trend. The FBI's rationale for its own inquiry was similar to the TUC's own concerns:

...British industry must increasingly depend for its future on competitiveness in products based on new ideas, and in scientific and technological developments both of materials and processes. For these reasons British economic interests demands a very substantial growth in civil applied research and development.⁴⁰

However, the TUC did not share the enthusiasm for the radical re-organisation of the DSIR which the Knollys Report had proposed and the Trend Committee had adopted. The General Council saw the proposals for reorganisation as a threat to the links which it had carefully cultivated with the DSIR. The General Council felt that the cooperative relationship with the DSIR had helped the Department to a greater appreciation of trade union interests:

It was noted that the Department is undertaking work on a number of issues of importance to particular industries. Among these are research on automatic control of mineral treatment processes, studies to get more rapid progress in machine tool design; investigations into the marine engine industry; studies of foundries; and research into building methods. Investigations satisfied the General Council that the Department fully appreciated the need for close consultation with unions having an interest in these activities.⁴¹

The primary concern of the General Council was less the eventual form of the organisation of civil research agencies than the need to ensure that trade union interests were effectively represented on any bodies emerging from reorganisation.

The TUC's response to the Trend Committee's proposals was that they:

...did not consider that the changes, whether necessary or not, had been convincingly argued by the Trend Committee. They were particularly disappointed that the Committee had proposed the breaking up of the DSIR. While the General Council did not regard themselves as competent to comment on the details of the proposals they did not consider that any structure that destroyed the links that DSIR provided between universities and industry was to be regretted. Moreover it seemed to the General Council to be unsatisfactory for the Trend Committee to make recommendations as regards structure without knowledge of, or expressing views about, the probable and likely scale of the national research effort in future years.⁴²

In January 1964 the General Council wrote to the Minister for Science expressing their opposition to the proposals. He, in turn, rejected the TUC's view that the Trend Committee had been 'unduly radical in their proposals for the separation of support for universities from the promotion of industrial research'. However, he did acknowledge the need to take trade union views into account when the membership of advisory bodies was being considered. The General Council remained unconvinced of the need to make changes to the DSIR but decided not to continue to pursue the matter in the light of the impending general election of October 1964.⁴³

The approach adopted to science and industry by the TUC in this period was summarised by a general review prepared by the SAC early in 1964.⁴⁴ The document welcomed the fact that the NEDC had now taken up the study of the relationship between scientific research and economic growth. The shortage of technologists was again cited as a major handicap to the future growth of research and development activities. Closer linkages were recommended between the RAs, DSIR research establishments and the universities and it was argued that universities and Colleges of Advanced Technology should be encouraged to give special attention to the needs of industries in their local areas. The use of development contracts to enable the Government, through its research agencies and departments, to stimulate industrial research (an idea which had been already widely canvassed by the FBI)⁴⁵ was also advocated. Procurement policies of government departments and the nationalised industries were also seen as a means of state intervention which could be used to stimulate research in the private sector. A

greater role was proposed for the NEDC's Economic Development Committees in ensuring that research in their respective industries was adequate and well coordinated.

The review wanted to see more interchange of academic, industrial and civil service scientists and technologists along with the involvement of more scientists at policy-making levels. It stressed also that every opportunity should be taken to secure more TUC representation on government committees with responsibilities in the field of scientific and technological research.

Thus in many ways the TUC's position was an amalgam of many of the ideas and proposals which were the circulating currency of debate about science policy leading up to the 1964 general election. It drew upon ideas emerging from discussions within the DSIR, from within the FBI's Industrial Research Committee and within the science advisory groups of the Labour Party. The policy lacked any substantive originality; the key objective of the TUC's General Council was to secure and extend trade union representations at all levels of policy-making about scientific and industrial research.

In response to the wave of changes which followed the general election, the General Council's view was that:

...the organisational structure was less important than the adequacy, quality and type of scientific research and the application and development of results. As the work of the DSIR seemed to have developed on the right lines, care should be taken to ensure that any new organisation would stimulate and increase the valuable work carried out by the DSIR.⁴⁶

The General Council went on to contrast favourably the Labour Government's new structure with the proposals previously advanced by Trend:

Although the DSIR had provided a valuable link between research in universities and similar institutions and the practical technological needs of industry, the General Council recognise that the new machinery would, in many senses, be an improvement on the old, and certainly was to be preferred to the previous Government's proposals. The creation of the Ministry of Technology was seen by the General Council as an indication of the importance accorded by the Government to need to achieve greater efficiency, adaptability and technological progress in British industry.⁴⁷

Although the TUC had formally taken little part in the inner party discussions on science by Labour, the creation of the Ministry of Technology heralded a new era of cooperation and integration between Government and trade unions on science and technology policy.⁴⁸

2.2. Trade Union Participation and Industrial Research Associations

The General Council's policy of seeking trade union representation in policy-making on industrial research was pursued in regard to state bodies at a national level but also for affiliated unions at the level of particular industries. This was most successful in the field of cooperative industrial research conducted by the research associations (RAs).⁴⁹ The initiative taken by the TUC in the 1940s to secure trade union participation in the RAs remained an important aspect of the work of the Scientific Advisory Committee throughout the 1950s and early 1960s.

In 1955 the General Council had restated its commitment to

such involvement on the grounds that:

Trade union participation in research activities enables, the General Council believes, a better understanding of possible industrial developments and their implications for trade union members while the Research organisations benefit from the practical knowledge and experience of trade unionists.⁵⁰

The TUC held that the RAs had an important role to play in ensuring a greater application of science to industrial production and by implication enhancing Britain's industrial performance and international competitiveness. The General Council's objective was thus, through participation, to smooth the path of technological innovation to the mutual benefit of labour and capital. The General Council had already received considerable cooperation from the DSIR in alerting RAs to the possibilities of trade union participation.⁵¹

The TUC's official policy of seeking to support the processes of technological change was expressed in 1954 in a degree of dissatisfaction progress towards greater participation:

General Council members regarded the present position as unsatisfactory and stressed the importance of trade union participation in the research associations, not least as a means of getting advanced notification of probable changes in the industry, which enabled a union to prepare for necessary adjustments and thus avoid suspicion of new methods.⁵²

Thus further assistance was sought from the DSIR to encourage RAs to make provision for trade union representation on their governing bodies. The result was that a Scientific Advisory Committee report, 'Trade Unions and Research Associations', indicated a

steady improvement in the level of representation.⁵³

At the request of the secretary of the SAC the DSIR had surveyed RAs with trade union connections. The DSIR's survey had solicited assessments of the value to the individual RAs of trade union participation. 16 RAs had some form of trade union connection (an increase of 4 since 1949); 8 RAs were interested but had made no definite arrangements; 17 RAs had no connection whatever with their relevant trade union organisations. Of the RAs with some trade union connection the DSIR had found that the consensus of opinion was that not only did trade union representatives give helpful advice to RA councils and research committees but work on improved industrial processes and products were also said to have been helped.⁵⁴

The DSIR reported on some of the principle reasons given by RAs for not having closer contact with trade unions. These included obstacles arising from the form of Articles of Association, the autonomy of the RAs and the wide fields covered by some RAs which affected a number of different trade unions. The SAC expressed its appreciation to the DSIR for 'bringing the advantages of trade union participation before various RAs'.⁵⁵

A further survey of the relationship of trade unions to the research associations was undertaken by the SAC in 1957. The number of RAs with trade union connections had risen from 16 to 18 with the addition of the Glass Industry RA and the National Institute of Industrial Psychology (NIIP).⁵⁶

The form of trade union participation was generally that of

cooption to Council, the RA's governing body, but included also representation on appropriate sub-committees. On the basis of the survey the SAC felt it was worthwhile to press for further representation where some interest had been expressed (in 10 cases). This pressure was channelled again largely through informal contacts between the TUC's Production Committee and the staff member at the DSIR concerned with RAs. In addition the matter was raised through the General Council members who represented the TUC on the Council of the DSIR. RAs were encouraged, where necessary, to amend their Articles of Association to provide for trade union membership and participation. It was hoped to stimulate more interest from the relevant affiliated unions by circulating information about the work of the DSIR and the RAs.⁵⁷

The case for trade union representation in the RAs was also raised at the NPACI in July 1958 at a meeting when the Lord President of the Council was present.⁵⁸ In October 1958 the DSIR informed the General Council that it was doing all it could to encourage RAs to provide for trade union representation. During 1958 trade union representatives joined the governing bodies of the Lace, Scientific Instruments, Hydromechanics and Internal Combustion RAs; these appointments, however, were largely in a personal capacity.⁵⁹ In the following year W.J. Carron (AEU) was coopted on to the Council of the Production Engineers RA and L. Green (Heating and Domestic Engineers Union) on to the Heating and Ventilation RA.⁶⁰

In the circumstances of the growing concern over the level of industrial research in Britain in the early 1960s the position

and future of the RAs was re-evaluated by the Minister for Science, Lord Hailsham. In February 1961 Hailsham at a meeting of the NPACI expressed some dissatisfaction with the degree of support given by industry to cooperative research and announced that he was considering changes in the organisation and structure of the RAs. The proposed changes were also under discussion by the Parliamentary and Scientific Committee to which the General Council submitted its views.⁶¹ The General Council was in favour of some rationalisation of the RAs where appropriate mergers could be promoted. However, the cooperative nature of the RAs should be ensured. The problem of ensuring the continuance and expansion of funding might be solved by the application of a compulsory levy on industry. Similarly a higher proportion of financial support for the RAs could be provided by government.⁶²

The SAC's review of industrial science policy in 1964 summarised the TUC's view:

...research associations, DSIR, research stations and the universities should be more closely linked; research associations should be amalgamated where their resources are too small to permit effective research work; compulsory membership of them should be introduced; and the Government should appoint some of the members of their Councils.⁶³

The TUC's advocacy of compulsory measures applied to the RAs was completely unacceptable to government.

However, the number of trade unions represented within RAs had reached over 30 by 1963. But there was little attempt by the TUC to gauge the impact or effectiveness of such participation. While the TUC actively supported the principle of cooperative

research in the national bodies where it was represented (such as NPACI) there appeared to be no attention given to the development of a coordinated approach to research strategies in particular sectors within a trade union perspective.

2.3. The TUC and 'Human Factors' Research

The TUC was committed to supporting the introduction of new forms of work organisation and new technology as a means of improving industrial productivity. This support was, however, qualified by the need to assess the social effects of such innovation. In its statement to the Jephcott Committee the General Council had made a strong plea for adequate funds to be provided for research into such problems - 'human factor' research. The TUC had been involved in such studies since the establishment by the post-war Labour Government of the Committee on Industrial Productivity in 1947 under Tizard. The committee had included two representatives from the employer's organisations and two representatives nominated by the TUC. A series of panels had been set up to deal with 'Technical and Operational Research', 'Technical Information Services', 'Import Substitution' and 'Human Factors Affecting Industrial Productivity'.⁶⁴

Following the demise of the Committee on Industrial Productivity, in 1950, the work initiated by the 'human factors' panel was continued under the joint auspices of the DSIR and the MRC. The General Council's view was that:

Increased productivity should not be the sole object of these investigations and, for example, the social effects of particular methods of work such as shift-working might advantageously be studied.⁶⁵

A joint DSIR/MRC Committee on Human Factors was established in 1953 with overall responsibility for two committees on Human Relations and Individual Efficiency. Each committee had two trade union representatives appointed by the TUC's General Council.⁶⁶ With additional assistance from the DSIR's Conditional Aid Fund these two committees sponsored a large number of research projects which included attitude surveys on the introduction of automation, management structures and work study schemes. This research was carried out by universities and other research organisations including the industrial RAs.

The TUC's Scientific Advisory Committee argued that such research should be done in closer cooperation with industry (although not necessarily oriented towards particular problems of industry only). The SAC emphasised to the General Council the importance of work into 'human factors' in industry and its potential value to trade unions. It believed, however, that such research should not be done at the expense of other research related to industrial problems such as that undertaken by the RAs. Additional government funding should be provided for such studies. The SAC's view was much influenced by the presence of the prominent industrial psychologist Winifred Raphael. She had suggested that trade unions should sponsor their own work in the area but the suggestion was not taken up.⁶⁷

In March 1957 the Human Relations Committee and the Individual Efficiency Committee were wound up and final reports on their work were to be produced. The DSIR followed up their work by establishing its own Human Sciences Committee again with two trade union representatives (L.T. Wright and E. Fletcher). In spite of the TUC's continuity of representation on the committees responsible for 'human factors' research, the SAC and the Production Committee acknowledged that little attention had been given 'to developing a coordinated or systematic trade union approach'.⁶⁸ The establishment of the DSIR's Human Sciences Committee was seen as an opportunity for developing that approach in view of the broad terms of reference 'to keep under review the development of the human sciences in relation to industrial needs'.⁶⁹

The reasons advanced for the lack of distinctive trade union approach were the inadequacy of social science information to date, the haphazard way that social science research had developed and some suspicions on the part of some trade unionists as to the ultimate purpose of some types of research. The SAC report 'Human Factors in Industry', endorsed by the Production Committee, indicated the areas of human science research in which trade unions would be expected to be interested and hold views about. These included sociological research into the attitudes of the public, or sections of the public, to industrial matters such as the affect of technological change on a community; sociological and psychological research into factors concerned with relationships between different industrial groups such as office staff and factory workers labour turnover effectiveness of group incentives;

Psychological and physiological research into factors concerning individual workers and their jobs such as the design and layout of machine controls. Examples of such research included two projects undertaken at Cambridge concerned with manual machine tool controls and visual fatigue; a study at Liverpool University of the relationship between technical and social change in a large integrated steelworks; work at University College, London, on the affect on workers of incentive payment schemes.⁷⁰

The SAC's view was that the TUC had a dual task. Firstly to seek 'to influence the selection of research projects to the extent of submitting subjects for investigation and report'; secondly 'to study research results with a view, where necessary, to disseminating them and securing their implementation'. With two members on the DSIR's Human Sciences Committee the TUC was in a position to have some influence.⁷¹

In 1960 TUC representatives and delegates from six affiliated unions attended a 3 day national conference on Human Science Research. As a result of the conference the General Council was influential in encouraging the British Productivity Council to give increased attention to the subject of ergonomics. The General Council also increased the time devoted to ergonomics at the TUC's Training College courses on production and management subjects.⁷² The TUC's enthusiasm for the new subject of ergonomics was not perhaps unconnected with the fact that Professor Murrell, the inventor of the term ergonomics, and L.H. Tippett, the originator of activity sampling, were prominent members of the Scientific Advisory Committee.

A further aspect of its promotion of social science research was the suggestion put to the DSIR that one of its sponsored research projects should be designed to study the economic, industrial, social and other characteristics of a high unemployment area. The object of the study would be to determine the kind of industrial development most likely to lead to permanent improvement in levels of employment. The General Council wrote also to the Committee of Directors of RAs suggesting that industrial RAs could appropriately initiate or increase interest within their industries in systematic efforts to 'fit the job to the worker'. Similarly a one day conference was held at Congress House for affiliated unions on the subject of ergonomics.⁷³

The General Council had limited success with its proposal to the DSIR in spite of the obstacles to the project presented by the shortage of senior research workers and limited financial resources. The proposal was discussed at a joint meeting of representatives of the TUC, DSIR and NEDC and Government Departments with responsibility for regional policy. It emerged that no Government Department had comprehensive knowledge of similar research projects in hand by universities or other research organisations. The DSIR undertook to collate information on such regional research projects and the TUC's original suggestion was to some extent incorporated subsequently in a Government sponsored regional study of Merseyside.⁷⁴

The TUC's advocacy of ergonomics similarly met with some success; the Committee of Directors of RAs established a sub-committee 'to encourage greater attention to ergonomics by the

associations'. However, the General Council was 'impatient at the slow rate of development of ergonomics in British industry':

To some extent this poor progress may be due to insufficient research, but a more likely reason is lack of appreciation by managers, designers and specialists (e.g. work study practitioners) of the benefits that can accrue from a scientific approach to such problems as noise, lighting, fatigue, design of equipment and the organisation of work.⁷⁵

The setting up of a research council responsible for research work on ergonomics, industrial psychology and industrial sociology became a 'principal point of policy' for the SAC. They felt that the DSIR Human Science Committee occupied too subordinate a position to be able to initiate sufficient work.

The SAC was thus disappointed with the Hayworth Committee report on social studies which was ambiguous on the extent to which the Human Sciences Committee's activities would be incorporated into the work of the proposed Social Science Research Council as 'an integral but distinct part of its activities'. It was concerned also about the composition of the new research council and was in favour of the council having a substantial minority of lay members (including trade unionists) to ensure a proper balance in its work. These points are subsequently taken up with the Department of Education and Science.⁷⁶

A meeting took place in May 1966 between the Secretary of State for Education and Science and the SAC. The trade union side expressed their fears concerning the dissolution of what had previously been a more inter-disciplinary approach under the old Human Sciences Committee in contrast to some of the divisions

now imposed by the splits between the SSRC, the SRC and the MRC. They strongly urged that the new research council should have trade union representation. The Secretary of State did not accept their proposal that:

The best course would be for the Social Science Research Council to take over the entire responsibility for human sciences research in industry with appropriate arrangements to ensure that the human sciences were not submerged by its interests in other aspects of the social sciences, some of which had no direct relation to industry.⁷⁷

The Minister said that sufficient mechanisms for ensuring effective coordination and cooperation between the Research Councils would be established. The SSRC had already established a Management and Industrial Relations Committee with similar responsibilities to those proposed by the SAC. However, as a result of these discussions Sir William Carron was appointed as the TUC's representative on the Management and Industrial Relations Committee and a close liaison subsequently developed between the SSRC and the SAC.⁷⁸

3. The TUC and Technology Policy

3.1. The Automation Debate

The development of the TUC's views on industrial research and science policy generally proceeded in an uncontroversial way apart from intermittent pressure from the AScW for the General Council to give them a higher priority. In contrast, however, the nature of the trade union response to the impact of technological change, such as automation, was beset by controversy and became the site of a vigorous clash between the right- and left-

wings of the labour movement.⁷⁹

The changes in managerial practices and the implications of new technology (falling under the general rubric of 'scientific management') had been implicitly recognised in the formation of the TUC's Production Department in 1950.⁸⁰ And the creation of the TUC's official policy on automation in the mid-1950s was the work of this department with the assistance of the Scientific Advisory Committee. The sources of this official policy lay also in the close attention paid to the studies of automation undertaken by the DSIR. The views of affiliated unions were sought through a survey conducted in 1955 and also emerged in two debates at the annual conferences of 1955 and 1956. A further forum of discussion was the Non-Manual Workers Advisory Council.

It was Blackett, who at a meeting of the newly reconstituted SAC in February 1954, had introduced the topic of 'the electronic control of industrial processes' and had said that:

Information was needed on both the technical and economic aspects of automation, as a basis for estimating the likelihood of the widespread introduction, and its effect on working conditions. In both the USA and USSR there had been publicity on the development of 'automatic factories', and useful information could be gained from those sources.⁸¹

The General Council members on the committee endorsed the view that papers should be prepared and Blackett agreed to obtain further information from the DSIR.⁸²

By January 1955 a draft report on automation had been prepared which was subsequently circulated by the Production

Department to affiliated unions for their comments.⁸³ The potential significance of the issue was indicated by the presence of the General Secretary of the TUC, Sir Vincent Tewson, at the SAC meeting to discuss the draft report. Tewson's view was that 'much harm could be done by exaggerated and ill-informed publicity on automation; such reports could be used as an excuse for slacking-off trade union support for improving efficiency in industry'.⁸⁴ This position became a familiar theme of the right-wing proponents of trade union responses to automation which emphasised its positive content.

The draft report reviewed the development and application of automation in manufacturing processes (e.g. machine tools and mechanical handling) and in office work (e.g. electronic computers). It discussed the economic aspects of automation in relation to capital requirements and market conditions:

Given the technical advance of automation and the constant lowering of equipment prices and not less important the continuation of a high level of economic activity, the conclusion is inescapable that 'full-blooded' automation in some industries and the problems that go with it are nearer than is sometimes assumed. Little is known, however, of the human, social and industrial implications of automation.⁸⁵

The report went on to suggest a number of implications which bore directly upon trade union interests. In the first place unemployment created by the introduction of the new technology would tend to favour the growth of craft and technical unions at the expense of other unions. Automation might also affect the ability of trades unions to organise workers if the numbers of production workers were reduced considerably and scattering took place as a

result of new forms of work organisation. The problem of organisation would be accentuated if 'the workpeople choose to associate themselves with "vertical" technical or functional groups in the place of work'.⁸⁶

A further problem might be created by the piecemeal introduction of automation and its effects in relation to existing wages structures. It might prove difficult to translate productivity gains from automation into general improvements in conditions of employment. The report went on to state that:

The major job of trade unions will be to keep automation within the field of industrial relations. Automation can make a substantial contribution to social wellbeing but there is no automatic transfer scheme to ensure this. The trade unions will see as one of their main duties the performing of this function.⁸⁷

At the core of the political debate over automation within the labour movement was the question of the extent to which trade unions could actually perform this function within the constraints imposed by a capitalist society.⁸⁸

The SAC's view was that in general redundancy created by automation would be absorbed through labour turnover and restricted labour recruitment in particular firms; although more information was needed concerning the speed, direction and magnitude of development. The committee was concerned with the problems of labour transfer and the increasing importance of technical education and training.

In addition to the SAC's close liaison with the DSIR on these problems other information gathering exercises included a visit to

J. Lyons and Co. to see their electronic computer, 'Leo', in operation.⁸⁹
The TUC were also represented at the first major conference in Britain to examine the issue of automation in a comprehensive and systematic way. This was the conference organised by the Institution of Production Engineers, in June 1955, which was attended by over 1,000 engineers, scientists and factory managers. E. Fletcher representing the TUC said that: 'the Trades Union Congress would cooperate if there was a background of good relations, consultation and redundancy procedures including control of intakes'.⁹⁰

Twenty affiliated unions responded to the draft document and a formal statement of policy was received from the Electrical Trades Union (ETU). In summary it was reported that:

...unions drew attention to economic and foreign competition aspects of the introduction of automation and electronic machinery in industry together with labour displacement problems and the need to maintain purchasing power and to secure high standards of living. Reference was made to the importance of joint consultation, demands for new types of skill and the need for adaptive training and re-training programmes.⁹¹

Blackett commented that 'the potentialities for development in automatic controls and electronic systems in every sector of industry were very great especially if the pressure for defence armaments should be eased'.⁹²

An opportunity for extended debate of the subject was provided by the annual conference of 1955. The text of the SAC memorandum on automation was included in the report to Congress as approved by the General Council:

The General Council expressed the view strongly that in the circumstances much harm could result from exaggerated and ill-informed publicity on the subject and the proposal by DSIR to survey automation developments and to sponsor research into attendant problems was particularly welcome.⁹³

Crawford, chairman of the SAC, emphasised the underlying commitment of the General Council to technological change even when it implied changes in the existing structure of the trade union movement:

...when the interests of all unions have to be considered it really doesn't matter to us whether diminution takes place in the ranks of one union, provided that these workers are not left high and dry but will find their place in other industries. That process of shifting industries is essential to a healthy economy and is happening all the time.⁹⁴

According to Crawford the job of the trades unions were to make the government aware of the problems. However, Crawford's left-wing critics took this approach as indicating his membership of the 'great technological advance under monopoly capitalism' school of thought.⁹⁵

The 1955 debate took place on a resolution on 'Technological Advance' moved by F. Hayday (National Union of General and Municipal Workers) which welcomed the General Council's existing initiatives and argued that technological advance presented new opportunities for securing higher living standards but that:

...these opportunities will be attended by new complex human, social and economic problems, the just and peaceful solution of which will depend upon a greater measure of workers' participation in industry through the medium of joint consultation.⁹⁶

In his supporting speech Hayday argued that the negative consequences of technological change could be prevented by the action of a strong trade union movement. Similarly J.H. Williams of ASSET denied that there was any need to 'fear' automation. The major problem of technological redundancy could be handled through the shortening of the working day; the need for new skills could be answered by retraining and the equitable distribution of benefits could be ensured by effective trade union participation.

While the right-wing view was that the introduction of automation was controllable through active trade union participation, the position of the left was that such an approach was overly complacent and that there was little chance of effective control whilst industry was predominantly in private ownership.

An amendment moved by NUPE to the original resolution sought to introduce social ownership as a main element in TUC policy:

Congress welcomes the initiative of the General Council in commencing discussions on trade union problems arising from these new developments and urges that plans for the extension of social ownership to appropriate industries be prepared in order to facilitate and control technological development in the interests of the worker and the community.⁹⁷

The supporting speech from B. Roberts used the historical precedents presented by the dislocations, distress and disorder arising from the introduction of new technology in the first industrial revolution in a framework constituted by the untamed exercise of private interests. Technological knowledge, he argued, was 'a social project' which required social infrastructures and thus

should not be controlled by private interests. The Soviet Union and other communist countries were cited as models of rapid economic and technological progress. Roberts concluded that in not recognising Britain's need for a more rational economic system that 'we shall regret our failure to eliminate wasteful private enterprise and our neglect to reorganise our production processes'.⁹⁸

Crawford in replying to the debate stressed the continuing expert disagreements about the likely outcomes of automation and attacked NUPE's view that the technologically advanced nature of an industry was a useful criterion for nationalisation.⁹⁹ Similarly he argued that the threat of nationalisation would in current circumstances act as a disincentive to innovation. The defeat of NUPE's amendment established the general approach of seeking consultation procedures over automation at local and national levels as the cornerstone of the TUC's official policy.

The approach was embodied in a major policy statement, 'Trade Unions and Automation', which was presented for the approval of the 1956 annual conference.¹⁰⁰ This offered the left-wing an opportunity to reverse the defeat of the previous year.

The new draft statement, 'Trade Unions and Automation', was prepared in January 1956 in the light of the previous conference debate and made special reference to the question of public ownership:

During the discussions it was urged that the only way to control automation and to see that the benefits were made available to all, was to extend public ownership of industry. These demands were rejected largely on the grounds that the whole subject was too speculative and uncertain, that what was required was further investigations into its effects, and that in any case public ownership was not a question which turned on the use or non-use of automated processes and controls.¹⁰¹

The general conclusion of the report was that the introduction of automation would be evolutionary rather than revolutionary and its problems were largely the responsibility of the unions and employers in each industry to be discussed and negotiated through 'appropriate machinery'.

However, the statement was again revised to take into account the conclusions of the DSIR's report on automation and its impact on management and labour - an advanced copy of which had been confidentially supplied to the Scientific Advisory Committee. The DSIR's report complemented the SAC's own approach particularly in its assessment of likely impacts on labour:

Provided the various problems are well considered and provided the trade unions concerned are brought into consideration so that workers are kept informed as to how they will be affected, it should be possible to introduce automation with a minimum of disturbance.¹⁰²

The document outlined the industrial relations implications as including problems of labour displacement, transfer, seniority, wage-rates, skill and shift work.

The main comments by the Production Department stressed the need for more research on the economic and social implications of automation. This emphasised the TUC's role on the Joint DSIR/MRC Human Relations and Individual Efficiency Committees. Emphasising the line adopted by the General Council it was stated that:

The analysis of the three main technical trends (automation and mechanisation; automatic control; and automation and electronics) is valuable in putting developments and possibilities into perspective and emphasising that whilst a technical revolution may be taking place it cannot as yet be described as creating an industrial - much less a social - revolution.¹⁰³

Many imponderable factors would influence the speed at which automation might be introduced which made it impossible to forecast the pace of future developments.

The SAC's document was re-drafted to incorporate much of the style and analysis present in the DSIR report. On the pace of change the statement emphasised that:

There are as yet no completely automatic 'push button' factories - which some publicists seem to imagine would be empty of maintenance workers. There is no reason to accept, therefore, that an industrial, much less a social, revolution is imminent. From the analyses of DSIR and other authorities it is clear that automation has long roots. It is not new, any more than technological development and change generally are new - or the fact that problems are created as result of change. The displacement of manpower by machines is as old as industry, and problems might be more acute if industrial change did not take place.¹⁰⁴

The document then recapitulated the factors which would determine

the pace of introduction of the new technology: capital costs; markets; efficiency in manufacture and use; management efficiency; availability of trained personnel; availability of equipment. Similarly the identification of implications for trade unions covered similar ground to the DSIR report; the possibility of redundancy; the effects on skills; organisational, psychological and sociological implications. But that 'in the opinion of British trade unions - and here they are in accord with DSIR views - there is nothing fundamentally new in automation'.¹⁰⁵ The rate of introduction should be adjusted as far as possible so that it could be dealt with by an adequate and effective negotiating and consultation machinery:

Benefits from automation will not come automatically, nor can problems be left to sort themselves out as best they may or, from the trade union point of view, be left to management to deal with. There is a strong insistence by unions, therefore, that all questions pertaining to automation - as with any industrial matter - must be discussed and negotiated through machinery set up for the purpose. It is through this machinery that trade unions can mobilise and organise cooperation and at the same time ensure that their members' interests are safeguarded.¹⁰⁶

Public control of highly automated industries was rejected as a solution. And similarly public control would not release trade unions from the responsibility of continuing to protect and advance the interests of their members.

It was these conclusions which were most sharply attacked at the annual conference debate on automation in September 1956. The principal resolution on automation moved by F.L. Haxell of

the ETU welcomed the attention already given by the General Council to the subject and declared:

- (a) That when automation is to be applied or contemplated it is essential that discussion between the employer and the employee's representative shall take place;
- (b) That in such discussions it is the responsibility of the unions to ensure that the fullest consideration be given to recruitment and training policies and the avoidance of redundancy, the maintenance of the level of earnings, and the reduction in the price of commodities being produced and that where labour is displaced adequate maintenance should be paid.¹⁰⁷

Haxell, a prominent communist trade union official, however, gave a speech which was, in many respects, at variants with the approach adopted in the resolution and advocated by the majority of the General Council. Haxell's Marxist view of social development emphasised that the objective of capitalists in automating production processes was to reduce labour costs and that 'it is sheer humbug to suggest that automation in a capitalist society will improve the lot of the people or improve the economy of the country'.¹⁰⁸ He argued that while automation might lead to higher profits this would be at the expense of a reduction in the labour force and hence in the purchasing power of working people leading to further unemployment and economic crisis.

Haxell said that:

It is only under a planned economy, a Socialist Society, that one can expect the whole benefits of improved methods of production being enjoyed by the community as a whole.¹⁰⁹

Underlying Haxell's speech was a politics of industrial confrontation rather than of cooperation:

It is our considered opinion that automation will benefit the people of this country to the extent and degree that the Labour Movement is able to force the Government and the employers to adopt measures and economic controls that will, coinciding with increased production, bring increased wages and improvement in the purchasing power of the people, a reduction in prices and a carving of the ever-increasing high level of profits.¹¹⁰

The response of the labour movement must be in terms of a policy which would increase purchasing power, reduce the length of the working week, guarantee retraining and compensation.¹¹¹

Haxell's view was more closely allied to a resolution moved by ASSET and opposed by the General Council which argued that:

...only by national planning in the interests of the whole community, can the introduction and application of automation and nuclear power provide the maximum benefit for all people.¹¹²

The resolution went on to attack the 'negative and muddled attitude' of the current government and went on to make the specific proposal for the setting up of a National Planning Board for Automation. This would be under the control of a minister and would have on it representatives from the employers, the trade unions and the scientific community. The functions of the Board would be to establish when and where automation should be introduced; to seek to standardise electronic equipment and control mechanisms; to ensure that there were agreed procedures for joint consultation; to provide for compensation measures for job

losses; and to ensure the participation of both employers and trade unions in technical retraining.

H.G. Knight for ASSET criticised Crawford's introductory speech to the Production and Industrial Development section of the Annual Report.¹¹³ Knight charged Crawford with complacency and referred to steps taken in other countries to provide for central coordination (for example, the Ministry of Automation in the Soviet Union). The aim of the resolution was to ensure that central planning should be combined with consultation.¹¹⁴

Haxell's speech was attacked by H. Douglas (Iron and Steel Trades Confederation) who argued that increases in earnings could not run ahead of improvements in productivity:

You must have profit for your industry, whether it be nationalised or whether it be privately owned; and the best method of dealing with that profit has been found by experience to be by a socialist government adopting a socialist taxation policy.¹¹⁵

Haxell received support from N. Dinning of the AEU who referred to recent experiences in the car industry where the use of the strike weapon appeared to be the only means of redress and that 'the only possible solution for the British working class so far as automation is concerned is for industry to be publicly owned by the workers themselves so that with a planned economy we can really plan for an expanding market'.¹¹⁶

However, J.M. Boyd, also of the AEU, stated that the official position of his union was one of opposition to the proposal put

forward by ASSET for a National Planning Board. He argued that the proposal was not viable in present circumstances and the best way forward lay in joint consultations which was the function of individual unions in their respective industries.

Crawford, speaking for the General Council, recommended acceptance of the ETU's resolution but expressed disappointment at Haxell's continued emphasis on public ownership which did not form part of the motion:

The fact of the matter is that despite our criticism of capitalism and our desire to have a Labour Government in this country we have seen the time...when we have employed the largest labour force that we have ever had in our history.¹¹⁷

In rejecting ASSET's motion Crawford also rejected the idea that the TUC was doing nothing by referring to the discussions held in the Production and Scientific Advisory Committees, in the Non-Manual Workers' Advisory Council, the TUC's hosting of an international conference under the auspices of the European Productivity Agency, and its representation within the DSIR and the RAs. Crawford assured the conference that the General Council would continue to monitor closely the implications of automation.

Conference overwhelmingly endorsed the policy advocated by the General Council. The ETU motion was carried and the resolution from ASSET was defeated in a card vote by a substantial majority of 4,652,000.¹¹⁸

The outcome of these debates effectively sealed TUC policy on automation for over twenty years. Eschewing a policy of

confrontation and the calls for public ownership and central planning the TUC's 1956 policy statement had laid down the general safeguards which would be the minimum requirements for trade union cooperation over automation. These safeguards were that workers should be fully consulted and informed in advance about specific developments; full employment should be maintained and backed by adequate redundancy arrangements and retraining facilities; wage rates should be safeguarded; working conditions should be improved with due attention given to human problems; and the benefits of technological progress should be shared by all on an equitable basis.

The statement was revised again in 1965 but without substantial changes to its basic philosophy.¹¹⁹ Throughout the late 1950s and early 1960s the General Council, the Production Department and the Scientific Advisory Committee had kept a watching brief on developments in automation technology.¹²⁰ However, the relatively slow rate of development of the new technology in Britain appeared to vindicate the TUC's original analysis and response and the official view remained wedded to the idea that 'greater danger for trade unionists might result from insufficient technological change than from too much'.¹²¹

3.2. The TUC and Atomic Energy

3.2.1. The Civil Programme

The impact of atomic energy was perceived with automation as the other great technological issue of the 1950s. Bob Edwards MP of the Chemical Workers Union, during the 1956

automation debate at the TUC's annual conference, argued that:

We are living in an age when two mighty new forces are unfolding simultaneously, that is the mighty new force of electronics and that of nuclear energy. It has never happened in the world before that two great revolutionary sciences have moved into operation together. The development of nuclear power can and possibly will transform the whole balance of economic and political power in the world and the development of automation and electronics will change inevitably the whole industrial landscape of the world. To say that you can leave the normal machinery of industry and the trade unions to deal with the political and economic problems that arise out of the development of these two new forces seems to me to be just nonsense. 122

However, TUC debates and policy on the civil use of atomic power was not characterised by the kind of ideological divisions which had beset automation. The TUC gave its support to the Conservative Government's rapid expansion of the civil atomic programme with little or no internal opposition. The major concern was to bring the workers in the new industry within the framework of traditional industrial relations. In contrast to its absence from the automation debates the Association of Scientific Workers played a prominent role in bringing the potential hazards of atomic energy to the attention of Congress.

The civil exploitation of atomic energy was closely linked to the TUC's advocacy of a national coordinated fuel and power policy. The Scientific Advisory Committee, especially under the influence of Prof. D.M. Newitt, had made a particular contribution to the formation of this policy in the late 1940s in association with the TUC's Fuel and Power

Committee. For, example, at a meeting of the SAC in February 1954 Newitt had been extremely critical of the failure of the Conservative Government to implement the findings of the Ridley Committee to which the TUC had made a significant contribution. It was at this meeting that Blackett drew attention to what he saw as a big change in Government policy towards increasing the effort devoted to developing atomic energy for industrial rather than military use.¹²³

The principal stimulus to the discussion was the publication in February 1955 of the Government White Paper detailing a programme for nuclear power. This was followed by a statement in June 1955 by the Ministry of Fuel and Power which announced the Government's intention to build an additional six reactors to the eight already proposed.¹²⁴ The TUC's General Council accepted the fundamental rationale for the proposed programme namely that the development of nuclear power was essential to enable Britain to retain its position as a leading industrial power. The programme was needed 'to meet the growing fuel and power demands of industry and to offset the strain on available coal supplies'.¹²⁵ The programme had been substantially endorsed by the SAC with only one reservation:

...the committee hold the view that the major problem in the nuclear power programme was the shortage of scientific and technical personnel - a problem which the committee was strongly of the opinion should receive immediate attention otherwise development difficulties would be acute.¹²⁶

Endorsement of the General Council's and the SAC's position came from the Association of Scientific Workers at the TUC's 1955 annual conference. A resolution moved by E.H.S. Burhop (a prominent opponent of the military use of atomic energy) welcomed the decision to proceed with the construction of civil nuclear power stations:

Realising that the future of British industry and the British economy to a great extent depends on expanding all resources of power available to us, it urges H.M. Government to extend and accelerate the development of nuclear power stations.¹²⁷

Burhop painted a glowing future for the development of civil nuclear power:

By 1965 these stations should be supplying about 5% of the estimated 40,000 mega-watts of totally installed capacity. The importance of nuclear power will then be increasing rapidly and by the year 2000 an estimate made recently by Sir John Cockcroft envisages all our electricity being generated in nuclear power stations burning 250 tons of uranium or thorium per annum and producing an amount of electricity equivalent to that obtained by burning 250 million tons of coal.¹²⁸

Burhop launched an attack on the recent criticisms of Government policy by the President of the British Association for the Advancement of Science.¹²⁹ Sir Robert Robinson had criticised the decision to proceed with a programme of nuclear power station construction on several grounds. He believed that the estimates of probable costs were false, that there remained unsolved problems with the design and that there remained a clear military connection. He urged that the fuel crisis should be solved on the basis of the more

efficient utilisation of coal.

In his presidential address to the British Association
Robinson had urged:

I submit that it is desirable that the inner circle of advisers of Governments should not only be right but also be 'seen to be right'. This can only be secured by a relaxation of secrecy on the scientific aspects of nuclear energy developments and by some form of international consultation before novel and greatly increased releases of energy are attempted.¹⁸⁰

Burhop, in contrast, argued that the high capital costs of nuclear stations would be offset by smaller operating costs and fuel costs. Similarly the costs of nuclear power production would in fact decrease over time. He described the decision to proceed with the civil programme as 'bold and imaginative' and urged that it was up to the trade union movement to prevent the direction of plutonium to military rather than civil purposes. The major obstacle to the programme was the lack of a sufficient supply of qualified scientists and engineers. The ASwW resolution was carried without dissent.

Further support for the civil nuclear programme was expressed by the SAC on the publication of the first annual report of the Atomic Energy Authority (covering the period July 1954 to March 1955). The report described, for example, the arrangements for processing uranium and the progress which had been achieved in the design and development of a range of reactor types. Work on reactor construction had begun at Dounreay; at Calder Hall the reactor was nearing

completion. The work of the AEA concerned with isotopes of importance to the electronics industry and medicine was also stressed as significant from the point of view of the social utility of the new industry. The report claimed that the danger from atomic energy plants was extremely small and the sickness and injury figures compared favourably with those of other industries.¹³¹

The SAC meeting was attended by Sir Luke Fawcett who was a part-time member of the AEA. He stressed to the committee the importance of nuclear power to British industry because of the need to develop alternative sources of power to coal. He also commented that the industrial relations in the industry were generally good and progress had been made in establishing negotiating and consultative machinery. (A National Joint Industrial Council was to be set up with representatives from the various trade unions involved in the nuclear industry and representatives from the employers' side). The main problem in the development of the nuclear industry was said to be the recruitment of qualified scientists, technicians and engineers. The principal result of the SAC's discussion was that 'the committee expressed approval of the progress achieved by the AEA since being established'.¹³²

The SAC continued to maintain a watching brief on the evolution of the civil nuclear programme particularly in view of the Government's steady enlargement of the programme.¹³³ The committee's principal concern was the failure to develop a comprehensive and integrated fuel and power strategy. The

criticism was that the Government's nuclear programme was not sufficiently planned in relation to the developments and requirements of the other fuel and power industries. And 'it was recalled that in the TUC Evidence to the Ridley Committee in 1952 stress had been placed on the need for a national fuel and power policy'.¹³⁴ (The pursuit of this goal was to be taken up again in the early 1960s by a joint TUC and Labour Party working party.)

A resolution was moved by the AScW and carried at the 1957 Congress which argued that in order to close the 'fuel gap' :

- (i) More detailed coordination of power production from the three main sources, coal, gas and electricity, so as to minimise overlapping and keep the use of expensive imported oil and coal to a minimum.
- (ii) By ensuring the application of existing knowledge to secure greater efficiency in the use of fuel both in the industrial and domestic fields. The work of the British Coal Utilisation Research Association has shown the way and it is essential that power be given to the National Industrial Fuel Efficiency Service to secure action in the industrial field and to local authorities for the domestic field.¹³⁵

The TUC's Production Committee discussed the Association's resolution at its November meeting and requested an amplifying paper from AScW. This took the form of a document which sketched the outlines of a policy for a national plan for fuel and power, 'The Country's Fuel Requirements'. These proposals conformed in the main to the TUC's views as stated in Evidence to the Committee on National Policy for the Use of Fuel and

Power (the Ridley Committee whose report had been published in October 1952). The TUC side of the NPACI had attempted unsuccessfully to get the issue of fuel and power coordination discussed in that context in July 1958. The AScW went on to produce a more elaborate policy statement which I have discussed elsewhere.¹³⁶ However, little of value was to emerge from these initiatives.

3.2.2. Trade Unions and the Hazards of Nuclear Power

The nuclear accident at the Windscale plant in 1957, although under-stated by the authorities, nevertheless, provided some grounds for the emerging claims concerning the environmental hazards of the nuclear industry. The AScW had been prominent in support of the peaceful applications of atomic energy but had also sought to bring to the attention of the labour movement some of the hazards to the community and to workers of the nuclear industry. Scientists' concern had first been organised around the dangers of radioactive fallout resulting from the military testing of atomic weapons.¹³⁷ However, concern with these military aspects led into discussions of problems associated with the civil nuclear programme which included the protection of workers in the industry from radiation hazards, the adequacy of training, and the vital question of the disposal of radioactive wastes.

The Medical Practitioners' Union (MPU) had submitted a resolution to the TUC in 1955 which urged Congress to call upon the Government to give a strong lead in responding to 'danger

to human life from a rising level of radioactivity in the world'. The MPU wanted the Government to press for the establishment of an international organisation which would be responsible for research into the physical, mental and genetic effects of radiation. In addition the MPU wanted 'an end to all tests of atomic and thermo-nuclear weapons until the results of that research are made known to the people of the world'.¹³⁸

The General Council forwarded the MPU's motion (which had been overwhelmingly carried) to the Foreign Secretary. The Foreign Office replied that Britain had co-sponsored a resolution at the UN to set up a scientific committee to receive, collate, evaluate and publish information on radiation levels. The General Council had subsequently expressed the hope that the Government would take the initiative in attempting to secure international agreement on the question of tests of nuclear weapons.¹³⁹

Pressure for the setting up of an International Atomic Energy Agency was also taken up by the trade union movement internationally. The International Confederation of Free Trade Unions (ICFTU) in August 1955 had held a special conference on The Peaceful Use of Atomic Energy which pre-empted the UN's first 'Atoms for Peace' conference. The ICFTU issued a statement which urged the democratic control of the development of atomic energy, free exchange of information on atomic energy, and strict controls on production and the health and safety aspects of atomic energy. The ICFTU's views were submitted to the UN conference.¹⁴⁰

A second ICFTU conference was held in June 1958. An International Labour Organisation (ILO) committee of experts had made a number of proposals for health and safety standards to protect workers in the atomic energy industry. These were discussed at the conference along with progress in international cooperation and the representation of trade unions on appropriate bodies. The British TUC was represented at both of these ICFTU conferences which provided input to the national discussion of the issues.¹⁴¹

The AScW submitted resolutions to Congress in 1956 and 1959 which dealt with aspects of radiological protection. J.K. Dutton the AScW's General Secretary, moved a resolution in 1956 which drew attention to shortcomings in radiological protection measures within the National Health Service revealed in a report produced by the Medical Research Council. (At the same time, however, the resolution commended the record of the AEA in radiation protection.) The resolution called upon the Ministry of Health:

...to ensure without further delay, that the use of ionising radiation and radioactive substances within the NHS is conducted under conditions of protection not inferior to those recommended by the International Commission on Radiological Protection.¹⁴²

The AScW represented a large constituency of technicians working in the NHS. The resolution called for legislation which would enforce agreed international standards on all establishments using radioactive materials or ionising

radiations and which would control the supply of radioactive materials. Since the long term effects of radiation were still largely unknown the General Council was urged to press the matter as quickly as possible.

While AScW's motion (which had been carried) raised the issue of protection for workers involved in the use of radioactive materials, the Windscale accident in which large parts of the area around the reactor site had been contaminated, drew attention to the wider environmental aspects. The Agricultural Workers Union pointed out to the TUC's General Council that there were no trade union representatives involved in the liaison arrangements between the AEA and local community interests around the sites of nuclear reactors.¹⁴³ The liaison committees had originally been set up:

...to reassure local opinion on the hazards involved, to convey to the lay public the significance of any accident and to create administrative machinery for the protection of the population in the event of a serious accident.¹⁴⁴

Such committees had, for example, on them representatives from the National Farmers Union but there was no recognition of the rights and interests of TUC affiliated unions. The General Council approached the AEA which subsequently agreed to the appointment of trade union representatives to the liaison committees relating to establishments at Winfrith Heath, Capenhurst, Springfields, Windscale, Chapelcross and Dounreay.

Meanwhile AScW's 1959 resolution to Congress contained

a fuller trade union response to the problems which the Windscale accident had revealed. The accident had involved a fire in the reactor building and AScW's resolution (which was supported by the Fire Brigade Union) argued the case for greater coordination between the various agencies and public bodies which had been involved:

Of special urgency is the provision of information and equipment to public Emergency Services such as the Fire Services in order that accidents and fires involving radioactive hazards may be handled with the maximum protection for the members of those services.¹⁴⁵

The resolution went on to urge Congress to demand that the use of radioactive materials should be controlled by licence and that a system of comprehensive legislation should enforce proper standards of safety on all establishments using radioactive materials.

AScW was critical of the fact that regulations dealing with 'sealed sources' of radiation (drawn up under the provisions of the Factories Acts) were still only in draft form and two years after the draft code had first been circulated. Similarly that further regulations dealing with 'open sources' had not yet appeared even in draft form. The advisory code in the NHS was not enforced.

The resolution also recommended that a standard system of symbols of identification should be created for the labelling of radioactive materials.

The labour movement was urged to take up these issues

by F.A. Crone (AScW) because, in marked contrast to countries such as the USA and New Zealand, 'from official circles in this country there comes no leadership whatever, only a pallid succession of radically inadequate compromises'.¹⁴⁶ The General Council was pressed to establish a sub-committee to provide expert advice to affiliated organisations.

An amendment moved by NUPE argued that radiological protection should be the responsibility of a single Ministry rather than falling between the several stools of the Ministry of Health (Hospitals), the Ministry of Education (teaching and university laboratories), the Ministry of Power (AEA) and the Ministry of Labour (factories using ionising radiations). While endorsing AScW's resolution F. Hayday, for the General Council, rejected NUPE's amendment on the grounds that the problem was overcome by the existence of inter-departmental committees:

The Fleck Committee, following the Windscale accident, made a recommendation that the Atomic Energy Authority be looked upon as leading in that department to advise on these matters, and I would prefer to see the Atomic Energy Authority with a background of health and safety in this country of which they are very proud, and trained personnel, and the deployment of the best possible expert knowledge utilised in this way. That would be a far more sensible approach under present-day circumstances than that visualised by the mover of the amendment.¹⁴⁷

Congress rejected NUPE's amendment and AScW's resolution was carried overwhelmingly.

The General Council pressed the Ministry of Labour on

the speed of implementation of the regulations with some success.¹⁴⁸ In addition the General Council with the advice and support of the AScW and MPU made a number of submissions to improve the draft regulations. In particular the TUC was successful in obtaining provisions that ensured that no person should be exposed to ionising radiations unless they had received appropriate training concerning the hazards involved and the precautions to be observed.¹⁴⁹

The issue of training had been raised in a resolution moved by the MPU at the 1960 annual conference which had stressed that initiatives on radiological protection would only be successful if action at 'the top level' was supported by initiatives from the rank and file. The resolution had thus emphasised the need for adequate training of all workers liable to be exposed to ionising radiations.¹⁵⁰ This proposal was also in line with article 9(2) of an ILO conference convention on radiological protection. The TUC had also been represented on the Veale Committee which had recently reported on training in radiological health and safety.

These regulations for the protection of workers from radiation hazards represented only an elaboration of the existing Factories Acts. The Government, however, were engaged on a broader legislative programme in response to the growth of the nuclear industry. This included the Nuclear Installations (Licensing and Insurance) Act, 1959 and the Radioactive Substances Act, 1960. These pieces of new legislation to some extent met the concerns which the AScW

and the MPU had expressed to Congress.¹⁵¹

The Nuclear Installations Act specified that no one other than the AEA could operate a nuclear reactor or other nuclear installation without a licence and without observing the proper safety conditions. In November 1959 during the passage of the bill the trade union side of the National Joint Industrial Council had asked the General Council to oppose certain provisions. In particular the trade unions involved in the nuclear industry were opposed to the private manufacture of fuel elements and also the proposal for public funds to be available for private research in the nuclear field. In the event, however, the General Council did not press these points with the Government partly because the Labour Party had not opposed those provisions of the bill in parliament and partly because the Confederation of Shipbuilding and Engineering Unions (to which most of the unions on the NJIC belonged) was also not opposed to the bill.¹⁵²

The Nuclear Installations Act provided for absolute liability towards third parties for personal injury or damage to property caused by radioactivity. The Act was instrumental also in the setting up of the Nuclear Inspectorate.

During the passage of the bill the Government had announced the establishment of the Nuclear Safety Advisory Committee which would report to the Minister of Power. The purpose of the Committee would be to review safety matters requiring long term study such as the effect of technical

developments on the policy of siting nuclear reactors and the effect of medical advances on safety standards. In view of the TUC's involvement in matters of nuclear health and safety the General Council were invited to submit the name of a nominee to the Minister. F. Hayday was subsequently appointed as the TUC's representative on the committee. (Hayday had been also the TUC's representative on the ILO committee concerned with radiological protection.)¹⁵³

The Radioactive Substances Act 1960 provided for the registration of premises of users of radioactive materials; for the approved disposal of radioactive waste; for a national disposal service to handle waste which could not be dealt with in the area in which it originated; and for the making permanent of existing temporary controls over the AEA and other licenced nuclear installations.

The AScW in a resolution before Congress in 1960 had welcomed the fact that the disposal of radioactive waste was to become the subject of unified statutory control. However, the Association was critical of the fact that local authorities were excluded from exercising initiative or jurisdiction in the matter. Similarly the continued discharge of radioactive wastes directly into the sea by the AEA (for example, at Windscale) was criticised particularly as there was, as yet, no international agreement amongst expert opinion on the safest methods of waste disposal.¹⁵⁴

Hayday, for the General Council, rejected the position

put forward by Dutton for the ASw. The General Council's view was that central control and authorisation was essential due to the fact that there were over 1,000 users of radioactive materials. In addition there were insufficient experts to authorise the disposal of waste on a decentralised basis. Hayday cast doubt on the competence of local authorities to be able to deal with such a complex technical issue. Dutton replied that he did not accept this formulation or description of local authorities as 'lay people, inexpert in everything, particularly in technical matters...there was no reason why local authorities should not have their expert advisers'.¹⁵⁵ The resolution was, however, rejected by Congress.

As the rash of Government legislation relating to the nuclear industry faded the topic also receded as an object of the TUC's attention. In its dealing with the industry the General Council had been careful to avoid being over critical of its regulation and had approached the industrial relations within the industry conventionally and cautiously. For example, in 1960 Congress had rejected the application for affiliation of the National Union of Atomic Workers on the grounds that workers in the industry were already sufficiently catered for by the existing unions.¹⁵⁶

The TUC had not taken on board the wider implications suggested by the environmental considerations surrounding the issue of the disposal of radioactive wastes which had been raised by the ASw. It had concentrated on the more

immediate issues of health and safety of workers in the nuclear industry and had established its right to be consulted, for example, through its representation on the Nuclear Safety Advisory Committee. In this way the TUC's approach to atomic energy was of a piece with its general approach to other aspects of scientific and technological developments.

4. Conclusion

The frustrations and tensions in the relationship of the AScW to the TUC were expressed in an editorial reaction in the AScW Journal to Harold Wilson's Scarborough speech in 1963:

The speech did no more than bring together the principal demands put forward by the Association during the past twenty years...But we are still faced with an extraordinary degree of apathy in the Trade Union Movement. In 1945 Congress accepted a resolution from us, advocating the setting up of a Scientific Advisory Committee... The Committee was set up, but no one could reasonably claim that the General Council had made much use of it; indeed the impression gained from the Annual Reports is almost one of embarrassment. The TUC has committed itself, by the acceptance of AScW resolutions to some of Mr. Wilson's policies but our speeches have been received with polite boredom and the resolutions accepted with tolerant indignation. 157

In the earlier parts of this study I have attempted to describe the political history which lay behind the failing influence of the AScW at Congress. And in the following chapter I will examine the process by which some of the policies initially associated with the scientific Left gained currency within Labour Party circles. The process took place with little connection to the events within the TUC.

The TUC's Scientific Advisory Committee in the period 1956-1964 showed a complete detachment from the ideological roots of its formation in the 1940s. The outlook of the Committee was identified with the dominant positive view of scientific and technical change espoused by the 'social democratic' majority of the General Council. The role of the scientist members on the SAC was that of expert scientific advisors rather than as links with a wider constituency of organised scientists.

The TUC's interest in science and technology policy was subordinate to its wider economic goals - the improvement of living standards and the maintenance of full-employment. This centred crucially on the relationship between investment in industrial research and development and economic growth. However, in its approach to civil research policy there was a convergence with the concerns of industrial, organised business interests in the form of the Federation of British Industries and state institutions such as the Department of Scientific and Industrial Research.

The TUC's strategy for advancing the interests of its members revolved around representation and accommodation with the existing institutions of civil society and the state.¹⁵⁸ For example, the SAC in cooperation with the DSIR played an important role in extending the representation of affiliated unions in research associations. The TUC also used tripartite bodies such as the National Production Advisory Council on Industry and subsequently the National Economic Development Council to raise science and technology policy issues.

This perspective was markedly different from that of the scientific Left which had envisaged science and technology as forces of social transformation. The major political challenge to the TUC's official approach occurred over the policy to be adopted on automation. The left-wing view located the introduction of new automated technology in a terrain of social struggle in which its full benefits would only be realised once the fetters of capitalist social relations had been cast off. This approach was again defeated in favour of a strategy of winning benefits from technological change within the constraints of the existing social order through an appropriate degree of trade union involvement.

The victory of the Labour Party in the general election of 1964 on a platform based on stimulating Britain's scientific and technological endeavours offered new opportunities for the TUC's participation in government policy formation. The Labour Government's first Minister of Technology was the trade union leader Frank Cousins. And, as Green as pointed out, 'trade union influence on science and technology policy was clearly important in that it stressed the importance of planning science and technology within an increasingly interventionist industrial policy'.¹⁵⁹ Relations between the TUC's Scientific Advisory Committee and the Ministry of Technology were strengthened when, in 1968, Ieuan Maddock (Controller of Industrial Technology) was appointed to liaise between the Committee and the Ministry.

Patrick Fisher, secretary to the SAC in the 1960s, has written that:

By 1971 the TUC General Council was ready to promote science from its advisory status. The Scientific Advisory Committee was merged with the full policy committee that tackles production and industrial developments.¹⁶⁰

Thus from September 1971 a new committee, the Industrial and Scientific Development Committee, was formed from the merging of the SAC and the Production Committee. The General Council commented that 'originally the work of the two committees was in separate and distinct fields their interests have been converging in recent years especially with the acceleration in the rate of technological change during the 1960s'.¹⁶¹

Chapter 6

1. R.M. Martin, TUC : The Growth of a Pressure Group 1868-1976, (Oxford : Clarendon Press, 1980), p.301.
2. H. Pelling, A History of British Trade Unionism (Harmondsworth, Middlesex : Penguin, 1963, reprinted 1969), pp.234-256. See also L. Birch, editor, The History of the TUC 1868-1968: A Pictorial Survey of a Social Revolution (London : General Council of the Trades Union Congress, 1968), pp.142-143.
3. P. Fisher, 'Science Policy and the Trade Unions', New Scientist 55 (6 July 1972), p.16. See also K. Green, 'Science and Technology Policy and Trade Unions in Britain', paper presented at the International Council for Science Policy Studies and University of Manchester's Programme of Policy Research in Engineering, Science and Technology. Workshop on Science and Technology Policy and Trade Unions, University of Manchester, 7-9 January 1981.
4. N. Vig, Science and Technology in British Politics (Oxford : Pergamon Press, 1968), pp.134-39.
5. I have followed Green's precedent in organising my discussion around a dichotomy being trade unions' explicit concern with 'technology policy' as distinct from 'science policy'. See Green 'Science and Technology Policy and Trade Unions in Britain', p.3.
6. Trades Union Congress, Annual Report, 1954, p.253. This view was reiterated a year later when it was declared that industrial research '...constitutes an essential longer term approach to improving efficiency in industry and working conditions. And that 'by developing new products, new materials and new improved production processes, British industry can help maintain its position in the world'. Annual Report, 1955, p.246.
7. Fisher, 'Science Policy and Trade Unions', p.16.
8. I have already dealt to some extent with the emergence of this relationship in the context of trade union participation in industrial research associations chapter 2 section 3.5.3. above.
9. Trades Union Congress, Annual Report, 1955, p.250. Crawford and Heywood were also members of the DSIR; Industrial Grants Committee which considered research proposals submitted by the research associations. Crawford was a General Council member of the Scientific Advisory Committee.
10. Trades Union Congress, Annual Report, 1956, p.293.

11. J.E. Mortimer and V.A. Ellis, A Professional Union : The Evolution of the Institution of Professional Civil Servants (London : George Allen and Unwin, 1980), p.211.
12. S.D. Fisher, 'Organised Business Interests and Sciences and Technology Policy', (M.Sc.Dissertation, Aston University, September 1983), pp.96-97.
13. Trades Union Congress, 'Statement to the Jephcott Committee on the DSIR', Annual Report, 1956, pp.239-41.
14. Ibid., p.239.
15. Ibid.
16. This matter is dealt with in more detail in section 2.2. below.
17. Trades Union Congress, 'Statement to the Jephcott Committee on the DSIR', p.241.
18. F. Hayday and R. Boyfield represented the TUC on the Human Relations Committee and J. Crawford and L.T. Wright on the Individual Efficiency Committee.
19. Trades Union Congress, Annual Report, 1956, p.241.
20. Trades Union Congress, Annual Report, 1957, p.252.
21. Trades Union Congress, Annual Report, 1954, p.254.
22. Vig, Science and Technology in British Politics, p.136
23. Federation of British Industries, Annual Report, 1958, p.9, quoted in Fisher, 'Organised Business Interests and Science and Technology Policy', p.101.
24. Trades Union Congress, Annual Report, 1959, pp.266-67.
25. Ibid.
26. Federation of British Industries, Annual Report, 1959, quoted in Fisher, 'Organised Business Interests and Science and Technology Policy', p.103.
27. Federation of British Industries, Industrial Research in Manufacturing Industry (1959-60) (London : FBI, 1961).
28. Trades Union Congress, Annual Report, 1960, p.252.
29. This had been raised, for example, in the TUC's submission to the Jephcott Committee.
30. Trades Union Congress, Annual Report, 1961, p.457.
31. This is dealt with in more detail in chapter 5 section 4 above.

32. Federation of British Industries, Industrial Research in Manufacturing Industry, p.16, quoted in Fisher, 'Organised Business Interests and Science and Technology Policy', p.104.
33. Trades Union Congress, Annual Report, 1963, p.252.
34. Ibid.
35. See Association of Scientific Workers, Science in Government and Industry: A Policy Statement (London : AScW, January 1962).
36. Trades Union Congress, Annual Report, 1963, p.253.
37. Birch, The History of the TUC : 1868-1968, p.148.
38. Fisher, 'Organised Business Interests and Science and Technology Policy', pp.105-06. Vig has pointed out that the most interesting development arising from the conference was the FBI's decision 'to explore the possibility of government civil development contracts on a massive scale', Science and Technology in British Politics, p.76.
39. Trades Union Congress, Annual Report, 1964, p.287. See also Vig, Science and Technology in British Politics, p.134.
40. Federation of British Industry, Civil Research Policy, Report of a Working Group, (London : FBI, 1963), p.4, quoted in Fisher, 'Organised Business Interests and Science and Technology Policy', p.110.
41. Trades Union Congress, Annual Report, 1964, p.291.
42. Ibid., p.288.
43. Ibid.
44. Ibid., p.290.
45. See Fisher, 'Organised Business Interests and Science and Technology Policy', p.107.
46. Trades Union Congress, Annual Report, 1965, p.268.
47. Ibid., p.269.
48. The major area of discussion between the TUC and the Labour Party was that of economic policy. Meetings had been held in July 1963 and February 1964 'to discuss various aspects of economic expansion and planning'. See Trades Union Congress, Annual Report, 1964, pp.303-04.
49. For a history of the research association movement see P.S. Johnson, Co-operative Research in Industry (London : Martin Robertson, 1973). Johnson, however, makes no mention of the role of trade unions.

50. Trades Union Congress, Annual Report, 1955, p.246.
51. See chapter 2 section 3.5.3. above.
52. Trades Union Congress, Scientific Advisory Committee minutes, 3 February 1954, p.3.
53. Trades Union Congress, Scientific Advisory Committee, 'Trade Unions and Research Associations', 31 January 1955, (Mimeographed).
54. 'Trade Unions and Research Associations', Appendix A, 'Trade Unions and Research Association : Report from DSIR', 13 August 1954 and Appendix B, 'DSIR Note on Research Associations with Trade Union Connections', 13 August 1954.
55. Trades Union Congress, Scientific Advisory Committee minutes, 13 January 1955, p.3.
56. Trades Union Congress, Scientific Advisory Committee, 'Relationship between Trade Unions and Research Associations', 9 May 1957, (Mimeographed).
57. Trades Union Congress, Scientific Advisory Committee minutes, 30 January 1958, pp.2-3.
58. Trades Union Congress, Annual Report, 1958, p.261.
59. Trades Union Congress, Annual Report, 1959, p.268.
60. Trades Union Congress, Annual Report, 1960, p.253.
61. Trades Union Congress, Annual Report, 1962, p.230.
62. In August 1962 the Parliamentary and Scientific Committee submitted a report to Hailsham which argued that the government's contribution to the research associations (£2m. of a total income of £11m.) was 'pitiably small' and that the associations would not attract larger subscriptions from industry unless state support was 'fixed at a generous level, of the order of not less than one-half of the total grant-earning income of the Association'. See Vig, Science and Technology in British Politics, pp.113-114 and also Trades Union Congress, Annual Report, 1963, p.254. The idea of compulsory levies on industry was rejected but the DSIR which during 1962-63 did adopt a more liberal policy of association grants.
63. Trades Union Congress, Annual Report, 1964, p.290.
64. Trades Union Congress, Scientific Advisory Committee minutes, 12 January 1948, p.9. See also Scientific Advisory Committee, 'Human Factors in Industry', 30 January 1958.
65. Trades Union Congress, Annual Report, 1951, pp.262-63.

66. J. Crawford and L.T. Wright on the Industrial Efficiency Committee and F. Hayday and R. Boyfield on the Human Relations Committee. See Trades Union Congress, Annual Report, 1954, pp.253-55.
67. Trades Union Congress, Scientific Advisory Committee minutes, 5 January 1956, pp.4-5.
68. 'Human Factors in Industry', p.3.
69. Ibid.
70. Ibid., pp.4-6.
71. Trades Union Congress, Scientific Advisory Committee minutes, 30 January 1958, p.5. Patrick Fisher has commented that 'it was the DSIR's Human factors committee that introduced many of today's trade union leaders to the social sciences'. See Fisher 'Science Policy and the Trade Unions', p.16.
72. Trades Union Congress, Annual Report, 1961, p.243.
73. Trades Union Congress, Annual Report, 1963, pp.253-54.
74. Trades Union Congress, Annual Report, 1964, p.291.
75. Trades Union Congress, Annual Report, 1964, p.292.
76. Trades Union Congress, Annual Report, 1966, pp.296-97.
77. Trades Union Congress, Annual Report, 1966, p.298.
78. Trades Union Congress, Annual Report, 1969, p.41.
79. Benson and Lloyd have attempted an account of the response of the labour movement using Bernal's concept of the 'Scientific-technical revolution'. See I. Benson and J. Lloyd, New Technology and Industrial Change : The Impact of the Scientific-Technical Revolution on Labour and Industry (London : Kogan Page, 1983).
80. Birch, The History of the TUC 1868-1968, p.135
81. Trades Union Congress, Scientific Advisory Committee minutes, 3 February 1954, p.2.
82. General Council members on the Scientific Advisory Committee were J. Crawford, E.J. Hill, J. Tanner and L. Wright.
83. Trades Union Congress, Scientific Advisory Committee, 'Automation', 31 January 1955, (Mimeographed).
84. Trades Union Congress, Scientific Advisory Committee minutes, 31 January 1955, p.2.
85. 'Automation', 1955, p.3.

86. Ibid., p.5.
87. Ibid., p.6.
88. See also Benson and Lloyd, New Technology and Industrial Change, pp.73-76.
89. Trades Union Congress, Scientific Advisory Committee minutes
14 July 1955, p.5.
90. 'Social Implications of Automatic Control in Industry', Nature 176
(23 July 1955), p.135. See also Political and Economic
Planning, Towards the Automatic Factory (London : PEP, June 1955).
91. Trades Union Congress, Scientific Advisory Committee minutes,
14 July 1955, p.6.
92. Ibid.
93. Trades Union Congress, Annual Report, 1955, p.249.
94. Ibid., p.281.
95. The emergence of the Left's position is dealt with in more detail
above, chapter 4 section 5.
96. Trades Union Congress, Annual Report, 1955, p.381.
97. Ibid., p.384.
98. Ibid.
99. NUPE's amendment was also subsequently criticised by the communist
Les Cannon who argued that the criterion for nationalisation
was not the level of technological advancement but the political
and economic imperative of harmonising the 'forces' and
'relations of production'. See L. Cannon, 'Political and
Trade Union Angles on Automation and Nuclear Energy', Marxist
Quarterly 3 (April 1956), pp.67-83.
100. Trades Union Congress, 'Trades Unions and Automation', Annual Report,
1956, Appendix B, pp.512-525.
101. Trades Union Congress, 'Trades Unions and Automation', 2nd Draft,
5 January 1956, (Mimeographed), p.10.
102. Trades Union Congress, 'DSIR Report on Automation', 27 April 1956,
(Mimeographed). This was a summary of the DSIR Report on the
Technical Trends of Automation and their impact on Management
and Labour.
103. Ibid., p.8.
104. Trades Union Congress, 'Trade Unions and Automation', 27 April 1956,
Final draft. (Mimeographed), p.5.

105. Ibid., p.8.
106. Ibid., p.9.
107. Trades Union Congress, Annual Report, 1956, p.354.
108. Ibid., p.355.
109. Ibid.
110. Ibid., p.356.
111. A resolution at the 24th Congress of the British Communist Party in 1956 embodied this perspective of struggles : 'Congress declared that the working class will need to fight to defend and improve wages, hours, working conditions and to resist all attempts by the employers to impose redundancy. This will involve strengthening trade union organisation and fighting capacity at all levels, particularly on the factory floor, which are essential to winning the benefits which can be derived from automation'. See Report of the 24th Congress of the Communist Party, 1956, pp.12-13.
112. Trades Union Congress, Annual Report, 1956, p.362. ASSET was another union which was strongly influenced by the Communist Party at this time.
113. Crawford had argued that 'whatever social problems may be involved in the future with regard to automation will be no different in principle from those of conventional change...' Ibid., pp.351-54.
114. Ibid., p.362.
115. Ibid., p.360.
116. Ibid., p.361.
117. Ibid., p.367.
118. Frank Haxell, the ETU's general secretary, was subsequently implicated in the ballot rigging scandal in which a group of communist leaders of the union had conspired to prevent John Byrne from being elected to succeed Haxell in 1959. See Pelling, A History of British Trade Unionism, pp.250-54.
119. Trades Union Congress, Automation and Technological Change, (London : TUC, 1965).
120. A survey of views of affiliated organisations in 1962 indicated that there was little pressure to change existing policy on automation. See Trades Union Congress, Annual Report, 1963, pp.250-51.
121. Trades Union Congress, Annual Report, 1958, p.253.

122. Trades Union Congress, Annual Report, 1956, p.364.
123. Trades Union Congress, Scientific Advisory Committee minutes, 3 February 1954, p.3. The Production Committee had also raised the issue of the implementation of the Ridley Committee's findings at the NPACI.
124. Trades Union Congress, Scientific Advisory Committee, 'A Programme of Nuclear Power : Summary of Government White Paper', 14 July 1955, and 'Atomic Energy a Statement by the Minister of Fuel and Power', 14 July 1955, (Mimeographed).
125. Trades Union Congress, Annual Report, 1955, p.249.
126. Trades Union Congress, Scientific Advisory Committee minutes, 14 July 1955, p.7.
127. Trades Union Congress, Annual Report, 1955, p.409.
128. Ibid.
129. R. Robinson, 'Science and the Scientist', Nature 176 (3 September 1955), pp.433-39.
130. Ibid., pp.435-36.
131. Trades Union Congress, Scientific Advisory Committee, 'Atomic Energy Authority : First Annual Report', 5 January 1956, (Mimeographed).
132. Trades Union Congress, Scientific Advisory Committee minutes, 5 January 1956, pp.2-3.
133. Trades Union Congress, Scientific Advisory Committee, 'Nuclear Energy Developments', 9 May 1957. (Mimeographed).
134. Trades Union Congress, Scientific Advisory Committee minutes, 9 May 1957, p.4.
135. Trades Union Congress, Production Committee, 'Fuel and Power Co-ordination', 6 February 1958, (Mimeographed).
136. See chapter 5 section 3.2. above.
137. For example, expressed in the activities of Science for Peace, the Atomic Scientists Association and AScW's, Atomic Sciences Committee.
138. Trades Union Congress, Annual Report, 1955, p.478.
139. Trades Union Congress, Annual Report, 1956, p.195.
140. Ibid., pp.467-68. The position adopted by the ICFTU represented a moderation of its earlier virulent anti-communism and rejection of international conciliation.

141. Trades Union Congress, Annual Report, 1958, pp.203-4.
142. Ibid., p.467.
143. Ibid., p.266.
144. Trades Union Congress, Annual Report, 1959, p.269.
145. Ibid., p.369.
146. Ibid., p.370.
147. Ibid., p.369.
148. Trades Union Congress, Annual Report, 1960, p.151.
149. Trades Union Congress, Annual Report, 1961, pp.159-60.
150. Trades Union Congress, Annual Report, 1960, p.384. A special conference was held in October 1960 at Congress House on Radiation in Industry which was attended by some 150 trade unionists.
151. Ibid.,pp.152-54.
152. Ibid., p.292.
153. Ibid., p.155.
154. Ibid., pp.385-89.
155. Ibid., p.389.
156. Ibid., p.108.
157. Editorial, AScW Journal (November 1963) quoted in Vig, Science and Technology in British Politics,p.136.
158. These aspects of TUC policy have been taken to indicate the growth of 'corporatism'. See, for example, D. Strinati, Capitalism, the State and Industrial Relations (London : Crown Helm, 1983) and L. Panitch, 'Trade Unions and the Capitalist State', New Left Review No.125 (January/February 1981), pp.21-43. However, Martin has argued that '...it is to be emphasised that the TUC's relations with the CBI, and its predecessors, have never involved...the highly negotiated tripartite agreements with government, on key economic issues, which seem to be required to fit the notion of 'corporatism' - though the literature which has recently restored that term to prominence is somewhat confusing on this point...' See Martin TUC : The Growth of a Pressure Group 1868-1976, fn p.349.
159. Green, 'Science and Technology Policy and Trade Unions in Britain', p.3.
160. Fisher, 'Science Policy and Trade Unions', p.16.
161. Trades Union Congress, Annual Report, 1971, p.213.

CHAPTER 7

THE LABOUR PARTY AND ITS SCIENCE ADVISORY GROUPS

1. Introduction

The two previous chapters have suggested that after 1956 there were declining opportunities for the scientific Left to present alternative policies for science and technology in the Association of Scientific Workers and in the Trades Union Congress. However, the defeat of the Labour Party in the general election of 1955 generated a period of intense discussion within the Party in the search for modernising policies. One front which was opened up, particularly under the influence of Gaitskell, was that of the relationship of the Labour Party to science and technology. The Party had evinced little interest in science since the reforms of the Labour Government of 1945-1951.

The Labour leadership's renewed interest in science provided fresh opportunities for the remaining elements of the scientific Left to intervene at the political level. The form of this intervention was to be limited by the relative informality of the arrangements by which advice on science policy was mobilised. Those involved in these informal science advisory groups represented a cross-section of the scientific Left from the Fabian socialism of P.M.S. Blackett to the communism of J.D. Bernal. The groups also involved less eminent participants such as R. Innes and R.G. Forrester who had played active parts in the science policy work of the ASwW. However, in spite of the background of activity of many of the participants in other labour movement and scientists'

organisations, the discussions within these advisory groups, the principal ones being the Gaitskell Group and subsequently the Crossman Group, tended to take place in isolation.

However, this renewal of political thinking which took place within the Labour Party was in marked contrast to the period 1947-1956. As I have shown this earlier period had witnessed the breakdown and fragmentation of a scientific Left which had been underpinned by Marxism and influenced by the Communist Party. The theoretical framework erected, for example, by Bernal in his The Social Function of Science (1939) and programmatically expressed in the AScW's Science and the Nation (1947) had been eroded by the political crises of the Cold War. Similarly Taylor and Pritchard, in their study of the British nuclear disarmament movement, have pointed out that the renewal of radical political activity after 1956 tended to take place outside the boundaries of the theory and practice of traditional political ideologies and philosophies.¹

The discussions around policies for science and technology within the Labour Party took place amidst the internal party conflict between the 'revisionists' and the 'traditionalists'. These conflicts were expressed in the debates around Clause IV of the Party's constitution relating to social ownership and around the issue of unilateral nuclear disarmament. They also intersected with the growing external controversies on Britain's economic performance and the relationship of investment in scientific research and development to economic growth.²

The dominant self-interpretation for Labour's adoption of a

'scientific' platform, argued, for example, by R.H.S. Crossman, was that it was both politically unifying and politically relevant.³ The rhetoric of the linkage of planning, science and socialism was embodied in Harold Wilson's famous 1963 speech to the Party's Scarborough conference. The practice was embodied in the setting up of the Ministry of Technology in the aftermath of Labour's election victory of October 1964.⁴ The present chapter attempts to explore the role of left-wing scientists in the process which brought this about and to explore the continuities and discontinuities with the earlier efforts to formulate socialist policies for science and technology.

2. The Gaitskell Group

2.1. The Formation of the Gaitskell Group.

An informal group of scientists sympathetic to the Labour Party was brought together in 1956 to advise the new Labour leader, Hugh Gaitskell, on scientific matters. This group was to remain in existence in various forms for the next seven years and was to play a significant role in alerting the Labour Party to the increasing political importance of the state's involvement in scientific and technological development.

Gaitskell had previously encountered many of those who were to play a part in the group when, in the late 1930s, he had regularly attended the Tots and Quots Club. This informal dining club, formed by G.P. Wells and Solly Zuckerman, had met regularly to discuss the social aspects of scientific affairs from a broadly

left-wing perspective.⁵ Gaitskell was also one of a number of leading Labour politicians to have joined the AScW in the immediate aftermath of the Second World War. His post as Minister of Fuel and Power in the post-war Labour Government also brought him into contact with the political dimension of scientific and technical developments.⁶

However, following his election to the leadership of the Labour Party, in 1955, his objective was to shift the political philosophy of the party in the direction of 'revisionism'.⁷

In the wake of the Labour Party's election defeat of 1955 a whole series of study groups had been established to re-examine the Party's policies.⁸ However, the Party's engagement with science arose in rather less formal circumstances. The formation of the Gaitskell Group of scientific advisers owed much to the activities of Marcus Brumwell, a long standing member of another Labour Party informal advisory group, the 1944 Association. Brumwell organised a dinner on the 17th July 1956 for a number of eminent scientists sympathetic to the Labour Party and some prominent members of the Party. Those present, at what was to prove to be the inaugural meeting of the Gaitskell Group, included Austen Albu MP, Prof. P.M.S. Blackett, Dr. J. Bronowski, Marcus Brumwell, James Callaghan MP, George Dickson, R.G. Forrester, David Ginsburg, Prof. David Glass, Rt.Hon. J. Griffiths MP, Sir Ben Lockspeiser, Prof. D.M. Newitt, Morgan Phillips and Prof. Sir Solly Zuckerman.⁹

Although J.D. Bernal was not present at this first informal dinner he had been closely in touch with the preparatory work

through his friendship with Brumwell.¹⁰ In January 1956 Bernal had raised his own concern for the state of Britain's research effort in basic science with a memorandum 'The Finance of Fundamental Research in Britain'. Bernal had circulated his memorandum to over 100 eminent scientists and politicians for their views and comments. In the memorandum Bernal argued that the lack of adequate funding for basic research was leading to major obstacles to effective work including a lack of adequate technical assistance, inadequate staffing of senior and junior research workers, lack of up-to-date equipment and the shortage of modern laboratory buildings. Bernal had proposed the setting up of a National Research Council, a body which would operate in parallel with the University Grants Committee, but would have the sole responsibility for disbursing funds for fundamental research in the Universities.¹¹ It was some measure of Bernal's scientific standing (and in spite of his political associations) that he received over seventy replies, principally from scientists. Mostly there was a shared concern over the current level of research funding but diverse reactions to his proposed solution. There was much apprehension at the notion of an 'overlord' National Research Council.¹²

In revising his initial memorandum Bernal took account of the replies which he had received and also the passage of the recent DSIR Bill. The old Advisory Council to the DSIR had been replaced by a Council for Scientific and Industrial Research with greater executive powers, as a corporate body on the lines of the MRC and the ARC. Similarly all branches of governmental research were put under the control of executive committees of experts while removing detailed departmental control. Bernal and R.G. Forrester (Secretary

of the JPSAC) had been consulted by James Callaghan MP, responsible for scientific affairs for the Labour Party, during the parliamentary debates of the DSIR Bill.¹³

In revising his original proposals Bernal moved to the idea of a consultative committee rather than a National Research Council with representatives from the UGC, the three research councils, the Royal Society and other relevant bodies. He argued that 'such a committee would not concern itself with details but would coordinate research policy of its constituent organisations'.¹⁴ In this way he hoped the stronger pressure might be brought to bear on the Treasury. Underlying Bernal's proposals was a concern for a more factual basis for establishing research policy, the need for a greater element of national coordination combined with an expansion of research funding.¹⁵

It was against the background of these concerns that Brumwell had sought Bernal's support in his effort to incorporate science more prominently into the policy formation of the Labour Party. Brumwell drew upon Bernal in the drafting of a background document, 'The Labour Party and Science', for the July meeting. Brumwell reiterated Bernal's criticisms of the funding of fundamental research in Britain and highlighted the gross imbalance between the resources devoted to civil research and development and those available for military purposes which accounted, according to Brumwell, for some 86% of government expenditure on science. The document in a very general way laid out a set of national objectives for science and possible steps in their realisation: the improvement of the use of existing scientific and technical resources through the

diminution of industrial secrecy and overlapping research efforts; the transfer of scientific workers from military to civil research; strategic planning which would identify and emphasise the growing points of science; the remoulding of the education system both to extend provision and to improve the scientific content of education. The need to link the planning of science to the major economic needs of the country was recognised but no proposals were offered as to what changes in the government machinery for science would be required.¹⁶

At the July meeting Callaghan, as Labour's shadow spokesman for science, wanted to know what were the deficiencies in the present state of British science and what could be done to remedy them? Blackett whilst supporting the view that the present capitalist system encouraged unplanned and overlapping types of development felt that 'the country at large was not in a revolutionary mood' and advocated the use of existing structures (especially the UGC) as a means of channeling more money into basic research. In order to pursue the question of a science policy for Labour more concretely it was decided to concentrate on a number of issues. Blackett and Prof. David Glass were to produce a report on what might be required as far as changes in the education system were concerned. Zuckerman would look at the best use of scientists in industry whilst Bronowski, Newitt and Albu would collaborate on the changing pattern of industry.¹⁷

This first dinner in 1956, organised by Brumwell established a pattern of relatively informal discussions between important Labour politicians and scientific experts which were to continue for the next seven years. This reinforced a model which saw scientific

advice for the Labour Party as the prerogative of semi-independent but sympathetic experts. This model was to some extent challenged by Tribune's science correspondent Anthony Hart who argued in 1957 that the Party needed a Scientific Advisory Committee which would bring 'science advice into the open'.¹⁸ He was concerned that such a committee should look not only at basic science but at the social aspects of new technology. However, no alternative was proposed until 1963 at the first Bonnington Conference when the idea of an Association of Labour Scientists was discussed.¹⁹

2.2. The 'Senior' Scientists' Group and the Robens Working Party.

The group met for a second time again at an informal dinner at the Reform Club organised by Brumwell on the 8th July 1957.²⁰ The potential significance of these discussions was now signalled by the presence of Hugh Gaitskell. (See Table 1) In the interval since the previous meeting Callaghan had been replaced by Alfred Robens MP as Labour's shadow spokesman for science. Robens had been closely associated with the revisionist publication Socialist Commentary and was a supporter of the 'consolidation' approach to public ownership and of the Bevinite approach to foreign policy.²¹ He was assisted by Arthur Skeffington MP who had a long association with AScW as a parliamentary contact. The expert side of the group was strengthened by the addition of Prof. B.R. Williams, an economist.²²

Robens and Brumwell had met in May 1957 to discuss the role of the science advisory group after Robens appointment as shadow spokesman. Three tasks for the group had been identified; the preparation for the National Executive Committee (NEC) of a policy

TABLE 1 Guests at the Reform Club dinner discussion on the Labour Party and Science, 8.7.57

Politicians

Hugh Gaitskell MP	
Alf Robens MP	Shadow minister responsible for science
Arthur Skeffington MP	
David Ginsburg	Labour Party Research Officer
Harry Mitchell	Labour Party House of Commons research staff

Scientists

Prof. P.M.S. Blackett FRS
Dr. J. Bronowski
Prof. Sir Ben Lockspeiser FRS
Prof. D.M. Newitt FRS
Prof. Sir Solly Zuckerman FRS
Prof. B.R. Williams

Others

R.G. Forrester	Secretary of the Joint Parliamentary Scientific Advisory Committee
George Dickson	Industrialist
Marcus Brumwell	Advertising/Industrial Design Consultant

statement, 'The Labour Party and Science'; the provision of information for the Labour Party headquarters staff at Transport House which could then be tailored to the needs of the constituency parties. Organisationally Robens suggested the setting up of a Working Party of six scientists who with the assistance of Skeffington, H. Mitchell (Labour Party House of Commons Research Staff), Brumwell, Dickson and Forrester would be responsible for drafting the policy document.²³

In the event at the meeting of the group in July it was agreed to establish a two tier organisation stratified between the 'senior' and 'junior' scientists. Gaitskell had suggested that what was required was one basic policy document, principally for circulation to the parliamentary party, with a second document for wider public circulation. A Working Party of less senior scientists (who it was felt would be able to spend more time on the project than their more eminent colleagues) was established to draft a basic document which would serve as a policy resource. This group met for the first time on 23rd July 1957 under the chairmanship of Alf Robens and was responsible for drafting 'Science and the Labour Party' which was available by April 1958.²⁴

The Working Party reflected a relatively wide range of representation from different sections of the labour movement concerned with policies for science and technology. The scientific trade unions AScW and IPCS were represented as well as a wide range of political philosophies. However the TUC was not directly represented. (See Table 2). The retention at least to a limited extent of 'organic' links between the political and trade union

TABLE 2 Membership of Robens Working Party.

NAME	WORK	MEMBERSHIP	'SCIENCE AND THE LABOUR PARTY' SECTION
Peter Astbury	Anthropologist Atomic Physics	AScW	Fundamental Research
Dr. P.W. Brian	Biologist Research Dept.ICI	AScW	Agriculture
Marcus Brumwell	Advertising Industrial Design Consultant	LP 1944 Assoc.	
Dr. J. Bronowski	NCB Research	AScW LP	Fundamental Aims
George Dickson	Engineer Consultant	LP 1944 Assoc.	
R.G. Forrester	Statistician Consultant	AScW JPSAC LP	Co-ordination of Scientific Activity
J.A.P. Hall	Technical Education		Scientific and Technical Manpower
Roy Innes	Science Education	AScW	
Dr. H. Joules	Central Middlesex Hospital	Socialist Medical Assoc.	Health
Stanley Mayne	Gen.Sec. IPCS	IPCS Fabian Soc.	
Harry Mitchell	LP Researcher	LP	
Alfred Robens	LP Shadow Minister responsible for science	LP	(Chairman of the Working Party)
Harold Rose	Chemical Engineer Consultant	AScW	Industry
A. Skeffington	Assistant to Robens	LP AScW	
D.A. Tanfield	Fuel and Power Researcher	AScW	Applied Research
Steve Wheatcroft	Economic Adviser British European Airways		Social Science
Ritchie Calder	Science Editor News Chronicle	LP	Under-developed Areas

wings of the labour movement and the presence of members who had been active on science policy issues in the 1940s had a significant influence on the final shape of the policies. The thrust of the analysis took it beyond the 'revisionist' framework. The document bears comparison with AScW's policies of a decade earlier in its comprehensive approach and commitment to a strongly interventionist role for the state especially with regard to industrial research. The document discusses in detail specific sectors such as fuel and power, agriculture, transport and health with a strong emphasis on national coordination and planned investment policies.²⁵

Large increases in scientific manpower and government civil research and development were proposed. These quantitative changes would be paralleled by qualitative changes in the type of research supported by government. A massive shift of resources was proposed from the military to civilian research sphere and the creation of a mechanism for the central coordination of both defence and civil research.

'Science and the Labour Party' revived the concept of a 'Scientific and Technical Planning Board' which would be responsible for all aspects of the strategic planning of defence and civil research. The Board would be placed under a senior Cabinet Minister and would be assisted by a high-powered Secretariat whose functions would be:

- a) Reviewing and stimulating scientific and technological developments and their application in industry, agriculture and other fields here and overseas.
- b) Serving the Scientific and Technical Planning Board and the inter-departmental Standing Scientific Coordinating Committee.

- c) Ensuring that programmes of research and development took adequate account of national needs and possibilities, and that these programmes, the application of the results to industry and plans for the education and training of scientific and technical manpower, march in step.
- d) Collecting data on scientific and technical manpower and the use being made of it.²⁶

For research in the private sector the document advocated direct methods of forcing technological innovation including the setting up of 'mixed' and state corporations. In terms of existing Labour Party policy for science, for example as expressed in New Deal For Science (1949), this represented a radical programme.²⁷

The draft statement was subsequently reviewed at a dinner given by Brumwell at Browns Hotel on 27th June 1958. Those present included the 'senior' scientists and politicians (Blackett, Bronowski, Brumwell, Dickson, Forrester, Gaitskell, Ginsburg, Lockspeiser, Mitchell, Newitt, Robens, Snow and Williams.)²⁸ Robens appeared keen to get the party to adopt a scientific platform arguing that the preparation of a coordinated policy for science was especially important for the Labour Party since 'they are the only party that believes in thorough planning'. Similarly C.P. Snow in an almost 'Bernalist' vein expressed the view that 'science is now specially a part of and compatible only with the socialist conception of life'.²⁹ The rhetoric of the identification of science, planning and socialism seemingly remained a significant ideological reference.

Prof. D.M. Newitt, however, a founding member of the TUC's Scientific Advisory Committee reflected on the lack of direct

trade union involvement and interest. He felt that it was important to raise the level of trade union involvement and interest in science. Blackett suggested that trade unions might consider employing operational research scientists to study the structure and possibilities of their respective industries! His view on the central question of stimulating industrial research and innovation was that this ought to be done within industry itself rather than through civil research by government departments. This, he argued, could be achieved through the use of fiscal policy, development contracts and the like.

Gaitskell appeared wary of the general prescriptions offered by the Robens' Working Party particularly regarding the proposals for reductions in defence expenditure and the imposition of direct controls on industry. At his request a briefer set of 'Cabinet Papers' were to be drawn up by a group of the 'senior' scientists for circulation to the shadow cabinet with the aim of being a 'frank statement of what a Labour Government should do about science'.³⁰ At the same time the main document, 'Science and the Labour Party' was to be revised and a more popular version produced for public consumption. The informal status of the Robens Working Party meant that the document did not get formal consideration by the NEC. The fate of the policy on science remained essentially within Gaitskell's gift.

It was at this juncture that Bernal was drawn more directly into the discussions. He had been kept in touch with developments by Brumwell and had received all the documentation relating to the drafting of 'Science and the Labour Party'. Bernal had sent his

views on the first draft of the document shortly before the 'senior' scientists group was to meet to begin preparing the 'Cabinet Papers' for Gaitskell.³¹

Bernal gave a favourable reception to 'Science and the Labour Party' commenting that it was a report of 'excellent quality but lacking a quantitative approach'. Bernal stressed that any major expansion of government input into civil research would have to be predicated on a severe cut in military research spending. Bernal's other general comments returned to his established themes of the necessity of linking the planning of science with economic planning particularly in the case of industrial research. Unplanned private industry governed only by the motives of the market would continue to be restrictive of scientific development even under a Labour government. Scientific progress should be 'planned in relation to a rapid expansion of production and its transformation to a modern, fully automated industry'. In the context of the document's proposals regarding the coordination and administration of science Bernal warned of the dangers of an 'over-organised' science under the control of the civil service bureaucracy. Bernal was keen to see scientists themselves in executive positions:

Most working scientists would not welcome administrative control which they, not unnaturally, fear will interfere with their work in the same way as the larger Ministries with which they are acquainted attempt to reduce science to a manageable routine. The relatively bad showing of older government scientific departments in contrast, for example, to Harwell, would seem to bear this out.^{31a}

Bernal was included in the group of 'senior' scientists who

were to be responsible for the production of the 'Cabinet' discussion papers for Gaitskell. Others in the group included Blackett, Snow, Williams, Dickson, with Brumwell as the unofficial organiser. This group met seven times between September 1958 and July 1959 to discuss the various drafts produced by its members.³² It was also responsible for monitoring the revision of 'Science and the Labour Party' (1958), supervising the production of a discussion pamphlet once this revision had taken place and preparing a set of speakers notes for use at constituency level.

The drafting of the 'Cabinet Papers' was tied more closely into the emerging 'revisionist' framework of Labour Party policy. At the first meeting of the group George Dickson said that the Party policy statement 'Plan for Progress' had set out the priorities for the Party. These objectives concentrated exclusively on aspects of economic policy rather than socialist principle: preserving full employment; raising living standards; increasing investment; maintaining price stability; improving the balance of payments.³³

By January 1959 a number of draft documents had been completed and discussed by the group. These included papers on 'Technical Manpower' (C.P. Snow), 'Priorities' (Bronowski and Williams) and two papers by Blackett, 'Civil Research and Development' and 'Fundamental Science'.³⁴ Bernal had written to Blackett recommending a greater emphasis on the need for government to promote closer relations between industry and the universities. But Bernal was strongly opposed to the suggestion that public funds should simply be provided for private development work.³⁵ Other

contributions included two papers by Forrester on 'Science and Industry' and 'Science and the Labour Party' and a paper by Bruce Williams on 'Science and Industry'.

The major area of debate in the compilation of the papers arose around policy for civil research and development which was increasingly seen as the key to economic success for any future Labour Government. Blackett argued that:

excluding nationalisation on a big scale, the Government has two possibilities open to it; to leave things as they are or to buy itself a position of influence in industry by offering financial help for research and development projects.³⁶

Blackett identified a number of reasons for technological inefficiency and backwardness of some British firms; an inadequate supply of qualified personnel; inadequate financial resources; inadequacies in top management; inadequate size of firms and too many firms competing in too small a market. His recommendation was that Government should aim to put money (estimated at £10m p.a.) into private firms to underwrite R & D projects considered of particular importance. Organisationally this could be done through an expanded NRDC and through research and development contracts placed by the research councils (primarily the DSIR) and by appropriate ministries. Only if industry did not respond adequately to these offers of financial help should the government take the initiative to form new companies or buy existing ones.

Bernal was opposed fundamentally to the approach to state intervention and its forms which Blackett was moving towards. He felt that Blackett's proposals left 'many of the problems of

administration ...of government control of science untouched'. He wrote of Blackett's paper dealing with civil research and development that:

This is inevitably a highly controversial paper. In my opinion it is very good for us to have it as it brings out the logical consequence of a Labour Party policy which refuses to extend nationalisation or to plan industry. A logically planned civil research would be an absurdity in an industry in which all the main sections are under the control of private interests, and where one of the functions of nationalised industry is to serve the same intent. Blackett's policy is to draw the logical conclusion from this and to cut down direct Government applied research to a minimum.³⁷

Bernal saw that Blackett's approach was modelled on contract research as it was conducted in the defence sector. Bernal had technical as well as political objections to make of this idea. The crucial technical difference was that in the civil sector the government was not necessarily the final purchaser of the product in contrast to the defence sector such as aerospace:

Such lack of control of the product would aggravate unsatisfactory features already present in defence development contracts, especially those arising from the competitive nature of the enterprises, encouraging not only duplication but Empire building and holding back research workers to prevent rivals using them. There are, in addition, the evils of secrecy, for although perhaps not so absolute, commercial secrecy can be as damaging as military secrecy.³⁸

Blackett's paper was critical of the DSIR research stations and the research associations arguing that they were unsuitable instruments for stimulating civil research. Bernal was inclined to blame faults on the use of 'unsuitable civil service methods, bad liaison with industry due to ignorance, prejudice or supposed

'self-interest'. Bernal was critical also of the permeation of government decision making bodies by private interest. He wrote that:

These proposals imply the use of existing government bodies, NRDC, DSIR etc. To be efficient they would have to find some improved method of working. Many of these bodies have representatives of industry in them and have never shown any inclination even to criticise much less transform industries that they represent. I spent nearly ten years witnessing an entirely fruitless effort on the part of the DSIR and ministries to improve the building industry in this way.³⁹

He was in favour of a more radical examination of the dilemma posed by the desire for a strong central organisation for science combined with the existing structure of distributed departmental scientific concerns. The decentralised approach to governmental organisation of science, adopted after the Second World War, had failed largely because of the 'embittered opposition of the non-scientific civil service'.

In spite of the division of opinion on Blackett's proposals they were included in the final set of papers forwarded to Gaitskell, 'A Labour Government and Science'. The final collation and presentation of the papers was the work of C.P. Snow.⁴⁰ The set included six contributions; 'Scientific and Technical Manpower', 'Fundamental Science', 'Science and Industry', 'Civil Research and Development', 'Government Machinery to Coordinate Scientific Resources and Activities', 'Priorities'.

In the brief introduction to 'A Labour Government and Science' the problems which the authors had sought to address were spelled out:

- (a) the shortage of trained manpower;
- (b) government machinery was needed to give adequate guidance and coordination to the national scientific effort;
- (c) the problem created by the fact that defence R & D absorbed 60% of all scientist and technologists and the implications of that imbalance for civil research; .
- (d) the question of priorities for an incoming Labour Government.⁴¹

The paper by Snow on scientific and technical manpower drew attention to the shortage and the inadequacy of previous forecasts (for example, by the ACSP).⁴² Snow went on to outline the need for expansion at every level, from the numbers of science teachers in schools, to the number of places available at universities and colleges. In particular he stated that a minimum of 4 and preferably 6 new university institutions ought to be in existence before the end of the 1960s. On the qualitative aspects of the problem Snow felt that it:

...may be necessary to continue to sacrifice a generation to specialised training to make up as early as possible for the present shortages. In the long run, however, we must modify the national drift to extreme specialisation.⁴³

Blackett's contribution on basic science was again a plea for expansion, particularly for greater financial support for university research, but within the existing institutional framework. He envisaged no change in the existing arrangement under which the UGC was responsible to the Treasury and the research councils to the Lord President. However, he did suggest that the functions of the DSIR in relation to the universities could

be transformed into a new research council. The secretary of such a council would then be able to devote all his time to research in the universities leaving the secretary of the DSIR to devote himself to the DSIR research stations, the research associations and other activities. A further innovation suggested by Blackett was the establishment of new institutes for pure research in specialised fields such as geochemistry and geophysics.⁴⁴

William's paper, 'Science and Industry', identified a number of factors for Britain's relatively poor performance in industrial innovation. These included the fact that science-based industries were parasitic on university research which did little research into traditional processes; the low prestige and lack of provision of management education; the poor communication of research and technical knowledge and low competitive pressure to eliminate inefficiency. Finally, Williams argued that along with the general shortage of scientists and technologists there was a lack of an overall approach to the economics of research. Williams then went on to elaborate briefly some remedial measures stressing that these would be linked to other changes in government policy specified in other papers in the collection. (These included the setting up of a Scientific and Technical Planning Board, the increased supply of qualified manpower and the implementation of the policy for government research contracts.)

The aim of government policy in the private sector would have to be the 'elimination of unreceptive firms' by 'the abolition of restrictive practices, the creation of more competition by increased industrial R & D and the take-over of selected firms'.

Thus the document envisaged only limited forms of intervention and largely through existing mechanisms and institutions. For example, a greater role was envisaged for the research associations. Williams proposed that special ad hoc teams drawn from the research associations might be created for work on projects suggested by the Scientific and Technical Planning Board. As with the other contributions little consideration was given to the role of trade unions and scientists' organisations. However, Williams did suggest that more effective trade union participation might be facilitated through Development Councils which might be set up under the existing enabling legislation of the Industrial Organisation and Development Acts.⁴⁵

Blackett's proposals for civil research and development (already discussed above) and the premise underlying the paper on government machinery to coordinate science was that 'the less overt change in the existing government machinery, the better'. The proposals were aimed at strengthening the existing structure by insisting that the Lord President of the Council would have ministerial status and a stronger staff (for example, with the appointment of a full permanent secretary). The Lord President's office would be staffed by a small but highly powered administrative and scientific secretariat. The setting up of a Scientific and Technical Planning Board on a similar basis to the Economic Planning Board remained the most strongly recommended institutional change.⁴⁶

The final paper on priorities bore the imprint of some of the earlier criticisms by Bernal. The paper was initially drafted

by Bronowski but was subsequently amended along lines indicated by Bernal to incorporate the notion of phasing the implementation of policy by a future Labour Government. The central point is made that decisions on defence policy would sharply affect the issues raised in the other papers:

A sudden and sharp disarmament would profoundly alter the emphasis in nearly all the papers, but especially those on Science and Industry and Scientific and Technical Manpower.⁴⁷

The paper then attempts to establish a framework of priorities for an incoming Labour government independently of this consideration.

Three phases of implementation are outlined beginning with government appointments; the launching of a crash programme for science teaching; initiation of plans for new universities; increased expenditure on fundamental research; and consideration of proposals to subsidise industrial civil research. The second phase of implementation would involve the setting up of the Scientific and Technical Planning Board and a new Fundamental Science Research Council; the expansion of research into management structures and processes; and expansion of the Production Advisory Section of the Board of Trade. The third phase is geared almost exclusively to the development of new industries on the basis of technological innovation and the modernisation of traditional industries. The two principal industries singled out for direct stimulation are the electronics industry in its application to automation and precision developments of metallurgical and similar processes for atomic energy. In both cases reference is

made to the need for planning. Particularly in the case of automation reference is made to the need for 'study by the Labour Party of the social transformation which automation implies'.

Brumwell organised a further informal dinner on 27th August 1959 at which the 'senior' scientists met Gaitskell and Wilson to discuss their efforts.⁴⁸ Gaitskell remarked that:

...the document is precisely what he asked for and that he is prepared to accept it as the basis for his policy on Science if returned to power.⁴⁹

This was particularly significant in view of the impending October general election. Wilson endorsed Gaitskell's remarks and suggested that science should receive 'a section or two in the election manifesto'. Science was to make an important contribution to giving the 'right image' of the Labour Party as modern and forward looking:

It was agreed that an imaginative and contemporary attitude to the use of science today well becomes the Labour Party who believe in planning, and might provide an encouraging sign of alertness and pioneering spirit to the electorate.⁵⁰

A short leaflet was to be issued to show that the Party intended to 'plan a full use of science to hasten the good and peaceful life'.⁵¹

This statement was issued in the midst of the election campaign on the 1st October under the title A New Deal for Science.⁵² The statement promised the appointment of a senior minister with general responsibility for scientific affairs, the expansion of scientific and technological education and 'the more rapid application

of the latest scientific knowledge to industry'. This latter goal was to be achieved through an increased number of research and development civilian contracts given by the government, individual firms receiving grants for approved long-term research projects and the amalgamation of smaller firms to produce enterprises of a size to support major research programmes:

In order to supervise the application of science in industry we shall set up under the Minister concerned a scientific and technical planning board whose task it will be to advise the Government on the direction of industrial R & D, on the awards of research contracts and on the grants to individual firms.⁵³

Brumwell wrote to Bernal commenting on the statement that:

This is entirely written from the version which I had done for them by C.P.Snow and Bruno (Bronowski). However, it doesn't read too badly and contains most of the points. The important thing is that Gaitskell accepted our yellow striped document (the Cabinet papers) as exactly what he wanted, and a policy to which he would commit himself, so that really I do think all our efforts have been worthwhile and we must have taken a step forward.⁵⁴

However, despite these efforts of the scientists and Gaitskell's commitment to the policy, science policy issues were not a marked feature of the 1959 election campaign. There were pledges from both main political parties to appoint a Minister for Science and as Vig has pointed out:

The significance of the 1959 proposals for a Science Ministry was that party politicians had come - if reluctantly - to see the political relevance of scientific development, and that the post-war consensus on civil science policy was beginning to break. In particular the way was open for further proposals for reform of government science administration.⁵⁵

The work of the Gaitskell Group had provided the groundwork for the Labour Party to exploit the breakdown of the post-war consensus on science policy. However, in the period 1959 to 1964 the initial endeavours of Labour in the area of science policy were to undergo major modification. As Wolff argues:

In 1959 the Labour Party offered a starkly etatiste alternative to Lord Hailsham's laissez-faire science policy in their proposal of a high centralised Ministry of Science. By 1964 a new compromise had been reached between Fabian etatism and the pluralism of the 'revisionists'. This compromise consisted of an essentially 'technocratic' solution to the conflict between the need for state intervention and the desire to retain the goodwill of industrialists by maintaining their autonomy. The establishment of the Ministry of Technology fulfilled these twin objectives.⁵⁶

2.3. Regroupment

In the aftermath of its defeat at the polls in 1959 the Labour Party was convulsed by fundamental debates over Clause IV of the Party's constitution and the issue of unilateral disarmament.⁵⁷ The endeavour to create a distinctive policy for science and technology provided common ground for the various political tendencies within the Party. As Vig has argued the espousal in the period 1959-1964 by Labour of a 'scientific image' satisfied both the interventionist aspirations of the left and the electoral ambitions of revisionists.⁵⁸

Building upon the revisionist analyses of the mid-1950s Gaitskell argued that the Party needed to revoke its constitutional

commitment to massive nationalisation and reassure the electorate that Labour had accepted the modern age. By projecting an image of a modernised party he hoped to build a broad based appeal to newly emerging social and professional groups. However, at the post-election special conference in November 1959 he faced bitter opposition and accusations of 'betraying socialism'. Sked and Cook have pointed out that this opposition came not only from the left but also from the 'pragmatic right':

Speakers such as Barbara Castle and Richard Crossman argued passionately for the retention of the 1918 constitution and although Anthony Crosland and others berated them for their 'conservatism' in this regard, the truth was they were in the majority. For not only did they have the traditional left behind them; they also enjoyed the support of the pragmatic right. This consisted of people like Harold Wilson who saw the dispute in practical rather ideological terms.⁵⁹

Wilson felt that Gaitskell had unnecessarily brought the issues into a self-destructive prominence when the fundamentalism of the left could be dealt with in a more pragmatic and subtle way. For the left public ownership remained a pre-condition for the planning of science. Barbara Castle, chairman of the 1959 post-election conference told its delegates that:

We can no more win the battle of nuclear power, electronics and automation on the principle of laissez-faire than we could have won the last war on the same principle.⁶⁰

However, these various streams of thought were to some extent merged and unified through the policy statement produced for the October conference in 1960, Labour in the 1960s. Haseler argues

that it is 1960 which can be regarded as the key date in the emergence of science as serious political issue in the Labour Party. Labour in the 1960s was drafted by Morgan Phillips who had attended the very first informal dinner given by Marcus Brumwell to discuss the Labour Party and science. The statement presented a blueprint of the framework of party policy for the coming decade and stressed the relevance of the 'scientific revolution' to modern social and political development.⁶¹

The conference debate on the statement was overshadowed by the defeat of the leadership on the issue of unilateral disarmament. However, Wilson's speech recommending the document to conference anticipated his famous speech of three years later when as leader of the Party he placed the 'scientific and technological revolution' at the centre of his political campaign. In 1960 Wilson was already urging the Party to make a specific appeal to scientists and advocating the harnessing of science and socialism. He stated:

This is our message for the 60s - a Socialist - inspired scientific and technological revolution releasing energy on an enormous scale and deployed not for the destruction of mankind but for enriching mankind beyond our wildest dreams.⁶²

Over the next three years a whole series of initiatives unfolded which would attempt to translate this rhetoric into policy.

In addition to the centrality given to the scientific revolution by Labour in the 1960s a number of other developments had taken place to reinforce Labour's interest in science policy. Robens had founded a new parliamentary group, the Labour Party

Science Group, which had begun to meet to discuss in detail the existing policy documents.⁶³ This followed on from Robens' appointment as Shadow Minister of Science in opposition to Hailsham.⁶⁴

In December 1960 a Science and Industry Subcommittee of the NEC was established to give substance to the strategy outlined in Labour in the 1960s. This committee met for over two years under the chairmanship of Harold Wilson and served as a useful vehicle for Wilson to keep in touch with this increasingly important field of policy formation. The committee included left-wing MPs such as Barbara Castle and Peter Shore together with Arthur Skeffington MP. At the first meeting of the committee it was agreed that Wilson and Shore should consult the informal groups of scientists who had previously been advising the Party 'with a view to coordinating their work with that of the committee'.⁶⁵ Wilson was increasingly to take responsibility for soliciting advice from the Party's scientific supporters whilst Gaitskell, preoccupied with the threats to his leadership, seemed to lose interest in this aspect of policy.

The election defeat had left the future role of Gaitskell's scientific advisers in doubt. However, Brumwell organised an informal meeting of the 'senior' group of scientists (now also referred to as the 'VIP Group' of scientists) in June 1960. Brumwell in a background document prepared for the meeting, 'Progress Report on Labour and Science', outlined a possible future programme of work. The 'senior' scientists group would

continue to meet to give advice and policy guidance and it was proposed that a full-time officer should be employed at Transport House to coordinate the supply of information on science to the Party. The Working Party of 'junior' scientists had already agreed to continue to meet to produce a popular version of the draft statement 'Science and the Labour Party'.⁶⁶

At the meeting in June 1960 it was Wilson (and not Gaitskell) who was present as the senior politician. He strongly supported the continued existence of the VIP group and hoped in particular that it would be able to provide ammunition for a parliamentary attack on Hailsham's passive role as Minister for Science. In addition Wilson wanted the group to provide guidance and policy for the long term to the Shadow Cabinet. Bronowski argued that the Conservative government had shown two great weaknesses; Hailsham seemed to have taken little action in the scientific field and the government's new education plans carried 'no teeth'. Thus there was scope to develop a debate to the government's disadvantage. Newitt, however, was disappointed that the Labour Party was, apparently, playing down the role of Shadow Minister for Science. Robens had been removed and no replacement had yet been appointed. Similarly George Dickson was concerned that no steps had been taken to inform or involve the trade union movement.⁶⁷

The shorter version of 'Science and the Labour Party' was prepared by Nigel Calder based on the work of the 'junior' scientists group.⁶⁸ This was published in March 1961 as

Science and the Future of Britain but not as official Labour Party policy.⁶⁹

Brumwell wrote to Bernal that:

Harold Wilson seems to be taking this very much under his wing nowadays, although Fred Peart is the new Shadow Labour Science Minister. HW is very anxious for our group to continue to help him and the party.⁷⁰

Similarly Brumwell was writing to Blackett to convey the message of Wilson's enthusiasm for the work of the informal advisory groups:

I think it is fair to claim that partly as a result of all our efforts the Labour Party is taking science a bit more seriously nowadays.⁷¹

It was in the context of Wilson's continuing support, therefore, that Brumwell, in May 1961, circulated fresh proposals on the Party's need for scientific advice. Brumwell emphasised the need to develop the Party's links with other sections of the labour movement who were concerned with issues of science and technology. Firstly, Brumwell emphasised the need to develop links with the TUC's Scientific Advisory Committee. Secondly, there was a need to develop contacts with the Joint Parliamentary and Scientific Advisory Committee which was the principal parliamentary forum of the scientific and technical trades unions. He proposed also that the National Executive's Science and Industry Sub-committee should organise working parties which would consider specific issues (a practice subsequently adopted by the committee).⁷² However, these organisational suggestions went largely unrealised and the existing informal model for the science

advisory groups predominated.

Brumwell had, in addition, suggested that the PLP Science Group should have scientists attached to it and also link up with the JPSAC. Blackett lent his support to this idea of organising panels of sympathetic scientists to provide advice to MPs.⁷³ However, the suggestion appears to have been opposed by Peart, the new Shadow Minister for Science, who was 'quite clear that it is the Parliamentary Scientific Committee which must and will make arrangements for the briefing of MPs'.⁷⁴ In contrast to the period 1956-59 parliament was now increasingly emerging as a forum for the debate of science policy issues.

Following the now well established pattern, an informal dinner took place on 23rd June 1961 at Browns Hotel. Brumwell had arranged the meeting so that Wilson could 'consult our senior scientists and tell them what the Party needs'. Those present at the dinner included, (in addition to Brumwell and Wilson) Fred Peart, Bernal, Blackett, Bronowski, Lockspeiser, Bruce Williams, George Dickson, R.G. Forrester and Peter Shore.⁷⁵

Peart was both suspicious and critical of the group. He apparently felt that it had been in the past too exclusively identified with Robens. His own inclination was to rely on his own parliamentary support rather than the informal and unofficial advice of the VIP Group. (However, Peart's tenure of the post of Shadow Minister was to be short lived.) Peart's view of his job was that it:

...is to help the Labour Party create a scientific image of itself and for this he has the assistance of the PLP Science Group and other PLP groups e.g. Fuel and Power and Atomic Energy.⁷⁶

However, Wilson as chairman of the Science and Industry Sub-committee was anxious that the group should turn its attention to examining the role of the Ministry for Science as well as Britain's future participation in space research. Wilson also wanted the group to provide some advice on the direction of agricultural research. On the key question of government intervention and science and industry Wilson felt that the group should await the forthcoming document from the Home Policy Sub-committee. Bernal commented critically that:

...the relations between the government and industry and the subject of science and industry as so far discussed by us, does not take into account one factor, namely the relation of the needs of the people to the goods that should be provided for them.⁷⁷

This relative neglect of the definition of social needs in relation to policy was not to be rectified by the proposals on science and industry contained in the document presented to the 1961 annual conference, Signposts for the Sixties. The policy presented for the stimulation of scientific and technological innovation in industry was based on an enlargement and restructuring of the National Research and Development Corporation (NRDC).⁷⁸ This would be authorised to initiate its own science-based production or engage in joint ventures with private firms. It was to encourage R & D in the private, civil sector by placing research contracts. Examples of promising areas for the

stimulation of new advances included textile machinery, shipbuilding techniques, machine tools and electronics. Rather than embarking on a programme of large scale nationalisation the NRDC would also have a role in re-vitalising and modernising industry by the setting up of new, publicly owned plants. The aim would be to fill specific 'technology gaps' in particular industries.⁷⁹

Despite this continuing emphasis on the role of science and technology the members of the Gaitskell Group were increasingly to experience a sense of frustration. In the autumn of 1961 the Shadow Minister for Science was again replaced with the appointment of Hugh Mitchison MP. Brumwell wrote to Bernal following the appointment of Mitchison and commenting on the Science and Industry Sub-committee:

...the most exciting feature to my mind however, was that Frank Cousins has now joined this sub-committee, I have never met him before but regard him as outstanding. Obvious are the implications if we can get some science-mindedness into the TUC through him.⁸⁰

The Science and Industry Sub-committee had been discussing topics such as space research, technical aid to the commonwealth, the balance of Britain's research effort and the government's role in civil research and development. Following the publication of Signposts for the Sixties it was to concentrate its energies on the proposals to revitalise the NRDC and the expansion of public investment in private industry. The other focus of its attention was to be an appraisal of the national scientific and technical manpower needs.

The setting up of the Trend Committee in March 1962 to enquire into the organisation of civil science provided renewed political motivation for the discussion of science policy issues. At Wilson's instigation an informal dinner of the VIP Group was held in June 1962. Brumwell prepared a summary of existing Labour Party proposals on government organisation for science.⁸¹ Wilson's immediate concern was with the possibility of an early general election in May or October 1963. He wanted a succinct statement of priorities for science to provide the Party with a 'science plank for the election platform'. In addition he suggested a statement for the public (possibly drafted by Bronowski and Snow) outlining Labour's policy. The original document, 'Science and the Labour Party' and the 'Cabinet papers' were also in need of revision.⁸²

The meeting was well attended including Bernal, Blackett, Bronowski, Brumwell, Carter, Dickson, Forrester, Glass, Lockspeiser, Millwood, Mitchison, Newitt, Skeffington and Wilson. The discussion ranged over much of the ground that had been covered at previous gatherings. Newitt was critical of the frequent changes in the Labour Shadow Minister for Science which suggested that the post lacked status. Newitt's comments reflected a growing sense of frustration and dissatisfaction felt by the scientists at the apparent sclerosis which had now seemed to have overtaken the Party with regard to science policy. Forrester was also concerned that opportunities were being lost by the Parliamentary Party for pressing the case that the National Economic Development Council (NEDC) should be taking full account of scientific and technological

possibilities.

2.4. Frustration

A crisis in the relations between Gaitskell and his senior scientific advisers was precipitated by a circular drafted by Bronowski, 'Handling of Scientific Affairs by the Labour Party'.⁸³ He had been distressed by the June meeting with the representatives of the Parliamentary Party (i.e. Wilson, Mitchison, Skeffington and Millwood). Bronowski's charge was that the Party was making a radical error in under-valuing the post of Shadow Minister for Science since Hailsham seemed particularly reluctant to use all the powers which were available to him. This provided the Party with an important opportunity to attack the Conservative Government. It was Bronowski's contention that this missed opportunity sprang from the lack of a sufficient number of members of the Parliamentary Labour Party with the scientific credentials to carry out the task. The frequent changes in the Shadow Minister was both bad for policy and bad for morale. Bronowski felt that the post should be held by a politician with a proven scientific background or at least have the support of a Parliamentary Secretary with such a background and with a view to later succession to the post. (Bronowski suggested the recently elected mathematician Dr. Jeremy Bray.)⁸⁴ The Minister should also have 'the support of one or two young men to keep him informed of developments in science and technology'. Unless such changes were brought about Bronowski wrote that:

Frankly, I see no point in going on with these delightful but frustrating dinner parties otherwise.⁸⁵

Brumwell circulated Bronowski's criticisms in September proposing that the group should meet without the presence of the politicians.

Blackett responded by agreeing that there was a 'need for a scientifically-minded Labour MP to play a major part in the deliberation of the Group'.⁸⁶ He felt, however, that it was not within the competence of the group to require that anyone selected for this role would be made Minister for Science. Lockspeiser likewise wrote to Brumwell reporting that he shared Bronowski's frustration and suggested Austen Albu MP as a possible candidate.⁸⁷

A meeting of the VIP Scientists Group (without politicians) duly took place on the 17th October 1962. There was general agreement that a trenchant letter should be sent to Gaitskell signed by all the senior scientists expressing their frustration with the present situation. However, it was also agreed that it would be politic to get Wilson's approval of the letter which was to be drafted by Brumwell.⁸⁸ Wilson subsequently gave his approval to Brumwell's draft which strongly criticised the Party's failure and in effect delivered an ultimatum to Gaitskell. The letter argued that:

Science and technology are today an essential part of our culture and our economy. The Party needs to take this into account. The Government is failing to do so and we should focus our fire on this weakness...We believe there is a great public interest in science... which the Party has not yet found how to tap and harness. We are convinced this is an important task ahead of us.⁸⁹

Attached to the letter was a two page memorandum, 'Science and the Labour Party', which summarised the activities of the Group, its

support for the Party's actions and decisions in the field of science policy including the appointment of the Shadow Minister for Science, the setting up of the Science and Industry sub-committee and the recent recruitment of a professional scientist to the Labour Party's research department.

More importantly, however, it catalogued a long list of disappointments which the scientists felt:

- (a) the frequent changes in the Shadow Minister and the fact that science was in most cases only one of his responsibilities;
- (b) the infrequent meetings of the Science and Industry Sub-committee;
- (c) the inadequate preparation for and co-ordination of the science debates;
- (d) the failure to mount a continuous attack on the Minister's and Government policy in relation to Science;
- (e) the very few MPs involved in the presentation of the Party's policy on Science and their lack of continuing self-preparation for such a task;
- (f) the NEC's Report to Conference 1962, which demonstrated a lack of appreciation of the scientific aspects of other fields of Party policy, e.g. the absence of any scientist on the Study Group on Higher Education and on the Finance and Economic Policy Sub-committee;
- (g) the inadequacy of the Secretariat in this field both in the House and at Transport House.⁹⁰

The document drew the conclusion that science in fact was accorded a low priority and that this position needed to be radically transformed if there was to be any value in the continued work of the informal science advisory group. The immediate changes being sought included the appointment of a Shadow Minister with no other

responsibilities than science supported by a Secretariat also with no other responsibility.⁹¹

Gaitskell's reply on the 8th November was both short and non-committal:

I am very glad you wrote and in such clear and positive terms...I should like to think about what you say and in particular consider how best we should next proceed. I will write to you again shortly.⁹²

Whilst the frustrated scientists had been petitioning Gaitskell he had privately established his own working party on science, government and industry under Robert Maxwell.⁹³ However, Gaitskell's principal concern had been to consolidate his leadership and, as Haseler points, out it was only 'by the close of 1962 Gaitskell's ascendancy in the Party was complete'.⁹⁴

Although Wilson's Science and Industry Sub-committee had made little headway in contributing to policy it provided him with a useful base. In contrast to Gaitskell, Wilson's continued courting of sympathetic scientists was evident, for example, at a private dinner party held at Brown's Hotel on 16th November 1962. The guests invited by Brumwell on Wilson's behalf included Sir Howard Florey, President of the Royal Society, Frank Cousins, General Secretary of the Transport and General Workers Union, and J.D. Bernal.⁹⁵ Wilson's subsequent assumption of the leadership of the Party transformed the prospects for its scientific supporters. Haseler has written that:

The modernisation of Labour that had begun under Gaitskell was both consolidated and expanded under Harold Wilson. He added the further dimension of science and technology to Labour's existing revisionism and elevated it into a major election plank in the Party's platform for the 1964 General Election.⁹⁶

3. The Crossman Group

Following his election as leader of the Labour Party Harold Wilson appointed R.H.S. Crossman as Shadow Minister for Science and Higher Education.⁹⁷

Crossman clearly saw the question of the social and political control of technological change as functional for forging Labour Party unity. He wrote later (with reference to Harold Wilson's speech to the 1963 party conference) that:

...we realised that here was the new, creative Socialist idea needed to reconcile the Revisionists of the Right with the Traditionalists of the left. Harold Wilson succeeded where Hugh Gaitskell failed because he did not propose a substitute for the old Socialism. Instead he offered a reaffirmation of its traditional moral and political argument in ultra-modern terms.⁹⁸

And it was to be Blackett who was to emerge as Crossman's principal adviser on scientific matters. Blackett had a number of discussions with Crossman and Brumwell concerning the 'next steps in helping to formulate a set of briefs on Science Policy for future Labour ministers'. These had called into question the continued existence of the Gaitskell Group. Blackett's reasons for the dissolution of the existing group were based on the need to bring

'new blood' into the process of policy formation. He felt it was imperative to involve more MPs and younger scientists; a possible source being the recently created Fabian Science Study Group.⁹⁹

The conclusion was that Crossman should at once establish a Science Working Party (with himself as chairman) reporting to the Science and Industry Sub-committee and drawing its membership from that committee, the Fabian study group and the Gaitskell group. Blackett saw the main tasks of such a working party as bringing up to date the documents prepared for Gaitskell in the late 1950s, commenting on the Labour Party report on 'A Policy for Higher Education' and producing studies of other fields where a Labour government would have to take immediate action.¹⁰⁰

Brumwell had circulated a letter to members of the Gaitskell Group at Wilson's election which expressed great satisfaction with this turn of events:

You may be wondering what is going on about the effort of our group of distinguished scientists to advise the Labour Party about science in view of today's changed circumstances...in the new situation it appears that the whole activity of pepping up the Labour Party's attitude towards science has taken a violent and admirable step forward. You will have noticed the appointment of Crossman as Shadow Labour Minister and he is co-opting more people on to the 'science and industry' sub-committee of the NEC. He is also considering the formation of an advisory panel, somewhat like the one we¹⁰¹ produced but it will be more official...

Crossman had replaced Wilson as chairman of the Science and Industry sub-committee in January 1963.¹⁰² The work of the sub-committee had lapsed during much of 1962 but it had been formally reconstituted by the Home Policy Committee in November 1962 when it had been agreed:

That the Science and Industry Committee be invited, in consultation with the TUC, to undertake the study of training and re-training in industry.¹⁰³

(This initiative had been undertaken in response to the publication of a government White Paper on industrial training).

In addition the committee had been given the task of making proposals on the work of the Ministry for Science under a future Labour Government; the work of the state research organisations; the NRDC and the research effort of private industry. The committee was considerably enlarged (from a membership of 10 to 20) and with its membership overlapping with Crossman's science advisory group which was constituted in March 1963. However, despite its apparently wide remit, its main focus of attention was on the issue of industrial training but served as the official channel for the submission of reports from other groups on science policy to the NEC.

A further resource in the new moves by Wilson and Crossman to give science a high political profile was provided by the Fabian Society Science Study Group. This had been formed as a result of weekend school on science policy in November 1961 sponsored by the Fabian Society. The group consisted of a number of MPs including Austen Albu and Dr. Jeremy Bray together with some junior research workers and civil servants. Stanley Mayne in some introductory notes for the group had ambitiously claimed that its purpose was to provide 'a blue print for the next Labour Government'. Mayne's principal proposal was for some kind of 'scientific parliament' or council which would be representative of the interests of science and technology at a national level.

(Other papers were presented to the group by Jeremy Bray, Dennis Sims and Austen Albu). However, the group was 'too divided on organisational questions to issue a collective report'.¹⁰⁴

Following Blackett's advice Crossman held a meeting at the House of Commons on 13th March designed to coordinate the various groups working on science policy issues. The meeting was chaired by Crossman and attended by a range of interested scientists and MPs: A. Albu MP, Blackett, Dr. B.V. Bowden, Dr. J. Bray MP, Brumwell, Prof.C.E. Carter, Tam Dalyell MP, R.G. Forrester, Dr. J.R. Godfrey, Judith Hart MP, P.V. Posner, Lord Shackleton, J. Maynard Smith, and T. Pitt. Terry Pitt had recently been appointed to the Labour Party's Research Department (partly as a result of the earlier criticisms of the 'senior' scientists - Pitt had a Dip.Tech.degree from the Birmingham College of Advanced Technology) and was to act as secretary to what would be known as the Crossman Group. He was to play a key role in maintaining links with Transport House and the Science and Industry Sub-committee.¹⁰⁵

The Crossman Group in fact took the form of three separate Working Parties on scientific manpower, government machinery for science policy and civil research and development. These working parties were to be responsible for the drafting of reports which were to form the basis of the first major conference organised by the Labour Party at the Bonnington Hotel in July 1963. The working party on scientific manpower consisted of Blackett, Bowden, Dalyell and Prof. Wynne Jones, that on government machinery for science policy of Albu, Brumwell, Forrester, Godfrey, Maynard Smith and Lord Shackleton and that of civil research and development

consisted of Albu, Blackett, Bowden, Bray, Carter, Judith Hart, Posner and Williams.¹⁰⁶

The agenda of the Crossman Group was to construct the policies based on the 'new case for socialist planning' but in terms which would appeal to the broadest constituency within the party. In addition Wilson's electoral strategy was partly based on winning the support of new professional groups to support the Labour Party.

A further meeting was convened in June to coordinate this strategy at Wilson's initiative. In spite of the reorganisation entailed by the creation of the Crossman working parties, this was to take the form of the traditional pattern of an informal dinner involving the scientific 'VIPs'. (Bernal, for example, was invited but was absent in the United States.) Those present included the core of the Gaitskell Group: Blackett, Bronowski, Brumwell, Dickson, Forrester, Lockspeiser, Newitt, Snow and Williams.¹⁰⁷ Wilson was concerned with the possibility of an early general election and was anxious to get the scientists renewed support in raising Labour's profile as the party of science. A key factor in this was the proposal for a major conference in July to canvas the views of all the various policy groups which had addressed scientific and technological issues.

The meeting discussed the next steps to be taken. Wilson and Crossman agreed to the holding of the Labour Party and Science Conference; the production of a set of 'Cabinet Papers' to be ready by mid-July; the launching of an Association of Labour Scientists; the drawing-up of an 'electioneering manifesto' (perhaps to be signed by 12-20 distinguished scientists); the

formation of various working parties; and giving consideration to the status of appointments to the Ministry for Science. The work of the Crossman Group was reflected in papers presented at the Labour Party and Science conference held at the Bonnington Hotel on the 20th and 21st July 1963. The conference was sponsored jointly by the Labour Party and the Fabian Society. This conference had been designed to bring together the various (and politically disparate) groups working on aspects of science policy; the Working Parties of the Crossman Science Group, the Science and Industry Sub-committee, Robert Maxwell's Group, the Fabian Society Science Study Group and the Fuel and Power Group. In addition invitations were also dispatched to various senior trade unionists, economists, industrialists and a miscellany of sympathetic intellectuals. The meeting was to discuss a proposal to establish an Association of Labour Scientists (ALS) and the various approaches to science policy raised in the discussion papers.¹⁰⁸

Three of the discussion papers stemmed directly from the work of the Crossman Science Group. These included 'Civil research and development', (Carter and Williams), 'The expansion of higher scientific and technical education', (Blackett), and 'Science and government: some key questions', (Crossman). Two further papers, 'An immediate programme of civil R & D', and 'New public enterprise', dealt with aspects of the problem of encouraging technological innovation through new forms of public ownership reflecting some of the Party's 'revisionist' thinking. The essence of the short term proposals on civil R & D was the setting up of four full-time, high-powered planning teams designed to press forward technical

programmes of development in four specific industries. A further paper, 'Expansion of the arts and social sciences', advocated the setting up of a new research council for the social sciences. In common with Blakett's paper on scientific and technical education the central theme was of the state's role in initiating programmes of expansion. A final background paper from the Maxwell group presented a broad discussion of the problems of government organisation and science.¹⁰⁹

The empirical work of Carter and Williams had led them to challenge fundamental aspects of earlier attempts to formulate labour movement policies for science and technology. They criticised the simplistic pre-occupation with the quantitative level of research and development expenditures. Williams argued that there was no simple relationship between research expenditure and economic growth at the national level:

There is...no obvious logical step from the observed effects of applied science on past growth to the conclusion that national expenditure on research and development is the key to future national growth.¹¹⁰

Similarly the linear model of the innovation process was called into question because it naively implied that industrial innovation was a simple function of research.

Carter and Williams pointed out that both in the United Kingdom and the United States a high proportion of research and development was geared to military needs and had a relatively small 'growth fallout':

Perhaps 50% of the British R.D. effort has no growth objective. In addition there are many fields where, although R.D. work has, or should have, a growth objective, the likely growth effect is small. For example, civil R.D. on atoms and aircraft is more than 10% of our total expenditure, and there is no good reason to expect in either field a growth content proportionate to expenditure.¹¹¹

In addition they laid greater stress on technological as distinct from purely scientific advance and emphasised the need to ensure greater exploitation of existing knowledge as compared with the production of new knowledge:

...in relation to British industry as a whole, the main place to look for an explanation of our failure to get more growth from science is not at the point where new science is being created but at the point where existing science and technology can be used in industry. It is this that sets the context of our discussion of government intervention.¹¹²

Their approach to policy was based on a rejection of general principles in favour of a differentiated approach assessing specific industrial sectors, scientific disciplines and technologies. Points for government intervention should be chosen on the basis of some 'incongruity' between scientific and technological opportunity and institutions of industry such as size of firms, restrictive practices, protected markets, the need for large research and development expenditures or the lack of management with scientific background.

In their keynote paper delivered at the Bonnington conference they contrasted two types of government policy for industrial research.¹¹³ The 'passive' type assumed that 'industry knows best' and confined itself to providing help a point of special difficulty

determined by industry rather than government. Carter and Williams contrast this approach with an 'active' type of policy which seeks to intervene to inject scientific and technical resources into industry in order to change it (even against industry's own wishes). The forms of intervention they advocated included: direct control of production; subsidies or large initial orders from government; public information and advice; contrast development; tax incentives; direct government applied research; and the encouragement of employment of scientists and technologists. These modes of intervention embodied in a more systematic way some of the pragmatic responses various governments had tried. They remarked in a later paper that:

...the problem of scientific policy is not one of devising totally new methods, but of applying more forcefully and in new areas methods that have long been used or considered.¹¹⁴

However, they pointed out that 'there was virtually no government machinery in existence for finding or appraising the facts relating to policy on science and industry'.¹¹⁵

An active policy of state intervention would require the creation in each operational department of government a strong unit able to deploy technologists and economists to provide appraisals of specific industries rather than any over-arching centralised Ministry. They recognised that any series of studies of specific industries would have to be linked to some form of long-term planning - carried out by the NEDC or the Ministry for Science office. This process they argued:

...does not consist of asking eminent scientists or industrialists to parade their hobby horses; it is a job for technologists, economists and statisticians.¹¹⁶

Thus Carter and Williams played down the potential role of scientific advisers. This elicited emphatic disagreement from Bernal:

The idea of arranging the future of research without scientists is violently reactionary... For every important industrial advance I could quote serious reports by engineering experts and economists to show that they were impossible and useless.¹¹⁷

Carter and Williams classified the assistance which could be given by government according to the various stages of the innovation process: information; research; development; production and marketing. With regard to information, they challenged the prevailing Treasury view that industry itself should pay the cost of technical advice and advocated government subsidy to provide such services to industry via the universities, CATs etc. They were critical of research aid given by research associations and government laboratories. They recommended extension of the policy of earmarking grants for particular pieces of research work; strengthening government representation on research association governing boards.

Carter and Williams were not convinced that there was adequate commercial assessment of the work of the government's own research establishments. They favoured a policy of attaching research stations to their appropriate operational department. Bernal, however, saw the problem as deeply rooted in an antagonism between scientists and civil service methods and procedures.

Government intervention at the development stage of the innovation process was envisaged by Carter and Williams principally in the form of civil development contracts. Contracts sections could be created in relevant government departments with NRDC playing a role as agent. Bernal remained wary of this method based as it was on an analogy with military development contracts 'which certainly produced goods quickly but also led to excessive profits and wastage'.¹¹⁸

They proposed a number of penalties for laziness and inefficiency in the exploitation of new technologies by industry. These included more effective action to prevent restrictive practices and for the control of monopolies; readiness to reduce import duties to create sharper competitive pressure; production contracts to break up particular areas of backwardness. Improvements in management education was also argued to be vital for improving the rates of application of new technologies.

Carter and Williams were very critical of the performance of the nationalised industries; social ownership was not necessarily the guarantee of effective innovation:

The nationalised industries should have been the leader in the intensive and effective use of science. Instead they have lagged behind. This fault must be put right at once; it is no use the Government preaching to private industry if both State-owned industries and Government departments are backward in the use of science.¹¹⁹

Bernal, however, argued that expenditure on research by the big corporations in the private sector was often motivated by considerations far removed from social utility such as the desire to

make quick profits, to reduce the corporate tax burden, to create a 'progressive' image or for reasons of self-protection. This was a source of frustration for scientists which the AScW could do something about but was 'afraid to do so'.¹²⁰

Crossman's proposals on government machinery had been discussed by the Science Group as early as April. Blackett had written that:

The central need is for a strong Ministry of Planning which will absorb the NEDC and plan the broad outline of national production and investment.¹²¹

In this context science and technology would be principally the responsibility of two ministries, a Ministry of Industry and a Ministry of Universities and Science, which would execute the strategic planning of the Ministry of Planning. The Ministry of Industry would incorporate the industrial department of the Board of Trade, the NRDC, the civil side of the Aviation Ministry and the development functions of the DSIR. The Ministry of the Universities and Sciences would be responsible for supervising the UGC and the research councils through a proposed Civil Science Board. (Defence research would remain the responsibility of the service ministries).

In addition to these institutional arrangements Crossman's broader pre-occupation was with the means by which the Whitehall establishment in general might be made 'responsive to technological and social change, the problem we have to solve is how to marry a permanent civil service with outside expertise'. Thus he was concerned not only to extend state support for the planning of science and technology but also to extend the application of

science in government:

A sharp increase in the size and in the status of our scientific civil service; a full recognition of the vital role of the outside specialist on temporary assignment to Whitehall - these two measures should provide us with the manpower requirement to ensure that the Government adapts its thoughts and procedures to technological change, that 'planning is science-based', and that Cabinet decisions are arrived at on the basis of a scientifically assessed intelligence.¹²²

To this pre-occupation with the future role of scientific experts in relation to a Labour government the Bonnington conference had, in addition, to deal with the immediate and parallel issue of the status of Labour's science advisory groups.

4. The Standing Conference on the Sciences

The final phase in the relationship between the Labour Party and its scientific advisors in the formation of its pre-election policy was encompassed by the existence of the so-called Labour 'Standing Conference on the Sciences'. In this period Labour engaged in a semi-public dialogue with a number of scientists (principally academics) to test its plans for science and technology which remained in a far from finished condition particularly in regard to institutional arrangements. At the same time the inner party advisory groups continued to operate with Blackett's role as Crossman's unofficial scientific advisor considerably strengthened. In the long run it was Blackett's case for a Ministry of Technology which emerged as the most prominent contribution. Meanwhile his erstwhile ally from the earlier days of the social relations of science movement,

J.D. Bernal, was consciously excluded from direct involvement in the continuing discussions.

A key question which was discussed at the Bonnington Conference was that of the organisational form by which Labour might continue to develop the support of scientists and technologists and foster expert advice to the party. The idea of an Association of Labour Scientists had been suggested as early as 1958 by Cecil Gordon in an informal paper submitted to the Gaitskell Group.¹²³ Such an Association would have institutionalised what had hitherto been an informal and ad hoc approach. The proposal modelled the Association of Labour Scientists (ALS) on the existing Socialist Medical Association and Socialist Educational Association which were already affiliated to the party.

The idea of setting up an ALS had been discussed briefly at a meeting of Labour's NEC in June 1963 and again at the 'VIP Scientists' dinner in the same month.¹²⁴ Crossman had considered that Tam Dalyell might become secretary to the new organisation. However, Dalyell had reservations about the idea. These reservations were strengthened by objections from other quarters; notably Lord Taylor and Bowden. The proposal was discussed at the Bonnington conference but was not directly challenged. The decision not to proceed with the idea emerged only subsequently and in the light of informal approaches to Crossman.

Bowden had written to Crossman privately during the conference expressing his doubts about the 'proposed society of Labour Scientists'. Bowden's principal concern was that of a possible

communist domination of any such organisation. He wrote that:

I spent years trying to keep the Socialist Medical Association straight and make it efficient and effective, entirely without result. It was really run by about 5 people, of which 3 were CP supporters, more concerned with the adoption of the current CP line on 'Peace', Cyprus etc. than with the health service or medicine. The results are precisely zero...As you well know the Haldane Society had the same trouble and AScW had also had its share.¹²⁵

Bowden also argued that in general scientists' principal loyalty was to science and they were not naturally socialists or loyal party supporters although they may vote labour if the Labour Party appeared to be advancing policies favourable to science. Bowden's alternative to an ALS was the setting up of a 'standing conference' on the lines of the Bonnington conference. Working parties could be established to deal with specific issues; large private meetings could be held to which non-labour scientists could be invited. Organised on this basis there would be 'little danger of its being dominated by a small non-representative group'.¹²⁶

Similar reservations were also being expressed by Lord Taylor. Bowden's idea of a standing conference was subsequently raised by Crossman at Labour's NEC meeting on the 24th July. Crossman apparently shared Bowden's views and advanced the idea of a standing conference whose nucleus of members would be constituted by those attending the Bonnington conference. A small standing committee would be coopted to run what was to be called the 'Standing Conference on the Sciences'. Dalyell would act as secretary and liaison with Terry Pitt at Transport House. The proposal was accepted by the NEC as the one which was likely to

give more closely circumscribed political control.

Crossman had been closely in touch with Blackett over these developments and wrote to him following the NEC meeting reporting the 'favourable reaction to the idea of a standing conference on the sciences rather than an association along the old lines'.¹²⁷ Subsequently Crossman circulated a memorandum to those who had taken part in the Bonnington conference to outline the new proposals regarding the question of organisation and generally to indicate the next steps. He wrote that:

Patrick Blackett and I were very much aware during the discussion that there were more reservations about the proposal than those actually expressed and during the weekend several colleagues wrote to us strongly urging that the plan should be reconsidered.¹²⁸

Crossman was also alive to the possible charge of fostering a technocratic approach to the solution of political problems. He wrote it was:

...vital we should not give the impression that we are concerned only to foster a small scientific elite which will plan and give orders to the unscientific masses.¹²⁹

In order to correct this impression Crossman was anxious that 'full use of AScW and other parts of the T.U. movement' should be made - particularly in the context of fears about 'technological redundancy'. However, while this issue was the focus of study by a working group of the Science and Industry Sub-committee, there is little evidence of any major initiative to involve the trade union movement in the party's policy discussions other than on purely economic questions.

As the prospect of an early general election receded so too the need to reach final decisions on public policy diminished. With the impending publication of the Trend Report also the need to reach final conclusions was delayed. Labour Party policy would have to be formulated in response to government action (or inaction) on both the Trend and Robbins Reports.

The central policy outcome of the Bonnington conference had been limited to publicising the proposal to establish a Ministry of Higher Education and Research. The precise shape of Labour's policy would not emerge until the following year and the holding of the second Bonnington conference in February 1964. In the interim under the auspices of the Standing Conference on the Sciences a series of meetings and discussion groups were organised. These meetings were largely undertaken by Crossman, Dalyell and Bowden in universities and colleges. And as Wolff pointed out:

These canvassed a largely academic constituency which, in retrospect, presented a one sided view of scientific needs. Absence of industrial scientists was also marked in the membership of the working parties which were meeting regularly during this period. The academic bias was reflected later in the emphasis given to the innovation push model in the Ministry of Technology's strategies.¹³⁰

Despite the continuing internal Party discussions the centrepiece of the party conference in October 1963 was Wilson's speech on the policy statement Labour and the Scientific Revolution.¹³¹ The statement had been drafted by Crossman and Terry Pitt in the light of the discussions of the Science Group. Crossman had written in August to participants of the Bonnington conference of

the NEC's agreement to produce a draft policy on science for submission to September's Home Policy Committee meeting in preparation for conference. Crossman wrote that the statement was to be:

...suitable to form the basis for an Executive speech at conference introducing a major debate on Labour and the Scientific Revolution...Harold Wilson thinks it of the highest importance that the activities of the working parties should widen and deepen this winter.¹³²

Thus Wilson's first speech as Labour leader to the annual conference, with Patrick Blackett at his side, echoed his speech of three years earlier merging the rhetoric of socialism with the argument for science and technology as the instruments of social progress. His central theme was that free enterprise in an unregulated economy would lead to the introduction of new developments in science and technology in a haphazard and socially divisive way. A Labour government by contrast would ensure their introduction in a purposeful way through social and economic planning. Wilson stated that:

The problem is this. Since technological progress left to the mechanism of private industry and private property can lead only to high profits for a few, a high rate of employment for a few, and to mass redundancy for many, if there had never been a case for Socialism before, automation would have created it. Because only if technological progress becomes part of our national planning can that progress be directed to national ends.¹³³

Wilson's four-point programme for scientific development reflected some of the discussions of the Crossman Group. Firstly Wilson included a demand for a massive expansion of higher education under a new ministry to ensure adequate supplies of scientific and

technical manpower. In addition this was to have the aim of preventing loss of talent through inequalities in educational opportunity between the different social classes. Secondly, Wilson argued for the determination of priorities by a 'full Ministry of Science' to ensure that scientific resources were deployed in 'productive sectors rather than on 'prestige' defence projects and 'consumer gimmicks'. Thirdly, the promotion of economic growth and industrial efficiency through the use of civilian research and development contracts, creation of new state industries based on government sponsored research and the location of such industries in areas of high unemployment. And, fourthly, Wilson referred to the need to provide the status and facilities to British scientists which would halt their increasing rate of emigration.

However, Wilson was vague on the question of the kind of institutional framework which would be required to implement the programme which he had outlined. This was to form a central pre-occupation for inner party discussions particularly in the light of criticisms of the Trend Report, published in October 1963.

Wilson called together some of his senior advisors for a meeting at the end of October to discuss the Robbins and Trend Reports and consider policy for a future election campaign. Wilson at this meeting specifically raised the notion of a Ministry of Technology.¹³⁴ Those present at the meeting included Dr. B. Abel Smith, Noel G. Annan, Blackett, Dr. B.V. Bowden, Prof. Claus A. Moser, Sir Neville Mott, C.P. Snow, and Prof. R.M. Titmuss. Brumwell, Forrester and Crossman were also present but Bernal had been specifically excluded. Crossman had telephoned Brumwell to

the effect that Bernal was not invited. Brumwell wrote to Bernal that:

I personally put the cause as Blackett's sort of excessive intellectual jealousy and Dicks, in this case unnecessary, I think, political sensitivities. But you know that much better than I.¹³⁵

In spite of this apparent rebuff Bernal continued to forward his views at the direction taken by Labour's policies following this meeting.¹³⁶

For example, Bernal wrote to Crossman in November 1963 recording his 'thorough and enthusiastic agreement' with Wilson's speech in the science and education debate on the Queen's speech.¹³⁷ Wilson had endorsed the Bonnington conference discussions which had implied the hiving off of industrial science with a separate administration, a Ministry of Research and Technology. The Trend proposal for an Industrial Research and Development Authority (IRDA) embodying an implicit autonomy from political direction was rejected. Bernal, however, had some disagreements with Wilson's proposals on governmental machinery.

Wilson had proposed that the basis of the new Ministry might be constituted from a Ministry of Aviation stripped of its air transport functions. Bernal wrote that:

This might appear to be a mere matter of governmental machinery but the actual proposal to turn the Ministry of Aviation into a Ministry of Research and Technology I feel is tactically and administratively inadvisable. I would rather see a Ministry set up de novo without carrying any implication of connection with aviation or its transport, aircraft manufacture or of its inevitably concealed military aspects.¹³⁸

A new Ministry of Research and Technology would be in a far better position to counter-balance the distortion of research effort imposed by military research needs (especially in the aerospace field):

Now most of these needs are obsolete and have only been an occasion of wasting public money on research. It is clear we shall never get into the field of designing and trying out large rockets and so we ought to re-cast our research efforts with regard to a past in which that effort was heavily distorted.¹³⁹

Bernal was in favour of the incorporation of the 'spirit of the Trend Report' in making the Ministry of Research and Technology equivalent to the authority for industrial research which Trend had proposed.

In addition Bernal was opposed to Wilson's proposal that the research councils might be put under their respective functional ministries:

The Ministers of functional ministries tend to be wrapped up in their day to day problems, research for them can only be a small part of their responsibilities.¹⁴⁰

Thus in the period of the consultation of the Standing Conference the policy issues were to crystallise primarily around institutional arrangements for industrial science and technology and around the relationship between education and science. Bernal's comment on the latter (in the light of Wilson's shift in emphasis from the expansion of the university sector to the importance of the secondary education) was that:

The pressure to confine higher and general education within one Ministry and two Ministers of State will be difficult to resist and is only resisted now in order to provide a bigger hat for Mr. Hogg. But that would leave science very much on its own.¹⁴¹

Wilson had in fact advocated that educational planning be brought under a single Secretary of State for Education with two subordinate Ministers of State for Schools and for the Universities.¹⁴²

This was confirmed by Crossman at Standing Conference meeting on 13th December 1963. Crossman had argued that the targets for university expansion proposed in the Robbins Report would entail a neglect of the secondary sector if administered by separate Ministries. He was, however, still committed to the idea of including parts of the Ministry of Aviation as the nucleus of a Ministry of Research and Technology.

Bernal's exclusion from any further direct participation in Labour Party policy discussions was confirmed at the time of the final meeting of the Standing Conference which was held at the Bonnington Hotel on the last weekend of February 1964. The purpose of the conference was to resolve some of the remaining dilemmas for the Party particularly around the issue of the form and function of the proposed Ministry of Industry and Technology.¹⁴³

An invitation was sent by Crossman to Bernal on 11th February to attend the conference.¹⁴⁴ Bernal had accepted this invitation.¹⁴⁵ Crossman wrote back hastily and with some embarrassment that:

Unfortunately after I had invited you to the Conference, I found that I had exceeded my powers and issued my invitation without proper authorisation. A number of friends will be as profoundly disappointed as I am that you are excluded by the restricted character of the conference. But there it is.¹⁴⁶

Bernal replied to Crossman in magnanimous terms:

You need not consider that I carry any personal feelings on the matter but I am as anxious as ever to be of use in helping to formulate the policy for a future Labour government.¹⁴⁷

His principal concern was that avenues should remain open for scientists sympathetic to Labour's aims to be consulted. He wrote:

Some method, surely, could be devised whereby those who do not agree with certain aspects of the Labour Party policy such as Polaris submarines or mixed manned forces could be consulted on relatively non-controversial (sic) subjects such as science.¹⁴⁸

However, the shelving of the proposal to establish an Association of Labour Scientists and the reasons behind that illustrated that there was a deeper distrust felt amongst the Labour leadership. And that distrust was a matter of political substance rather than a concern over differences on particular aspects of policy. The exclusion of Bernal represented an exorcism of the more radical political associations which underpinned the politics of the planning of science movement of the 1940s. Crossman attempted to gloss over this rift. Writing to Bernal following the conference:

I hasten to write and thank you for your extremely nice letter of the 3rd. Of course, I shall be delighted to meet and talk with you with the greatest freedom. By the way we had an excellent conference and a lot of us missed you.¹⁴⁹

Significantly it was Crossman, Blackett and Bowden who appeared at the press conference to outline the course of the discussions.¹⁵⁰ The conference had decided upon an increased level of support for civil research of £50 million in line with the recommendations of the recent influential FBI report. An enlarged role for the NRDC was proposed under a Ministry of Industry and Technology (MOIT)

which would support development in private manufacturing industry not already under the remit of other government departments. The meeting had rejected the various proposals which had seen the civil side of the Ministry of Aviation as the basis of the new ministry.¹⁵¹ The MOIT was to carry out its work in the light of objectives of a Ministry of Production - a planning department for economic development. The MOIT would use a variety of mechanisms including R & D contracts, the formation of consortia with state participation, assistance in new public enterprises, the use of its purchasing power, influence with the Board of Trade and tax incentives.¹⁵²

5. Blackett and the Case for the Ministry of Technology

The original tasks which had been defined at the setting up of the Crossman Science Group had been to update the policy documents produced by the Gaitskell Group, comment on the Labour Party report, 'A Policy for Higher Education' (especially from the point of view of University scientific research) and plan specific studies of areas where a Labour government would need to take immediate action.¹⁵³ These limited objectives had been overtaken by the need to formulate responses to the Robbins and Trend Reports. In February 1964, for example, the Conservative government had announced the setting up of the Department of Education and Science. As Vig notes this presented the Labour Party with a dilemma:

If the DES was to be created on April 1st should they demand its dismemberment? Granted that Hogg was vulnerable to charges of combining too much in one ministry, how much should be hived off? Should responsibility for scientific research, at least, be left in the new department?¹⁵⁴

In anticipation of an early election in 1964 Wilson had launched his campaign in January based around the idea of Britain's technological regeneration and thus Labour needed to resolve its continuing discussions and consultations.

In February 1964 Blackett had written to Crossman that:

It is obvious, even if paradoxical, that if the Labour Party is to be able to carry out a substantial part of its social programme, it must ensure that private industry functions better than it has done under recent Tory governments. I remember Stafford Cripps in 1943 emphasising that any Labour government which leaves, as it must, most of manufacturing industry in private hands must provide the conditions under which it can be efficient. This may be emotionally distasteful at times but the challenge must be faced.¹⁵⁵

The practical political imperative for a Labour government to achieve rapid results was again emphasised in his key paper 'The case for a Ministry of Technology'. He wrote that:

If the Labour Party is to make its mark in history, it must achieve results quickly; concrete results must be achieved in the first two or three years of office.¹⁵⁶

The evolution of Blackett's ideas on the role of state intervention in industrial research and development can be traced in a series of papers produced for the Gaitskell and Crossman advisory groups: 'Government participation in industrial research and development' (July 1959); 'The cost of a new deal for British scientists and technologists' (April 1963); 'The case for a Ministry of Industry and Technology' (January 1964); 'The case for a Ministry of Technology' (September 1964).¹⁵⁷

Blackett had submitted his 1959 paper on government participation not only to the Gaitskell Group but also to the Board of the NRDC (of which he was a member) from where it had passed to the Board of Trade, the DSIR and the Ministry for Science.¹⁵⁸ Although his ideas made no impact in government circles his access to the top levels of policy making was a clear signal of acceptability to the Labour leadership. In this paper Blackett had drawn attention to Britain's technological (rather than scientific) backwardness and had proposed that additional finance should be found for 2000 qualified scientists and engineers (at a cost of £15 million p.a.) to go into civil industrial research. He had stressed the importance of the state's role in directing this increased effort into the most nationally profitable fields. The implementation of this proposal would be the responsibility of a new body, the Civil and Industrial Research Development Authority (CIRDA) to coordinate and strengthen the work of the NRDC and DSIR. Implicit already in his proposals was an abandonment of the 'Haldane principle' in the field of applied research.

Blackett engaged in extensive correspondence with officials of the NRDC on the question of civil research and development. Blackett was also in touch with the newly established National Economic Development Council (NEDC).¹⁵⁹ In April 1963, shortly after the formation of the Crossman Group he produced a paper which presented rough estimates of the cost of 'a new deal for British scientists and technologists'. This summarised both his thinking on policy for education and science and on civil research and development. The memorandum proposed the merging of the science

and higher education ministries (foreshadowing later developments) and the setting up of a Civil Science Board under a Ministry of Universities and Science. Most significantly, however, the setting up of a Ministry of Industry was advocated which would have small but strong scientific, technical and economic groups. The NRDC and the applied side of the DSIR would be placed under the new ministry. Blackett's view was that 'the most serious defect of the present organisation of civil science is that it is not headed by a policy making body of sufficient strength'; hence the setting up of the Civil Science Board. However, at this juncture it was his view that:

...there is no role for a parallel scientific and technical planning board above the level of the proposed CSB except as a part of a general economic and industrial planning body. It is important to note that the CSB, as proposed, would be executive within its terms of reference, and within the allotted budget. While at the NEDC level, its role would be purely advisory.¹⁶⁰

During the period of the Standing Conference on the Sciences Blackett's views underwent further modification but rather in response to the publication of the Trend Report and discussions within a newly established advisory group, the Technology Group. This new group met informally under the chairmanship of Judith Hart MP as a sub-group of the Science and Industry Sub-committee. The membership of the group was predominantly of politicians.¹⁶¹ By January and February of 1964 it had produced a range of discussion papers; 'Notes on the Ministry of Aviation' and 'Constructing the Ministry of Industry and Technology' (Judith Hart); 'The function and research of the Atomic Energy Authority'

(Dr. Tony Hart); 'A Plan for atomic energy' (Austen Albu).

Relevant to the group's discussions had been a paper by J. Diamond MP on 'State share-holdings in private industry' and George McRobie's 'Extension of public ownership in private industry'. Blackett subsequently cited these discussions as sources in the development of his own ideas on the Ministry of Industry and Technology.¹⁶²

Blackett elaborated his ideas for a Ministry of Industry and Technology in a paper prepared in January 1964. A Commons debate was scheduled for 24th February 1964 as a result of a motion of censure tabled by the shadow cabinet on the issue of the continuing emigration of British scientists and technologists. Blackett took the opportunity to produce a briefing memorandum for Crossman with 'some tentative conclusions about the ministerial set-up relating to technology'.¹⁶³ The concept of the MOIT was an enhancement of the previously elaborated role for a Ministry of Industry. The MOIT would have a strong staff both commercially and technologically. The Ministry would have separate sections for each of the major industries based on the 17 of the classifications adopted by the NEDC for its Economic Development Committees. The Ministry would have close links with the proposed new Ministry of Production responsible for the general planning of the economy.

The MOIT would serve as the main instrument by which government policy would impact on manufacturing industry. The NRDC would be responsible to the MOIT and would be the main agency for feeding finance for research and development into private industry. A variety of mechanisms for increasing financial inputs were envisaged - including differentiated tax policy, investment

allowances, use of government purchasing and the setting up of new or jointly owned companies. An immediate expansion of research and development investment would aim for the target set out by the FBI (£50 million) in their report, the Knollys Report (June 1963). Return on investment would be ensured through a variety of means including, for example, a share of the equity. Its main role would be to take over direction of the various research and development bodies - sections of the DSIR, MOA, AEA. The research associations would be more closely tied to industrial sectors through the new structure.

For Blackett the essential difference between his proposals and those of Trend for an Industrial Research and Development Authority (adopted by the Conservative government) was that he was proposing a 'full new Ministry' which would not be subject to the Ministry for Science. Blackett's proposals effectively breached the 'Haldane principle' for applied research and development advocating direct departmental control rather than autonomous sponsorship of industrial research.

He was enthusiastic and optimistic concerning the gains that could be made, writing that:

On the scale envisaged...such a programme of government investment in industry, tied to research and development and new science based products would be something quite new in Britain. It could quickly bring about an important change of opinion in industry and in the world of technology generally, and within some years it should begin to make an impact on the commercial success of industry. 164

He also suggested on the basis of some of the reports of the

Technology Group by Tony Hart and Austen Albu that the AEA might well be dismembered by a future Labour government!

The case for the MOIT was further clarified at the second Bonnington conference with the disposal of several variations on constituting the new ministry. The Ferranti scandal had evoked powerful hostility to any new Ministry based on the Ministry of Aviation. Vig has noted that Blackett's plan which would have effectively absorbed the DSIR into the new ministry was opposed by representatives at the conference from the DSIR:

At this point, therefore, the weakest alternative seemed most likely - a small, new department, its staff recruited largely from outside the Civil Service, with sections for certain selected industries, but otherwise responsible only for the NRDC and, possibly, the Atomic Energy Authority.¹⁶⁵

However, Blackett's amended proposals 'The case for a Ministry of Technology' were subsequently adopted by Wilson as the basis for Labour Party policy. Thus the Party's election manifesto promised a 'Ministry of Technology to guide and stimulate a major national effort to bring advanced technology and new processes into industry.'¹⁶⁶

Blackett argued that:

...the best hope for the Labour Party to quickly make a definite impact on the technological level of manufacturing industry, would be to create immediately on taking Office, a new and small Ministry of Technology (MT)...¹⁶⁷

The core of the new Ministry would be the enlarged NRDC with responsibility for increased investment in civil research and development. This would be supported by a technological and commercial intelligence division with 17 sections corresponding to the

industrial sectors covered by the Sector Working Parties of the NEDC.

Thus it was that immediately following its election victory in October 1964 the new Labour Government went on to establish the Department of Education and Science under Michael Stewart and Lord Bowden and the Ministry of Technology under Frank Cousins.¹⁶⁸ The Ministry of Technology was also to form a small Advisory Council on Technology (recommended by Blackett) consisting of industrialists, scientists, economists and trade unionists:

The Government attach great importance to the work of this Council and the Minister himself will take the Chair. The Deputy Chairman will be Professor P.M.S. Blackett FRS, who will be employed substantially full-time on his work for the Ministry of Technology.¹⁶⁹

The new Ministry incorporated, in addition to the NRDC, the National Physical Laboratory, the Atomic Energy Authority, and the responsibilities of the DSIR for industrial research.

However, Blackett's optimism for the ability of the new Ministry of Technology 'to quickly make a definite impact on the technological level of manufacturing industry' was not to survive the first year of office.¹⁷⁰ But the concern for science and technology evinced by Labour's leadership had secured for the Party a 'modernising' image which had displaced its traditional identification (and pre-occupation) with public ownership.

The joint general secretary of the newly created Association of Scientific, Technical and Managerial Staffs commented in 1968 on Labour's record after four years that:

Alas, the scientific revolution is being fed and nurtured by public support but within the old monopolistic and oligopolistic ambiances. As a result - it is barely visible. We are back to the stage where science is the tolerated camp-follower of political management.¹⁷¹

6. Conclusion

Werskey has suggested that Harold Wilson's attempt to 'put British capitalism on to a more scientific and managerial basis' involved 'subscribing to Bernalism pure and simple'. He has argued that Bernal's influence operated less through his involvement with the scientific advisory groups of the Labour Party than through the adoption of his ideas at an earlier stage by Blackett, Ritchie Calder and C.P. Snow.¹⁷² However, as I have sought to show in this chapter, the Labour Party's policy for science and technology emerged through a more complex and diverse set of mediating actors and political circumstances.

Clearly there were resonances, for example, between ASW's 1947 programme, Science and the Nation, and the Labour Party document of 1958, 'Science and the Labour Party', produced by the Robens' 'junior' scientists group. This document, however, in political terms went beyond what Gaitskell was prepared to accept and the subsequent 'Cabinet Papers', produced by the group of 'senior' scientists was a more moderate document. The influence of the scientists' groups was less marked, particularly after Gaitskell's death, and with the growth of a plethora of competing sources of proposals on science policy. Werskey's analysis gives too much credence to the Wilsonian rhetoric rather than

the substance of the policies produced under the auspices of Crossman and Blackett.

There were, of course, continuities with the approach of the earlier generation of left-wing scientists and the final form of Labour's programme in 1964. For example, this was evident in the emphasis on the planning of civil science and its coordination with national social and economic goals. Wilson stressed the limited capacity of an unregulated private enterprise economy to innovate on a scale which would balance technological unemployment with the creation of new productive opportunities. He clearly acknowledged the leading role of the state in fostering technological innovation and the creation of the Ministry of Technology was to provide the general instrument for state intervention. The social status and economic function of scientists and technologists were recognised in the programme of expansion of scientific education in schools and universities. Education and training coupled with increased investment in research and development would create a new breed of science-based industries.

However, there were also considerable and important elements of discontinuity which partly reflected the fact that in its later stages the process of Labour's policy formation derived from a narrowly based political opportunism. Though Blackett played an important role at this stage it was increasingly in isolation from his left-wing antecedents. Blackett's very success as Wilson's chief scientific advisor (and subsequent posts as Deputy Chairman of the Advisory Council on Technology and Scientific Advisor to the Ministry of Technology) reflected his changed

political perspective from the days of his leadership of the counter-movements of the 1940s. Labour's programme was constructed within an essentially reformist political framework.

It lacked the comprehensive and transformative vision of the scientific Left's programme of the 1940s which had linked the 'scientisation' of society to the democratisation of decision-making about science and technology. The involvement of scientists in the trade union movement was one feature of that progressive and democratic perspective. Left-wing scientists had stressed the need for greater involvement of scientists and technologists in the machinery of state but had also, in practice, aimed to develop the ability, through independent and socially responsible organisations, to independently and critically appraise government policy.

An important strand in the thinking of left-wing scientists had been the need to shift the balance of resources in favour of civil research and development and against military research and development. The Labour Government's reformation of the structure of civil science and technology left the relationship between civil and military research virtually untouched.

But the legacy of the scientific Left and the Labour Party's formal espousal of the idea of the 'scientific and technological revolution' were increasingly challenged in the 1970s by a diverse range of new social movements which challenged the progressive credentials of science and technology.¹⁷³ These movements, which included for example the environmental movement, the appropriate/alternative technology movement and the women's movement, implied

a radical re-appraisal of left-wing orthodoxy. They challenged the fundamental idea of the inherently liberatory potential of science and the pre-occupation with the application of technology to constantly stimulate economic growth. It was argued that some science and technology was inherently too hazardous to be developed or too imbued with the capitalist/patriarchal social relations involved in their production to merit continued development.¹⁷⁴

The traditional model of 'scientific expertise' was also undermined in the context of the non-neutrality of scientific knowledge. At the same time the conventional organisational forms of the labour movement were subjected to an equally stringent critique on the grounds of their hierarchical power structures, their elitism and sexism.¹⁷⁵

Chapter 7

1. R. Taylor and C. Pritchard, The Protest Makers : The British Nuclear Disarmament Movement of 1958-1965, Twenty Years On (Oxford : Pergamon, 1980), p.3.
2. H. and S. Rose, Science and Society (Harmondsworth, Middlesex : Penguin, 1969), pp.98-100.
3. See R.H.S. Crossman, 'Scientists in Whitehall' in R.H.S. Crossman, Planning for Freedom (London : Hamish Hamilton, 1965), pp.134-147. This interpretation is also adopted by a number of commentators. See N.J.Vig, Science and Technology in British Politics (Oxford : Pergamon, 1968), pp.81-103 and S.P. Wolff, Politics and industrial Science policy : a study of the 1964-70 Labour Government (M.Sc.thesis, University of Sussex, 1975), pp.48-59.
4. For an inter-country comparison see I. Benson and J. Lloyd, New Technology and Industrial Change : The Impact of the Scientific-Technical Revolution on Labour and Industry (London : Kogan Page, 1983), pp.107-130. Benson and Lloyd comment that 'Labour's practice in 1964-70 was, to a considerable extent, an attempt to emulate the best practice of state capitalist economies elsewhere, and this remains a central concern of many in the Labour movement'. (Ibid., p.119).
5. See M. Postan, 'Political and Intellectual Progress' in W.T. Rogers, editor, Hugh Gaitskell 1906-1963 (London : Thomas and Hudson, 1964), pp.49-66. Postan remarks that 'he was at that time passing through a phase in which Marxists and their talk drew him irresistibly by the very provocation they caused'. (Ibid., p.53.)
6. 'Scientists in the Government', Scientific Worker 2 (December 1947), p.27. Gaitskell had joined the ASw in 1945. Harold Wilson, President of the Board of Trade and formerly Parliamentary Secretary, the Ministry of Fuel and Power, was a member of the ASw's Fuel and Power Committee. E.F.T. Durbin MP, Attlee's personal assistant during the war, had also joined the ASw in 1945.
7. For an account of this 'revisionist' trend within the Labour Party and Gaitskell's role see S. Haseler, The Gaitskellites : Revisionism in the British Labour Party 1951-1964 (London : Macmillan, 1969). The principal theorists of this tendency included Anthony Crosland and John Strachey. In the post-war context of the enlarged role of the state and the so-called 'managerial revolution' they had come to reject the need for public ownership and centralised planning. In their place they emphasised the ethical dimension of socialism alternative forms of community ownership and control and the use fiscal policy for economic intervention.

8. Ibid., p.107.
9. Minutes of a meeting at the Reform Club, 17 July 1956, Blackett Papers, The Royal Society Library, Folder E24. Levell inaccurately states that 'since 1950 Blackett had been the senior member of a group of scientists who held occasional meetings with the aim of evolving a scientific and technology policy for the country'. See B. Lovell 'P.M.S. Blackett : A Biographical Memoir (London : The Royal Society, 1976), p.76.
10. Brumwell had originally been introduced to Bernal by Herbert Read around 1930. See Brumwell to Anita Rimel, 11 July 1971, Bernal Papers, Cambridge University Library, Correspondence Box 80.
11. J.D. Bernal, 'The Finance of Fundamental Research in Britain', January 1956, (Mimeographed), Bernal Papers, F.1.
12. See Bernal, 'The Finance of Fundamental Research in Britain', replies, A-L and replies M-Z, Bernal Papers, F.1.2 and F.1.3.
13. See the correspondence with R.G. Forrester and J. Callaghan MP., 1956-1957, Bernal Papers, F.2.
14. Bernal, 'Reconsideration of the Problem of the Finance of Fundamental Research in Britain in the Light of Replies to the Memorandum of that title circulated on 25 January 1956', May 1956, Bernal Papers, F.1.5.
15. Bernal, 'Memorandum for Mr. Brumwell', May 1956, (Typescript), Bernal Papers, F.2.
16. M. Brumwell, 'The Labour Party and Science', 17 July 1956. (Mimeographed), Bernal Papers, F.2.
17. Minutes of a meeting at the Reform Club, 17 July 1956, Blackett Papers, E.24.
18. See G. Ford, 'Internal Scientific Advice to the Labour Party : Notes Towards a History and a Critique', paper presented at a meeting of the Group for Alternative Strategies for Science and Technology', Aston University, 10 July 1981, p.6.
19. This matter is discussed in more detail sections 3 and 4 below.
20. 'Discussion on Labour and Science at a dinner given by Marcus Brumwell at the Reform Club on 8th July 1957', Bernal Paper, F.2.
21. See Haseler, The Gaitskellites, pp.68-80.
22. The Science and Industry Committee of the British Association had initiated in the early 1950s : Studies of 'what determines the speed of application of new scientific knowledge in British industry' with a view to making proposals for improvements. Carter and Williams were responsible for the empirical work and analysis for the Committee. Their subsequent publications

22. cont'd.

included B.R. Williams and C.F. Carter Industry and Technical Progress (Oxford : Oxford University Press, 1957); Investment in Innovation (Oxford : Oxford University Press, 1958); Science in Industry (Oxford : Oxford University Press, 1959).

23. Brumwell to Bernal, 12 August 1957, 'Note of conversation with Alfred Robens, 30 May 1957', Bernal Papers, F.2.
24. 'Science and the Labour Party', A Draft Statement of a Working Party under the Chairmanship of A. Robens, April 1958. (Mimeographed).
25. Compare, for example, Association of Scientific Workers, Science and the Nation (Harmondsworth, Middlesex : Penguin, 1947).
26. 'Science and the Labour Party', A Report of a Working Party under the Chairmanship of A. Robens, April 1958, revised 1959. (Mimeographed), p.123.
27. This is dealt with in more detail in chapter 1 section 3.1. above.
28. 'Discussion on Science and the Labour Party' at a dinner given by Marcus Brumwell at Brown's Hotel on 27th June 1958', Blackett Papers, E.26.
29. Ibid., p.2.
30. Ibid., p.4.
31. J.D. Bernal, 'Notes on Draft Statement Science and the Labour Party', 15 September 1958, (Mimeographed), Bernal Papers, F.3.
- 31a. Ibid.
32. See Senior Scientists Group minutes, Blackett Papers, E27.
33. Senior Scientists Group minutes, 26 September 1958.
34. Brumwell to Bernal, 26 June 1959. 'You would help me a lot if you would look at the attached set of papers but not tell Blackett or anyone else you have seen them'. Bernal Papers, F.5.
35. Bernal to Blackett, 24 February 1959, Bernal Papers, F.5.
36. 'Civil Research and Development', in 'A Labour Government and Science', 31 July 1959, ('Cabinet Papers' for Gaitskell, typescript), p.19 Blackett Papers, E28.
37. See Bernal's typescript notes on the 'Cabinet Papers' 1 September 1959, Bernal Papers, F.5.
38. Ibid.
39. Ibid.
40. Brumwell to Bernal, 25 May 1959.

41. 'A Labour Government and Science', p.1.
42. 'Scientific and Technical Manpower' in 'A Labour Government and Science', pp.3-9.
43. Ibid., p.9.
44. 'Fundamental Science' in 'A Labour Government and Science' pp.10-12.
45. 'Science and Industry', in 'A Labour Government and Science', pp.13-15.
46. See 'Civil Research and Development' and 'General Machinery to Co-ordinate Scientific Resources and Activities' in 'A Labour Government and Science', pp.16-24 and pp.22-27, respectively.
47. Ibid., p.28.
48. 'Discussion on 'A Labour Government and Science'', a document produced by a group of scientists for Mr. Gaitskell at his request, at a dinner given by Marcus Brumwell at Brown's Hotel on 27 August 1959'. Blackett Papers, E28. Attending this meeting were Blackett, Bronowski, Brumwell, George Dickson, Reg Forrester, Gaitskell, Sir Ben Lockspeiser. Robens, Snow, Williams and Wilson.
49. Ibid., p.1.
50. Ibid. See also Haseler, The Gaitskellites pp.143-149.
51. Brumwell to Bernal, 10 September 1959.
52. Labour Party, A New Deal for Science : A Labour Party Policy Statement (London : Labour Party, October 1959).
53. Ibid., p.1.
54. Brumwell to Bernal, 1 October 1959. The rewriting was done by Austin Albu. Brumwell later wrote to Bernal that 'I always remember how Albu re-wrote and spoilt our election leaflet at the last election. Brumwell to Bernal, 13 August 1963. Bernal Paper, F9.
55. Vig, Science and Technology in British Politics, p.32.
56. Wolff, 'Politics and Industrial Science Policy : a Study of the 1964-1970 Labour Government', p.42.
57. 'The changed nature of capitalism; The new approach to 'means' and 'ends'; the deep commitment to the democratic process and a sensitivity to public opinion; and, on a philosophical level, a distrust of the ethic of ultimate ends - all portray the fundamental revisionist approach to the future direction of the Labour Party, as they crystallised

57. cont'd

in the Autumn of 1959. This was, and was seen as, an attack on many of the traditional values and beliefs of large sections of the Party. This division had always existed in the Party, but 1959 saw the first positive attempt to lift the debate out of the policy area and into one of fundamentals. It became a question of 'theology'. Haseler, The Gaitskellites, p.166.

58. Vig, Science and Technology on British Politics, pp.81-83.
59. A. Sked and C. Cook, Politics in Post-War Britain (Harmondsworth, Middlesex : Penguin, 1979), p.207.
60. Barbara Castle, Labour Party Conference Report, 1959, p.86 quoted in Vig, Science and Technology in British Politics, p.82.
61. Haseler, The Gaitskellites, p.243.
62. Harold Wilson, Labour Party Conference Report, 1960, p.151 quoted in Haseler, The Gaitskellites, p.243.
63. Brumwell to Blackett, 8 April 1960, Blackett Papers E30.
64. The appointment of Lord Hailsham as Minister of Science followed upon a Tory election pledge of 1959.
65. Labour Party, Science and Industry Sub-committee minutes, 20 December 1960, Blackett Papers E38.
66. Brumwell, 'Progress Report on Labour and Science', April 1960, (Mimeographed), Blackett Papers, E30.
67. 'Discussion on Labour and Science at a dinner given by Marcus Brumwell at the Reform Club on Monday 27 June 1960', Bernal Papers, F8.
Those present included Bernal, Blackett, Bronowski, Brumwell, Dickson, Forrester, Glass, Newitt, Phillips, Wilson and Williams.
68. Brumwell to Bernal, 22 March 1961, Bernal Papers, F8.
69. Labour Party Science and the Future of Britain, 'Looking Ahead' pamphlet (London : Labour Party, March 1961).
70. Brumwell to Bernal, 22 March 1961.
71. Brumwell to Blackett 22 March 1961, Blackett Papers E31.
72. Marcus Brumwell, 'Labour Party and Science', 27 May 1961, Blackett Papers, Folder E31.
73. Blackett to Brumwell, 4 May 1961, Blackett Papers, E31.
74. Blackett to Brumwell, 11 May 1961, Blackett Papers, E31.

75. 'Discussion on Labour and Science at a dinner given by Marcus Brumwell at Brown's Hotel on Friday 23 June 1961', Blackett Papers, E31.
76. Ibid. Vig has suggested that the 'back bench' subject group on science was relatively ineffective...'Under the shadow spokesman Fred Peart (1960-61) and G.T. Mitchison (1961-62) it met only a few times a year to arrange questions and debates. After Crossman became Shadow Science Minister it remained inactive, as the talks preferred to establish informal working parties composed of both MPs and outside experts...' See Science and Technology in British Politics, p.117.
77. 'Discussion on Labour and Science, June 1961'.
78. The NRDC had been established under Harold Wilson when he was President of the Board of Trade in 1948. See S.T. Keith, 'Inventions, Patents and Commercial Development for Governmentally Financed Research in Great Britain : The Origins of the National Research and Development Corporation', Minerva XIX (Spring 1981), pp.92-122.
79. Signposts for the Sixties, quoted in Vig, Science and Technology in British Politics, pp.84-85.
80. Brumwell to Bernal, 28 December 1961, Bernal Papers, F8.
81. Brumwell, 'Co-ordination of Scientific Activity', June 1962, (Mimeographed) Blackett Papers, E32. The document summarised proposals already made for government machinery for co-ordination. Proposals included senior Cabinet status for the Minister of Science backed by a small but 'high-powered' secretariat. The setting up of a Scientific and Technical Planning Board including scientists, economists, engineers and industrialists jointly to review trends in technological development, resources, market needs.
82. 'Discussion on Labour and Science at a dinner given by Marcus Brumwell at Brown's Hotel on Tuesday 5 June 1962', Bernal Papers F9.
83. Bronowski to Brumwell, 'Handling of Scientific Affairs by the Labour Party', Blackett Papers, E32.
84. Bray was a supporter of the Campaign for Democratic Socialism - an organisation set up in 1960 to push the revisionist case. The Campaign was an important force in helping to reverse the 1960 unilateralist vote.
85. Bronowski to Brumwell, 'Handling of Scientific Affairs by the Labour Party'.
86. Blackett to Brumwell, 28 September 1962, Blackett Papers, E33.
87. Lockspeiser to Brumwell, 25 September 1962, Blackett Papers, E33.

88. VIP Scientists Meeting minutes, 17 October 1962, Bernal Papers, F9. Those present included Blackett, Bronowski, Brumwell, Dickson, Forrester and Newitt.
89. Draft letter to Gaitskell, 1 November 1962, Blackett Papers, E33. Brumwell despatched the letter to Gaitskell without the signatures of all the group, (typing in names only) on the grounds that there was no time for circulation to all members. See Brumwell to Blackett, 9 November 1962.
90. 'Science and the Labour Party', 1 November 1962, Bernal Papers, F9.
91. Brumwell wrote that '...we sent an ultimatum to Gaitskell saying that we were fed up and wouldn't lift a finger unless he showed some sign of taking action', Brumwell to Blackett, 27 February 1963.
92. Gaitskell to Brumwell, 8 November 1962, Blackett Papers, E33.
93. Vig argues that Gaitskell's hesitation towards the end of his life to pursue with vigour the proposals for science was a consequence of their left-wing bias : 'By 1961 Labour's official proposals for science...centred on a vague commitment to create new public enterprises under an expanded NRDC. The only industry explicitly suggested for such action was machine tools, though Wilson also cited the need for 'State participation' in the pharmaceutical and aircraft industries. The left-wing position on Clause IV had emerged as party policy'. See Vig, Science and Technology in British Politics, p.85.
94. Haseler, The Gaitskellites, p.237.
95. M. Goldsmith, Sage : A Life of J.D. Bernal (London : Hutchinson, 1980), pp.140-41.
96. Haseler, The Gaitskellites, p.243.
97. Vig has argued that 'it is clear that Wilson, in the weeks prior to his election as party leader, firmly resolved to give science high priority as a campaign issue; and that Crossman, his chief strategist in the leadership contest, would be in charge.' See Vig, Science and Technology in British Politics, p.88.
98. R.H.S. Crossman, 'Scientists in Whitehall', p.139.
99. Blackett to Crossman, 22 February 1963, Blackett Papers, E49.
100. He also suggested to Crossman that 'I think it might be a pleasant gesture if Harold Wilson and you took an early opportunity to arrange a dinner for all the older Members of the Gaitskell Group. They could then be thanked for their work.' Blackett to Crossman, 22 February 1963.
101. Brumwell to Bernal, 27 February 1963.

102. Labour Party, Science and Industry Sub-committee minutes, 7 January 1963, Blackett Papers, Folder E39.
103. Labour Party 'Science and Industry Sub-committee - Programme of Work', RD 406, February 1963, Blackett Papers, E39.
104. See Fabian Society Science Group, 1962-63, Blackett Papers, E35.
For an account of some of the group's more radical policies see P.Russell (pseudonym), 'The Social Control of Science', New Left Review, (July-August 1962), pp.10-20.
105. Labour Party Science Group minutes, 13 March 1963, Blackett Papers, E41.
106. Ibid. The Crossman Group was a more diverse coalition of interests than the Gaitskell Group had been. Its membership included a greater proportion of politicians and other experts in addition to the original 'VIP' scientists. The Fabian representation was especially strong, for example, Dr. John Godfrey, Oxford Biochemist; Michael Posner, Cambridge economist; J. Maynard Smith, University College, London.
107. 'VIP' Scientists Dinner', 24 June 1963, Bernal Papers, F.9.
108. New Scientist (25 July 1963), p.171.
109. See the Mimeographed copies of the background papers to the July 1963 conference, Bernal Papers, F.10.
110. B.R. Williams 'Research and Economic Growth - What should we expect?' Minerva 3 (Autumn 1964), p.57.
111. C.F. Carter and B.R. Williams, 'Government Scientific Policy and the Growth of the British Economy', Minerva 3 (Autumn 1964), p.114. (Reprinted from The Manchester School of Economics and Social Studies XXII (September 1964), pp.197-214).
112. Ibid., p.115.
113. Background Paper No.1, 'Civil Research and Development', July 1963, Bernal Papers, F.10.
114. Carter and Williams, 'Government Scientific Policy and the Growth of the British Economy', p.118.
115. Background Paper No.1, 'Civil Research and Development'.
116. Typescript of comments by J.D. Bernal on Background Paper No.1, 'Civil Research and Development' made in September 1963, p.1. Bernal Papers, F10.
117. Ibid.
118. Ibid., p.3.
119. Ibid., p.4.

120. Ibid.
121. Science Group, 'Organisation of Civil Research and Development', RD457, April 1963, Blackett Papers, E42. See also Vig, Science and Technology in British Politics, p.90.
122. R.H.S. Crossman, 'Scientists in Whitehall', p.146.
123. Cecil Gordon, 'Science and the Labour Party', 18 September 1958, (Mimeographed) footnote p.2, Blackett Papers, E26.
124. 'Labour Mobilizes the Scientists', Times (4 June 1963), p.6e.
125. Bowden to Crossman, 21 July 1963, Blackett Papers, E46.
126. Ibid.
127. Crossman to Blackett, 24 July 1963, Blackett Papers, E46.
128. Crossman to Brumwell, 2 August 1963, Bernal Papers, F.9.
129. Crossman to Blackett, 2 August, 1963, Blackett Papers, E46.
130. Wolff, 'Politics and Industrial Science Policy', p.50.
131. Labour Party, 'Draft Science Policy statement', RD518, August 1963 (Mimeographed) and Labour and the Scientific Revolution. A Statement of Policy approved by the Annual Conference of the Labour Party, Scarborough 1963, Bernal Papers, F9.
132. Crossman Memorandum, 2 August 1963 (typescript), Blackett Papers, E46.
133. H. Wilson, Labour's Plan for Science, Reprint of Speech by the Rt. Hon. Harold Wilson, MP, Leader of the Labour Party, at the Annual Conference, Scarborough, Tuesday, October 1963. p.2..
134. 'Report of a dinner held 29 October 1963 at Brown's Hotel', Bernal Papers, F.9.
135. Brumwell to Bernal, 28 October 1963, Bernal Papers, F.9.
136. Bernal, 'Notes on recent Government reports - The Robbins Committee, The Trend Committee, and the Annual Report of the Advisory Council on Scientific Policy' (Typescript), Bernal Papers, F.9.
137. Bernal to Crossman, 22 November 1963, Bernal Papers, F.9.
138. Ibid.
139. Ibid.
140. Ibid.
141. Ibid.

142. Vig. has commented that 'this resort to the 'federal' principle modelled in part on the defence organisation ended the party's dilemma over one or two education Ministries and emphasised Labour's concern for lower and technical education as well as the universities'. See Vig, Science and Technology and British Politics, p.96.
143. Ibid.
144. Crossman to Bernal, 11 February 1964, Bernal Papers, F10.
145. Bernal to Crossman, 20 February 1964.
146. Crossman to Bernal, (no date).
147. Bernal to Crossman, 3 March 1964, Bernal Papers, F10.
148. Ibid.
149. Crossman to Bernal, 4 March 1964, Bernal Papers, F.10.
150. 'Plan for a technology Ministry', New Scientist (5 March 1964).
151. The Ferranti scandal had been an important factor here.
152. A range of mechanisms similar to those that had been proposed by Carter and Williams.
153. Blackett to Crossman, 22 February 1963, Blackett Papers, E49.
154. Vig, Science and Technology in British Politics, p.97.
155. Blackett to Crossman, 23 February 1964, Blackett Papers, E49.
156. Blackett, 'The Case for a Ministry of Technology', September 1964 (typescript), Blackett Papers, E49.
157. Papers and correspondence on the new Ministry, Blackett Papers, E49.
158. Lovell, P.M.S. Blackett, pp.76-77.
159. 'Ministry of Industry', Correspondence with officials of NRDC, Blackett Papers, E48.
160. Blackett, 'The cost of a new deal for British scientists and technologists', April 1963 (typescript), Blackett Papers, E49.
161. Vig, Science and Technology in British Politics, footnote p.178.
162. Blackett, 'The case for a Ministry of Industry and Technology', January 1964 (typescript), Blackett Papers, E49.
163. Blackett to Crossman, 23 February 1964, Blackett Papers, E49.
164. Ibid., p.2.

165. Vig, Science and Technology in British Politics, pp.100-1.
166. Ibid., p.10.
167. Blackett, 'The Case for a Ministry of Technology', p.9.
168. For an account of these administrative changes see H. and S. Rose, Science and Society, pp.100-5 and Vig. Science and Technology in British Politics, pp.54-55.
169. Press notice from 10 Downing Street, Whitehall, 28 October 1964, Blackett Papers, E51.
170. See Lovell, P.M.S. Blackett, pp.79-85.
171. C. Jenkins, 'Science : the camp-follower of politics', New Scientist 39 (26 September 1968), p.650.
172. Werskey, The Visible College, p.319. For his critical discussion of 'Bernalism' as a total remodelling of society on scientific lines see pp.185-199.
173. See H. and S. Rose, 'The Radicalisation of Science' in Hilary and Steven Rose, editors, The Radicalisation of Science (London : Macmillan, 1976), pp.1-31, and Radical Science Journal Collective, 'Science, Technology, Medicine and the Socialist Movement', Radical Science Journal No.11 (1981), pp.3-70.
174. See S. Cotgrove, 'Technology, rationality and domination', Social Studies of Science 5 (1975), pp.55-78, and D. Griffith, 'Science and Technology - liberation or oppression', Impact of Science on Society 25 (1975), pp.295-306.
175. For a discussion of the relevance of these new perspectives for policy formation see Group for Alternative Science and Technology Strategies, 'Redirecting Science and Technology' 1983, (Mimeographed draft) and British Society for Social Responsibility in Science, Science on our side : a new socialist agenda for science, technology and medicine (London : BSSRS no date).

EPILOGUE

In conclusion I discuss some of the significant factors which may be invoked to explain the decline of the scientific Left's dominant position. Two species of explanation have been put forward to account for this subsequent historical trajectory.

Firstly, sympathetic accounts of the relative failure of the left-wing scientists to retain their political and theoretical influence have tended to emphasise 'external' factors. Such explanations stress the changed circumstances of the post-war period rather than any long term strategic failure of the Left. J.G. Crowther as both a participant and commentator has provided such an account of the post-war social relations of science.¹ More recently Greta Jones has outlined the changes in the balance of political forces brought about by the impact of the Cold War particularly as it was expressed through the Lysenko controversy. She has written that:

In Britain, in particular, the Lysenko controversy had three effects. It helped break up the alliance of left wing and radical scientists which had emerged in the 1930s and which was expressed by a number of scientific societies - for example, in the Association of Scientific Workers, in the Social Relations of Science Section at the British Association, in Nature and in the Association of Atomic Scientists. It was one of the factors which allowed the British government to exercise strict and more rigorous ideological and political control on the scientific community at a very significant moment in the government's relationship with science. Finally it affected the cultural milieu around science. It allowed a redefinition of the role and character of science.²

Secondly, and in contrast to this approach, 'internalist'

explanations have been proposed which point to the weaknesses inherent in the theory and practice of the scientific Left. Such predominantly hostile accounts which, for example, have been argued by Werskey, have tended to emphasise particularly the negative effects on the movement of the Communist Party.³ From a different perspective Hilary and Steven Rose have attacked the theoretical basis of the movement describing, for example, the conception of planning advocated by these left-wing scientists as a 'reduction of the substance of socialism to merely centralist planning by a scientific elite' which was reflected again in the policies adopted by the Labour Party in the 1960s.⁴

However, I hope to have shown in my study that a fuller understanding of the subsequent history of the scientific Left from the late 1940s to the early 1960s can arise only from an appreciation of both internal and external factors and in some cases their interdependence. I go on now to outline some of these factors in a little more detail.

1. External Constraints

1.1. Cold War : Politics and Culture.

The national and international political circumstances of the Cold War created a hostile environment in the Western capitalist countries for the continued development of a marxist and radical socialist inspired scientists' movement. Greta Jones has summarised some of the key events which signalled the heightening of global ideological antagonisms:

1948 saw the Berlin Blockade, the Polish and Hungarian elections and the confirmation of a Communist place in their governments and a Soviet military presence in these countries. The Civil War in Greece was being fought; the Chinese Communists were driving towards Shanghai; there were emergencies in Malaya and Vietnam. Within Europe the French and Italian Communists were fighting to maintain the gains they had made after 1945.⁵

These international conflicts were reflected also in the split within the international trade union movement between the WFTU and the ICFTU and, as I sought to show in chapter 3, in the tensions and conflicts which compromised the development of the WFSwW. The polarisation at the international level was matched by increasing political divisions within British left-wing politics. The Labour Government's implementation of forms of state intervention within the existing framework of the capitalist economy distanced it from the marxist wing of the Labour movement. The British Communist Party moved from a position of critical support to one of opposition. Thus 1948 also saw the beginning of a drive within the trade union movement and inspired by the right-wing leadership of the TUC to combat communist influence within the movement. Similarly, on March 15 1948 the Government sanctioned a purge of civil servants on the grounds of their political allegiance and which involved the sacking or transfer of a number of scientists and technicians.

The political aspects of the Cold War were matched by a 'cultural counter-revolution' in which eminent non-communist and liberal intellectuals (such as Koestler, Orwell and Hayek) launched concerted attacks on the intellectual veracity of Marxism. A similar 'counter-revolution in science' was expressed

in the thinking and agitation of the Society for Freedom in Science.⁶ Wood has argued that the decline of 'the social relations of science movement' was 'largely due to the growth of a small but extremely obdurate and hard-hitting opposition among scientists' (that is the Society for Freedom in Science).⁷ Their aim from the early 1940s had been to remove science from the political arena.

The Lysenko controversy provided the ideal focus for the scientific Right's arguments for the dangers of centralised and political control of science. Greta Jones has argued that the Lysenko controversy served to divide the scientific community and isolate socialist and marxist scientists who suffered 'guilt by association' even where they had not defended the Lysenkoist position or the actions of the Soviet state. The political task of the Left had been made harder by the insulation of scientific practice from its dependence on social and economic forces:

What happened was that the ideology about what scientific work was became a-political at the very moment when the actual political connections and state intervention in British science became stronger than they had ever been. Margaret Gowing has estimated that the British government's expenditure on the atomic programme in the years 1945-51 was £200 million. Moreover all of this money had been spent with the minimum of parliamentary supervision and next to nothing of press coverage.⁸

In chapter 1 I discussed the impact of these pressures of the Cold War on the post-war fate of the AScW and the development of its policies.

The political and ideological circumstances created by the Cold War were to some extent reinforced by subsequent events in

the mid-1950s. The communist Left was further traumatised firstly by the Soviet revelations concerning Stalin at the 20th Congress of the CPSU in 1956 and secondly, in the same year, the Hungarian uprising and its suppression by Soviet forces.

1.2. Science and Government Policy

The combination of the experience of the Second World War which had practically demonstrated the imperatives for a changed relationship between science and the state, and the pressures for changes in the government organisation of science from a broad section of the scientific community, had produced a limited number of reforms. In Vig's opinion:

After government organisation and policy was again settled (in 1947-48), the activity and influence of the scientists' unions rapidly declined. Moreover the development of cold war tensions and the overwhelming pre-occupation of scientists with the new-found power of atomic energy contributed to a renewal of political divisions.⁹

The state was able to demonstrate its ability to incorporate some elements of the demands of the pre-war 'social relations of science movement' but within a political framework which preserved the existing social and economic order. However, the development of the Labour Party's policies for science indicated its own fundamental reformism but also reflected the fact that the ideas of planning in the context of a fully socialised economy had lost much popular support with the disenchantment with the austerity economy of post-war shortages, restrictions and the continued imposition of 'physical' controls. The social democratic temper

of the Labour Party was evident in its retreat from economic planning into Keynesian methods of demand management.¹⁰

The late 1940s and 1950s were characterised by increased state patronage of science and technology and as research expenditures increased dramatically scientists were increasingly incorporated into state funded research and state advisory structures. These developments changed the terrain of political struggle from one of 'the frustration of science' in the 1930s increasingly to a more complex landscape of problems of choice and priorities. But the price of increased state support for science and technology, particularly as the major area of expansion was the military sector, was increased political conformity. Greta Jones has again argued:

The career structure of science became closely bound up with the progress of government control of certain areas of science. From this process emerged the 'scientist-stateman' for whom Morrison had appealed in his speech to the Royal Society and of whom Lord Cherwell was a good example. For scientists of this sort a career in science meant a strong identification with the policies of consecutive governments and even the development of a rhetoric which linked the aims of the West with the progress of science.¹¹

Opportunities for the renewal of political interventions in state science policies opened up again in the late 1950s and early 1960s as the British economy and state faced a crisis in their relationship to scientific and technological development. This 'repoliticisation' of science, as I have shown in chapter 7, was mediated for the scientific Left, principally by the Labour Party's science advisory groups. And as a consequence was subject to the

political imperatives of the Labour Party's leadership. The informal influence exercised by Labour's scientific advisors was not matched by any particular revival of influence within the AScW or the TUC.

1.3. The Perspective of the Trades Union Congress

Crucial constraints of a political and institutional character emerged in the relationship of left-wing scientists to the Trades Union Congress (TUC). These constraints in part arose from the TUC's commitment to a social democratic rather than a marxist conception of politics but also from its institutional role and structure.

As I have attempted to show in chapter 2, at the height of the Cold War, the continuing links between AScW's policies on scientific issues and industrial issues, and those of the Communist Party served to distance the union from influence within the TUC. This was reinforced by its support for proscribed organisations such as the World Federation of Scientific Workers.

The TUC's general perspective, as Martin has shown in his study of the organisation as a pressure group, for securing the interests of its affiliated unions, rested on forming cooperative and consultative relationships with existing state institutions.¹² This implied a 'conservative' attitude to existing administrative structures. This philosophy informed the work of the TUC's Scientific Advisory Committee which had been originally a product of the aspirations of the scientific Left. Benson and Lloyd comment that 'Bernal believed that the danger of the state's

technology policy being formed in the boardrooms of monopoly companies could only be averted by first formalising the liaison between the scientists and organised labour through the establishment of a permanent joint Science (sic) Advisory Committee'.¹³

However, the limited scope given by the TUC's General Council to the scientist members of the Scientific Advisory Committee inhibited the extension of such a relationship between the scientists' movement. Their role remained limited to that of neutral expert advisers. The 'corporatist' tendency in the TUC's outlook was also supplemented by a 'productionist' approach to scientific and technological change in which science policy issues were subordinate to industrial and economic policy.¹⁴ The subordination of the TUC's policies for civil research was evident in the discussion in chapter 6. Benson and Lloyd argue that the failure to develop a 'research base' within the organised labour movement which could impress its influence on the level and direction of state sponsored civil research was 'a measure of the extent to which sectarian inertia still immobilizes the heart of the TUC'.¹⁵

Green has also noted that the structure of the trade union movement was a major obstacle to the formulation of a coherent policy on research and innovation:

...given the structure of the British union movement - a large number of fiercely independent unions, many of them based on occupations rather than industries, with the TUC loosely federating them for the purpose of negotiation with government - it is hardly surprising that independent policies on research have not been formulated. There is no national trade union body which has sufficient authority to make such policies on behalf of its constituents.¹⁶

Having now sketched some of the important external factors that may have contributed to the decline in influence of left-wing scientists, I suggest a number of problems of the theory and practice of the movement which also may have been contributory factors. These include the ideas adopted by the Left on politics and trade unionism; the analysis of scientists as a social group; their ideas on the nature of the state; and their theory of science.

2. Internal Constraints

2.1. Politics and Trade Unionism.

In the 1940s the energies of the scientific Left were increasingly devoted to the promotion of trade union organisation as the basis for the defence of the professional interests of scientific workers and the development of a consciousness among scientists and technicians that the objective interests of science were linked to a socialist transformation of society. They believed that the processes of unionisation and politicisation were mutually reinforcing and that trade union organisation necessarily implied a specific 'class' orientation.¹⁷

However, Werskey has challenged the political theory of the Left for its failure to criticise the implicit elitism of scientific life and for maintaining an 'unreflective commitment to the content and social relations of bourgeois science'. He has argued that the adoption of the Popular Front strategy (under the influence of the Communist Party) was a primary cause of the movement's failure in that it conformed to a pattern of reformist

and opportunistic 'professionalised politics'. The tailoring of Popular Front politics to AScW's scientific constituency, organising around professional grievances, he argues, limited the movement to 'trade union' rather than 'political consciousness'.¹⁸

I have suggested elsewhere that this is to ignore the initial success of the AScW in mobilising scientific workers around both the economic and political dimensions of scientific work. This movement had a growing influence within the TUC and its ultimate failure perhaps owes more the limited perspectives of the labour movement itself rather than the idea of the Popular Front.¹⁹

The abandonment of the political strategy of the Popular Front in the period of the Cold War in favour of a more sectarian style of politics, shown in the discussion of the Engels Society in chapter 4, only served to entrench the isolation of the left within the labour movement and in the scientific community. Nevertheless the scientific Left seems to have underestimated the possibility of the emergence of the contradiction between the pursuit of scientists' professional interests and the political advocacy of critical science policy.

The Left's reliance on unionisation as a decisive factor tended to reflect a theory of Marxist politics which adopted a mechanical view of the relationship between class location and political consciousness. Steward has suggested in contrast to Werskey's criticisms that:

Much more to the point was the lack of awareness of any substantial development of political theory within Marxism to analyse the complexity of the state and civil society in advanced capitalist societies, and the position and role of intellectuals within them. This was a weakness of the left in general and hindered long-term, effective political intervention not only in the sphere of science but also in other areas of intellectual activity.²⁰

It was a weakness which was to some extent evident in the scientific Left's analysis of scientists as a social group and in their appreciation of the role of the state.

2.2. Scientists as a Social Group

The scientific Left's analysis of scientists as a social group recognised the contradictory elements in their social location. It was argued that the formation of trade union organisation amongst scientists and technicians was a natural product of the professionalisation and industrialisation of scientific practice and implied a process of 'proletarianisation' of intellectual workers.²¹ At the same time it was also recognised that there were certain obstacles to the development of a corresponding social consciousness including economic dependence (particularly on the administrative apparatus of the state) and 'the selection and upbringing of scientists do... help very materially to modify the scientists' character in a direction of general conformity'.²² It was Blackett's hope, for example, that:

Perhaps one of the main and most valuable functions of the AScW is to provide to the scientist and technician just this possibility of throwing off the middle class isolationism and gaining internal strength through contact with the great movement of organised workers.²³

Roy and Kay MacLeod have to some extent shown the weakness of an analysis which was founded on the belief that science was necessarily an integrated profession grounded on a 'socially undifferentiated activity' and that scientists in different occupations would share similar aspirations and could be mobilised in one professional (trade union) organisation.²⁴ This underestimated the degree to which disciplinary, institutional and sectoral affiliations cut across aspirations to create a unifying organisation with a general political perspective. Similarly there was an overestimation of the coincidence of interests between different levels in the hierarchy of science. The development of the AScW in the period 1956-1964, discussed in chapter 5, bore witness to these problems.

And as Werskey has pointed out in his polemic with Hilary and Steven Rose:

...even assuming a uniformity in the sources of scientists' discontent, their response to such a crisis will necessarily be mediated by pre-existing social aspirations and political beliefs. To the extent that their own outlook prevents them from interpreting their situation in terms of class conflict, their consciousness may not even evolve in a political direction, or, if it does, it might do so in a distinctly reactionary manner.²⁵

The pursuit of economic or instrumental goals even in trade union forms need not necessarily conform to a 'class strategy'.

The underlying commitment to the idea of an increasingly proletarianised and homogenous scientific profession belied the need for an alternative and differentiated account of the class relations of technical and scientific workers.

2.3. Views on the Role of the State

The ability of the post-war state in Britain to adapt to the accelerating rate of scientific and technological change revealed some ambiguity in the scientific Left's political theory. For example, it was Bernal's view that 'the effective control of economic factors is in the hands of the owners of monopoly enterprises and of the State which represents their joint interests' and that there was 'an increasing monopoly of science in the interests of State power, economic and military'.²⁶ At the same time, however, this was combined with an optimistic view that reforms could be won at the level of the state which would be in the wider interests of science and scientists.

Subsequent critics have argued that the idea of increased state support and intervention in science constituted an important theoretical weakness. The very arguments advanced by the scientific Left provided the rationale for the capitalist state to adjust to new circumstances. Edward Yoxen, for example, in reviewing The Visible College notes, in the context of Werskey's treatment of 'the interplay between the appropriation of science by the labour movement and by capital', that:

...by the 1940s institutions for managing the interests of capital had been constructed and the influence of labour excluded. For Werskey the theory and practice of Bernalism facilitated this outcome firstly in drawing attention to the need for a policy for science, and secondly in restricting the terms within which such a policy could be constructed. If science was in and for itself a progressive force, then how could one argue against any form of its expansion, or any policy that sought to do so.²⁷

Of course one response by the Left which, was especially evident in the 1950s, was to oppose specifically the militarisation of science which was largely undertaken by the state. This was essentially the role of Science for Peace, discussed in chapter 4.

Hilary and Steven Rose have characterised this process of incorporation as reflecting the emergence of an ideology of 'technoeconomism'. The Left's over-optimistic view of the inherently progressive potentiality of science as a motor of social transformation and an uncritical attitude to the role of the neutral scientific expert lent themselves to incorporation by the state without any necessary challenge to the existing social and economic order. This process, essentially initiated in the Second World War, was a further factor in the isolation of left-wing scientists. Hilary and Steven Rose further argue that the consequences of the emergence of the ideology of technoeconomism were most fully expressed in the Labour Party's electoral programme of 1964.²⁸

A contrary view has been suggested by Greta Jones who argues that it was Bernal's achievement to maintain an analysis which recognised the importance of the state for the direction of scientific development evident in the work of the science advisory groups. This achievement was in the face of the increasingly dominant ideology of science, promoted, for example, by Polanyi, which 'simply wrote out the state at a time when its influence was increasing'.²⁹

The vulnerability of the optimism concerning the integration

of science and the state was fully exposed by the Lysenko controversy. Similarly the idea that the planning of science and the application of scientific procedures to more general social and economic planning was unproblematic has been criticised. The incorporation of scientists into state advisory structures exposed the limitations of scientific and technical expertise in the absence of a new democratic relationship between experts and the working class. The 'statist' conception of planning, which in its Soviet variant received the support of the scientific Left, produced a unity of interests between a technical elite and the exercise of social control. Sheila Rowbotham has criticised the pervasive optimism of the radical scientists of the 1930s precisely on the grounds of their belief that science once freed from the restraints of capitalism would be able to solve social problems through the agency of state planning. She writes that:

To break out of this planning as social control requires new forms of democracy which allows social priorities to come from below and the expression of needs; it requires a new relationship between experts and planning; and it requires a re-examination of the social basis of our ideas of rationality and objectivity, and their relation to masculinity.³⁰

2.4. The Theory of Science

Related to many of the issues which I have reviewed is a theory of science and the epistemological status of scientific knowledge. Whilst the radical left-wing scientists had emphasised the dependence of science on general social and economic conditions they were deeply committed to a belief in the rationality of the

internal procedures of science and in the objectivity of the knowledge produced in accordance with those procedures. This view maintained a sharp distinction between science and ideology, and underpinned the special status of scientific and technical experts. Science was a uniquely progressive force, the natural ally of the socialist transformation of society, but restrained and distorted by capitalist social relations. A similar approach underpinned the Left's analysis, discussed in chapter 4, of the new technological developments such as automation which were beginning to transform the labour process.

Yoxen notes, following Werskey, that:

...the superior role created for scientists within the politics of the popular Front... did not allow the possibility of reflection on the ideological character of scientific theories. Not surprisingly Bernalism as practice insulated from criticism the main epistemological assumptions of Bernalism as theory.³¹

Thus Marxism was ultimately deprived of a critical view of science and its social relations in circumstances where capitalism itself had been able to undertake the massive expansion of Britain's scientific and technological endeavour. A more recent generation of radical critics of science and capitalism have argued for an analysis which exposes ideology in the very formation of scientific theory and sees science and technology as embodying the social relations involved in their production.³²

However, as Greta Jones has argued:

...Bernal made science dependent on general social and economic conditions. This led him to a too easy acceptance of Lysenko's claims to have made biology socially useful and fitted to the revolutionary conditions of the USSR.³³

The abandonment by some sections of the scientific Left in the late 1940s of the science/ideology distinction led only to further isolation.

Some critics in stressing the negative aspects of the commitment to science as a progressive force have tended to lose sight of the debt the scientific Left acknowledged to Marxism as the essential theoretical framework which made sense of that commitment. Bernal wrote of the value of Marxism as a method and a guide to action that:

The relevance of Marxism to science is that it removes it from its imagined position of complete detachment and shows it as a part, but a critically important part, of economic and social development. In doing so it can serve to separate off the metaphysical elements which throughout the whole course of its history have penetrated scientific thought. It is to Marxism that we owe the consciousness of the hitherto unanalysed driving force of scientific advance, and it will be through the practical achievements of Marxism that this consciousness can become embodied in the organisation of science for the benefit of humanity.³⁴

Epilogue

1. See J.G. Crowther, Science in Modern Society (London : Cresset Press, 1967) and Fifty Years with Science (London : Barrie and Jenkins, 1970).
2. Greta Jones, 'British scientists, Lysenko and the Cold War', Economy and Society 8 (February 1979), pp.26-27.
3. See G. Werskey, 'Making Socialists of Scientists : whose side is history on?' Radical Science Journal Nos.2/3 (1975), pp.13-50 and The Visible College (London : Allen Lane, 1978), pp.328-35.
4. See Hilary and Steven Rose, 'The Radicalisation of Science' in Hilary and Steven Rose, editors, The Radicalisation of Science (London : Macmillan, 1976), pp.1-31 and also 'The Two Bernals : Revolutionary and Revisionist in Science', paper presented at a meeting of the British Society for Social Responsibility in Science to celebrate the 50th anniversary of the Second International Congress of the History of Science and Technology. London, November 1981, in Science at the Crossroad : Looking back on 50 years of Radical Science (London : BSSRS, n.d.).
5. Jones, 'British scientists, Lysenko and the Cold War', pp.34-35.
6. See Werskey, The Visible College, pp.277-92 and W.McGucken 'On Freedom and Planning in Science : the Society for Freedom in Science, 1940-46' Minerva 16 (1978), pp.42-72.
7. N. Wood Communism and British Intellectuals (New York : Columbia University Press, 1959), p.134.
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APPENDIX

TABLE OF ABBREVIATIONS

ACAE	Advisory Committee on Atomic Energy
ACSP	Advisory Council for Scientific Policy
AEA	Atomic Energy Authority
AEU	Amalgamated Engineering Union
AFL	American Federation of Labour
ALS	Association of Labour Scientists
ASA	Atomic Scientists Association
ASTMS	Association of Scientific Technical and Managerial Staffs
ASSET	Association of Supervisory Staff Executives and Technicians
AScW	Association of Scientific Workers
AUT	Association of University Teachers
BA	British Association for the Advancement of Science
CIO	Committee for Industrial Organisation
CND	Campaign for Nuclear Disarmament
CP	Communist Party (of Great Britain)
CPSU	Communist Party of the Soviet Union
CWU	Chemical Workers Union
DATA	Draughtsmen and Allied Technicians Association
DRPC	Defence Research Policy Committee
DSIR	Department of Scientific and Industrial Research
EC	Executive Committee
ETU	Electrical Trades Union
FAS	Federation of American Scientists
FBI	Federation of British Industries
ICFTU	International Confederation of Free Trade Unions
ILO	International Labour Organisation
IPCS	Institution of Professional Civil Servants
IRDA	Industrial Research and Development Authority
JPSAC	Joint Parliamentary and Scientific Advisory Committee

LP	Labour Party
LRD	Labour Research Department
MOA	Ministry of Aviation
MOIT	Ministry of Industry and Technology
MPU	Medical Practitioners' Union
MRC	Medical Research Council
NCB	National Coal Board
NEC	National Executive Committee (Labour Party)
NEDC	National Economic Development Council
NHS	National Health Service
NIIP	National Institute of Industrial Psychology
NJAC	National Joint Advisory Committee
NPAC	National Production Advisory Council
NPACI	National Production Advisory Council on Industry
NRDC	National Research and Development Corporation
NUM	National Union of Mineworkers
NUPE	National Union of Public Employees
RA	Research Association
SAC	Scientific Advisory Committee (of the TUC)
SFS	Society for Freedom in Science
SPC	Science Policy Committee (of the AScW)
SPPC	Science Policy Planning Committee (of the AScW)
TUC	Trades Union Congress
Unesco	United Nations Educational Scientific and Cultural Organisation
USDAW	National Union of Shop Distributive and Allied Workers
VWO	Verbond van Wetenschappelijke (Dutch Association of Scientific Research Workers)
WFTU	World Federation of Trade Unions
WFScW	World Federation of Scientific Workers

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