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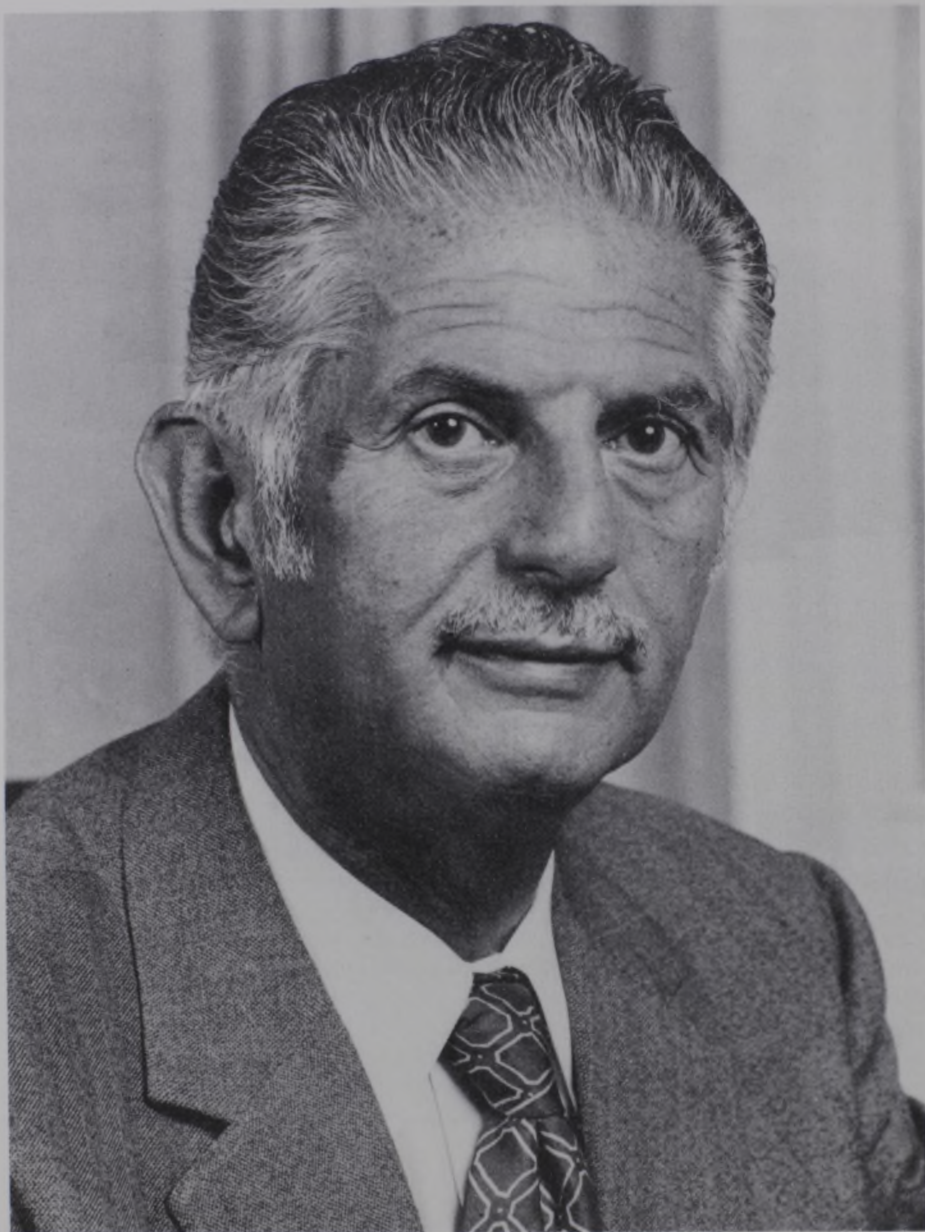

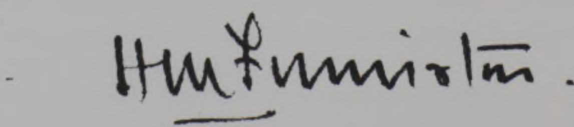

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Elected F.R.S. 1969

BY N.J. PETCH, F.R.S.

SIR HAROLD MONTAGUE FINNISTON, universally referred to as Monty, was born at 5 Aikenhead Road, Govanhill, Glasgow. As Monty put it, Govanhill was separated by the width of a rail track from the Gorbals and 'both sides of that track were the wrong side'.

The family was of Russian Jewish origin, and Govanhill was the area where the majority of Glasgow's Jewish population lived. The family name was originally Feinstein, its modification into Finniston being a particularly appropriate mark of their transformation into true Glaswegians.

Home was a grey, sandstone tenement, three stories high, with three apartments on each landing. Each apartment consisted of one room and a kitchen. There was no bathroom and one communal lavatory per landing. Lighting was by gas; heating was by a coal fire, served with coal from a bunker in the kitchen. The coalman carried 1 cwt sacks up the three stories. A hard beginning! Yet probably strongly influential in developing Monty's determination to advance.

One window looked out on Dixon's Blazes, the ironworks, that periodically lit up the sky, but Monty did not consider this conditioned him to enter the steel industry, although he thought it probable that 'psychologists will find some profound, but nonsensical, reason to show, with hindsight, I am where I am because of this experience as a child'.

Monty went to the local school, Victoria, until he was 11. Family conditions improved; they moved to a larger apartment, three rooms, kitchen, bathroom, electric light, 8 Dixon Avenue in Crosshill; heaven! Monty won a scholarship to Allan Glen's, the prestigious Glasgow school that took a special interest in science. Incidentally, this was the school of at least two other Fellows of the Royal Society; Lord Todd, Past President, and the late Sir Andrew McCance who, it is interesting to note, also became a steelman, the dominant figure in Scottish steelmaking until his retirement from Colvilles in 1965.

Following the local football teams, goalkeeping in the neighbouring park, and the cinema were notable features of young Monty's leisure time. In good weather, he particularly liked to study in Queens Park, lying for hours on the grass, reading, writing and doing his school work. He learnt the violin at the Athenaeum. In later life, at Harwell, he cut new ground for Heads of Divisions by playing for the Divisional football team and in *Who's who* under 'Recreations' he included 'Spectator interest in sport'.

Monty did very well at Allan Glen's. There, a six year stay was usual for those going on to university, but Monty's scholarship was only for five years, and the family could not afford the fees for a sixth year. Monty dealt with this by getting a university scholarship at the early age of 16. He graduated in metallurgical chemistry at Glasgow University, Royal College of Science and Technology. Sir Ian MacGregor, who also became Chairman of the British Steel Corporation, was a student at the same time. Monty took a Ph.D. on the combustibility of coke and was a lecturer in metallurgy, 1933–35. He moved to Stewarts and Lloyds as a metallurgist, 1935–37, and then, for the next three years, he was Chief Research Officer, Scottish Coke Committee, before joining the Royal Navy Scientific Service in 1940.

This marked the end of his Glasgow life. As he, himself, has written, 'The city did everything for me. Let Glasgow flourish! – but I wish I liked it more.' Thus, early hardship left its mark, but there was ample evidence of an ingrained affection in many things he did in later life to help Glasgow and Scottish affairs.

Glasgow also gave him in 1936 his wife, Miriam Singer, a friend from his younger days. Theirs was a remarkably happy marriage. Miriam was very helpful in the complex life that Monty led and a powerful influence for his good. If Monty was delivering a public lecture or travelling abroad, Miriam was there to support him. They had a son, Michael, and a daughter, Barbara.

Monty's work for the Navy took him first to the Naval Ordinance Inspection Department in Sheffield and then to Chalk River, Canada, in connection with the application of nuclear power to submarine propulsion.

John Convey, a friend in the Admiralty at Sheffield and Chalk River, who subsequently became Director, Department of Energy, Mines and Resources in Canada, recalls how, with their wives, they went to a cinema in Sheffield to see 'The Wizard of Oz'. Going home through the wartime, deserted, blacked-out streets, they danced arm in arm singing the various Oz lyrics. 'Who put the Ape in Apricot – Courage'; 'Who put the Hot in Hottentot – Courage'. After returning to this country, Monty became Chief Metallurgist, AEA, Harwell.

HARWELL 1948–58

It was at Harwell that Monty blossomed. In was a time of ebullient optimism and support for atomic energy. Monty was completely in his element. In the Metallurgy Division, he had a team of very able, very active scientists working under great pressure on very tight time-schedules and dealing with quite new materials and new fabrication and behaviour problems. The spirit of the team is conveyed by Alan Le Claire's comment: 'They pay us to do what we want to do.' Such spirit and pace suited Monty perfectly, satisfying his impatient nature. The Division was responsible for the production of the fuel elements for the various reactor designs and many problems emerged associated with the protective canning of the uranium. Particular new effects emerged associated with irradiation; embrittlement, growth and swelling. Very little was known about the metallurgy of the metals and alloys involved (uranium, plutonium, thorium, zirconium and beryllium).

Monty's great contribution was not in scientific work, personally directed by him. Indeed, that would not have been possible considering the width of his responsibilities. However, as his published reviews show, he was well up in what was involved scientifically. He continually discussed the problems with those directly working on them and made useful suggestions.

Sir Alan Cottrell, who was Monty's deputy at Harwell for a period, puts the situation very clearly.

> Monty was far more than a mere administrator. It is to his credit that he saw, earlier than anyone else (except perhaps Leonard Rotherham) the true scale and nature of the task for materials science and technology set by the nuclear programme. When he went to Harwell, the materials effort was a small-sized outfit, totally inadequate for the task. He saw that a big R&D department was needed; fought for it against a lot of prejudice, and got it. He also saw the nature of the task, mainly technological, but of such a new kind as to need a huge amount of basic science; radiation damage, crystallography of complex structures, unusual alloys, including inert gas alloy atoms, non-metallic materials, chemistry in an ionizing environment, etc. Hence, he recruited people with good records in pure and basic sciences and encouraged them to bring the same approach to nuclear materials.
>
> This was all directed towards a single central goal, the development of civil nuclear power. In this, he had two great battles to fight. First within Harwell, where the ruling élite, in those far distant days, were the nuclear physicists, who thought that everything else, especially materials work, was mere blacksmithing to provide them with their required hardware. Secondly, with the Northern AEA Group (Risley, Culcheth, Springfields and Windscale), who thought that all materials technology belonged to them. He fought and won these battles.

The personal aspects of Monty's work at Harwell have been brought out in accounts by Stanley Pugh, and by Professor Geoffrey Ball. His vast, dynamic enthusiasm was infectious and stimulating; his friendship open and warm. He knew everybody in the Division by their first names and also knew something about their families, from the cleaners to the most senior scientific staff. He made daily rounds of the Division, discussing and suggesting new ideas. In personal matters, he was thoughtful and generous. 'He was the most human man I have every known' (George Adam). His friendship with Admiral Hyman Rickover of the U.S. nuclear programme was very valuable.

Monty was a workaholic, insomniac, getting up at 5 o'clock in the morning and working all day, seven days a week. For those who lived near him, it frequently happened in the evening, or at the weekend, that he would pad round in his slippers to announce, 'I've got an idea'.

Monty greatly enjoyed his period at Harwell, and there he clearly established his ability to organize, run, and inspire a highly successful scientific team.

International research and development

Monty left Harwell in 1958 and joined C.A. Parsons in Newcastle upon Tyne. There, he took charge of a large new laboratory that was just being completed to serve as the Nuclear Research Centre for Parsons and other member firms of the Nuclear Power Plant Company, one of the five industrial consortia set up to design and build the U.K.'s first civil nuclear power stations. In its initial years, the Centre undertook a wide range of engineering and metallurgical investigations relating to reactor design. For example, there was a full-scale

dynamic instability investigation on nuclear fuel elements under high pressure gas coolant flow conditions, and there were irradiation damage studies in collaboration with the Italians. In addition to his duties at the Centre, Monty became Parson's Technical Director.

After a few years, the slowing down in the investment in nuclear power in the U.K. did not augur well for the Centre, and Monty persuaded the Parson's Board in 1962 to convert it into a research company, which he named 'International Research and Development Company' (IRD). He recognized there was a position for such a company to do 'contract research', whereby research and development projects could be undertaken for government and industrial customers. At that time, the contract research concept was relatively unknown in the U.K., although well established in the United States, and is, of course, now well established here. Monty was Managing Director of IRD and then Chairman, 1969–77.

Examples of the work done at IRD include the construction of the world's first superconducting motor drive system, the operation of a novel closed-cycle magnetohydrodynamic generator, the development of a ruby laser ophthalmoscope for eye surgery, and explosive-joining techniques for underwater welding of petrochemical pipelines and sealing leaking heat exchangers and condensers. IRD formed a joint company (North East Lasers) with Thermal Syndicate to manufacture ruby crystal solid-state lasers and helium neon gas lasers. Thorn-Parsons was set up to exploit IRD's development of a novel range of semiconductors. For several years, there was collaboration with the National Engineering Laboratory, East Kilbride, and with Vickers. All this is an indication of the breadth of Monty's vision.

Hymie Rose, Monty's deputy at IRD, comments: 'Close acquaintances, such as myself, were constantly impressed by his boundless energy, his enthusiasm for work and his passionate belief in the potential for continuous improvements to our industrial and social infrastructure through advances in science and technology.' On a lighter note is the comment that what little leisure Monty took more often than not involved viewing all kinds of sport on television and 'my sporting sons were frequently amazed by his knowledge of the finer points and personalities of the game'.

The British Steel Corporation

In 1966, the steel industry, nationalized in 1949, denationalized in 1953, was about to be renationalized. Monty, while at IRD, was invited to join the government committee planning the future organization of the new Corporation under Lord Melchett as Chairman. This led to Monty joining the Corporation in 1967 as a Deputy Chairman, becoming Chief Executive in 1971 and, finally, Chairman on the tragic death of Lord Melchett in 1973. It was in this position that Monty became a nationally known figure.

The BSC problems were immense. This was a question of bringing together the 14 steel companies with 39 steel-making plants and numerous steel-working plants to form the sixth largest industrial unit in the non-communist world.

The Committee plan involved considerable reorganization and modernization and envisaged an expansion to an annual output of 35 million tons over a ten-year period. The estimated cost was £3000 million.

In the early 1970s, BSC persuaded the new Conservative Government to refrain from denationalizing three of the Corporation's most profitable sectors. However, there was opposition to the reorganization plan from the unions, and disagreements within the Government. Eventually, there was support from Peter Walker, when he became Secretary of State for Trade and Industry, and, after many Cabinet battles, the opposition of the Prime Minister and the Chancellor of the Exchequer was overcome and the plan, with the required finance, was given government approval in 1973. It should be noted that the money was not just a gift, but was a loan at 2–3% above bank rate.

It is a not uncommon belief that Monty, carried away by his great enthusiasm, devised an unrealistic plan that led BSC into difficulties in the latter part of the 1970s. This belief does not stand examination.

First, the plan was not just Monty's. No doubt he played an important part in it, but it was devised and approved by the Planning Committee which contained experienced steelmen and it was much discussed before receiving government approval. Second, the expansion figure of 35 million tons is much focused on as the height of fantasy. But, what was the context in which this figure was arrived at? World production of steel had increased steadily since the War. Between 1950 and 1970, it multiplied 5.5 times. In 1970, British production was 28 million tons. Was planning for a possible increase to 35 million tons over 10 years really pie-in-the-sky? In any case, steel plants are not created at the drop of a hat. This was a plan for over 10 years, so there could be adjustments depending on the circumstances that developed.

Apart from this figure of 35 million tons, what did the plan contain? At nationalization in 1966, the British steel industry lagged seriously behind world standards in production methods. This was largely because there had been great changes in these methods since the War and, in Britain, the large number of small companies lacked the financial resources to modernize. The whole situation required replanning at all points along the production path, the Committee plan attempted to do that. Monty started the Corporation along the road.

The cost of transporting the vast weight of ore and coke for steelmaking was an important factor. By the 1960s, the industry was increasingly replacing low-iron-content home ores by much richer imported ones. Thus, the logic of the steelworks location on home ore fields disappeared. The plan accepted the view that the future lay in coastal sites. Secondly, it recognized that much larger ore-carriers and docking facilities that could handle these were required. At Port Talbot, provision was introduced for 100 000 tonne vessels. This was the first development in the docks there for 60 years and formerly the largest vessels that could be handled were 25 000 tonnes. Even larger provisions were made on the Humber and Tees, and, at Hunterston, 350 000 tonne vessels could be taken. Suitable unloading equipment was also required.

Turning to blast furnaces, again, it is quite a common belief that the plan Monty pursued was unrealistic. But what are the facts? In Britain, there were 56 blast furnaces in operation. Their output could have been achieved by eight, 6000 tons per day furnaces. The so-called 'blast furnace output index' for British furnaces in 1969/70 was 64; in Japan, it was 148, with an average of 104 for the industrialized countries. The need for great changes was evident. The generally accepted world view at that time was that a modern steelworks should

have an annual output of 10 million tons served by two blast furnaces of 10 000 tons per day capacity (W.F. Cartwright 1971, C.E.H. Morris 1971, R. Hirata 1976). Such plants were in operation in France, Italy and Japan.

A 5000–6000 tons per day furnace was built at Llanwern, and two 10 000 tons per day furnaces at Redcar.

On the steelmaking after the blast furnaces, the most radical reorganization was needed. Since the War, there had been a tremendous change in steelmaking processes, with replacement of the long-established 'open hearth' and 'Bessemer' by the basic oxygen process, in which the molten iron bath is refined by the injection of oxygen. The oxygen process produced in 40 minutes the same tonnage of steel as an open-hearth furnace did in ten hours. Yet, in Britain in 1969, open-hearth production accounted for 51% of the annual output, basic oxygen 34%, with electric furnaces (mainly alloy steels) at 15%. The figures in Japan were 6%, 72.5% and 21.5%. Clearly much modernization was necessary, with the elimination of obsolete plant.

Finally, there was the casting of the liquid steel. Traditionally, this was done into separate moulds of up to 40 tons, but the yield was reduced by the need to remove defective parts at the top and bottom of the solid ingot. A major development incorporated into the Committee plan was the installation of continuous casting equipment. In this, the liquid metal is poured through a short length of water-cooled mould in which the outer surfaces solidify and this partly solid slab is withdrawn by rolls to complete solidification under water-spraying. The whole operation is continuous and gives 97% satisfactory yield.

Common world-thinking at that time was that, in addition to these large steelworks associated with heavy plate and sheet mills, there was also a place for plain carbon mini-steelworks with mills for light products such as bars, rods and light sections (Cartwright 1972). In 1972, there were 40 such plants in the U.S.A. and others under construction in Venezuela, Canada, Brazil and Germany. These mini-steelworks used electric furnace refining of steel scrap and had annual outputs of 0.5–2 million tonnes. However, the availability of scrap carried uncertainties and there was considerable interest in the development of the so-called 'direct-reduction processes'. These are essentially similar in principle to the blast furnace, but the design differs and the reduction is done at a lower temperature, producing low-carbon pellets. This can substitute for scrap in the mini-steelworks. The direct reduction plants that had been brought into operation in various parts of the world had shown satisfactory performance in some cases, problems in others. The possibility of a future for direct reduction in Britain was recognized, and a coastal plant was built at Hunterston.

All this plant modernization involved redundancies. Monty needed no prompting to appreciate the problems that closures created for the steel-making communities. 'Whenever I lay men off, I see faces.' Usually these problems had been left to the Government, but Monty regarded it also as BSC's responsibility, and in 1975 he set up BSC (Industry) to help other companies to develop in the closure areas. Redundancy benefits beyond the legal minima were paid. To quote Bill Sirs, the leading trade union figure in the steel industry; 'I always found Monty easy to approach. He had that touch of human understanding. He was a good man, who won my respect in difficult times.'

It is apparent that the BSC plan was a sound one for the essential modernization and reorganization of the industry at all stages. Monty initiated putting this into practice. It is along these general lines that the industry has since developed.

How did the planning work out after its acceptance in 1971? During the first six years following nationalization in 1967, the BSC made losses in four years, very small profits in two. Then, as reorganization got under way, in 1973/74 there was a profit of £58 million, rising to £78 million in 1974/75. During this time, the Government reserved the right to determine steel prices. If European prices had operated, as they had to do later, on entry into Europe, the Corporation would have been £750 million richer.

Thus, good progress was being made. But trouble followed. This had two causes. First, the bottom was knocked out of the steel market by the oil crisis and world depression that produced the worst recession for 40 years. Steel demand halved in Britain to 14 million tons. The steel industry worldwide was hit in exactly the same way. Clearly, this completely altered the planning scene. Second, the Labour Party came back into power committed to resisting radical change in industry, and it blocked the closure of obsolete and uncompetitive steel works. Monty did not take this quietly and many political rows developed, particularly with Tony Benn, the Industry Minister. This attracted a lot of public attention. Barbara Castle noted in her diary the almost hysterical campaign that developed against Benn. 'The papers are full of his fight with Monty Finniston over steel redundancies, in which Monty is managing to hold his own, egged on by every leader writer.'

Monty fought resolutely for the right of management in a state-owned industry to manage the industry, free from political intervention. He favoured a 'British Petroleum' solution for steel, and developed a poor view of the politician's ability to give useful guidance to industry that rose above mere party considerations and when, in this case, they didn't know one end of a steelworks from the other. The outcome was that the Government did not renew Monty's contract with BSC in 1976.

A lighter note about Monty's attitude to excessive government interference is provided by a visit of the South African Rugby team. By a long tradition, visiting teams playing at Ebbw Vale used changing rooms owned by the steelworks. A call from No. 10 said that the Prime Minister thought it inappropriate for a nationalized industry to make facilities available to such a team. Monty's answer came without hesitation. 'In Wales, Rugby is more important than race.' Nothing more was heard from No. 10.

Many tributes have been paid to Monty by B.S.C. colleagues. 'He proved to be an incredible ball of fire and brimmed with ideas and energy ... He was a joy to work for. His quicksilver intelligence, his salty humour, his absolute fairness, his real concern for others and, above all, his courage were unfailing' (Robert Roseveare, Managing Director for Administration).

'Monty had an infectious enthusiasm ... he needed little sleep and with four or five hours a night, it left him with 19 or 20 hours to work – and work he did – to an intensity that left his staff at the Steel Corporation breathless' (Alun Jones, Communications Manager).

'In my view Monty had a difficult time with some senior staff in the steel companies that were nationalized; he was seen as an incomer and some, I feel, resented this and held on to the lingering hope that this bad dream of nationalization would go away ... by the end of his

term as Chairman there was little evidence of this' (James MacKenzie, Research Managing Director).

'Monty Finniston had great powers of persuasion ... [this] came entirely from personal conviction and there was never any element of bluff.' 'His directness, humour and ebullience and his shear delight in human contact produced enormous loyalty and affection in those who were privileged to know and work with him' (Michael Edwards, Managing Director, BSC International, Chairman BSC Overseas Services).

Tributes from many other sources confirm Monty's remarkable gift for developing good relationships, and S.W.K. Morgan of the BNF Research Committee comments: 'With his Scottish brogue and the twinkle in his eye, he, more than anyone else I have worked with, could infect a team with the excitement of research.'

Just possibly there was some danger that his infectious enthusiasm might be a little blinding and his interest in knowing about everything that was going on, combined with the long hours he spent to that end, could sometimes lead to a lack of delegation and over-centralization.

Inevitably, the massive drop in steel demand in 1975 made some of the planned developments unnecessary. The second blast furnace at Redcar was not brought into operation. The direct reduction plant at Hunterston was never fully completed. However, the Conservative Government, elected in 1979, eschewed interference with BSC's industrial decisions. Then, with obsolete works closed and the modernization having effect, British Steel was left with one of the best facilities in Europe.

After the British Steel Corporation

Monty was 64 when he left BSC, but he continued to work as hard as ever, and did so to the end.

At various times he was chairman or director of some 14 companies. These included Sears Engineering and GKN. In 1980, he became Chairman of Anderson Strathclyde, the Scottish mining-machinery company, and he opposed a take-over bid by Chartered Consolidated. This was referred to the Monopolies and Mergers Commission. Their recommendation was against the merger (4–2). Nevertheless, the Government permitted it. He also supported an unsuccessful attempt to save the Caterpillar factory at Uddingston, south of Glasgow.

Monty had many interests outside business; too many to list them all. He served periods as Vice-President of the Iron and Steel Institute, President of the Institute of Metals, the Metals Society, the Institution of Metallurgists, the Institute of Management-Services, the Design and Industry Association, and of others. He was Chairman of the Prince of Wales Award Panel. He serve on numerous government committees, e.g. NRDC and NEDC and, in particular, he was Chairman of the Government Enquiry into the Engineering Profession.

The Finniston Report, 1980, was very valuable and wide-ranging. It argued that the recovery of Britain in world manufacturing depends on the quality of its engineering, and that there is a need to improve the public perception of the status of the engineer in line with what happens, for example, in Germany and France. It was argued that this would be valuable in attracting appropriate school-leavers into engineering. To this end, the establishment of a clearly defined class of engineer, recognized by membership of a

professional body with high educational requirements, was recommended. The setting up of a statutory Engineering Authority, responsible for the qualifications and registration of engineers, was proposed. In this, there would be various grades of Registered Engineer, all of which would involve qualification by a theoretical training, plus a period of accredited structured training in industry. There would be a Code of Professional Practice and liability to de-registration.

The Government did not proceed with the recommended statutory authority, but instead settled for a chartered body, the Engineering Council. Monty strongly held that the statutory body would have better served the nation, but he gave generous support to the Council and it has adopted many of the ideas contained in the Finniston Report.

Monty gave much support to educational bodies. He accepted the Chairmanship of Council at Chelsea College in 1981 at the very difficult time of college reorganization in London. He successfully steered the College into amalgamation with King's College, overcoming the many problems that naturally arose. He was a great supporter of the Open University, chaired its Appeal Committee and helped raise £3 000 000. Monty was Chancellor of the University of Salford, Pro-Chancellor of the University of Surrey and Chairman of Council of the Scottish Universities Business School. He was President of Carmel College, Council member of the Weizmann Institute and of the New London Synagogue (he had a good knowledge of Hebrew). He was also associated with Lancaster University, Cranfield Institute of Technology, Corby City Technology College and Waltham Forest College. An appointment that gave him particular pleasure was that of Chancellor of the University of Stirling, which he held from 1978-88. There, he broke with the normal custom of Chancellors by his walk-abouts and talks to students and parents at graduation ceremonies. All this was very well received.

An interesting story relates to the Chair of Metallurgy at Oxford. Monty happened to meet Sir Ralph Glyn (later Lord Glyn), M.P. for Abingdon, on the train going back one evening to Harwell from London. Monty talked about the efforts he had made to raise finance for the foundation of this chair. The result was that a chain reaction was set in motion that ended in donation of the money by Sir Isaac Wolfson. This was the first money that Wolfson gave to the universities. His roots were in the same part of Glasgow as Monty's.

Monty joined the Executive Committee on Political and Economic Planning (later the Policy Studies Institute) in 1968 and was Chairman, 1974–84. He catalysed what became one of its principal concerns in the 1970s, namely the problems of redundant workers in the event of plant closures, and, as already mentioned, applied the conclusions by the creation of British Steel (Industry) to help those affected by the steel closures. He made constructive contributions to the work on employment policies, labour relations, comparisons with other countries, ethnic minorities and on the transport relationships of homes and jobs.

Much time was devoted to charities. He was first Chairman of the Prison Reform Trust, founded in 1981, when, unlike today, the topic was not a matter of general concern. He did much to raise Trust funds and gave a very successful 'Week's good cause' broadcast. 'Prison weeks' were arranged in which individual prisons opened themselves to the local community. Monty presided over these. He was in no way 'soft on crime', but brought to

it a humanity and tough pragmatism. He was particularly critical of the remand system and years before the Strangeway riots, he warned the Government of the dangers.

Monty was also Chairman of the Amnesia Association, President of the Stress Syndrome Foundation and Chairman of the Pollock Trust, set up by the National Trust for Scotland in its attempt to protect the Pollock Estate.

On a lighter note, Monty was a director of the British Nutrition Foundation; the Royal Society's food expert, Professor Nicholas Kurti comments: 'It was his persistent, irresistible, youthful ebullience that I found perhaps the most endearing of his many sterling qualities.' Monty's choice of food was, 'I don't like anything too fancy, like rich sauces or French dishes that go over the top. I enjoy a simple steak or chicken.'

Monty was much in demand as a speaker; hard-hitting, if he thought appropriate. He became quite an established personality on TV and radio. He gave some 25 named lectures. Favourite themes included:

(*a*) That the well-being of the country depends basically on its manufacturing industries. That service industries are secondary and dependent on a strong manufacturing base. That government should give preferential treatment to singled-out high-technology areas. That more research and development and design in industry are essential. That British industry exports ideas, but is reluctant to import them.

(*b*) The need for more higher education, particularly in science and engineering. The need for a national scheme of structured practical training after graduation in engineering or applied sciences. The poor British figures in higher education compared with other countries.

(*c*) Particularly in his Chancellor's addresses at the University of Stirling, he constantly attacked the Government's policy of cutting down support for the universities and university research.

(*d*) The running of nationalized industries. Their need to be free from detailed interference from politicians with only a twice-removed knowledge of the problems, and whose dictates anyway lasted only the length of a government or of a minister.

(*e*) Management and communication in industry.

HONOURS

Many were received. There were 14 honorary doctorates. Honorary membership of the American and the Japanese Iron and Steel Institutes and of the Indian Institute of Metals. Medals included the Bessemer and A.A. Griffith of the Metals Society, the Eichner of the Societé. Francaise de Metallurgie and the Glazebrook of the Institute of Physics. Monty was a Fellow of the Royal Society of Edinburgh and a Fellow of the Fellowship of Engineering. He was elected to the Royal Society in 1969 and was Vice-President, 1971–72. He was knighted in 1975.

Sir Monty Finniston was a truly remarkable man.

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SOME NAMED LECTURES

1965 'Discovery, invention and innovation', Stephenson Memorial Lecture.
1967 'Communicating and crystal gazing', Presidential Address, Institute of Metals.
1968 'Science in society', Dunn Memorial Lecture.
1975 'Information, communication and management', Aslib Lecture, Royal Institution.
1977 'Science and society', Edwards Memorial Lecture, City University.
'For better or worse: nationalised industries', BBC.
1978 'Creative management', Canton Lecture, Royal Society of Arts.
1979 'The world an oyster and industry the pearl', Josiah Mason Memorial Lecture, Birmingham University.
'The Culture of Technology', Maurice Lubbock Memorial Lecture.
1980 'Education and business', The Scottish Business Lecture, University of Strathclyde.
'Professionalism: a way of life', The Wilfred Fish Lecture, General Dental Council.
1981 'Mission impossible', Barret Shine Foundation Lecture, Queen Mary College.
'Towards a solution of the energy problems', William Young Memorial Lecture, Institution of Gas Engineers.
1987 'True and fair', Founders' Lecture, Society of Company and Commercial Accountants.
1990 'Engineering in the 21st century', Maitland Lecture, Institution of Structural Engineers.

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