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FIFTY YEARS OF OCCUPATIONAL PSYCHOLOGY IN BRITAIN

by

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Introduction

The origin of this volume was straightforward. It arose from the author's reminiscences over a drink at a British Psychological Society's Occupational Psychology Conference in the late 1980s, contrasting the field as it was when they entered it shortly after the Second World War with its contemporary configurations. We realised that the changes we had experienced and observed over some fifty years were not only extensive but also largely unrecorded, particularly from the viewpoint of the participants involved.

Furthermore, the latter group was a diminishing one, reducing year by year through death or incapacitating illness. For this reason, it seemed important to seek the personal recollections from as many people as possible who had witnessed these changes, to complement our own. Also to seek out some not readily accessible documentary sources in an endeavour to fill a gap in the history of post-war occupational psychology in Britain that might otherwise remain unfilled. This was the stimulus for our project, the execution of which has been time-consuming, fascinating, but not at all straightforward. We are not professional historians and each person and source we have consulted has indicated other lines of enquiry or potentially useful material that we might follow up which, if pursued systematically, would engage full-time researchers for several years. What follows, therefore, is in no sense a definitive history of British occupational psychology in the last half century, nor a comprehensive account of all the persons and events shaping the field in recent decades, but a selective picture based on our personal recollections and reflections of working as professional psychologists. Between us we have had first-hand experience of psychological research and applications, 111 government, military, industrial and public service organisations, of university teaching and the use of field placements to acquaint students with the practical aspects of applied psychology, and of representing and promoting the interests of the discipline both within and outside professional psychological circles. Our presentation and organisation of our material have been guided by our own careers in that we have concentrated on those areas of the subject that we know best, but this is not a 'history of psychology in autobiography' on the lines of the American series of volumes bearing that title.

The data we have gathered have been obtained through an iterative process built round our attempts to make sense of the past from archival and personal material. We have drawn upon published autobiographical accounts in psychological journals, official reports, both published and unpublished, letters and solicited and unsolicited observations from contemporaries and others, and taped interviews with a number of people who took part in particular events and/or were associated with particular institutions, as well as our own recollections. Our sample of informants was not as representative as we would have liked, but it served to "confront our interpretation of events with the impressions held by those who had lived them" to quote Pestre, one of the historians involved in the History of CERN (the European Organisation for Nuclear Research), who came to appreciate this valuable function of oral history in the course of their work (Hermann et al, 1990). As she observes, personal accounts, however "one-sided" they may be, "can supply points of reference and grist to the intellectual mill which can be extracted only with difficulty from written sources alone".

It was our experience that the documentary material to which we gained access for this project was also of variable quality, and often incomplete, so that it was necessary to cross-check with other sources and to 'read between the lines' in some instances in order to make use of it.

In round figures, the period we are concerned with is from 1940 to 1990. Part 1 of this volume deals with the first thirty years, linking chronological developments with our own and others' personal recollections and reflections. In Part 2 we have found it necessary to write in more general terms, with less personal reminiscence and appraisal. Not only are the changes of the last twenty years too close and often too complex to view with any detachment, but we are also constrained from reporting some personal impressions and recent anecdotes which might appear prejudicial to those still active in the field or in 'the corridors of power'. A number of our informants sought specific reassurance on this point.

Defining the field
In broad terms, occupational psychology is that branch of applied psychology which is concerned with human behaviour and experience in organised work settings. It is a subject area which has no fixed boundaries and in some of its sub branches overlaps with other disciplines to a considerable extent. In an earlier paper (Shimmin and Wallis, 1987) we identified four linked but clearly distinguishable, sub-branches, namely personnel selection and vocational guidance, psychological ergonomics, vocational training and the acquisition of skills, and organisational behaviour, pointing out that up to the outbreak of the Second World War in 1939 only the first of these sub branches was clearly established under the rubric of what was then called 'industrial psychology'. Although it is true that studies of industrial work under adverse working conditions were carried out prior to 1940, the second and third sub-branches really only emerged from the work of applied psychologists during the war and in the immediate post-war period; while organisational behaviour was a slightly later development. It should be noted, however, that each of the above four subareas has grown and diversified over the years to include a wide range of expertise, so that it is now virtually impossible for a single practitioner to encompass the whole field. As Dunnette (1976) stated on the first page of the first edition of his Handbook of Industrial and Organizational Psychology the scope of the subject "is so broad and so diverse that I have been frustrated in my efforts to develop a conceptually satisfying or dimensionally clear structure". Thirty-seven topics are covered in that volume, ranging from traditional areas such as recruiting, selection and job placement to more recent ones such as conflict and conflict management, organisational structure and climate, and change processes in organisations. Dunnette also includes a chapter on consumer psychology, a sphere of activity, like organisation development (OD), which is not confined to psychologists and which has its own professional association to which its practitioners look rather than to the British Psychological Society. For our purposes both these areas lie outside the domain of occupational psychology, although others will regard them as lying at the margins of the field, the expansion and increasing complexity of the subject has meant, first, an awareness that psychology is not applied solely in industrial organisations reflected in this country by the change of title from 'industrial' to 'occupational' psychology and in the United States by the adoption of the comprehensive label of 'industrial and organisational psychology". Second. there has been a progressive enlargement of approach from one focusing on the individual worker and his or her job in which the structure of the employing organisation is taken as given, to one which takes account of the organisation as a whole and the social, political and economic environment in which it operates. In seeking to encompass this wider perspective occupational psychology necessarily engages with other disciplines in the development of multi-disciplinary approaches.

Industrial psychology in Britain between the wars
Our story really begins with the formative period of the war years 1939-45 (Chapter 1) and how they shaped the world of psychology that we encountered at the start of our professional careers shortly afterwards. However, to understand the situation in 1939. it is necessary to review briefly how industrial psychology developed in Britain in the inter-war period, following its beginnings in the 1914-18 war (Flugel, 1933; Hearnshaw, 1964; Lupton, 1983).

There are good reasons for reviewing 1919-1939 as a whole. It is the second of four main periods in the history of psychology in Britain distinguished by Hearnshaw (1969) in a special publication produced by the British Psychological Society to mark the XIXth International Congress of Psychology, held that year in London. This inter-war period saw the development of specialised degree courses in British universities and a considerable expansion of applied psychology. This expansion centred largely on two institutions, neither of which exists today which came into being at the beginning of the period. These were the National Institute of Industrial Psychology and the Industrial Health Research Board of the Medical Research Council. Both these bodies had their origins in the work undertaken in the 1914-18 war by individuals whose contribution to applied psychology in Britain has been profound. Of these perhaps the best known and most influential was C.S. Myers, first director of the Cambridge Psychological Laboratory, first president of the British Psychological Society and founder and first director of the National Institute of Industrial Psychology. His own account of his early career and what led to his promoting and supporting these three major institutions appeared first in *A History of Psychology in Autobiography* in 1936 and was reprinted in the NIIP's jubilee volume of Occupational Psychology (1971). He describes the eclectic nature of his studies when reading for the natural science trips at Cambridge and how, while qualifying formally in medicine, his main interests before 1914 were in music, anthropology and experimental psychology. However, on the outbreak of war he was given a commission in the Royal Army Medical Corps and was later appointed "Consultant Psychologist to the British Armies in France" dealing with 'shell-shocked' casualties. This experience, on the one hand, and his "leisure time" spent "devising tests, and supervising their application, for the better selection of men suited to hydrophone work" (used to detect enemy submarines) on the other, led him, on demobilisation, to be fired "with the desire to apply psychology to medicine, industry and education" (p. 10). His wartime activities in both these respects foreshadow the contributions of psychologists and psychiatrists in World War II some twenty or so years later (see Chapter 2).

As Myers notes in that autobiography many of his students went on to head university departments of psychology and to achieve eminence in the academic world. For example F.C. Bartlett his successor at Cambridge, Cyril Burt, C.A. Mace, W.J .H. Sprott and CW. Valentine. It was a chance remark by his former student TH. Pear, later to become Professor of Psychology at Manchester, drawing his attention to a book of lectures on industrial psychology given in his native country of Australia in 1916 by yet another ex-student, B. Muscio (1917), that introduced Myers to the idea of industrial psychology as a sub-discipline in its own right. Following a fortuitous meeting with H.J. Welch, a business man also interested in the potential of industrial psychology, he and Myers sought support from industrialists to establish the organisation formally incorporated in 1921 as the National Institute of Industrial Psychology to "promote and encourage the practical application of the sciences of psychology and physiology to commerce and industry by any means that may be found practicable". It was to be run as "a scientific association not for profit", dependent for its operation primarily on fees earned for diagnostic investigations and advisory work carried out for industrial and commercial firms to improve working conditions and human performance. Meanwhile, the Industrial Fatigue Research Board (later re-named the industrial Health Research Board) was established almost contemporaneously to continue in peacetime the investigation of industrial fatigue and factors affecting the personal health and efficiency of workers that had begun in 1915 with the Health of Munition Workers Committee. Attempts to meet the armed forces ever increasing demand for munitions by extending the hours worked by women in the munitions factories, such that 90 hours a week was common and 100 hours not unknown, had led to decreased productivity and increased sickness absence and accidents with the result that the Committee was set up charged with the systematic investigation of these problems. H.M. Vernon (1948) describes his experiences as an investigator to the Committee, noting that its findings led not only to a reduction in

hours of work but also the adoption of other improvements such as "better heating and ventilation in the factories, more canteens and washing facilities and better health and welfare provision". His conviction of the value of the painstaking empirical work entailed in these investigations led him to have no hesitation in accepting an invitation to be the first investigator to the Industrial Fatigue Research Board "for I considered that industry offered an immense but largely neglected field for useful research".

By 1922, when the American industrial psychologist Morris Viteles came to Europe on a year's fellowship, he noted that industrial psychology in both Germany and England was expanding at a rapid rate and was more extensive in its scope than in the United States (Viteles, 1967). He was impressed in England by "the persistent effort on the part of industrial psychologists to relate what they were doing to basic laboratory research in experimental psychology and to theory", which he observed particularly in the work of Myers, to whom he attributes a lasting influence on his own career and outlook. Notwithstanding this favourable impression of much activity, the work of the Industrial Fatigue Research Board had been threatened not long before Viteles' visit to Britain. When it was set up in 1918, it was under the joint auspices of the Medical Research Council and the Department of Scientific and Industrial Research. But, as Wyatt (1950), another of its initial investigators, records, it was nearly 'axed' by the Treasury after only two years of existence and "only the prompt and determined intervention of the Medical Research Council saved it from an untimely end. The Council took the Board under its protective wing and agreed to accept full administrative and scientific responsibility". As a result, the investigators on the staff of the IHRB were able to make their careers in applied psychological research and to explore topics in depth without depending on commercial sponsors. (Similar support at a later date - during the 1940s when other psychology units of the Council were set up - was equally valuable in this respect. In terms of both the development of the field and of applied psychologists, this was an invaluable contribution, for which the MRC in Broadbent's view (personal communication, 1990) should be given "enormous credit").

Associated with their different structures and sources of funding, it was understood and, according to Frisby (1971), agreed informally, that the NIIP's function was to undertake enquiries for individual firms, while the IHRB was to conduct field research into problems and issues common to industries as a whole. Viteles (1938) states this quite clearly, commenting that "an interesting feature of the Board and of the Institute is the frequent (unofficial) interchange of investigators and joint investigation of problems" (p.49), linked perhaps with Myers' (1926) assertion that relations between the two bodies were "intimate and harmonious". Ten years later, the sixteenth annual report of the IHRB to the MRC (1936) implies a close and complementary relationship. Under the heading of 'external relations', the report states:

"In conclusion, they must mention the National Institute of Industrial Psychology, whose work touches their own so closely. By no other body have the results of the Board's own researches been disseminated so widely as by the National Institute of Industrial Psychology in their industrial investigations for various firms; and the field of vocational psychology owes much to the Institute's labours. Naturally, therefore, this is a body with whom the Board maintain close contact". (p.31)

Just how wide this dissemination of research findings was in reality is more problematic than these official words suggest and, as we shall show in later chapters, the question of the dissemination and utilisation of the results of research has been a continuing issue throughout the whole period of our review. In that same year of 1936, the Institute was in one of its recurrent periods of financial difficulty and B.S. Rowntree, the Quaker industrialist and one of its main supporters, was conducting an investigation into its internal management. A memorandum to him from L. Hearnshaw, writing of his experiences as a member of the staff, mentions that "in my contacts with industrialists I have been surprised at their

ignorance of, and frequently their antagonism to, the work of the Institute". He also suggests that one remedy for the Institute's poor reputation would be to "maintain far closer and more cordial relations with bodies working in the same line of territory; for example the Industrial Health Research Board, the Industrial Welfare Society, the Institute of Labour Management ...etc", suggesting less interchange with the IHRB than is often assumed. But if the Institute did not make known the Board's results as extensively as some may have believed, neither did the Board itself publicise its work. The IFRB and the IHRB investigations were published mainly as a series of reports under the imprint of HM Stationery Office. They were official looking documents with dull pink covers which faded rapidly so that, in appearance, they were unlikely to attract the attention or interest of any but a limited readership. Many were soon out of print and for several years few of the 90 reports produced between 1919 and 1947 have been readily accessible. They are thus unknown to succeeding generations of occupational psychologists who remain largely ignorant of this part of their heritage. By today's standards, publicising the results of research to those who might be able to utilise them was rudimentary or not even attempted, perhaps not least because the British tradition of scientific enquiry emphasises careful experimental control, the cautious interpretation of data and the avoidance of claims of usefulness and benefit that might prove to be premature. In this connection it has be to remembered that the investigators employed by both organisations were breaking new ground. The first annual report of the IFRB (1920) points out that "owing to the small amount of research on industrial fatigue which had been carried out when the Board was formed they have been compelled to start their inquiries practically ab initio, with an investigating staff to whom with a few exceptions all the problems were new" (p.24). Likewise, Frisby (1971) notes that the NIIP's investigators in its early days had to make a diagnosis of each situation they encountered and to seek how they might make improvements from the human point of view, without any prior notions of the remedies they might apply. As we shall see when considering the role of these psychologists in the Second World War, their ability to confront and to deal creatively with problems and situations entirely new to them was to stand them in good stead in meeting the challenges presented by the national emergency and contribute to the success of their Wartime work.

During the inter-war years, the economic climate was not conducive to interest in and support for industrial psychology in influential quarters. From 1921, when the post-war boom began to falter, until the first months of 1940, there was never less than a million people out of work in Britain and the figure was well over two million in the 1930's (Stevenson, 1984), with no Welfare state to alleviate the associated hardship. The older industrial regions of the country, centres of coalmining, shipbuilding, iron and steel, and cotton textiles, were the worst affected and became 'depressed areas' as a result. In these circumstances the relevance of the pioneering studies of fatigue that was so apparent during the stress of war was obscured, as was awareness of the potential value of similar work as firms struggled to survive and individuals and organised labour were preoccupied with finding jobs. Wyatt (1950) describes how, during the 1930s, he was semi-officially advised to find an alternative job to that of an IHRB investigator as there were signs that the kind of work he was doing was falling into disfavour, but was told that all was well before he had been able to act on this advice. Given these unfavourable circumstances, Rose (1975) considers that it is remarkable that the Myersians (his collective term for the early British industrial psychologists) survived at all, especially at the NIIP with its dependency on its consultancy work. In Rose's words "it was forced to live largely from hand to mouth, and many of its findings on behalf of clients could not be published". Rodger (1971) refers to Myers having to spend his time in the thirties as a "reluctant and unhappy fund-raiser" and having trouble with the business men on his executive who thought he was not sufficiently commercially minded. In 1938, it seems that matters came to a head, causing Myers to retire that autumn and Elton Mayo at Harvard was approached informally with a view to his possibly taking over the directorship. Mayo was very critical of the Institute's staff and structure when he came to London to appraise the situation (Trahair, 1984). Its reliance on money from industry for

studies "made at the request of troubled firms" and the resulting "planlessness" of its work came in for particular stricture, and he advocated seeking a large endowment to avoid this problem. But war was on the horizon and Mayo's suggestions for reorganisation and his involvement with the Institute were ended by the outbreak of hostilities. On the part of workers, industrial psychology was often viewed with suspicion and fear that it was a form of the 'scientific management' propounded by the American engineer F.W. Taylor before the First World War to promote efficient systems of industrial production (Sofer, 1972; Murrell, 1976). Their anxiety that it would lead to 'speeding-up' the work process and associated 'rate cutting' was aggravated by the psychologists' interest in and use of motion study as a means of achieving improved methods of working. This led to difficulties at Rowntree's Cocoa Works in York when a Psychological Department was set up in the factory in the early l920's, described by Hollway (1991). Workers' resistance to this development appears to have derived from the timing of their performance on standard operations because, as Myers (1926) noted, "movement study is intimately associated with time study", and the stop-watch symbolised for employees the excesses of Taylorism. As a result, much negotiation took place concerning the activities of the Works Psychologist and his department and, as Hollway observes, it was only through a combination of Seebohm Rowntree's humanism and the control won by organised labour through the Central Works Council, that new work methods were not imposed mechanistically on the work force. The danger that they might be seen as promoting scientific management under a new guise and of the potential exploitation of workers that could occur with Taylorist approaches was recognised by the early British psychologists. In a book entitled The Psychology of Industry, published in 1921 and written primarily for laymen, Drever compared the two spheres of activity as follows:

"The aim of scientific management 'is confessedly to increase profit and output' and therefore considers psychological phenomena from the viewpoint of management' but industrial psychology is strictly impartial. It concerns itself with the facts, and its investigations and results are equally at the service of employer and employee. On the whole its tendency has perhaps been to support the worker and his claims, since the worker is the effective agent in nearly every process it investigates, and an understanding of the facts is impossible without understanding the point of view of the worker, as well as the psychological processes involved in the work itself."

By present day standards this statement is remarkable for its idealism and its naivety about both scientific method and industrial relations, but it illustrates clearly how the industrial psychologists saw their task and their conviction that, as Cherns (1982) put it, they "were on the side of the angels, and alleviating the lot of man", It is an orientation that can be discerned in British industrial and occupational psychology in succeeding decades, even though the neutrality of science has come to be questioned and the pro-management bias of the subject in the United States (Baritz, 1965) has been seen by some as pertaining here also. However, in the opinion of a number of sociological writers, such as Sofer (1972) and Rose (1975), it is not sufficiently appreciated that, despite a shared concern with improving performance at work, the British industrial psychologists were not only critical of but also provided substantive counter arguments to the simplistic, psychological universalism of Taylorism. Indeed, Rose claims that; "By substituting an image of the worker as a complex organism for Taylor's greedy robot it (British industrial psychology) opened the way to the study of the less tangible influences on worker behaviour. Human relations theory depended considerably on its achievements. Later still theories which explained work behaviour as a response to technology took up numerous problems it had first raised". (p.65)

As Shimmin (1986) pointed out, examination of the writings of these pioneers shows much in their work that foreshadows developments of a later date on both sides of the Atlantic. For example, Myers and the IHRB investigators were aware of what subsequently became known as the 'Hawthorne effect' (improved performance on the part of those being studied

due to their being the focus of study and not the result of changes in working methods), but they did not give it more weight than some of their other observations. Thus, Myers noted, in a book published some two years before the Hawthorne studies in the Relay Assembly Test Room began, that "sometimes the mere presence of the Institute's investigators and the interest they have shown in the employees' work have served to send up output". Likewise, horizontal job enlargement (Herzberg, Mausner & Snyderman, 1959), although not by that name, was advocated by Farmer (1924) as a means of alleviating fatigue and increasing efficiency in the glass industry, while the telegraphists' cramp studied by Smith, Culpin and Farmer (1927) appears to have much in common with the repetitive strain injury (RSI) among word processor operators and other workers that is now attracting attention. Drever (1921), in his book to which reference was made earlier, suggested that industrial psychology should be seen not only in terms of selecting workers and developing good methods of work but should include "some reference to the more psychological conditions affecting industry, as not merely an economic but also as a social activity", a view commonly thought to have emerged only in the wake of Mayo's writings and the Hawthorne studies in the United States (Roethlisberger and Dickson, 1939). Some idea of the range and scope of the IHRB's investigations can be seen from the classification of its reports according to subject matter that forms an appendix to its Annual Reports in the 1930s. These headings are Hours of Work, Rest Pauses, etc; Dexterity, Industrial Accidents; Atmospheric Conditions; Vision and Lighting, Vocational Guidance and Selection; Time and Movement Study, Methods of Work, Posture and Physique; and a miscellaneous category including such disparate topics as the effects of the menstrual cycle on performance, the psychological effects of noise, toxicity of industrial organic solvents, and a statistical study of labour turnover. It will be noticed that there is a physiological and an environmental bias in this list which, indeed, was characteristic of much of the early work, but it did not exclude more strictly psychological investigations as well. The heading of 'Vocational Guidance and Selection' may surprise those who associate the Board particularly with the study of fatigue, boredom and monotony (Locke, 1976) and physical conditions of work. However, under the heading of 'Vocational Suitability', a sub-section of the Board's Annual Report for 1936 makes the interesting observation that: "Many investigations done by the Board point to the conclusion that if selection and training are needed anywhere they are needed for management", thus anticipating by many years the emphasis on management selection and training that occurred in the decades following World War II.

The activities of the NIIP were equally diverse and, as mentioned above, were criticised on this account by Mayo in the late 1930s. But Rodger (1971), whose formulation of the formula 'fmj-fjm' (fitting the man to the job and fitting the job to the man) encapsulated the industrial psychology of a later period, notes how far ahead of his time was Myers in bringing occupational guidance within the NIIP's terms of reference as early as 1922. Miles (1949), who was Secretary of the Institute when it first came into being, states that, originally, Myers was more interested in the problems of industrial work than in vocational guidance, but that the latter ultimately became his major concern. Although the guidance given to individuals on a fee-paying basis meant that the vast majority of those who turned to the NIIP for this purpose came from professional and similar backgrounds, research on guidance and selection for a much wider section of the population was undertaken on behalf of, or in association with, the IHRB (Frisby, 1971). Collaboration between the two bodies appears to have been close in this area. Research on tests of general and special aptitudes was also a regular feature of the Institutes work. Another centre of developments in vocational guidance and selection was the University of Edinburgh's department of psychology (Drever, 1948). These included performance tests for deaf children, assessment of Borstal boys and the selection of apprentices for the printing and allied trades in Edinburgh. The latter activity, with which the department was associated for many years, began in 1931, the year in which Drever's Readership was raised to a Chair of Psychology, and reflected his philosophy of psychology as a service to the community to which his son, who succeeded him in the Chair,

also subscribed (Semeonoff, personal communication, 1990). All members of the department, staff and students alike, were expected to take part in this operation.

Concluding comments

In concluding this stage setting for the chapters which follow, three points may be emphasised. First, is the fact that the world of psychology was a small one in the interwar years. The total membership of the British Psychological Society in 1930 was 704 (Hearnshaw, 1969) and that figure included those with a keen interest in the subject, but no formal qualifications. Although university courses in the subject were opening up during that period, they were comparatively few in number, as were staff and students. Hearnshaw (1982) refers to the 'academic starvation' and 'theoretical sluggishness' of psychology in British universities between the wars when these institutions were often in financial difficulties as a result of the economic depression. There was little or no teaching of industrial psychology as, according to Seymour (1979, p.242), "only two universities appear to have included these matters in their curricula: Glasgow, where C.A. Oakley, the Scottish Director of the NIIP, was a part-time lecturer, and the London School of Economics, where Myers and other NIIP staff lectured each year" although this may be an underestimation (e.g. T.H. Pear's students at Manchester were certainly introduced to the subject even if it was not formally in the syllabus). Many of the pioneers came to the field with a background in philosophy, physiology, medicine or other subjects. Coopey (1989) notes that Myers, after graduating from Cambridge, went on an anthropological expedition to the South Pacific, with "three other graduates described as psychologists" and that all three became Fellows of the Royal Society but "none ever took examined courses in Psychology". Second, there were close links between university departments and those engaged in applied work with the IHRB and the NIIP through what Viteles (1933) describes as the 'farming out' to university psychology laboratories of problems which did not lend themselves to detailed factory investigations and through the loan of staff by the Board and the Institute to lecture on industrial psychology to psychology students, as Wyatt did at Manchester (Pear, 1948) and Myers and others did in London. The separation between psychologists in the academic world and those whose work lay in the industrial environment that was to become discernible after the Second World War, was not apparent before 1939, when the domain was too small to allow of such specialisation and the thrust of both teaching and research was empirical, rather than theoretical (Hearnshaw, 1969).

Third, although it was far-sighted in many ways in identifying problems and issues that were to become major concerns of later generations of applied psychologists, British industrial psychology in the 1920's and 1930's was too mundane and down-to earth to have a wide appeal. It lacked the coherence given by "fairly mechanical, maniable constructs, seemingly of universal applicability" and "key phrases that help professionals and lay persons alike to distinguish theories and methods" which Fischer (1977) identifies as factors conveying dominance in the history of psychology, such as is provided by F.W. Taylor's 'scientific management' and Elton Mayo's 'human relations'. The nearest we have to a key phrase for this early work is the 'human factor or 'human factors', a term used more as a description of an investigative approach to people's behaviour at work than as a shorthand for any universalistic, psychological propositions. In Rose's (1975) opinion, "human factor psychology lacked glamour", unlike Taylorism or human relations, but "it was intrinsically much more valuable than either" (p.100).

This evaluation by a sociologist seems closest to summing up in one sentence the work of the 'Myersians' and their contributions to the development of industrial psychology. The reference to lack of glamour perhaps explains too the absence of much of this work from the American textbooks on which many British students now rely, so that younger generations of applied psychologists in this country are ignorant of part of their heritage. This is more marked now that academic and other senior appointments are held by those who were not taught by Myers himself or one of his students or had worked for or been closely associated

with the IHRB or NIIP. When founding the latter, Myers thought in terms of a hospital medical school: "the Institute would engage in practical work, research and teaching, none of which could be carried out singularly by an organised body, apart from the two others" (Myers, 1936) and, although it did not operate exactly on these lines it together with the IHRB, provided career opportunities and employment for psychologists at a crucial period in the development of the discipline. When war broke out in 1939, it was fortunate for this country that there was a group of psychologists accustomed to applying their skills and knowledge to practical problems. They were soon to be called upon to tackle both familiar and totally unprecedented challenges on a wide front and to do so with remarkable success. Our fifty year period begins with how British psychologists responded to these wartime challenges, as described in Chapter 1.

CHAPTER 1

THE WAR YEARS: 1939-45

INTRODUCTION

When the war clouds gathered over Europe in 1939, leading before long to a nationwide mobilisation in Britain of manpower, materials and knowledge, it is doubtful if anyone outside the growing, but still small, cadre of practitioners and clients foresaw any significant role for industrial psychology. Certainly not in the active prosecution of military operations where the help of other experts like physical scientists, engineers and medical specialists was readily acknowledged. There was very little public awareness of psychology in any shape or form and the pioneering examples of military and industrial applications during World War I had long been forgotten, if indeed their implications had ever been truly apprehended. Even the enlightened few who were aware of what psychology had to offer on the industrial front could not have foreseen its pervasive impact on the conduct of the war, although one or two were considering its potential contribution some time before the outbreak of hostilities. Gerry Randell (personal communication, 1990) has reminded us that an old Minute Book of the BPS Industrial Section (as it was then called) opened with the Minutes of meetings in 1939, convened by Alec Rodger, later to head the Senior Psychologists' Department in the Admiralty, anticipating the forthcoming need for psychological units in the armed services. (Unfortunately all attempts to trace this historic Minute Book have proved abortive but its early entries are recalled by a number of successive Section secretaries.) As explained in the Prologue, psychologists generally were thin on the ground in the 1930's so it is not surprising that they were not seen as having a distinctive role to play in the emergency by the senior levels of the civilian or military 'establishment'. In industrial psychology, research and practice centred on the IHRB and the NIIP, described by Hearnshaw (1964) as the 'twin pillars' of the subject in Britain in the inter-war period. Those whom they employed acquired their skills in applied psychology from experience of actual fieldwork and professional practice alongside more experienced colleagues. Judged by the success of their subsequent wartime work this 'on the job' training was extremely effective and more than made up for any lack of formal academic training in applied psychology. For it was from these bodies, particularly the NIIP (which, within two decades of its foundation in 1921, had become the focus in Britain of work on job analysis, psychological testing, interviewing, vocational guidance and personnel selection), and from the Tavistock Clinic, a voluntary outpatient centre for psychotherapy, that psychological expertise was utilised in the selection and assessment of armed forces at all levels. This radical development marked the beginning of changed attitudes towards, and an enhanced status of, psychology within official circles. Indeed, in Hearnshaw's (1962) opinion, "had it not been for pioneers working outside the university world in bodies like the National Institute of Industrial Psychology and the Tavistock Clinic, it is doubtful whether the expansion of psychology during and after World War II could have taken place at all" (p. 8). These extra university organisations also encouraged the psychologists on their staffs not to rely exclusively upon a 'differential' or an 'experimental' approach to industrial problem solving, which was important at a time when a wide gulf existed between the London and Cambridge 'schools' of psychology. Our discipline is nowadays characterised above all else by eclecticism almost to the point of excluding nothing; but fifty years ago graduates from London had been reared largely on a diet of individual differences and theoretical models based on factor analytic reasoning, while those from Cambridge had been fed almost exclusively on experimental methodology and general behavioural (but not behaviourist) theories. Fortunately, these quite radical differences do not seem to have produced any detrimental effects on the success of military applications during the war; but, as will be seen in the following pages, they can be discerned beneath the two main and distinctive strands of psychological work undertaken for the armed services. An account of this work, beginning with that on psychological selection within the three Services (described in their proper order of seniority) followed by the experimental

studies of skilled performance at Cambridge and other applications of psychology to military issues, forms the bulk of this chapter, which concludes with a short section on psychology in wartime industry.

APPLIED PSYCHOLOGY IN THE ARMED FORCES

Assessment and allocation of Service Personnel
The tremendous contribution made under this heading can only be given in outline here, but a full account of the problems, procedures and outcomes of psychological assessment and selection in all three Services can be found in Vernon and Parry (1949). This classic text by the Psychological Research Adviser to the Services (P.E. Vernon) and a leading member of the RAF team (J.B. Parry) is the earliest technical and narrative account of the applications of differential psychology on a significantly wide scale in Britain, with appropriate 'follow up' data to demonstrate its effectiveness. By the end of the war three million recruits had sampled part of a psychological assessment procedure (the Progressive Matrices test) and nearly two million men and women who had entered the Navy or the Air Force had received a battery of at least five tests of intellectual and educational abilities. Moreover most of the recruits accepted were also interviewed and assessed on educational and biographical data as well as their test scores (Vernon, 1947). Considering the low prestige accorded to psychologists in 1939, their lack of involvement with the Forces at that time and how few of them were available for this task, it was a remarkable achievement by any standards. As Vernon (1947) reports, 'barely twenty psychologists of senior standing were obtainable as technical staff for the Admiralty Senior Psychologists' Department and the War Office Directorate for the Selection of Personnel, most of them being recruited from the NIIP', to which another twenty with some pre-war training were added. The bulk of the testing, interviewing and assessment, therefore, was carried out by uniformed personnel who were trained and directed by the psychologists. There were about two thousand of these in action at peak periods. The Royal Navy department, for example, was staffed eventually by 13 psychologists who were professionally responsible for the work of some 50 WRNS Officers, 120 WRNS Petty Officers and male Chief Petty Officers, together with 60 or more civilian and uniformed clerks, sick berth attendants and statistical assistants.

Royal Navy: None of this was in being when the war began. Vernon (Vernon & Parry, 1949) relates that in 1940 he was asked to draw up a battery of intelligence and audiometric tests which were used, not altogether successfully, to select ASDIC operators (submarine detectors) over the next five years. But this was an independent initiative and uncoordinated with what then passed for selection procedures in the Navy as a whole. It was after the crisis following the fall of France in 1940, when the invasion scare had subsided and the Battle of Britain tailed off, that it was realised that years of gruelling action lay ahead as Britain confronted the enemy on her own. Total mobilisation of men and women gathered pace and it was evident that makeshift, non-technical methods of assessing 'hostilities only" recruits and allocating them to unfamiliar and exacting tasks were wholly unsatisfactory. (A possibly apocryphal instance, given by Rodger (1945) and cited also by Vernon and Parry (1949), is of a volunteer for the Navy being rejected simply because he failed to spell 'Egypt' correctly.) To illustrate the problem, the failure rate among Seamen Torpedo men in one of the Navy's main training establishments rose from 10% to 31% during the first two years of the war. (Two years later, after psychological assessment was introduced, it fell back to 10%). Furthermore, and perhaps the most compelling reason for seeking reform, the traditional reliance on a public school education as a necessary and sufficient qualification for commissioned rank could not be sustained as the number of officers required, particularly in the technical branches, rapidly outstripped the supply from public schools. Alec Rodger was appointed to an Admiralty Test Committee in March 1941 which examined the selection procedures in use at the time and, as a result of this enquiry, the SP (Senior Psychologists') Department in the Admiralty was established later that year. It was headed by Rodger, then at the NIIP with seven other psychologists from the Institute who were seconded to the

Admiralty for the duration. Two important qualifications were imposed by the Institute on this arrangement. One was that the SP should be directly responsible to the Second Sea Lord as Chief of Naval Personnel; the other was that the psychologists involved should remain nominally on the staff of the NIIP as civilians, i.e. they were to be seen as professionals acting in an advisory capacity, rather than wielding executive authority. This was a farsighted move since to have a 'voice in high places', in a traditionally authoritarian and conservative organisation with a healthy mistrust of experts, was a priceless asset for the fledgling new service. It contrasts starkly with what occurred later when applied psychologists were introduced into civilian departments like the Ministry of Labour, where they were given relatively low status, with no professional direction and influence at the higher, policy-making levels. No attempt is made here to give a comprehensive review of the remarkable achievements of this group, which can be found in the publications by Rodger and Vernon and Parry, mentioned earlier, and in the papers dealing with their specific roles and contributions by Straker (1944), Wilson (1945), and Jennings (1947). We shall cite just one example each of how psychological procedures improved the standards of selection of ratings ('other ranks') and of commissioned officers. An important special branch of naval ratings was Air Mechanics. The selection procedure devised for them at HMS Gosling was regarded by both Rodger and Vernon as the most sophisticated and successful of all the Services' schemes for non-commissioned personnel. A follow up of 6,500 mechanics selected by the 'old' method of an interview with an experienced naval officer revealed that 14.7% failed their technical courses. On the other hand, of the first 10,000 who were admitted to training on the basis of psychological selection, only 4.7% failed. This outcome was noted favourably by the Board of Admiralty; it was estimated that in one year alone the new approach had saved £100,000, a huge sum of money in those days (Vernon and Parry, 1949, p.122). The Army was ahead of the other Services in perceiving the need for a fresh approach to officer selection and acting upon it. Radical changes were introduced in 1942 through the War Office Selection Boards (WOSBS), but despite urging by Alec Rodger, the Royal Navy at this date was not persuaded of the virtue of altering its traditional approach although it permitted a few experimental interventions by its psychological advisers. However, in 1943, a modified WOSB type scheme was devised which could be grafted on to a system where candidates were closely observed during three weeks of special training. This was soon greeted with enthusiasm and, despite the absence of any firm evidence of its superiority over previous methods, was adopted and sustained until the end of hostilities, with nearly 10,000 candidates for temporary commissions being 'sieved' in this way. Before the war ended the Admiralty decided that a WOSB-style procedure, with permanent psychological participation, should be established for the selection of all career Naval officers in the future. It is interesting to note, in terms of introducing organisational changes, some of the 'levers' associated with the Navy's changing its officer selection methods. According to Alec Rodger, it was only after an article on WOSBS appeared in Picture Post (an influential pictorial magazine of the period) that he was able to generate a serious interest in the new procedures together with the assistance of W.R. Bion, an Army psychiatrist. Likewise, of some significance for the post-war innovations in the selection of Administrative Grade applicants for the Civil Service is the fact that the First Civil Service Commissioner (Sir Percival Waterfield) was one of a number of visitors who observed approvingly the first 'experimental' sessions of the new selection board in 1943 (Rodger, 1945).

Army: As in the other Services, 1941 was the critical year when the problem of meeting skilled manpower requirements forced the military establishment to seek help from psychologists. Some of the country's most eminent psychologists (C.S. Myers, James Drever snr., Cyril Burt, and SJ. Philpott) served on the advisory committee which was to recommend various reforms, including the setting up of a new Directorate for Selection of Personnel. A rather different organisation from the Royal Navy's was established, with all executive and administrative functions strictly under the control of uniformed staff. Psychologists were responsible for training the officers concerned and their non-

commissioned assistants, for planning and inspecting the selection procedure used and the backup research and development work. Most of the psychologists were put into uniform themselves, having been drawn from the NIIP and from university posts. In all, there were some 19 psychological staff, whilst uniformed, non-qualified personnel selection staff peaked at over 600 officers and 700 NCO's. Whereas the other Services had the benefit of high selection ratios, a favourable ratio of applicants to vacancies because volunteers and conscripts alike preferred them to the Army, the latter was often in difficulties over the supply of fitter and more able recruits. The technical problems of classification, rather than straightforward selection, and the allocation of people who could not be wholly rejected, were always uppermost for the Army and its psychological specialists. During the three years from 1942, when the new systems became fully operational, some 700,000 recruits were screened; 6% were picked out as potential candidates for commissions and a further 9% as suitable for technical training as 'tradesmen'. While there is no doubt that systematic assessment procedures contributed greatly to the Army's massive allocation of personnel for service over three continents, it seems that the way in which psychological expertise was deployed for 'other ranks' by the Army was far from ideal, at least as far as the morale of the psychologists themselves and some of their assistants was concerned. After the initially radical interventions of 1942, they tended to be relegated to back-room research and development which was often very frustrating. Vernon and Parry (1989) comment wryly "that psychologists cannot expect a complex institution like the Army to accept novel procedures merely on scientific grounds and that gradual education and infiltration rather than the imposition of technically valid methods are needed" (p.42). A much more positive view of the impact of the Directorates psychological input to 'other ranks' selection is taken by Anstey (1989) who, in the preface to his account of what it was like to be an Army psychologist during the war, maintains that "psychologists transformed morale in the British Army from zero level in 1942" (p.475). Using job analyses to classify all Army jobs into seven groups of Training Recommendations (TRS) and recommending a suitable mixture of TRS for each Army unit, it was possible, on the basis of the selection tests given to recruits, to allocate personnel on "experience and abilities to become an efficient fighting unit" (p.477). Edgar Anstey was to become one of the most distinguished of the occupational psychologists in government service after the war as Head of the Behavioural Sciences Research Division of the Civil Service Department, holding the rank of deputy chief scientist in the years preceding his retirement in 1977. His debut as an Army psychologist, however, was very much a matter of chance and illustrates the serendipity associated with the careers of many occupational psychologists, both then and later. In 1941, as an infantry officer on a few days' leave in Cambridge, he discovered that Eric Farmer, aided by Alec Rodger and Norman Hotopf, old friends of his from university days, were involved in an experimental Army Selection Unit. They asked him about his own activities and he told them, thinking no more about it "until to my astonishment a few days later my Battalion Commander received a peremptory telegram from the War Office, instructing him to release me for 'special duties' in the psychology laboratory at Cambridge" (p.476). Shortly afterwards he and Hotopf joined the newly established Directorate for the Selection of Personnel to which J.G.W. Davies, another ex-member of the NIIP, was appointed Technical Director. Alec Rodger left to become Senior Psychologist to the Admiralty. Reference has been made already to the WOSBS (War Office Selection Boards) introduced as a new style of officer selection in 1942, and probably the best known of all wartime psychological innovations. Judged to have been outstandingly successful by all three Services by the end of the war and forming the basis of the post-war Civil Service Selection Boards (CSSBS), this selection procedure has been well documented in many books and articles such as those by Garforth (1945) and Morris (1949). As Wilson (1950) observes, the series of tests that formed the centre of the procedure varied from strict work samples to "quite vague leaderless group situations" a novel and theoretically-inspired feature that has been argued about in the literature ever since. It was introduced at the instigation of two psychiatrists from the Directorate of Army Psychiatry, J.R. Rees and W.R. Bion, formerly of the Tavistock Clinic. Bion's work on group dynamics, which was to continue in both applied and psychotherapeutic settings after the war (Sutherland,

1951), was of particular significance in this context. Indeed, Watson (1978) paraphrases Brigadier Shelford Bidwell to the effect that Bion's contribution to the war effort was "as valuable as the Bailey Bridge or the 25 pounder gun", although it went largely unrecognised. Whatever the merits of this claim in military terms, there is no doubt that the introduction of WOSB procedures stemmed a serious shortfall in the supply of officers and produced a dramatic reduction in the percentage of officer cadets 'returned to unit' through failure to meet the standards in their officer training. Before the advent of WOSBS, selection had been in the hands of senior uniformed officers with traditional and simplistic ideas about officer-potential and how to identify it, based largely on social class and school background. The disastrous failure rate at the officer training schools in the early days of the war, often accompanied by psychiatric breakdown (Watson, 1978), and the concomitant denial of opportunity for officer training to those with the ability but lacking the conventional social attributes (Anstey, 1989), produced the crisis that led to the new system of selection. It was fortuitous too that some pioneering experiments in Scottish Command had taken place in 1941 under the aegis of a senior commander who had observed German military group selection techniques in the 1930s when he was military attaché in Berlin. These techniques foreshadowed the observational methods and simulated task situations that were to characterise the British WOSBS. The experiments in Scottish Command were conducted by Army psychiatrists and, although their experience of selection on the German model was disappointing, they were able to demonstrate the predictive worth of psychiatrists' diagnostic interviews with candidates. However, it was the enterprising farsighted Adjutant General of the time, Sir Ronald Adam, who took the decisive step of agreeing that a new selection procedure was necessary and that it should include not only psychological tests and interviews but also other elements based on the German pattern. In the words of Miller and Rose (1988): "The solutions proposed included the development of methods of selection which would be fair because they were rational, and which would select those without propensities to break down under stress..." and they comment on the outcome that "wartime experience suggests, for the first time, the possibility of distributing individuals to tasks according to a principle which would not only minimise organisational inefficiency and personal breakdown, but maximise individual satisfaction, group morale and organisational efficiency" (p180). For women in the ATS (Auxiliary Territorial Service), formed in 1938 as a non-combatant adjunct to the Army, but in 1941 given full status Within the Army, ATS Officer Selection Boards were developed somewhat later. They were modelled closely on the WOSBS for men "apart from modification of practical exercises involving physical strength and strenuousness" (Mercer, 1991).

Technical validation of the WOSB-type selection procedures was not possible under wartime conditions and had to await systematic, long-term research in both the civil service and the armed services after the war (Anstey, 1977). An early instance of the diverging, and sometimes conflicting, stance on matters of selection taken by psychologists of a Tavistock persuasion and those from the NIIP and university departments can be seen in the differing accounts they give of the WOSB's. Morris (1949), for example, whilst acknowledging that too much uncontrolled subjectivity in the assessment of group tasks and other components resulted in manifest unreliability, argued that "the work of WOSB's can only be fully evaluated in relation to the whole social process of which they were a part". Ungerson (1950), on the other hand, who was the Army's Chief Psychologist for a short time after the war, thought that Morris was taking "a rather loose definition of evaluation" and maintained that "if we do not validate strictly, then we can only offer psychologists' opinions against laymen's opinions" (p 56). This controversy has re-emerged in a more modern form in debates about the validity of 'assessment centres' (Herriot, 1984). Our feeling is that majority opinion among contemporary occupational psychologists would consider the social context and the social process in selection as of paramount importance, although not as overriding the need to validate.

Royal Air Force: Grave losses among aircrew during the Battle of Britain and a quickening need to build up a fresh and much larger reservoir of airmen and technical support staff led the Air Ministry to seek psychological help in 1941. Some psychologists, notably F.C. Bartlett for aircrew and W. Stephenson for some of the ground trades had been advising on selection at an earlier date, but it was not until the beginning of 1942 that the Air Ministry centralised research and development in this area and it was 1945 before the WOSB procedure was adopted for officer selection. Parry (1980) has described the Air Ministry "Training Research' group which he and George Drew joined in 1942 and which was set up by two Canadian professors of psychology (E. A. Bott and C. R. Myers). As Parry observed (personal communication, 1988) with respect to Sir Frederick Bartlett: "one of the most vocal members" of the Flying Personnel Research Committee, "whether in an unguarded moment he had let fall a reference to the University of Toronto I cannot say, but it was to Toronto that the Ministry eventually turned. Once installed, Professor Bott's name was treated with the respect customarily shown to the finer type of medicine man". The most senior officers "who felt themselves responsible for winning the war", Parry and his colleagues found "positive and friendly"; but, initially, some of lower rank were less favourably disposed to psychologists. In terms of the current interest and emphasis on 'organisational cultures', his recollection of the informality of life at the Air Ministry in comparison with the other Services may be noted: "If one went to a meeting, say at the War Office, one could not fail to be impressed by the scrupulous niceties of its procedures. Seating for example: cards descending gracefully in rank from Chairman to Office Boy were placed before each chair so that no one dreamed of sitting down until he had identified the card bearing his name. How different at the Air Ministry where, in the absence of cards, the lowliest member of staff was apt to find himself jammed between the Chairman and a visiting Air Marshall". Throughout the war, psychological input to selection and allocation of ground trades was less spectacular than for aircrew. However, even for the former categories, respectable validity coefficients against a training criterion (between 0.32 for aircraft fitters and 0.76 for radio mechanics) were obtained for the cognitive test battery used for all applicants to a trade. For aircrew, especially pilots, the results were strikingly successful and influential in establishing the respect for psychological methods finally accorded by the Air Force. The highest accolade was earned by the system of flight testing (or 'grading' as it was more widely known) for pilots. Essentially, this consisted of a "very detailed work sample test, carried out in the air after a prescribed number of
hours of flying instruction" (Parry, 1980). After it was introduced in 1942, grading reduced an overall pilot training wastage rate of 48% to 25% (See Air Ministry Pamphlet, No 190, 1945). This was achieved, however, at some cost to corresponding improvements needed in the selection of other aircrew namely navigators and gunners. But, by 1944, a general battery of aptitude
tests had been developed for all aircrew skills (as distinct from non-cognitive personal qualities) by the psychologists in the Training Research branch, with co-operation from psychologists in the United States armed forces, and was used from then onwards.

Official Recognition of Contributions to Selection
Testimony to the success of, and the recognition earned by, all three in-Service groups of psychologists is shown by the report of an Expert Committee, not published until 1947, which advocated that: "During the course of their training, all officers, combatant and non-combatant, should receive instruction in the psychological aspects of their future duties (Italics ours). Some should receive a much more advanced training, such as is offered to other Service specialists". More to the point, perhaps, they also recommended that: "Psychologists, always including Service psychologists, should have the opportunity of being represented on the principal scientific and advisory committees and on other bodies concerned with personnel" (HMSO, 1947, p.23). Given the lack of knowledge of the subject and its non-representation in these circles at the beginning of the war, this endorsement of psychology and its contribution to the work of the armed services signified a great achievement.

Research on skills and performance
In 1939, assessment of individuals' suitability for jobs they had yet to try or be trained for was associated with the selection and allocation of people, using measures of their subsequent performance as criteria of adequate selection and training. However, there was a complementary and independent tradition of applied psychology that focused on the measurement of human performance as a subject of study in its own right either on the job, as exemplified by many of the IHRB field projects, or through laboratory simulations of essential task characteristics. The latter approach, which derived from traditional experimental psychology, was at the time the hallmark of applied psychology at Cambridge.

The Applied Psychology Research Unit at Cambridge
Shortly after the outbreak of war, the Cambridge Psychological Laboratory, under F.C. Baztlett's enlightened direction and with firm backing from the Medical Research Council, began directing its work on human skill and performance to the analysis and measurement of unfamiliar tasks such as gun-laying, radar surveillance and piloting aircraft. It was observed, as technological and operational developments began to escalate, that many of these tasks became so complex and demanding that performance was often well below the standards assumed possible by design engineers. Even the best operators were susceptible to lapses under battle stress or environmental extremes of temperature and noise, although under what precise conditions they would be taxed beyond the normal limits of human capability was not known. To this end, an innovative programme of research was developed at Cambridge, which was to have a lasting influence of post-war applied psychology and the emergent field of ergonomics, in the study of 'skills acquisition' and 'man machine' interactions at work, particularly under adverse environmental conditions. A distinguishing feature of this Cambridge work, especially when laboratory-based, was that it always appeared to be theory driven and analytic, as distinct from the pragmatic and more synthetic approaches of the personnel selection groups in the Services. Moreover, the Applied Psychology Unit's psychologists used their experimental results to generate new theoretical ideas about skilled behaviour and models of the mechanisms by which it is acquired and regulated; as MRC employees sponsored by rather than directly answerable to the military hierarchy, they were not bound by purely pragmatic objectives. Perhaps the most gifted of the applied theoreticians was Kenneth Craik who was directed to Bartlett from Edinburgh by James Drever senior with the words "I'm sending you a genius" (Bartlett, 1946). He was the first Director of the APU when it was established by the MRC in 1944, with Bartlett as its Honorary Director. His tragic death in a road accident on the day the war ended in 1945 is generally considered to have deprived us of an outstanding scientist and original thinker on the verge of his peak period of achievement. Craik's ideas sprang from studies of a category of military psycho-motor tasks which have numerous analogues in civilian jobs, i.e. 'tracking tasks' like gun laying or controlling the movements of a vehicle along a prescribed path. His major contribution was to a model of human skill on the analogy of servo-mechanisms (Craik, 1947; 1948; Hick, 1951) that was highly influential in the late 1940's when the new specialisms of 'engineering psychology' and 'human engineering' were developing. To what extent the creativity of the APU at that time was the product of its multi-disciplinary composition must be a matter of speculation; but, as Brown et al (1971) point out "of the eleven research staff employed in 1944, six were graduates in psychology, four in medicine and one in physiology", a mixture of disciplines which "became wider ranging in later years, when psychologists with additional qualifications in physics and engineering were employed to deal with increasingly complex problems of control systems". Among the medicals was Dr Norman Mackworth, later to become the Unit's Director and renowned for his classic studies of vigilance (Mackworth, 1950) which created more interest, acclaim and subsequent controversy than any other contemporary account of wartime psychological research, with the possible exception of Vernon and Parry's documentation of personnel selection referred to earlier. In liaison with the Services on research issues, Bartlett was a key figure in relation

to the Royal Air Force; but Mackworth was more influential with the other two Services, particularly the Royal Navy and its medical hierarchy.

Mackworth and 'Vigilance' Tasks
His original vigilance task, which he devised for experimental purposes, required the detection of a signal by subjects in what Jane Mackworth (1970) described as "a highly monotonous task in which the chief difficulty was the temporal irregularity of the signal... the subject sat alone in a cubicle for two hours watching a clock hand jerking round in regular jumps... the signal was a jump of twice the usual distance. The interval between successive signals varied between 10 minutes, twelve signals being presented each half-hour" (p.15). From this Clock Test, and other laboratory simulations of military surveillance and watch-keeping, Mackworth obtained the first empirical data demonstrating his famous 'vigilance decrement', i.e. the loss of efficiency in signal detection over a given period of time.

The theoretical issues surrounding vigilance (prolonged and attentive readiness to respond swiftly to unexpected and occasional signals) have since become a fertile ground for research by academic and applied psychologists alike, reinforced by technological developments which have increased the 'vigilance' component in industrial, commercial and military operations. Although Mackworth's own explanation of his results in terms of the extinction of conditioned voluntary responses was never received with enthusiasm in Britain, unlike the United States where vigilance studies later became incorporated within the more general formulation of signal detection theory, occupational psychologists in Britain have much cause to be grateful to him for stimulating interest in this important and fruitful area of research. It is more difficult to gauge the impact of his studies on the military problems which gave rise to them. One of these was an alarming result from operational research analyses of Coastal Command aircraft searching for enemy submarines. It showed that the probability of detecting a surface target was markedly less after the search mission had been under way for half an hour. Mackworth's decrement seemed to offer an explanation of this phenomenon, but could not in itself provide a remedy, although he certainly put forward suggestions as to how to overcome loss of vigilance in other watch-keeping tasks such as radar, sonar surveillance or dial watching in an engine control-room. The suggestions he made illustrate one of the pitfalls that confront all applied psychologists if they do not have a thorough appreciation of the whole setting, social and administrative as well as task centred, in which the work in question is undertaken. Without such knowledge their well-meant (and well researched) remedies may appear naive and impractical. Thus a contemporary review of Mackworth's (1950) monograph comments on the fifty per cent less of efficiency in signal detection he found after thirty minutes on watch:

"...Dr Mackworth shows that alternate half-hour watches, by pairs of subjects, are sufficient to remove it. His results also indicate that the downward trend can be prevented if the operator is provided with immediate knowledge of his success or failure. Alternatively, the initial level of performance can be restored at any time by an interruption such as a telephone message to the operator. Finally, moderate doses of Benzedrine (amphetamine sulphate) can ensure that no decline will occur."

Only the first of these suggestions has value in practical circumstances. Where sufficient trained men were available, many Radar and Asdic operators during the war did, in fact, maintain half-hour watches only, alternating perhaps with spells of look-out duty. Complete knowledge of results would not be a feasible proposition since there is no way of locating missed signals. And, since the subject's expectation of receiving an 'interruption' was shown to reduce his initial efficiency, the net gain to be derived when it appears would seem to be of limited value. Despite this, the results cited above are significant in that they permit one to infer that deterioration cannot be attributed simply to the effects of metabolic fatigue and eye strain". (Wallis, 1951). This extract is quoted not to disparage Mackworth's results, but to show how difficult it can be for laboratory-based researchers to provide realistic solutions to

practical problems. It also affords a glimpse of later differences of view between occupational psychologists employed by the armed forces after the war and the applied psychologists working under Mackworth's direction at the APU.

Pilot Error and Simulation

Two other examples of the remarkable output of original enquiries at Cambridge during the war years deserve mention. Although neither was as celebrated as the vigilance studies, each was at least as influential in terms of its practical implications in a military context. D. Russell Davis (1948) worked for several years on experimental studies of conditions affecting the skilled behaviour of aircraft pilots. Beginning with studies of 'fatigue', these progressed to the first systematic analysis of pilot error, opening up an area of concern for psychologists ever since. The 'Cambridge Cockpit' used in these experiments was possibly the first psychologically-designed simulator to be employed in this type of research. The other study, published by Bartlett and Mackworth (1950) jointly, related to the perceptual problems associated (a) with the interception of enemy bombers during air raids on Britain and (b) those entailed in dropping marker flares by Pathfinder aircraft to guide British bombers during their raids on enemy territory. Both tasks called for "prompt and accurate perception of visually displayed information" (Wallis, 1952). The research led to useful proposals on 'planned seeing' to assist in the future design of control rooms, and represents perhaps the earliest documented case of what would later have been designated an exemplary ergonomics project. It was also noteworthy for some of the first experimental results showing how to analyse a task - in this instance bomb aiming with the aid of visual target so as to identify critical elements, reproduce these in a 'synthetic trainer' and demonstrate successful training through psychological rather than superficial 'realistic' simulation. By showing that it was possible to achieve the required standard of working efficiency in this way, i.e. "by adjusting the balance between the requirements of the task and the capabilities of the worker by applying either the technique of work design or that of synthetic training", Bartlett and Mackworth pointed to the need to consider other approaches to the efficient use of manpower as well as personnel selection, especially where reliance on the latter method would result in rejecting a high proportion of available candidates.

Other Personnel Research within the Services

Some other important undertakings during these years had a bearing on what later would come within the rubric of occupational psychology as the horizons of the field extended, but which were initiated primarily by other specialists. Perhaps the most significant were a number of small-scale projects for the Army, based more on operational research techniques and motion study than on psychology, which formed another input to the ideas of a small group of physiologists, anatomists and psychologists whose wartime experiences were leading them to evolve the new discipline of 'ergonomics'. Hywel Murrell (1980), one of the founding fathers of that discipline and destined to become a leading occupational psychologist after the war, but who had no formal training in psychology at that time, recalled his introduction to the field as follows:

"...early in 1944 an Army order appeared that all officers in non-operational units who had had experience of time and motion study were to report to their Commanding Officers. This I did and, after an interview with Bernard Ungerson (then Lieutenant Colonel), I was rapidly promoted to Major and posted to the Army Operational Research Group in the newly established Motion Study wing. I soon began to learn from Bernard (Ungerson) and Nigel (Balchin) about the work of the National Institute of Industrial Psychology and the Industrial Health Research Board (and) as time went on we became involved in most army activities. These were mainly physical, motion study tasks, but we did examine some paper-work systems". (p283).

In another paper (Murrell, 1958) he includes the apocryphal (but he is adamant that it is true) story of the cine film analysis of a gun-drill routine where one man did nothing but stand stiffly to attention. On further enquiry it appeared that the archaic drill book required his

presence as "the man who used to hold the horses". (When one of us discovered many years later that the odd, and seemingly unaccountable, shifts worked in a large public corporation in London had been introduced "so that employees did not have to travel through the worst of the bombing", an item of information revealed by chance by a senior manager on the point of retirement, then 'the man who used to hold the horses' seemed very plausible!*)* Another of Murrell's revealing recollections shows the chance and coincidental factors that often lead to fresh initiatives and applications. He moved from the Army to the Navy at the close of the war and, from that time on, became ever more deeply involved with applied psychology, capitalising on the contacts he made in his work for the Services: "Bernard Ungerson spent much of his time as a salesman drumming up new business. It was his missionary zeal which, at the end of the war, led to (my) contact with the Captain of HMS Excellent, the Navy's gunnery shore establishment. As in the Army, I started on physical drills with help provided by Commander Michael Lefanu who eventually became First Sea Lord (and who) enthusiastically sought out work for me, taking me to meet influential officers in other branches of the Navy. The navigators took an immediate interest. Their shore base was commanded by Captain Norris who eventually became the head of the British Productivity Council. Our early contacts had some influence later on the energetic promotion of ergonomics by that Council" (Murrell, 1980).

Civil Resettlement
Of a very different character, but equally significant for post-war developments was an early example of applied social psychology. Towards the end of hostilities, the psychiatrists and psychologists attached to the WOSB's were involved in other special assignments, one of which was to offer vocational guidance to officers who had suffered from psychiatric problems and other disabilities. This led, indirectly, to some of them taking a leading part in the Civil Resettlement Units set up to assist other-ranks soldiers who had been prisoners of war to adjust to civilian life. These CRU's operated under a semi therapeutic regime strongly influenced by the concepts and practices of the Tavistock Clinic, but they also provided a vocational guidance service along lines pioneered by the NIIP. Within the community atmosphere of one of these Units, it was possible to gain relief from the tensions engendered by captivity and to modify acquired attitudes and behaviour that might prevent a smooth return to domestic and employment roles (Curle and Trist, 1947). A later account of the CRUs' (Rodger, 1953) records that twenty Units were functioning in 1946, with as many as sixty men admitted weekly for resettlement courses lasting several weeks. It is a tribute to the inspiration of these little known establishments that the Industrial Rehabilitation Units for injured and disabled civilians, which came into being in the mid 1940's, were modelled on them to a large extent.

PSYCHOLOGY IN WARTIME INDUSTRY

In comparison with the Services, there is a paucity of accessible data on psychologists' specific contributions to wartime industry, not least because so many of the NIIP staff were working in or on behalf of the armed forces, as were most of the former IHRB psychologists. However, as Marriot (1958) records, it was during the war, in 1942, that the Board was reconstituted. "To advise and assist the Medical Research Council in promoting scientific investigations into problems of health among workers and the relation of methods and conditions of work to the functions and efficiency of body and mind; and in making known such results of these researches as are capable of useful application to practical needs". Reports were submitted throughout the war on a variety of subjects, including some of the same problems of excessive hours and absence from work that had led to the establishment of the Health of Munitions Workers Committee in 1915. Wyatt (1950) who notes the failure to learn from experience in this respect and who, with Marriot, was responsible for some pioneering studies of fatigue and boredom in factory work, describes how he advocated the transmission of music at certain period of the working day to relieve the tedium and monotony of much industrial work. This wartime innovation of 'Music while you work',

broadcast by the BBC, became a regular feature of the daily routine in factories that persisted well into the next decade.

Other tantalising glimpses of how industrial psychologists contributed to the war effort in a civilian context are to be found in Stott (1945), Raphael (1942, 1944) and Seymour (1979). The latter's account is of particular interest as W. Douglas Seymour was one of the first occupational psychologists in this country to achieve distinction as a full-time consultant to industry. In 1942 he was employed by Associated Industrial Consultants, and later by the company then called Personnel Administration, undertaking varied assignments over the five years he was with these organisations. He is known especially for Skills Analysis Training (a combination of psychological and work study principles applied to industrial training) which derived from work with his brother (A.H. Seymour) in training operatives to construct aeroplane parts. Other projects in which he was involved were helping to man new factories, including the Royal Ordnance Factories, and mounting an intensive training programme in the Joseph Lucas plant in Birmingham. Of the Royal Ordnance Factories he writes that:

"they were beset with every problem which could result from employing far too many inexperienced people in new and remote factories under new managers on 6-day, three-shift working (male and female). Absenteeism and labour turnover were high, selection and training almost non-existent, and productivity very low in spite of a basically sound morale arising from the desire to help the fighting men and get on with the war. In 1941-42, there was little chance to grapple directly with these matters: it was essential first to establish staff and organise personnel departments which, in conjunction with management and workers, could tackle the problems" (p247).

Like Wyatt, he stresses how, in the critical early period of the war, all the mistakes of the First World War were repeated, and how in 1939 "occupational psychology, although desperately needed in the country, was for the moment totally disregarded by the Government, the Services and Industry". It is perhaps an indication of the desperate plight of the country as the war progressed, France fell, and Britain was for a time fighting alone, that help was sought from any quarter likely to provide some means of dealing with the immense problems confronting those in authority, and which led to occupational psychologists being called upon and accepted as possessing relevant knowledge and expertise. Even so, it is clear from Seymour's autobiographical note that, just as in the military settings described earlier, the success of an industrial consultant or adviser depended not only on the technical competence and originality of the practitioner but also on his/her powers of persuasion and on access to those in high places in the organisations concerned. Unlike today, when industrial and commercial consultancy has become an institutionalised practice and well-paid form of employment for many occupational psychologists, during and immediately after the war few, if any, entrants to the field would have seen this as offering them career opportunities.

END OF A DRAMATIC ERA

In reviewing this traumatic and formative period in the development of our subject, we have tried to capture some of the atmosphere and ethos surrounding what seem to us the quite extraordinary achievements of those wartime British psychologists. We hope that those to whom the references and reminiscences we have cited are unknown will seek them out to learn more about the challenges and opportunities, worries and frustrations, successes and disappointments of their forbears who had none of the sophisticated technical equipment or rapid data processing procedures that are now taken for granted. (See Chapter 2 for further details of some of the primitive methods then in use). Unfortunately, there do not seem to be any comparable accounts of what it felt like to be on the 'receiving' end of these psychological interventions. It would be interesting to know how the millions of Service recruits, not to mention the more seasoned combatants, reacted privately to the

psychological tests and probing interviews they were required to undergo. At that time, scarcely anyone would have been familiar with such procedures which, for the majority, were carried out by uniformed Personnel Officers or Recruiters. Those who encountered a 'live' psychologist in this context were likely to be candidates for commissions, or for training as radar or radio mechanics. For some of these, the experience generated an interest in psychology which they sought to study themselves after the war; and others were influenced similarly as the result of their national service in the forces in the immediate post-war years (see Chapter 4).

CHAPTER 2

PSYCHOLOGY IN THE SERVICE OF GOVERNMENT

INTRODUCTION

The successful applications of psychology to wartime problems meant that in 1945 the conditions for its application to peacetime issues were uniquely favourable. As the social historian Marwick (1982) observes, life in the dozen years following the ending of hostilities was dominated by the consequences of the war. Severe human as well as technical and economic problems faced a newly elected Labour administration embarking on a period of 'national reconstruction'. Not only were there the difficulties of reintegrating huge numbers of ex-service personnel into civilian life but there was also the emerging threat of the future 'World War'. This meant that, in addition to the priorities of civil reconstruction, there was a pressing, if unwelcome, need for the government to sustain adequate military forces. On the positive side, the recognition by some administrators and others in senior positions of the potential of applied psychology in tackling these problems was to have far reaching consequences for the development of the subject in the immediate post-war years and the following decades. It led to the permanent establishment of psychologists practicing in government service, whose contributions to the applied field have tended to be overlooked by some distinguished reviewers. For example neither Professor Harry Kay (1972) nor Professor Jack Tizard (1976) referred to government psychology in their Presidential Addresses to the British Psychological Society, although both dealt with the relevance of psychology to societal problems and social policy. An exception was Professor George Drew (1973) who, in his Myers Lecture, observed that "the most successful application of psychology to the solution of practical problems on a reasonably large scale in this country is in government service. All the traditional areas of occupational, industrial psychology from selection to job satisfaction are not only covered, but are the subject of active, ongoing work which is frequently highly original" (pp 195/196). In our opinion, Drew's compliment is justified by the record, relatively unknown though this may be to psychologists in general. This is partly due to the constraint of 'security' (i.e. the Official Secrets Act) on projects potentially worth publication and partly because psychologists in public service have not had the same pressures to 'publish or perish' as their academic counterparts. We seek to overcome this lack of awareness by including in this chapter a selective, but representative, summary of the achievement of government psychologists. The chapter begins with the origins and establishment of the Psychologist Class in the Civil Service and the recollections of one of the authors (DW) of what it was like to be a government psychologist in the early days. We then turn to four areas of research and practice which have engaged a majority of the psychological staff in the Civil Service Department, the Ministry of Defence, the Home Office and the Department of Employment at one time or another from the 1950's onwards. In the main, we concentrate on the period up to the 1970's, but in places go beyond the 'first thirty years' of this part of our chronicle to indicate, with appropriate references, what has happened subsequently. We refer to the nature of some of these later developments in Part 2.

ORIGINS OF POST-WAR GOVERNMENT PSYCHOLOGY

Reference has been made earlier to the predisposing factors which set the stage for this most important development in applied psychology in Britain in the post-war decade. To recapitulate briefly: Among service commanders and senior civil servants with direct experience of the wartime work there was a healthy respect for personnel and experimental psychology; the small core of military psychologists who remained in post were also convinced of the importance of their role and, together with ongoing links with the APU at Cambridge, sustained favourable attitudes among potential users in government circles. The general psychological 'establishment' likewise showed enthusiasm for applied psychology (if only for a decade or so), aided by growing appreciation of the benefits of psychological

approaches to selection and training that followed the publication of Vernon and Parry's (1949) seminal account. Awareness that psychology could provide a source of scientific advice and professional skills in a peacetime context was reinforced by two other innovative developments of the late 1940's. Probably the most influential was the decision to set up an 'extended interview' system at Stoke D'Abernon as the core procedure for selecting applicants to the new and elite Administrative Class of the Civil Service (Wilson, 1948). Directed and staffed by occupational psychologists, and based on the widely-commended WOSB's, this quickly became known as the 'Country House' selection procedure because of the residential setting in which it took place. (Contemporary reactions to this innovation from visiting dignitaries and senior civil servants were generally favourable, but it was mercilessly caricatured by AP. Herbert, then an Independent Member of Parliament, in his amusing, but now forgotten, novel 'Number Nine'). The second development was the setting up of Industrial Rehabilitation Units under the auspices of the Ministry of Labour (See Chapter 1). A psychologist, termed a Vocational Officer, was appointed to each of these Units as the specialist who assessed the needs and abilities of those referred to them for help and advice and who offered vocational guidance on lines similar to those practiced in the Army's Civil Resettlement Units.

The Psychologist Class of professional civil servants
In 1950, three civil departments of central government, the Home Office, the Ministry of Labour and the Civil Service Commission decided, with Treasury approval, to set up a new and permanent 'Psychologist Class' in the Civil Service, thereby providing opportunities of a professional career to psychologists wanting to specialise in applying occupational, experimental or social psychology, or ergonomics. This far-sighted step owed much to the contributions of that select group of psychologists, mentioned in our overview of the war years, who led the way in showing the benefits of applying psychology in the public service and to whom later generations of occupational psychologists probably owe more than they realise. It was by far the most significant event in establishing public awareness and systematic practical use of applied psychology in Britain in the post-war decades.

From its inception, the Psychologist Class attracted many applicants. There were few alternative openings for applied psychologists at that time if they did not wish to specialise in educational or clinical psychology. The Medical Research Council groups such as the Applied Psychology Unit in Cambridge and the Industrial Psychology Research Unit in London offered possibilities for a career in research, but not in direct applications of psychology. Only with the National Institute of Industrial Psychology, which did not usually appoint anyone who had no prior industrial or commercial experience, was an aspiring applied psychologist likely to obtain an introduction to professional consultancy work. It is not surprising, therefore, that there were plenty of contenders keen to seize the opportunity of a psychological career in government service. Indeed, out of a total of 226 graduates who entered employment anywhere as psychologists between 1949 and 1951, about 40 joined the new Psychologist Class. In addition, most if not all of the professional staff who had stayed on after 1945, or who had been recruited subsequently as 'unestablished' staff were now established after submitting themselves to the first Open Competition for selection in July 1950. For example, the Admiralty (now the Navy Department of the Ministry of Defence) confirmed the appointments of 7 'sitting tenants' and recruited one new member of staff. Although most of those retained from the war had plenty of experience of psychological work, not all were formally qualified in psychology. Of the three men appointed as 'senior principal psychologists', one was a psychiatrist (Dr J. C. Penton, at the War Office); another (Dr. N.A.B. Wilson, at the Admiralty) had obtained his doctorate in chemistry, but also possessed wide experience of applied psychology as an ex-member of the NIIP and as a leading member of the wartime naval psychologists; only Dr J.B. Parry, who became head of the Air Ministry's group, would nowadays have been accepted by the civil service as a fully qualified psychologist. It must also be admitted that the selection process itself was less systematic than is the case today. A higher degree was neither necessary nor expected and the only

formal procedure consisted of a straightforward group interview by a board of two or three senior civil service psychologists, a university professor of psychology and an 'Establishments' officer from one of the recruiting departments. (A cynical observer could be forgiven for asking why occupational psychologists who advocated nothing less than a full WOSB type system for selecting the Administrative Class candidates, should nevertheless be satisfied with so unsophisticated a procedure for themselves!) It is difficult to make a realistic comparison between contemporary salaries and those which could be obtained in 1950. At that time the salary range for new entrants was from £350 per annum at age 21 to £600 per annum at age 30 (and women were paid between £5 and £25 less than men if they were over 25 years old!) Bearing in mind that the starting salary for a basic grade psychologist in 1993 was £12,213, the inflation that has taken place in the intervening period is very apparent.

THE 'ORGANISATIONAL CLIMATE' ENCOUNTERED BY ENTRANTS IN THE EARLY YEARS

Attitudes and expected ways of behaving in the central government departments have changed considerably since the 1950's. The nature and scope of applied psychology is reasonably well understood nowadays, at least among the many senior administrative and scientific civil servants who have worked alongside psychologists at some stage of their careers. Interpersonal relations, communications and dress are very much more informal and unselfconscious than would have been permitted in the early years of the Psychologist Class. What has not changed noticeably is the commonly held view of senior administrative staff that 'specialists should always be on tap, but never on top'. Scientists and psychologists alike were included in this rather dismissive aphorism. It was articulated with particular force at the time of the famous, but largely ineffectual, Fulton review of civil service structure and organisation in the mid-1960's. C. H. Sisson, better-known perhaps as a poet and anthologist, was at the time the Under-Secretary in charge of Establishments at the Department of Employment. Profitt (1968) quotes him as saying of professionals that "the senior administrative officials have to learn to extract from the specialist flowers around them the honey their Minister needs, explaining as they do so that the Minister does not live on honey alone". He once told the departments Chief Psychologist, quite kindly, that specialists like him were an anachronism in government service, at least in a civil department. If they wanted to do research or contribute as professional advisers or consultants, they should be in universities, from whence they could be called upon for assistance as required. If, on the other hand, what they really wanted was direct involvement in policy decisions and executive action on important issues then they should have applied in the first place to join as administrators! There may be some justification for this view, but it masks what, in those days at least was a pejorative view of scientists, engineers and professional staff in any field, except perhaps economics and the law. It implies that psychologists, like other specialists are experts on important, but such narrow, topics that they are incapable of taking a detached view of matters designated as policy or administration. Only the generalist, preferably educated in the classics or humanities (and therefore untrammelled by the handicap of possessing useful, but not necessarily impartial, knowledge) was judged suitable to practice the arcane art of government policy and decision-making. Not that any of the younger psychologists in government service in the fifties and sixties cared very much about this strange and misguided doctrine, troublesome though it was to their most senior colleagues. They had their own rather tenuous but comforting conviction that they were a new breed of applied scientist whose skills and knowledge were as distinctive and indispensable as those of any other specialist, including those of the administrators. Despite the fact that the psychology they had studied at university offered little in the way of directly applicable data, or understanding of psychological problems in the real world, they believed firmly that their training distinguished them from other specialists by providing an appropriate methodology for tackling human problems, an approach based on two main constituents. One was a respect for individual differences and how to assess them. The other was a grasp

of the principles of designing research studies of human performance and analysis of the data resulting from them. In retrospect, these convictions appear to have been reasonably well-founded. They certainly contributed to the view held by most government psychologists, especially those in the three military departments, that they were operating with some success at the leading edge of practical psychological problem-solving. The two decades following the setting up of the Psychologist Class were certainly a period of continuous interest and challenge to all its members.

A Personal Recollection.
As Don Wallis, who was one of the first post-war graduates recruited to the Psychologist Class in 1950, recalls about his joining the Admiralty's psychology department:
"Unlike today's more appropriate practice, there was no officially recognised training spell for new entrants to the Class. Instead we went through a kind of rapid apprenticeship. This was meant to bridge the gap between our abstract understanding of what it meant to 'apply' psychology, and a sensitive awareness of real problems to which psychological research and development might usefully be directed on behalf of the Royal Navy. I also learned the elementary skills of assessment and report-writing whilst at the same time being assigned as an assistant to Edward Elliott, who had just taken over from Professor Philip Vernon a wide responsibility for research in SP(N). His was an extensive field of operations, covering psychological test construction, validation and follow up, besides general enquiries into naval personnel selection and training problems. Although Dr Wilson was graded as a 'senior principal psychologist', he was personally designated as the Admiralty's Senior Psychologist (Naval); and his 'command' was known as the Senior Psychologists (Naval) Department, i.e. SP(N). This was a bit confusing to me at first as my new boss, Edward Elliott, was actually graded as a senior psychologist. He was nevertheless still a relatively junior member of the psychological staff, having taken up an unestablished post with the group only two years previously. Elliott, who eventually became the Navy's Senior Psychologist himself, was a major formative influence in my psychological career. I still regard him as the most talented and innovative person I have ever worked with, in or out of government service. In the contemporary world of computers and statistical packages, it may be hard to believe that the only desktop aid we had for data analysis was a hand-operated Brunswig calculating machine. I remember with pain that it would take me several weeks of full-time effort with that extraordinary piece of aging ironmongery to carry out the factorial analysis of a 10 -by-10 correlation matrix. What a spectacular leap forward it was when the first electromechanical calculator, the Monro-Matic, appeared a year or so later. It could actually accumulate sums of squares! However, life was by no means all a matter of backroom, detached laboratory work and computation. As Admiralty psychologists we often spent time in Naval establishments and ships. This required us to learn enough of Royal Naval customs and behaviour to avoid the kinds of awful faux-pas which a naive civilian attached to the tradition bound RN might easily commit. Such mistakes would certainly not enhance the sometimes less than favourable stereotype of psychologists among service personnel. I remember hearing from several uniformed colleagues of the innocent, but distinctly inappropriate, response of one of most distinguished of our wartime predecessors, to a senior naval officer. When asked in a Naval Mess what he would like to drink, he replied simply that he wasn't thirsty! One of the first instructions given to me in 1950 was to make sure I possessed a decent hat, preferably but not necessarily a bowler, so that I could raise it as a civilian's mark of respect whenever I crossed a quarterdeck, even (indeed especially) in a shore establishment. At that time there were many more ludicrous misconceptions about what a psychologist knew and did than are common today. The military and civil establishment as a whole was fairly clear that we we're not in the same category as psychiatrists, because the latter were 'medics' and consequently got paid a lot more than we did. But in-house jokes about 'head-shrinkers' and 'trick-cyclists' had to be anticipated and shrugged off as epithets applied to all psychologists and psychiatrists alike. Moreover, there was often a suspicion that psychologists were a kind of 'head office' or Establishments (i.e. manpower requirements) spy. Unless one was working in a laboratory setting, one's subjects

were liable to be apprehensive that 'clinical', or possibly other threatening, manipulations were inherent in one's procedures. Although there was respect for the technical skills of applied psychologists among military personnel, junior officers were more ready to welcome these skills applied to 'hardware' research and development than in the contexts of personnel assessment, morale and training. The latter were areas in which psychological interventions could be perceived as reflecting adversely on traditional military expertise. I can remember being introduced very early in my career to a sceptical naval officer at HMS Excellent, the Gunnery School at Portsmouth. His initially frosty countenance visibly warmed to me when my more senior colleague (Hywel Murrell - see Chapter 1) swiftly added - though quite untruthfully - that I was an 'experimental psychologist', i.e. not one of those lesser breeds from the headquarters based and personnel - orientated SP(N) department. Murrell told me afterwards that this change of attitude should not have surprised me, as 'experimental' with respect to 'psychology' in that particular naval establishment was associated with the MRC's Applied Psychology Unit. For several year's research had been conducted for the Navy jointly by this Cambridge Unit and gunnery officers at HMS Excellent. One of the latter, Bernard Gibbs, had actually left the Navy to join the staff of the APU where he continued to work on Admiralty sponsored projects. (He became well known for his work on kinaesthetic perception and its relevance to the design of manually-operated gunnery control systems.) Therefore someone who was an 'experimental psychologist' would be more readily accepted by sceptical gunnery specialists as being knowledgeable and competent than would one of the Admiralty's own professionals from central headquarters. The focal areas of special expertise and responsibility allocated to psychologists employed in all central government departments were personnel assessment, selection or vocational guidance. So it is not surprising that our involvement in other areas - particularly studies with an ergonomic flavour, or social surveys, - was often regarded with apprehension. Those of us who found ourselves working in research and development establishments certainly had to strive hard to overcome doubts about whether we, as psychologists, really had much to add to the traditional scientific disciplines. One of the most colourful individuals I encountered in this context was a certain Commander Crabbe, to whom I was attached for a short while to advise on psychological factors affecting the design and use of an underwater detection device that Crabbe (an underwater clearance diving specialist) had been involved with. The unfortunate Commander never reconciled himself to what he saw as the humiliation of having a psychologist intervene, no matter how marginally, in his distinctive and close-knit specialism. I say 'unfortunate' because not long after my brief involvement with him Commander Crabbe vanished one night under mysterious circumstances, after first disappearing without notice from his hotel in Portsmouth. The precise circumstances have never been revealed and may still be unknown; but Press opinion at the time reckoned that he had died or been captured while carrying out a clandestine underwater survey of the hull of a Russian cruiser (the Sverdlov) which was in Portsmouth Naval Harbour on the first post-war visit to Britain by a Soviet ship. I have often wondered if he was caught trying out a device like the one I mentioned".

SOME MAJOR CONTRIBUTIONS FROM GOVERNMENT PSYCHOLOGY

In the following sections we review the activities of government psychologists in the major areas of personnel assessment; psychological factors in the design of equipment systems and training in their use and maintenance; psychological support to corrective regimes for delinquents and criminals; psychological contributions to employment and training services. Some of these, such as personnel assessment which is usually regarded as the sine qua non of professional psychology, are familiar aspects of occupational psychology. Others, such as the management of prison regimes, are now likely to be categorised as 'criminological and legal psychology', but in the 1950s most of the psychologists concerned would have seen themselves as occupational psychologists. For all those in government service, few of the problems they dealt with involved the direct application of well-established

knowledge and techniques. In most cases, it was necessary to break new ground, perhaps entailing applied research over many years and developing new insights and procedures.

The extended interview method of assessment
Contrary to the impression given in many textbooks, the foundations of the modern Assessment Centre were laid by psychologists in government practice, rather than by those in the American AIT Corporation. Its origins lie indirectly in the techniques used in the thirties to select officers in the German Army and Luftwaffe (see Chapter 1) and directly in the innovative practices of the British War Office Selection Boards (Murray, 1990). As noted earlier, a similar approach was developed for civil service contexts by a small team of government psychologists at Stoke D'Abernon in the late forties. Further refinements of the method were introduced by the Civil Service Selection Board, the Admiralty Interview Board and, much more recently, by the Home Office Research Unit. These are documented in numerous open publications (Wilson, 1948; Davies, 1969; Anstey, 1971a and 1971b; Gardner and Williams, 1973a and 1973b; Jones et al, 1991; Miles et al, 1991). In our view, the evidence shows that this combination of assessment instruments is the most technically sound, widely used and demonstrably useful product of applied psychology to have appeared anywhere in Britain, or indeed elsewhere.

One consequence of their use by government departments has been to provide uniquely large data-banks of accumulated psychological measures and assessments, selection decisions and follow up information, on which to base manpower utilisation policies, judge training needs, and estimate the psychological 'quality' of present and future staff. Not surprisingly, the practical benefits of these extended interview methods (assessment centres) have been acknowledged widely outside central government and have been taken up by other public bodies and commercial and industrial organisations. It is also worth noting that practically every member of the administrative cadre of the Higher Civil Service, from the level of Permanent Secretary down, has been 'filtered' through this procedure under the technical direction of government psychologists. The latter thus contribute indirectly to the formation and implementation of national policies!

Psychological ergonomics and operator training.
What we sometimes think of as the recent and revolutionary advance of modern technology was already under way around the mid-1950's, at least in the context of military surveillance, communications, transport and weaponry. By then it was becoming clear that even the most sophisticated personnel selection methods could not alone ensure a sufficiently high quality of performance by soldiers, sailors and airmen. Inspired by the wartime laboratory studies of Bartlett, Mackworth and their colleagues at Cambridge, military psychologists were persuaded of the need to tackle problems of operating complicated machines and other equipment from the complementary standpoint of designing such systems with human capacities and limitations strictly in mind. Thus it was that a new sub-branch of applied psychology known as 'psychological ergonomics' or, alternatively, as 'human factors', began to acquire prominence. It developed first as an integral part of ergonomics (the 'study of work in its natural surroundings'), a term coined by Hywel Murrell who twenty years later became professor of occupational psychology in the University of Wales. The history of ergonomics in all its manifestations is well documented (see Edholm and Murrell, 1974; Singleton, 1974). But what is not generally appreciated is that, so far as the psychological aspects of ergonomics are concerned, the various groups of government psychologists in Defence have contributed at least as much as any other British sources to the theoretical and technical development of this field and to its fruitful application. Laboratory-based and field studies from each of the three Services have, over the years, yielded results of more than passing significance for applied psychology generally and for the effectiveness of our armed forces. Unfortunately, the latter part of this claim can be supported only partially by reference to documentary evidence, as several high-grade research reports cannot be cited. Some of these may be languishing unseen in the archives, whilst others have been destroyed as no

longer of internal interest. Even so, we doubt if the military authorities would ever deny the claim that psychological ergonomics has been applied with beneficial and tangible effects to the design of aircraft, tanks, sonar and radar and communications systems; and, more recently, to computer aided equipment in ships, command posts and air traffic control centres. In addition, Ministry of Defence psychologists made notable contributions to the general body of knowledge in training research. Accounts published since 1950 contain a wealth of meaningful data on human skill and performance under demanding conditions, as well as many revealing insights on topics of general theoretical interest in psychology. For example, subjects studied assiduously by Defence psychologists ranged from vigilance and signal detection, through acquisition of perceptual skills and performance under stress, to the higher cognitive operations involved in information processing and problem-solving (Elliott, 1957; Allan, 1957; Wallis and Samuel, 1961; Murrell, 1965; Duncan, 1966; Bramley, 1973; Hopkin, 1982).

Methodology and 'Realism' in Experiments
Advances in the methodology of applied research were also made by psychologists working in the defence departments. One that was extremely useful for measuring psycho-physical thresholds under realistic masking conditions was the modification to the classical 'methods of limits' devised by Edward Elliott for his studies of auditory vigilance (Elliott, 1957). Another was the emphasis placed upon 'psychological simulation' of real operating conditions when studying performance at military tasks (Wallis, 1963; Hopkin, 1977; Ellis and Claridge, 1977). The best known context in which this was applied is that of piloting an aircraft, i.e. with flight simulators. At the Institute of Aviation Medicine at Farnborough, fruitful investigations conducted over many years have helped to design and evaluate these simulators, not only to enable inflight behaviours to be studied on the ground but also to reveal their worth as training devices (Rolfe, 1973). Experimental studies of so-called 'man-machine systems' were profoundly interesting and challenging to all those who were fortunate enough to be involved with them. Apart from their intrinsic intellectual challenge, they sometimes confronted defence psychologists with highly unusual situations. Assessment of motivation and performance in the stressful conditions met by soldiers campaigning in a tropical climate is only one example (Duncan, 1966). Another is really a postscript to an account subsequently published (Wallis, 1961) of a series of experiments carried out for the Fleet Air Arm in the 1950's. It illustrates the fact that publications rarely give the whole story, whether or not there are security restrictions involved. The study was designed to reveal as many as possible of the circumstances that affected subjects' performance during a continuous three and a half hour's period of operation. In real vigilance task situations, though perhaps not in university laboratory ones, subjects momentarily dose off or get bored and take their gaze away from their displays. They also fidget around in their seats, sometimes looking away while doing so and, in an aeroplane which keeps them airborne in a cramped cockpit for several hours on end, it is hardly surprising that they sometimes need to relieve themselves. Such factors, much more than the so-called 'vigilance decrement' discovered by Mackworth (1950), are common causes of missed signals.

Now in the aircraft in question, the crew could be provided with apparatus under their clothing which facilitated this relief and disposed of the consequences outside the cockpit; however the gear weighed some 15 lbs and was distracting, to say the least, whenever it was in use. The researchers were asked to assess the benefits (or otherwise) for performance of incurring the weight and discomfort of this piece of equipment. Suffice to say now that, although there was considerable interest in the findings, there were also some raised eyebrows when the internal report: on the research included precise measures of fidgeting and of urine excretion, innocently expressed as a 'Wriggle' and a 'P' index respectively! Neither of these two factors which, if present, undoubtedly affect performance in surveillance tasks adversely, appears to have been reported on subsequently in the voluminous literature on vigilance experiments.

Training Technology

Arising from the work on the design of equipment and the tasks associated with it, there grew up in the sixties the collateral study of how best to train operators and technicians to use and maintain such equipment. By the mid-1960's, this important field of applied psychological practice was becoming known as 'training technology'. As developed in the Armed Services, it was a rewarding blend of ideas and techniques drawn from task analysis, identification of practical training needs, programmed instruction, and simulation. It was a systemic approach to training directed especially at making the actual content of training courses more relevant to the realities of military operations, and to the design of more effective training aids and 'learning environments' (Allan, 1957; Wallis, Duncan and Knight, 1966; Wallis, 1966; Tilley, 1968). The 'technology of training', as developed and promulgated first by government psychologists and then adopted by uniformed training specialists in each Service, was directly responsible for radical improvements in the training of servicemen engaged on tasks as diverse as radar and sonar operation, aircraft and tank recognition, and fault finding in electronic equipment. It yielded high returns for the armed forces with respect to the training of operators and technicians (Wilson, 1966; Tilley, 1969) and it exerted a strong influence on vocational training outside, as well as within, the confines of the civil service.

As we imply in Part 2, in recent decades the main thrust in training and training technology has come from psychologists working for the Training Agency (subsequently the Training Commission) of the governments Manpower Services Commission.

Applied psychology and the management of prison regimes

Looking back at the situation as it was in the early 1950's, nowhere is the subsequent extension of the role of psychologists more obvious than in the Home Office Prison Department, which currently employs the largest number of professional psychologists under the control of a single central government department. It is easy to forget when observing the breadth of contemporary psychological practice (especially among occupational psychologists) that forty or so years ago they were assigned very restricted roles. The Prison Department regarded its psychologists originally as specialists in testing and other techniques of assessment, and nothing else. They were limited therefore to providing diagnostic judgements and advice about possible treatments, but did not participate directly in corrective and rehabilitative procedures.

The breakthrough for prison psychologists came in the 1960's when, in addition to professional case-work on allocation of people to remand or other centres, they were encouraged to participate in research. Certainly a few psychologists, notably Sylvia Anthony (1968), had conducted studies of delinquency for the Home Office; but they did so as members of that department's Research Unit, which was not part of the Prison Service. There soon followed a number of investigations by staff actually employed in the prisons or at headquarters. These included evaluations of different treatment regimes in Borstals and adult prisons, as well as a number of illuminating studies of prisoners themselves such as recidivists and absconders. Research of this kind, some of which was reviewed by Grayson (1978) in a publication authorised by the Prison Department, has contributed not only to the formation of prison policies but it also acted as a spur to the formation of a Division of the BPS devoted to forensic psychology. The status of prison psychologists had, in fact, received an earlier boost when the Department decided to appoint a Chief Psychologist at senior principal grade within five years of the Psychologist Class being founded. The first occupant of this post was Aymeric Straker who moved across from the Admiralty, where he had been a distinguished member of the SP(N) group since joining it from the NIIP in 1942. Straker pressed hard for a broader role for his professional colleagues, with some success. He describes (Straker, 1968) how, although there was still a concentration on assessment of prisoners in remand and allocation centres, prison psychologists were also becoming involved in the training of prison officers. By the end of the sixties, according to Donald

(1970), there was a further rise in the number of psychologists employed and in the scope of their activities. These had widened to include diagnostic assessment of 'difficult' prisoners and the analysis of social organisation in prisons (see also Fitch, 1968). Direct advice on psychological issues affecting prison regimes was now being offered as well to line management, i.e. prison governors. In later years the role of psychologists in the prison service has become even more varied, as is illustrated by a recent advertisement by the Home Office (BPS Appointments Memorandum, 1991) which refers to "a wide variety of work which may include the assessment and treatment of inmates, helping to design and evaluate regimes, staff training, advising management..." (See also: McMurran and Shapland, 1989.)

Applying psychology to civilian employment and training policies
All departments of the civil service are subject to constant structural re-organisation, assuming they survive at all, when changes of political control occur. But the central government department responsible for national employment policies has probably undergone more radical changes than any other during the period of our review. At the beginning it was still known by its long-standing title of the Ministry of Labour. In 1967, it became the Department of Employment and Productivity with greater powers of intervention in all aspects of employment, vocational training and industrial relations; only to lose its 'Productivity' brief with the next change of government not long afterwards. Subsequently, there were further changes following the decision of the Conservative Government to detach all employment and training work, other than central policy-making, and pass it over to a quasi-governmental agency, the Manpower Services Commission. Psychologists in the Department of Employment (DE) have therefore endured more than their fair share of organisational upheavals. Initially they were nearly all dispersed across the country in Industrial Rehabilitation Units, and were generally perceived as having less scope for professional development than any other group within the Psychologist Class. Nevertheless their position within that Class as a whole progressed steadily from the 'Cinderella status of the 1950's to become the second largest group in government service with a wide range of professional roles. The decision to appoint a Chief Psychologist at headquarters, i.e. someone at senior principal level was taken in 1967. Not that the most senior administrative staff had any clear ideas as to what role they expected the new incumbent to fulfil. However, the Deputy Secretary of the Ministry of Labour at that time, P.St.J.Wilson, was the main protagonist for the appointment and he had greatly valued the assistance of Professor Alec Rodger as the Ministry's external adviser on psychological matters over some twenty years. The psychologist, who was appointed was one of the present authors (DW), who recalls vividly that:
"From the first day of my move from the Admiralty to a very different civil department of state, I was seized upon by the Deputy Secretary as a kind of surrogate Alec Rodger. As such, it was impressed on me that I would be looked on inter cilia as his personal psychological adviser on departmental policy matters. Other responsibilities could be proposed in due course: but acting as a handmaiden to the Deputy Secretary was the primary requirement. Rightly or wrongly, and certainly not with the intention of belittling the role, I was nevertheless determined not to devote too much of my time to it. Instead, I drew up as my first objectives and priorities the setting-up of 'in-house' and extra-mural applied research projects, together with the progressively greater involvement of my professional colleagues in all areas of the department's employment, training and industrial activities where it was plain, at least to me, that psychologists could materially assist. As it turned out, the Deputy Secretary, though doubtless disappointed that I was not able or willing to assume the mantle of an Alec Rodger, proved more sympathetic to my aspirations than I had any right to expect him to be. He backed me firmly, even though by no means all of his colleagues were convinced that psychologists should become more prominent in the brave new world of the forthcoming Department of Employment and Productivity. Anyway, the changes in the organisation and functions evolved for psychologists in the various headquarters and

regional centres of the DE, must have generated a flicker or two of recognition, even at the political level. At the BPS Occupational Psychology Section conference, held in Sheffield in 1969, the then Minister of State in the Department, Roy Hattersley, addressed the assembly on the nature and standing of the psychological work that was being taken on his behalf. As far as I am aware, this is the only occasion on which a Minister of the Crown has delivered a paper to a scientific meeting of the Society and had it published afterwards (Hattersley, 1969)."

Employment Rehabilitation
As mentioned above, the first Ministry of Labour psychologists worked in the Industrial (now called Employment) Rehabilitation Units, set up originally to help adults who had suffered disabling industrial accidents to return to productive employment. These IRUs were housed in industrial premises adapted for this purpose. Unfortunately, the HQ administrative branch which ran them (as the Chief Psychologist quoted above found to his intense frustration in the late 1960s) was quite the most conservative, bureaucratic and unresponsive organisation he had encountered in government service. The psychologists were the only people in the system with the motivation and skills to improve rehabilitation procedures; but they had to fight an uphill battle to win any changes in the content and scope of their work or in their own career prospects. Nevertheless these occupational psychologists were the first professionals in Britain to participate in a nationwide service offering psychological support to disadvantaged people. That support rested primarily on the provision of personal assessment, vocational guidance and, where appropriate, a socially therapeutic readjustment of attitudes towards employment. Over the years the scope of the rehabilitation courses was extended from adult victims of industrial accidents to other disadvantaged groups, including physically and mentally handicapped school-leavers likely to find difficulties in entering employment. In 1968, for example, as many as 12,700 injured or handicapped people were assisted by the IRU's to obtain gainful employment. There is no doubt that psychologists who began their professional careers in these Units had the satisfaction of knowing that their contributions were crucial to the success of the rehabilitation courses offered.

Careers and Occupational guidance
A few of its most experienced psychologists were allocated by the Ministry around 1960 to give professional support to the vocational and careers guidance staff who advised school-leavers, through what was then called the Youth Employment Service (later the Careers Service). Their assistance soon proved indispensable, including as it did the evaluation of assessment procedures and methods of identifying occupational interests and preferences. One of the most widely used instruments in careers counselling, the Edinburgh APU Occupational Interests Guide (Kilcross and Bates, 1968; Closs, 1975) was sponsored during its development stages by the YES (White, Raphael and Crinnion, 1970). Another major project was carried out on behalf of the Careers Service in the 1970's when a new aptitudes test battery known as DEVAT (Department of Employment Vocational Aptitude Tests) was constructed by the Chief Psychologists research unit at HQ and validated in extensive field trials (Employment Agency, 1977).

In addition to the service for school-leavers, DE psychologists played an important part in the planning and introduction of the Occupational Guidance Service for adults. This began in 1966 with 11 experimental units, to which were soon added another 30 spread throughout the country to meet a widespread demand from potential clients. Locally based psychologists from the IRUS and departmental regional offices (supplemented part-time by appropriately qualified academic psychologists) provided an extensive underpinning to the diagnostic and vocational advice given to clients. They took a leading role in the special training for departmental officers seconded to the OGU's; and they dealt directly with clients referred to them for a more thoroughgoing psychological appraisal. The decision to abolish the OGUS in 1979, taken as one of the DES enforced measures to reduce public

expenditure was not only disappointing but also seems short-sighted. It was made when the occupational guidance service was clearly meeting a widely-felt need for information and advice by those having to choose or to change their jobs, continuing the trend that followed its inception. As Roy Hattersley noted in his address at Sheffield, within two years of the OG Service opening, 9373 adults presented themselves tor occupational guidance during a period of six months. By 1970, more than 100,000 clients had been assisted. (White et al, 1970).

Industrial relations
Psychological involvement in the turbulem field of industrial relations has waxed and waned during the past two decades. There were contributions from the MRC Social and Applied Psychology Unit at Sheffield University (Warr, 1973; Wall and Lischeron, 1977), and also from academics elsewhere like David Guest (1983) and Jean Hartley (Hartley and Kelly, 1986). On the whole the field of labour relations policy (which is not confined to issues concerned with bargaining over pay and conditions) has been accepted by the DE as an area to which government psychologists in the central headquarters can contribute. But this was far from the case in the 1960s, when it was only in the face of attitudes ranging from mild scepticism to downright opposition that it was possible to persuade civil servants and their economic and industrial relations advisers that psychology had anything to offer in this field. Some externally commissioned and some internal research projects then took place. One of the first of the former was conceived primarily as a study of absenteeism in the transport and industrial sectors in South Wales and was conducted by the psychology research group in the Department of Industrial Relations at University College Cardiff. (We draw attention to this research later, in Chapter 5). An example of the second category, undertaken by the DE's own psychological research section, was a field investigation of the controversial concepts of 'felt fair pay' and 'time span of discretion' propounded by Elliot Jaques (1956; 1967). This important empirical study (Cameron, 1976) deserves to be better known.

Industrial training
In recent years, that is after the end of the period with which we are primarily concerned in this part of our text, a large proportion of the psychological resources of the Employment Department group has been devoted to studies of industrial training. This accords with a long tradition of involvement in vocational and supervisory training. It is true that the origins of post-war work in this field go back to the 1950's, with enlightened policies and academic support coming from the DSIR Human Sciences Committee (see Chapter 3) and its Training Subcommittee. Yet it was only with the passing of the Industrial Training Act of 1964, and the sponsorship of research by the DE through its Central Training Council which followed that legislation, that psychological contributions to industrial training really began to have an impact. An informative account of those initiatives has been recorded by one of the Department's psychologists who was directly involved at the time (Martin, 1967). Government interest in industrial training, however, declined in the 1970's, only to be revived in the next decade when the Training Commissions Psychological Services Branch (and now the Occupational Psychology Branch of the Employment Service) helped to extend psychological inputs into vocational and managerial training. On this subject we also have something to say in Part 2.

Quality of Working Life
We have left until last in this section another topic which straddles the late sixties and seventies (and which is discussed in Chapter 5), because the story of the Departments involvement in it illustrates the element of chance that often features in applied psychology. It began in 1969 when interventions derived from the work of F. Herzberg and his associates in British industry were arousing some controversy. A Parliamentary Question about Herzberg's ideas on motivation (Herzberg, Mausner and Snyderman, 1959) was put to the Secretary of State for Employment and Productivity in the House of Commons. This question

was referred swiftly to the civil servants in the Private Office for an authoritative reply and, when the usual sources of wisdom failed to produce satisfactory answers, the step was taken (no doubt in extremis) of referring the issue to the DE's Chief Psychologist (D.Wallis). From this unanticipated opening gambit, a chain of events was set in motion by the Department with its psychologists taking the principal role in their planning and supervision. The first outcome was an influential survey of QWL as it had so far evolved in the United States (Wilson, 1978). This was conducted by the recently retired chief psychologist of the MoD (Navy) Department, under DE direction, and was also sponsored as the official British contribution to a NATO programme of studies on the 'Challenges of Modern Society'. One of the objectives of the latter, no doubt seen as derivative rather than primary, was to dispel the perception of NATO as concerned solely with Military matters (Huntley, 1971). Academic support throughout Dr Wilson's study was given by an advisory group chaired by Don Wallis, comprising Albert Cherns, Sylvia Shimmin, Frank Heller and Roger Williams. Wilson's review was followed in June 1973 by the setting-up of a Tripartite Steering Group on Job Satisfaction, consisting of representatives of government, the TUC and the CBI, and chaired by the Minister of State. Its first activity was to implement one of the principal recommendations in the report by encouraging the Department to establish its own specialised resource, to be known as the Work Research Unit. The WRU's brief was to promote applicable research, and to encourage the application of organisational principles and working practices that would enhance both industrial efficiency and the quality of working life.

An explicit directive to the WRU was to adopt the other main recommendations of Wilson's report and commission ten large-scale QWL projects. Nine of these were located in industrial environments while the tenth sought to examine task and organisational factors affecting the job satisfaction of hospital nurses. From the outset, although none of them ever headed the Unit, several of the DES most experienced psychologists figured prominently among the various specialists appointed to the WRU. The general thrust of the Unit's services on behalf of British industry was psychological and ergonomic in character and justified its reputation as the main force promoting QWL ideas and applications in Britain.

This is now very much past history, as the enthusiasm for and advocacy of QWL soon declined in a harsh economic climate in which every working practice and principle came to be judged by narrow economic and financial criteria. Also, perhaps, because some of the benefits claimed by its most ardent supporters have not gone unchallenged (Blackler and Brown, 1978), as we describe in Chapter 5. Sadly the Work Research Unit is no more, although its Director wrote in 1992 that it was "very much alive and well and continuing to maintain and develop both its national and international reputation as a focus for Quality of Working Life developments in the UK" (Grayson, 1992). In January 1993 it was closed down in the face of the Department of Employment's call for economies.

GOVERNMENT PSYCHOLOGY: A CONCLUDING ASSESSMENT

A great deal more could have been said about the spread of applied psychology across the four major Departments of State to which we have referred. Nothing has been mentioned about the contributions of Army psychologists to the 'psychological warfare' against Communist guerrillas during the post-WW2 Malaysian campaign, nor about their involvement in the de-briefing of prisoners of war released after being 'brain-washed' by the Chinese during the Korean War. But for those who want to discover more about these unpublicised and rather esoteric incursions some glimpses may be gained from brief notes and references in Watson (1978) and Cunningham (1970). We have also had to omit any discussion of the vast accumulation of psychological test construction and validation work carried out over the years in the selection and allocation of operators and technicians (as distinct from officers) in the armed forces. Similarly, the complementary core of solid achievements in developing selection and staff appraisal techniques for clerical and

executive grades in the civil service (Anstey, 1961). Occupational psychologists in the Civil Service Commissions Research Unit were charged with responsibility for this area from the Unit's inception in 1945 (Anstey, 1950). Much later, during the heyday of the unfortunately rather short-lived Behavioural Sciences Research Division of the Civil Service Department in the late 1960's, extensive studies were mounted to investigate a whole range of personnel management problems in the civil service. We hope we have given sufficient examples of the work and achievements of psychologists employed directly by central government to show that the existence of the Psychologist Group, as they are now called, is amply justified. As one of us was formerly a member of that Group, this judgment may not be entirely unbiased. But we believe that, important and significant as contributions often are from external resources like the psychological groups employed by the Research Councils, they are no substitute for the continuous involvement of committed, professional 'in-house' staff. After all the latter have personal knowledge and first-hand experience of their clients' needs and circumstances; and their psychological skills have had to be tuned through extensive experience within the organisation itself, so as to deal sensitively and realistically with the particular problems they are likely to meet.

CHAPTER 3

POST-WAR RESEARCH AND APPLICATIONS IN INDUSTRY

INTRODUCTION

The last chapter has traced the post-war developments in occupational psychology as represented by work in or on behalf of government departments. Alongside these, and stimulated largely by government initiatives, there was an expansion of industrial field studies and other related research designed to help British industry to adapt to peace-time production in a changed, and rapidly changing, highly competitive world. These changes related not only to the technological advances made during the war which led to new jobs, new forms of communication, swifter transport and the like, but they also included changes in people's expectations and aspirations. For many, these embraced the desire for a more egalitarian society than they had known pre-war and it was evident that the attitudes of their employees, the range of skills and knowledge required at all levels of the workforce, and the styles of management practised were likely to compound the economic and technological problems facing industrialists. The post-war era saw also changes in the composition of the workforce, with an increasing participation of married women in the labour market on both a fulltime and part-time basis, and of immigrant workers from former overseas colonies for whom jobs became available at a time of labour shortages in some industries, e.g. wool textiles.

This chapter deals with the nature and direction of the industrial researches by British occupational psychologists in the post-war decades, concentrating mainly on the 1950's and 1960's, but with a forward look to developments discussed in more detail late in Chapter 5. Over this period, recovery from the effects of the war and adaptation to the changed social, economic and political conditions pertaining in its wake predominated in the early years. They were followed by comparative prosperity as new production techniques brought down the prices of consumer goods and made it possible to pay higher wages. According to Marwick (1982), the year 1957 marks the time when post-war restrictions and controls finally ceased and the word 'affluence', began to be banded about freely. He notes that, during the succeeding years 1957 - 72, "there was a liveliness and a spirit of innovation not seen in British society for generations" (p.144) associated with the changes that were occurring on many fronts. Phrases such as the 'swinging sixties' and the 'permissive society' were used to denote the attitudes and behaviour observed, particularly among the young. In the realms of social welfare, education, industry and employment, optimism prevailed about the possibilities and benefits of planned interventions and improvements, such as 'planned organisational change', later to become known as OD (Organisational Development) which reached this country from America. The opportunities created by these changing circumstances for applied social science research in industry and the resulting broadening in the scope of occupational psychology are described below. Beginning with the challenges and demands made of them in the immediate post-war years, the second part of the chapter notes the growing involvement of occupational psychologists in organisational studies and in management education and research. Diversification of the field during this period was increased by the emergence of organisational psychology as an area of study in its own right and as a component element in the multi-disciplinary subject of organisational behaviour. The final section considers the question of the applicability and utilisation of the results of this research by industrial organisations and its academic implications, seen from the perspective of our own experience.

RESEARCH IN THE IMMEDIATE AFTERMATH OF WAR

The need to utilise total national resources, both physical and human, during the war had led to a "flowering of statistical and factual studies that helped to lay the foundations of the Welfare State" (Cherns and Perry, 1976) but which also revealed the scarcity of adequate

data and of people trained in the social sciences. With this in mind the Government appointed a committee under the chairmanship of Sir John Clapham to consider "whether additional support is necessary for research into social and economic questions". Its report (Clapham, 1946) drew attention to the serious underfunding and under-staffing of universities in this sphere, as a result of which their resources were increased and a special social science sub-committee of the University Grants Committee was set up. At about the same time an Advisory Council for Scientific Policy was established which emphasised the "contribution which might be made by a review of existing knowledge of human factors affecting productivity and by making available Government funds to enable valuable research in this field to go forward" (Stansfield, 1981). Accordingly, at the end of 1947 the Labour Government, on the joint initiative of the Lord President of the Council (as Minister responsible for Scientific Research) and the Chancellor of the Exchequer (in his capacity of Minister for Economic Affairs), set up a Committee on Industrial Productivity to advise on short-term measures, based on established research findings, that could be used to increase the nation's productivity. It operated through four Panels, of which the Human Factors one was of key importance for occupational psychology. The chairman of the Human Factors Panel was Sir George Schuster a banker and company director and an advocate of Christian principles applied to management issues (Schuster, 1951). What is not widely known, however, is that the Schuster Panel might well have been known as the Mayo Panel if his ill-health had not prevented Elton Mayo, of Hawthorne investigations fame, from accepting this position. Smith (1987) describes how Mayo's wife wrote to the Dean at Harvard in December 1947 with news of a major stroke which kept her husband from a small dinner in London at which the appointment would have been agreed. Mayo had retired from Harvard earlier that year and come to England, a country with which he always identified closely.

From the start the Panel recognised that it was dealing with an underdeveloped field "in which scientific knowledge was patchy in some parts and non-existent in the rest" and that the problem of applying the results of psychological research to industry was "formidable". Furthermore, as the Clapham Committee (1946) had noted, there was a dearth of experienced researchers in the area. Jack (J.G.W.) Davies, who was Schuster's Executive Assistant in the Panel's early days, in a personal communication of September 1990, recalled that "the Panel's job was to keep in touch with research projects and enquiries in the social sciences which might have a bearing on the morale and efficiency of productive industry. It was to give currency to the results of this research and to encourage further effort where promising indications had emerged, but it was not a direct provider of funds for this purpose". Essentially, it was a facilitator of research rather than a direct sponsor, the financing of projects recommended by the Panel for which Government funding was required being undertaken by the Medical Research Council. As Schuster observed at the conference cited below, with some sense of frustration, the function of the Panel was "limited to the initial recommendation of the projects, without any power to guide their subsequent development". Even so, the Panel, which included industrialists and trade unionists as well as academics, was a major influence in mobilising social science expertise after the war; and, in Davies" opinion, in familiarising Government with the idea of supporting research in this area. In his words: "there was open talk about the need for a Social Science Research Council to supplement the established Councils Medical Science and Agricultural" for which the Panel was a forerunner some ten or more years before the SSRC came into being.

An account of the origins, membership and work of the Panel, together with an overview of the projects which it supported, is to be found in the report of a conference on 'Human Relations in Industry' (Ministry of Labour and National Service, 1952), which includes the paper by Schuster referred to above. It shows clearly how the Panel had its finger on the pulse of ongoing researches in academic and other institutions, and its particular interest in projects related to specific practical problems.

These projects were classified under five main headings:

I. Extensive surveys of existing practices in British industry

II. Intensive studies of human relations in particular cases

III. Comparative case studies

IV. 'Human engineering' studies (fitting the job to the man)

V. Studies of methods of communication in industry

Schuster Panel Studies
The National Institute of Industrial Psychology undertook two nationwide surveys under the first heading, one on foremanship (NIIP, 1951) and the other on joint consultation (NIIP, 1952). In the second category, the main project was the pioneering study by the Tavistock Institute of Human Relations in the Glacier Metal Company, published by Jaques (1951) as The Changing Culture of a Factory. It was the first instance of what would later be called an 'organisation consultant' working full-time with a firm. As Klein and Eason (1991) note, Jaques "made the earliest, and still very influential attempts to formulate something like professional principles for this role derived from his clinical and psychoanalytic training and experience". Both the approach adopted and the resulting analysis of roles and relationships within the company engendered much controversy among managers and social scientists alike and as such were to generate new ways of thinking about the nature of organisations. Another study by members of the Tavistock Institute, itself a post-war development founded in 1946 under grant aid from the Rockefeller Foundation and elsewhere (Sutherland, 1951) came under heading five. This explored various aspects of communication in industry (Cook, 1951a) and made a case study of one of the Anglo-American Productivity Teams that followed the inauguration of the Marshall Plan for economic aid to Europe (Pelling, 1988), whereby British managers and workers were given first-hand knowledge of American production methods and practices (Cook, 1951b). Perhaps the most well-known and important study listed by the Schuster Panel under the Tavistock Institutes communication project, however, is the paper by Trist and Bamforth (1951) on "Some Social and Psychological Consequences of the Longwall Method of Coal-getting". This was the first account of the Institutes investigation of the human effects of technological change in mining, later to be published under the title of organisational Choice (Trist, Higgin, Murray and Pollock, 1963). It was from this study that the concept of an organisation as an open socio-technical system evolved, as well as that of adaptive work organisations, which had a profound and significant impact on the study of organisations and the growth of organisational psychology in the 1960's. Two investigations came under the Panels third heading of comparative case studies. First there were the morale surveys of the MRC's Group for Research in Industrial Psychology (Marriott, 1951) and, second, the sociological studies of joint consultation by Liverpool University Department of Social Science (Scott, 1952). They illustrate a growing awareness of the limitations of viewing the individual worker in isolation from his/her social context, and the significance of the social 'climate' of organisations as observed variously in employee-management relations, company morale and overall performance. Here again, one can see the foreshadowing of later developments in organisational psychology, although it was to be more than a decade later before they came into prominence. As would be expected, given the reputation of its wartime work, the Panel looked to the MRC Applied Psychology Unit at Cambridge for human engineering research that would extend the knowledge of skilled performance gained in the Services to civilian jobs. The work of Conrad (1951) and Gibbs (1949) is of particular relevance in this connection. Also at Cambridge, the Panel encouraged the Nuffield Research Unit in its examination of the ways in which ageing affects human skill. This Unit, under A.T. Welford's direction, was established in 1946 for what, in those days, was a new area of applied

research. It was seen as of national importance at a time when labour shortages and demographic data suggested a possible future need to employ people beyond the normal age of retirement. Later, revised population estimates and the prospects of automation on a wide scale made this possibility increasingly unlikely (Welford, 1976), leading ultimately to the demise of support for 'industrial gerontology' in this country. In the meantime, however, complementary studies of the psychological and occupational aspects of ageing were supported at Liverpool by the MRC when it established a unit with this title in 1955, which was directed by Alastair Heron. Without itemising every single investigation that came under the auspices of the Schuster Panel, the extent of its influence on post-war social science in Britain will be evident from those that have been mentioned. However its functioning was not without difficulties. Stansfield (1981), who succeeded Davies as Schusters Assistant in 1949, gives some illuminating insights into and examples of these, quoting a psychiatrist member (Alfred Torrie) who wrote to him that "I found it was a most disappointing committee. The left wing was too vocal and the right wing too obstinate". This was attributable partly to the fact that the members of the Panel who represented industrial interests were not serving in their personal capacities but as the nominated representatives of the British Employers' Confederation or of the TUC. Consequently they often felt constrained to refer issues back to their parent bodies for comment and this led to caution and delay in the work of the Panel. A lesson was learnt from this experience. On its successor committee members were expected to serve in an individual not a representative capacity, mediating the views of the various interest groups from which they were drawn, but not being bound by them.

Joint MRC/DSIR Committees
In 1950 the Council on Industrial Productivity, which had brought the Schuster Panel into being, recommended its own dissolution and that, with its ending, the work undertaken by the Panel should be continued by two joint committees of the Medical Research Council and the Department of Scientific and Industrial Research. One of these was to be concerned with Human Relations in Industry and the other with Individual Efficiency in Industry. Getting agreement and working out the details of membership and terms of reference for these committees tools a considerable time, so that it was not until 1952 that a joint memorandum was submitted to the Lord President of the Council for approval and their establishment announced in 1953 (see BPS Quarterly Bulletin, No. 20, p.27. May 1953). The Committee on Individual Efficiency was chaired by Sir Frederic Bartlett and the one on Human Relations by A.B. Waring (later Sir Bertram), Managing Director of Lucas Industries Limited. Each committee included strong representation from psychology and the other social sciences as well as from both sides of industry. Roger Russell, Professor of Psychology at University College London, served on both as a linking member, as did J .O. Blair Cunningham (later Sir James) who was then Chief Personnel Officer at British Overseas Airways Corporation. Conventional wisdom holds that the research sponsored by these joint Committees was supported financially by Counterpart Funds derived from US Conditional Aid under the Marshall Plan. According to Stansfield (1981), this is true only in the most literal sense. He points out that the Committees were constituted formally a few months earlier than they would have been had no such money been available, but that they "were planned in the expectation that their work would be supported from normal Parliamentary funds" (p.272). What the CA money did was to give the Committees a flying start, but it is worth recording that their programme was underwritten also by Government funds. This enabled them to support a wider range of research than would have been possible had they been restricted solely to the subjects and topics set by CA rules. As we have mentioned previously (Shimmin and Wallis, 1987), whatever else was distinctive about the circumstances of occupational psychology in the decade after the war ended, Governmental encouragement and financial support was strikingly evident, in marked contrast to the situation which has prevailed now for several years. There is no doubt that the nations need for increased productivity and for an effective industrial base contributed to this official interest. Also that the condition attached to Conditional Aid funds that they should be used to support research directed towards improving industrial performance, influenced the types of project

undertaken by occupational psychologists in the 1950's. For example, one of the authors (S. Shimmin) of this volume entered the applied field through joining the MRC Industrial Psychology Research Group to work on an investigation of incentive payment systems in industry, supported by CA funds. The Joint Committee on Human Relations in Industry, which was responsible for this and other complementary projects on the subject, kept the various teams in touch. A particularly useful link made in this way was with RC. Stansfield of DSIR Headquarters, who was the supervisor of CA funded research into the human relations aspects of work study and who became Secretary of the DSIR's Human Sciences Committee after the ending of the CA programme. As many researches recall with gratitude, Stansfield on his own initiative helped them considerably by putting them in touch with others in the field and forwarding information of relevance to their enquiries. The resulting informal communications network of social science researchers has survived until this day and, over the years, has enabled them to gain ready access to their peers for advice and exchange of ideas to the benefit of all concerned. There were also meetings and conferences that sought to bring together researchers and potential users of the results of research (Klein and Eason, 1991); so that the tradition of promoting studies applicable to practical problems, established by the Schuster Panel, was continued in this way. With the conclusion of CA funding in 1957, the need for the DSIR and the MRC to work in joint harness ceased (Cherns and Perry, 1976). Thereafter, the Human Sciences Committee of DSIR became responsible for a broad programme of social science research related to the needs of industry, and commissioned a series of short research reports (DSIR, 1957-67: Problems of Progress in Industry Series) aimed at a wide readership. The MRC continued its support for its psychology groups and units and for areas of the social sciences related to medicine. Although the Joint Committees had succeeded in arousing the interest of industry in research in the human sciences during their four years in office, it was not private industry but government that was to remain the main source of funding for this type of research in Britain.

Industrial Research Associations
Some of the industrial research associations, which were funded in part by DSIR, such as the British Boot, Shoe and Allied Trades Association and the British Iron and Steel Research Association, undertook psychological research on problems related to their particular industries. At the former, Tom Singleton (later to be Professor and Head of the Department of Applied Psychology at the University of Aston) carried out a series of classical ergonomic studies, while important work of comparable standing was done at the latter by John Samuel (subsequently Chief Psychologist at the Post Office) and Reg Sell (later to be with the Work Research Unit of the Department of Employment and ACAS). In 1956, the NIIP approached the DSIR asking if it might be given equivalent status to an industrial research association whereby membership subscriptions and contributions made by industry for research would earn a related grant from the department (Frisby, 1971). This was agreed on a trial basis for three years, afterwards extended subject to review every five years. It was, as Frisby notes, a new era in the Institutes history, signifying a change in the balance of its activities and giving priority to research "of a kind not usually carried out by university departments" that required close contact with the working situation in industry and commerce. The decision to focus on research at the expense of some of its advisory work had, indeed, been taken earlier, following the projects undertaken for the Schuster Panel and was not welcomed universally by the staff. It appears from Raphael's (1971) account of "The Research Fifties" at the NIIP that there was less cohesion than formerly, with a hint of tension between staff members used to working on investigations for industrial clients and those engaged specifically as researchers. Be this as it may, the Minutes of the Institutes Scientific and Advisory Committee (in the NIIP Archives in the library of the London School of Economics) show that there was disagreement among the outside advisers on that Committee on the type of research that should be undertaken on the DSIR grant. Members representing the DSIR (such as Professor James Drever and Mr R.G. Stansfield) criticised the proposed programme as focussing too much on the NIIP's traditional activities; but Sir Frederic Bartlett in the Chair and Professor L.S. Hearnshaw saw value in the intended follow-up work. In

addition, the Earl of Halsbury insisted, on more than one occasion, that the Industrial Grants Committee of DSIR would rather see "a sound programme being energetically pursued" than a number of ancillary studies completed within the period of the initial grant. It is apparent that conflicting aims and ideas surrounded the Institutes debut as a research association. (With hindsight, one wonders whether the NIIP's operational difficulties in the 1970's and its ultimate demise may have stemmed from its lack of a distinctive research ethos and over-dependence on research funding that began in the late 1950's - see Chapter 6).

Industrial Misconceptions
The emphasis on research related to the needs of industry and on producing results which are of direct practical use tends to cause uneasiness among those whose idea of research is long-term, fundamental, investigations; and so there is a longstanding debate in the social sciences about the relation between scientific and applied research (Davidson, 1977). In their final reports the Joint Committees drew attention to this issue (Department of Scientific and Industrial Research and Medical Research Council, 1958), noting not only the different time-scales inherent in the two types of research but also the false expectations often found in industry that "general academic reports can produce cut and dried answers to problems as they arise on the shop-floor" (p.6). A clear instance of such false expectations can be seen in the National Coal Board's response to the report of an extensive investigation of coalminers' attendance at work which the Board sponsored from 1952 to 1958. The research team was led by Dick (R.B.) Buzzard on secondment from the Medical Research Council (subsequently Research Director and then Director of the NIIP). Its report was submitted in 1958 and revised for publication in 1963 (National Coal Board Medical Service, 1963) with a preface by the NCB which almost disowns the findings. The preface begins with the words "The National Coal Board take no responsibility for the opinions expressed in this report" and it ends "In the Boards View the hypotheses put forward in the report do not give a sufficient explanation of the steady increase in percentage absence from 1954 to 1961". While the authors stress the complexity and inter-relatedness of the theoretical and practical questions which confronted them in the course of the research, on which the evidence was often contradictory the Board express disappointment in the inconclusive answers given to many of these questions. In psychological circles, however, the reactions to the study were very different. Buzzard receiving the H.M. Vernon Prize of the National Institute (NIIP) in 1960 for what was cited as "an exceptional contribution to knowledge in this difficult field". In addition to the projects mentioned already, the post-war years were distinguished by what were to prove seminal studies by British sociologists and anthropologists, notably those of Woodward (1965) at Southeast Essex Technical College, Burns and Stalker (1961) at Edinburgh University Social Sciences Research Centre, and Lupton L1963) and his colleagues at Manchester University. Launched originally under CA auspices, these investigations, together with those of the Tavistock Institute referred to earlier, laid the foundations of a widespread research interest in and about organisations in the next decade. They certainly influenced the directions taken by occupational psychology in the 1960's. Before turning to these developments, however, it is necessary to look at what was happening on the academic front during the period we are considering.

ACADEMIC DEVELOPMENTS

The main thrust of university expansion in post-war Britain followed the publication of the Robbins (1963) report on higher education, but before that there was a growth in existing institutions with the return of staff and ex-service students from their wartime duties, as well as the normal complement of school-leavers embarking on further study. Psychology departments included many individuals who had been actively involved with wartime applications or who had encountered the work of psychologists in the Forces and become interested in making their careers in the subject creating a climate of respect and enthusiasm for applied psychology in all its branches. What kind of training was needed by

would-be industrial occupational psychologists to prepare them for work in the field, exercised such influential figures as Edith Mercer, James Drever, N.A.B. Wilson and CB. Frisby in a series of papers in Occupational Psychology in 1948. However, it was Alec Rodger, who had been the Admiralty's chief psychologist throughout the war, who took the practical step of initiating a postgraduate diploma in occupational psychology at Birkbeck College London in 1951. As he described it, he envisaged this course as "shortening to a useful extent the time the occupational psychologist usually takes to learn the fundamentals of his trade" while avoiding "the common risk of becoming, too early, a specialist within a specialisation" (Rodger, 1952). It was an initiative from which was to develop, in 1961, the first Department of Occupational Psychology in the country where many occupational psychologists of note were to receive their training.

Early Courses
The Birkbeck diploma built upon old foundations in the sense that it comprised the revised format of Part II, Section C, of the Academic Postgraduate Diploma of the University of London, which had been established in 1921. Originally entitled "Industrial and Commercial Applications of Psychology", Section C appears to have been taught in the Inter-war years by members of staff of the NIIP, leading to the vain hope after the war that it might achieve University recognition as a teaching institution for applied psychology (NIIP Archive, Section E/8 Doc I09). Another centre where industrial psychology was taught within the framework of the Academic Postgraduate Diploma was the London School of Hygiene and Tropical Medicine. This had longstanding links with the old IHRB and the slant of the course, taught by Harry (H.D.) Maule, was towards the ergonomic aspects of the subject and it became eventually a specialised postgraduate programme in ergonomics. Attempts elsewhere to introduce systematic training in occupational psychology were few in number and, as in the case of a diploma course at Liverpool started by Leslie Hearnshaw and Dermot Straker, did not become firmly established (Bromley, 1991). At Edinburgh, Denis McMahon's Applied Psychology Unit in the Department of Psychology provided practical training for final year undergraduate students "in the basic techniques which all working psychologists appear to use in their jobs" (McMahon, 1951); but most honours graduates in psychology in the fifties were not so prepared for employment. Even so, as Belbin (1979) pointed out in her 1978 Myers lecture to the British Psychological Society, they were taught by academics with wide experience of applied psychology as the result of their work during the war. To Belbin and her contemporaries at Cambridge, "that psychology was applicable to the wide range of problems that surrounded us in the outside world, was something we never had occasion to doubt". The present authors can testify that the same view prevailed at that time among students in London, and no doubt did so at other universities.

Later Developments
A contributory factor was the network of informal, but informed, relationships with potential 'users' in government and industry, established through their wartime assignments, that Sir Frederic Bartlett, Alec Rodger and others were able to enlist in furthering applications of psychology (and, it may be noted, in obtaining jobs for their students). In the wake of the expansion of higher education in the next decade that followed the recommendations of the Robbins Committee (1963) these links became more attenuated. The staff of the psychology departments in the new universities were drawn from a younger generation whose interest, in the main, lay in experimental rather than in applied psychology (Cherns, 1966). As Broadbent (1980) observed of these developments:
"The expansion was of university departments not of applied groups. About fifty well-equipped, and sometimes splendidly housed university schools shifted the main centre of the subject firmly towards conceptual and theoretical problems, rather than practical and empirical ones. There were exceptional University groups at Aston, Loughborough and the University of Wales who were specifically applied, but they were outnumbered by conventional academics. There was still no equivalent of Bell Laboratories, of Bolt Beranek and Newman, Inc or of institutes such as those at Michigan or Stanford" (p.67-8).

Nor, it may be added, are there any in Britain at the present day. Where an applied orientation was to be found was in the psychological input to the teaching at the newly established business schools and similar organisations. Although management education in Britain developed late in comparison with the United States Levick and Brech. 1957), the foundations for it were laid at the end of the war when a committee, set up by the Ministry of Education in 1945 and chaired by Urwick, produced a report described as "a milestone in the development of management studies" (Child, 1969, p.242). One of the projects undertaken by the Tavistock Institute of Human Relations under the Conditional Aid (CA) programme was on 'Education and the needs of industry'; a topic given further impetus by the reports of the Anglo-American Productivity Teams, to which we referred earlier, one of which was concerned specifically with management education in the United States (Mace, 1952).

Other influences were also at work. In 1947 the British Institute of Management (BIM) was set up by the Board of Trade to disseminate information on modern management methods while, in the private sector, the post-war period saw a considerable growth of facilities for 'management development' and training (Whitley, Thomas and Marceau, 1981). Throughout the 1950's there was increasing concern in many quarters about the quality of British management, which led eventually to the setting up of the London and Manchester Business Schools in 1965 and of departments or centres of business and management education in British universities. These developments, although it was not realised at the time, were to have a significant and increasing influence on the scope and practice of occupational psychology in the years ahead. (See Chapters *5* and 6).

THE NINETEEN SIXTIES

One effect which was observable on the research front was that when the Social Science Research Council was set up on December 1965, on the recommendations of the Heyworth Committee on Social Studies (1965), applications for research funding in the broad area of occupational psychology often came from management centres and business schools and were not submitted exclusively by psychologists. The SSRC, whose terms of reference included the encouragement and support of research, the training of research workers and advising and disseminating knowledge about the social sciences (Cherns, 1967), operated largely through subject committees (see Platt, 1976, Appendix D). It was evident to one of the authors in refereeing grant applications, and as a member of the Psychology Committee for four years, that it was the Management and Industrial Relations Committee that received and handled most of the submissions relating to occupational psychology. These often entailed a multidisciplinary research team in which psychologists per se might or might not be included. For an overview of British psychological research in the period 1960-66, it is useful to consult a bibliography prepared by Nelson (1971) for the SSRC our field of interest is presented under the heading of 'occupational and organisational psychology' which, in itself, shows the direction in which the subject was moving at that time Nelson points out that, in contrast with other branches of psychology where the published research listed can be regarded as comprehensive, in this area it excludes a great deal. This is because "much work done by industrial psychologists within industrial firms is not released for publication; work done by consultancy firms is similarly kept confidential; much of the work in the Armed Services is classified material, while work in the Civil Service, Ministry of Labour, etc. is not systematically released; even from the nationalised industries where it is suspected that much useful work has been carried out, little is published for general consumption" (p. 190). With this caveat, and noting to the exclusion of market research which we also are not including in our review, it is interesting to look at the content of his sub-categories. These comprise: Guidance and Selection; Training and Task Analysis; Performance and Job Satisfaction; Industrial Groups and Communication (industrial social psychology); Engineering Psychology and Related Fields; and Organisational Psychology. All but the last are clearly recognisable as familiar areas of research in occupational psychology, although

Nelson stresses that the studies of job satisfaction and performance listed show the impact of other disciplines and a more 'organisational' orientation than prevailed formerly. Publications in 'organisational psychology' are categorised under the headings of the "study of psychological phenomena as they constitute a ground to organisational forms and processes" and the "study of psychological factors critical to organisational change". However, they include the work of British sociologists such as Woodward (1965) and Burns and Stalker (1961), mentioned earlier, as well as those of the Tavistock Institutes social scientists such as Trist and his colleagues (1963). It is noted that Britain has an "unrivalled reputation" for these empirical studies of changes in organisational forms which "the Americans for all their emphasis on change have for some reason done little to study deliberately" (p.202). The British research had spin-offs on both sides of the Atlantic as, for example, in the studies by Lawrence and Lorsch (1967) in the United States and those of the Aston group of social scientists in Britain (Pugh, Hickson, Hinings and Turner, 1968, 1969).

Although the SSRC had relatively modest resources with which to support research, in comparison with government departments and other bodies, it established a holistic concept of the 'social sciences' (Cherns and Perry. 1976) which tended to obscure the boundaries of traditional social science disciplines. As we have indicated, this applied particularly to industrial field studies in occupational psychology, which also became subsumed under other labels denoting new quasi-independent disciplinary areas like 'applied behavioural science' or 'organisational behaviour' (Pugh, Mansfield and Warner, 1975). However, not all developments in the 1960's were so labelled. A new MRC unit, the Social and Applied Psychology Unit, was established within the psychology department of the University of Sheffield in 1968 and became a major centre of research and research training in the following decades. Its early investigations lay in the realm of work motivation and job satisfaction, focussing on methodological and theoretical issues arising from American work in this area, e.g. through modifications to the Job Description Inventory (Warr and Routledge, 1969), evaluating Herzberg's (1966) two-factor theory (Wall and Stevenson, 1970), and so on. From 1980 onwards the 'social psychological' dimension of the Unit's work has been recognised by the SSRC (and its successor, the Economic and Social Research Council) sharing responsibility for the unit with the MRC. A survey of members of the BPS Occupational Psychology Section in 1966 (Elliot, 1967) showed that the main activities of respondents to the questionnaire were 'research' and 'consultancy/advice', the latter reflecting the growing interest of industrial and other organisations in what the social sciences had to offer them that characterised the decade. This was stimulated by the emerging American tradition of OD and the concept of 'planned change' (Bennis, Benne and Chin, 1969), and by a concomitant growth in the numbers of consultants and practitioners concerned with organisational problem-solving and renewal processes. Pioneering attempts were made by certain large companies to employ social science advisers on their staff (Klein, 1976) and to change their managerial philosophy with the aid of external consultants (Hill, 1971). The enthusiasm and optimism surrounding these experimental ventures seem, in retrospect, rather naïve as the resulting effects were to prove transient; but, at the time, this was the prevailing mood. Taken as a whole, therefore, the sixties were years of change in the emphasis and balance of activities of occupational psychologists. There was continuing work in the areas of personnel selection and vocational guidance, of ergonomics and of vocational training, the latter receiving a boost with the passing of the Industrial Training Act of 1964 (see Chapter 3). But it was organisational psychology that emerged as the area of expansion and one in which the overlap with other disciplines is the most pronounced. It is also the sphere of occupational psychology with the least developed technology and in which it is not possible to translate scientific research findings directly into practice, an issue which is considered below and to which we return in Chapter 6.

INDUSTRIAL RESEARCH AND APPLICATIONS: REFLECTIONS ON 20 YEAR EXPERIENCE

The model of scientific research conveyed to us as students was that of empirical enquiry, often designed to test a theoretical proposition, but possibly of an exploratory nature to assess the dimension of a problem, which emphasised the importance of method and control of variables in carrying out an investigation. It was the paradigm of experimental psychology; and one of us (SS) remembers the shock of hearing Harry Maule, as an experienced field researcher, telling undergraduates that a counterbalanced experimental design "is all very well in the lab, but it is impossible in the field" which suggested to his audience that industrial psychology lacked scientific rigour. On joining the MRC Industrial Psychology Group as a new research worker with no first-hand knowledge of industry, it was a relief to discover that Reg Marriott, the Assistant Director, had clear ideas (and ideals) about methodology, access, confidentiality and feedback in the applied research setting. He believed firmly that it was the investigators responsibility to be detached and impartial in carrying out research, never working in a company without obtaining the independent consent of workers' representatives as well as of management, explaining fully to all participants the nature of the enquiry, choice of methods, selection of respondents and so on; and honouring promises to tell them the findings without betraying any confidences or identifying informants. His professionalism in this respect was exemplary and highlighted the importance of the skills needed to negotiate access to research sites, operate within them and withdraw from them successfully. It was a valuable lesson, learned in the context of research initiated by the research team, i.e. the firms concerned had not approached us, but we had sought their cooperation and they had no prior interest in our incentive payments study (Shimmin, 1959). The investigation in this respect followed the tradition of basic research, with the design and execution of the enquiry determined by the researchers, and the end-product seen in terms of publications and a report to the sponsoring Joint Committee on Human Relation in Industry. It also conformed with tradition in using established attitude survey methods, which Wyatt and Marriott (1956) had used previously. However the fixed-choice format for answers to the questions was modified after two of the new assistants, who had never been in a factory in their lives, took the part of worker respondents in a role-playing exercise and produced results closely resembling those obtained from genuine shop-floor employees! This not only resulted in the use of more open-ended questions in the research interviews but also gave those concerned a lasting suspicion of data solely on Likert-type questionnaire responses. As might be expected, given the circumstances of the enquiry, its impact on the participating companies varied; but it was evident that, while it was in no sense an interventionist or consultancy exercise, the mere presence of the researchers in a factory and the facilities they sought set people thinking. In some instances, informal feedback led to changes, although these were unintended consequences of the investigation. Another lesson from this research, therefore, was that there is an inevitable interaction between researchers and the host organisation, i.e. empirical research of this kind has an interventionist aspect. To the extent that the roles of the subjects of the research go beyond the passive role of being investigated, and that the researcher recognises that his/her strategies of enquiry have consequences for the participants and acts accordingly, it contains the elements of action research, as Klein and Eason (1991) have pointed out. It also suggests that in applied field research in organisations, the distinction between scientist and practitioner should be seen less in terms of a dichotomy and more as of the nature of a continuum. The MRC unit was located within a psychology department, in which the ethos and values of experimental psychology predominated. Although in practical terms the research staff had the security of rolling contracts of employment, they felt constrained to justify their existence from time to time when confronted by hard-line experimentalists. There was much debate about 'pure' versus 'applied' research as the received wisdom from MRC headquarters was that we should not engage in problem-solving per se. but should undertake 'fundamental research relating to applied problems. It was not clear what this meant in some instances when specific

problems were directed to us by the MRC that entailed finding and recommending practical solutions, e.g. why railway drivers were passing signals set at danger and what could be done about it (Buck, 1963, 1964). Provided that the MRC was happy with the work in progress, however, the Unit was free to pursue research without worries about sponsorship or making applications for new or extended research grants. Later experience as a member of Research Council Committees, and as a University head of department seeking grants for research projects and research studentships, showed that the 'realities of social research', to borrow Platifs (1976) title are far more problematic than was realised when working within the relatively protected environment of the Unit. For example, the interrelated problems of access to funds, to research settings and to individuals, documented by Brown, de Monthoux and McCullough (1976), and the difficulties of negotiating one's way through these to accord with the timetables of academic and funding bodies have to be experienced to be appreciated fully. Needless to say, the associated pressures vary according to whether or not funding is tight, whether an application is being made in the context of competitive tendering for work on a particular topic (a mode of research support favoured increasingly in recent years) or stems from the researcher's own interest, whether individual jobs are at stake, and so on. The situation is different again with industrial sponsors seeking help with particular problems and hoping for immediate and directly applicable results. Their idea of the time-scale involved is often quite at variance with that of the researchers. Personal experience is limited here, but it has been sufficient to realise that the extent and nature of an engagement with an outside organisation depends upon the presenting problem and its context, the type of solution sought and the methods used, as a result of which the applied psychologist may assume one of a number of multiple roles (Wallis 1971; Cherns, 1976). As we have seen, from the Schuster Panel onwards, the emphasis in official circles has been on the desirability of utilising the results of researchers in our field and applying them in industrial settings. It has also been recognised that this is easier to advocate than to achieve. Albert (A.B.) Cherns, who was Scientific Secretary of the SSRC before taking up a Chair at Loughborough University of Technology, devoted much thought and energy to this issue and set up a Centre for the Utilisation of Social Science Research in an attempt to solve the problem. In his Chairman's address to the BPS Occupational Psychology Section entitled "Putting Psychology to Work" he asserted that, for the deliberate application of research, what is needed is (a) a crisis, preferably a national one in wartime, (b) a handy supply of people able and ready to undertake research, and (c) identity of sponsor and user which makes the researcher part of the application system (Cherns, 1967). This last point he re-iterated forcefully twelve years later (Cherns, 1979) when he stated that he had been unable to find a single example of a study which resulted in direct application except where the investigator has been actively involved in following through his/her studies into application. In his view, the wider 'fall out' represented by the spread of social science "relies on the slower processes of diffusion and change in climate, and on the tolerance (even the encouragement) of people spending their time doing research".

CHANGING RESEARCH ENVIRONMENT

The climate of opinion concerning research has changed over the years. From the 1960's onwards there has been much debate about the nature and purpose of research and about the relationship between researchers and those whom they seek to study. Previous assumptions have been questioned and opinions differ on, for example, the idea that science is value free, or that positivistic methods are necessarily more 'scientific' than subjective approaches. The researcher's access to documentary material is a more sensitive issue than formerly. When working for the MRC in the 1950's, it was taken for granted that a company's personnel records were the property of the firm. Therefore, although care was taken to obtain the workers' agreement to the topic and plan of research as it affected them personally (e.g. how an interview sample would be selected), it never occurred to us to ask their permission to look at personnel data. Management approval for this procedure was considered sufficient. (Analysis of absence and labour turnover figures was a standard

method of comparing departments at an aggregate and not an individual level). Twenty years later, a similar request to management for access to personnel records was met with the response that approval would have to be sought from each individual employee, even though the intention was to use them solely for statistical purposes! The passing of the Data Protection Act (1984) may have been partly responsible for this position, but it was apparent from talking to the managers concerned that their personal values would have prompted the same response had there been no legal considerations involved. Traditional industrial psychologists concentrated almost exclusively on the behaviour, attitudes and performance of workers on the shop-floor, but a conspicuous change since the war has been the proliferation of studies of managerial attitudes and behaviour. Attempts to bring about planned change in organisations, and the practice of action research in which clients and researchers jointly determine the nature of the problem, its investigation, and the implementation of the results, have led inevitably to managers becoming the focus of study as well as their subordinates. A related, but independent, issue is the question of on whose behalf research is undertaken. The spread of humanistic values in the 1960's, particularly among student groups among whom there was a strong protest movement against traditional authorities throughout the world, was accompanied by dislike and mistrust of industrial organisations. In the United States, Baritz (1965) published an influential criticism of industrial psychologists and sociologists under the title of "The Servants of Power". He argued that, wittingly or unwittingly, they acted in the interests of the establishment in seeking the causes of worker dissatisfaction, which management could remedy and thus forestall any attempts to unionise the workplace. It was a charge that found echoes elsewhere as, for example, in this country when in 1970, Peter Jacques of the Trades Union Congress told a gathering of occupational psychologists that their research was generally management-orientated and often appeared to be directed to making "contented cows" of the workers, in its preoccupation with job satisfaction in the workplace (Wallis, 1971).

The combined effect of these influences has been to alert the research community to the ethical and political dimensions of their activities in the field, which were unproblematic for previous generations. Whether undertaking research on more traditional lines or in the action research mode, and certainly if taking on a consultancy role, occupational psychologists, like other social scientists, have to confront their own values and those of the people with whom they are interacting. The negotiated order between researcher and researched cannot be prescribed in advance and varies with the nature of the engagement (Maugham, 1982). It is an aspect of professionalism which cannot be taught in the classroom, but has to be acquired on the job. For this reason we see supervised field placements as essential elements in any academic courses directed towards professional training in occupational and organisational psychology. Given that they are necessarily of limited duration, the value of such placements is that they give students a taste of what life is like in organisations other than academic ones, and they encounter world views quite different from those prevailing in the university. They cannot be regarded as fully fledged field researchers or practitioners on the basis of this experience, but it serves to correct naive assumptions about the 'real world' and how psychology can contribute to solving its problems, included in this experiential learning, it seems to us that recognising and honouring an obligation to feed back the results of the study to the host organisation is essential. The lack of application and utilisation of research findings, deplored by funding bodies and others over the years is attributable partly to members of the research community looking to their peers for approval and publishing, sometimes belatedly, in scientific journals, whilst disregarding the importance of giving those who provided the facilities for their work an account of its outcome. Not only is this the minimum requirement in maintaining good relations with a host organisation, but in deciding on the nature of this feedback and in presenting it, much can be learned about the sensitivities of the recipients and the dilemmas involved in trying simultaneously to meet practical and scientific objectives.

At the beginning of the 1990's it was difficult for academic staff to sustain these dual aims, let alone realise them, when the University Funding Council suggested that they should try to publish at least three papers a year in refereed journals (Sik, 1993). The resulting tendency to make each piece of research yield as many publications as possible (the 'salami effect' of thin slicing of the data) seemed likely to detract from interest in and involvement in time-consuming applied work and to reinforce the divide between research and practice. However, a reversal of this trend has been heralded in 1994 with the announcement that for the university research assessment exercise beginning in 1996, review panels will be instructed to take full account of work directly related to the needs of commerce and industry when making their awards (Financial Times, 10/06/94). The effects of this attempt to counteract a perceived bias in favour of academic research, however esoteric or obscure, to the detriment of applied work, remains to be seen (and pendulums can swing too far). It should, however, improve the standing of occupational psychologists when the contribution of their research in, and on behalf of, companies to the departments overall research rating becomes apparent.

CHAPTER 4

PERSONAL REFLECTIONS AND RECOLLECTIONS

INTRODUCTION

In the course of assembling material for this book, we obtained personal accounts of their careers and experiences in the field of occupational psychology from a number of friends and colleagues. Some of these were tape-recorded interviews, some were tapes recorded by respondents themselves and sent on to us, some were written reminiscences, some were published recollections and autobiographical accounts taken from journals and some were letters from those whose help we sought in checking information from other sources. In this chapter we present extracts from the individual protocols to supplement the material based on our own experiences described earlier.

We make no claim that our informants were a representative sample of psychologists in our domain, and the diversity in style and content of their recollections makes it almost impossible to give a comprehensive account of them all. However, certain themes recur in the material and these have been used to organise individuals' reminiscences and observations. Each theme is illustrated by excerpts from a number of people, together with our linking comments. The latter have been informed by what others have said and written, even when space has not permitted us to quote them in full, and we hope that no one will feel their contribution has been ignored or neglected. Any omissions or under-emphasis of particular points are, of course, entirely our responsibility.

POST-WAR STUDENTS AND THEIR ENTRY TO OCCUPATIONAL PSYCHOLOGY

Most of the people on whose accounts we draw here were students in the late 1940's and the 1950's when the possibility of reading for a degree in psychology was unknown to the majority of school-leavers and by contemporary standards, the subject was underrepresented in universities. Their discovery of psychology and its attractions for them pre-date the expansion and promotion of the social sciences in the 1960's and the popularisation of the subject by the media. Therefore, although fortuitous factors have probably led later generations of students to careers in psychology they are bound to differ from those affecting the post-war generation. Not the least of these factors are the absence of compulsory national service, through which a number of our respondents were introduced to occupational psychology, and the exigencies of post-war reconstruction that prevailed throughout the country. The excerpts given below have to be seen in this context and they illustrate and supplement the narrative set out in Chapters 2 and 3.

First, some examples of how their experiences in HM Forces influenced the choice of career of a number of occupational psychologists: David Duncan, who has spent his entire career as a practitioner and consultant, records that "I had resolved to become an occupational psychologist by the time I left the RAF in 1947. St. Andrews University had not heard of such creatures, so the nearest approach I could make to my objective was to take a joint honours MA in psychology and economies, with a thesis on occupational mobility. When I graduated in 1950 I applied to the NIIP for employment, only to be told they preferred graduates to have some industrial experience before joining the Institute so it was after 3 years as a business management trainee that I joined the NIIP in 1953". (Personal communication, 1989).

The value of acquiring first-hand experience of industrial jobs was also impressed on Gerry Randell, now Professor at the University of Bradford Management Centre, when he decided to become an occupational psychologist. On leaving school his intention was to read chemistry, "but in 1949 I was called up for National Service. I was put into the personnel

selection branch of the RAF at Hornchurch and one of the people who trained me was Albert Cherns. I enjoyed the work and started thinking that perhaps chemistry was not my line. So on finishing my National Service in 1951 I started enquiring about how to get into psychology and, advised by Albert and John Parry, I visited both the NIIP and the Tavistock Institute of Human Relations and asked how one became an industrial psychologist. At one or the other place, I forget which, I was given the invaluable advice to get some shop floor experience in a factory or do an equivalent job and so before taking up a place at Nottingham to read psychology in 1952, I became chemist in charge of the plating shop at CAV. Acton, and learned a lot. It was a great eye-opener, an influence that's been with me all my life and it reinforced my resolve of becoming an industrial psychologist when I left university". (Taped interview, 1990).

It was during his time in the RAF that the late Donald Broadbent (1980), Director of the MRC Applied Psychology Unit at Cambridge from 1958 to 1974 before moving to Oxford, also became aware of the possibility of psychology "as a real career" when sent to Florida in 1945 to train as a pilot. "First, I began to realise the importance of psychological problems in practice" (when he perceived that the lay-out of aircraft instruments and controls often caused confusion and error on the part of those who had to operate them). "Next, I had been greatly impressed by the selection battery the RAF applied to me on entry. The process had the concrete quality that I'd admired in science, but it could shed light on the human problems that had concerned me In Britain, no schoolboy would have heard of psychology at that time... (but) Third, this situation was not true in the United States"... On finding that, over there, the subject of psychology was much more respectable and widely known he began "to explore seriously the possibility of being a psychologist rather than an engineer" and a spell of ground work in the personnel selection branch before his demobilisation in 1947 confirmed him in this intention.

Others who were students at this time initially chose to read psychology because it was the more attractive of limited options available to them when they entered university. For example, Sylvia Downs, who has specialised in research and consultancy on industrial training, found on applying for university after war service in the WRNS that "I was debarred from taking an Arts degree, which I would have liked, because I had no Latin or foreign languages due to my school being evacuated during the war and the two science degrees which were open to me were economics or psychology. I chose the latter because I had done some economics on a commercial course I had taken and didn't like it and also because my father had done the basic psychology course at UCL when working for a Ph.D. with Spearman". She was thus aware of the subject of psychology and had seen its application when, in the WRNS, "as a result of some mysterious psychological tests I was selected to train for a top skilled job as a radio mechanic". (Taped interview, 1990).

Similarly, Don Wallis, one of the authors of this history, was influenced in his choice of psychology by some of his experiences in the Royal Navy during World War Two. He was one of the earliest recruits to be filtered through what was known to him at the time only as the "head-shrinking" procedure; this was the psychological tests and interview process on the basis of which individuals completing Seaman training at HMS Ganges, Ipswich, were diverted into the mysterious technical training courses introduced in 1942 for radio and radar maintenance at sea. The psychologist involved there, as I learned many years later, was Dermot Straker, one of the ex-NIIP staff drawn into the Admiralty's newly-formed SP(N) Branch. "Later on, whilst serving in a Canadian Navy corvette, a more direct influence came from lengthy arguments and discussions with a ship-mate who happened to have completed two years of a psychology degree course in Canada before deciding to break off and volunteer for naval service". He remembers, too, that when he came to enrol at UCL in 1947, the Dean of the Faculty of Science could scarcely conceal his disdain for psychology as a 'so-called' science and tried to persuade him to read for Honours in physics instead. It was an easy option, rather contemptuously described by a physiology lecturer as "the only

subject in this university in which it is possible to get 100%" that Sylvia Shimmin, the other author of this volume, first considered psychology in 1943, intending to read for honours in chemistry, wartime regulations limited her to taking a general degree in three subjects initially and "I had no desire or the grounding to do physics or maths at this level". Physiology appealed as a new subject and psychology too when it was suggested, "and I found it fascinating from the beginning, particularly any first-year lectures from Mace who was the then professor and head of department".

Tom Singleton, later to become Professor of Applied Psychology at the University of Aston, was attracted to psychology through hearing Sir Frederic Bartlett give a lecture on social psychology to the Moral Sciences Club, to which he was introduced by a philosopher friend when he was reading Natural Sciences at Cambridge. "Having been to this lecture and being at that time somewhat disillusioned with physics in the post atomic-bomb era, when physics had become 'big science' involving expensive and massive equipment and large teams, I was attracted to psychology because it seemed to be a discipline still based on small-scale experimentation and on the thinking of the experimenter". So, one day in 1949, he went to see Bartlett and sought to enter the psychology school in the following session. (Tape recording, 1990). Another would-be natural scientist, a student during the 1960's, who became interested in psychology 'by accident.' is Valerie Stewart, the management and organisation consultant. In an interview in The Occupational Psychologist No 13 (1991, pp 17-24), she describes how, at school, her aim was to become a nuclear physicist, but, in the course of trying for an Oxford scholarship, she learned "that there were all these subjects available that didn't follow naturally from what you had done at school, like philosophy and psychology and economics". Having always been "a good all-rounder" it was a revelation to learn that "I could actually use everything", i.e. her maths and science and also her interest in the arts and the humanities. "So I changed the application from physics to psychology and economics, and I found psychology more interesting than economics. So it wasn't planned".

However, for Allan Williams, entering university in the 1950's, his decision to read psychology was an informed choice. "My interest in the subject developed at school when I found May Smith's book on Industrial Psychology in the library and thought that was what I wanted to do. From then on I never wavered in my desire to become an occupational psychologist and I went to Manchester to take psychology there specifically because the course offered a final year option in occupational psychology. This was taught by John Morris, then an assistant lecturer. On graduating in 1956, I realised the desirability of taking a postgraduate course in the subject and Birkbeck seemed to be the only place that had one on offer, as far as I can remember his application to Birkbeck resulted in his being given a DSIR research studentship which enabled him to "become a full-time student on the first two years Masters course in Occupational Psychology to come on stream." (Taped interview, 1990).

One can distinguish, therefore, between those who read psychology in order to become occupational psychologists and those for whom the first step was studying psychology because it appealed to them as a subject in its own right, but without clear ideas when they embarked upon it as to where it might lead them in terms of their careers. However, as mentioned in Chapter 3, most of the staff of university departments of psychology in the immediate post-war decades had been involved in wartime applications of some kind, so students were taught the subject in this context. As a tape made by Donald Broadbent in 1988 records, "among the comparatively few psychologists in universities at that time, the contributions of applied psychologists were very highly rated", a situation which did not survive the subsequent expansion of universities and the emergence of departments of psychology with much more theoretical orientations. How, then, did those who as students had no clear intentions to specialise in occupational psychology come to make it the field in which they have spent their working lives? The answer seems to be through a combination of serendipitous opportunities arising from contacts with friends, staff, and colleagues who

knew where vacancies were arising; and a willingness to pursue these openings without very certain ideas as to where they might lead, but in the confidence that they would lead somewhere! Sylvia Downs, for example, who found on graduating that neither the Prison Service nor the Admiralty were appointing women to the psychological posts available at that time, obtained her first job with the Child Study Centre assisting with a longitudinal study of normal child development "purely by chance, through Colin Hindley's (a student in the year ahead of her at UCL) mentioning it". Later, after her marriage and a spell at home looking after three small children, "a chance meeting with Bill Lubbock, another contemporary at UCL, led to an introduction to Brian Moore, then working for Eunice Belbin I asked him if there was anything I could do in the evenings to help my brain to start ticking again - I wasn't thinking of any pay". This led to an introduction to Eunice who had just been given a small grant to look at the training of postal sorters and the implications of ageing "So I started with a 3 month contract for a part-time job (2 days) at £10 per week, beginning on 1 April 1960. At the end of the 3 months, Eunice got another contract for 6 months, followed by one for 9 months, and so on, and we carried on in this way" before the establishment of the Industrial Training Research Unit in Cambridge, where Sylvia was to work for many years. (Taped interview. 1990).

Tom Singleton recollects his route to ergonomics and applied psychology as follows: "By about Easter 1950, the question arose as to what I was going to do when I graduated that summer. I'd had a number of discussions with Bartlett about thinking and he had put a proposal for a research grant for me to the DSIR, which was turned down, so I was offered a place in Welford's ageing research unit that was attached to the department and spent 3 years on laboratory experiments on the measurement of human performance. In late 1950 or early 1951, Alan Welford suggested I took a look at ergonomics, of which I'd never heard, and I asked what it was. He said 'well, there's a man in the Admiralty called Murrell who's got ideas about extending the work that's been done in the Services to the industrial situation and about combining psychological knowledge with that of anatomy and physiology'. This did interest me because I always had interdisciplinary tendencies and I joined the Ergonomic Research Society and learned functional anatomy and physiology within that context. The subject seemed extremely topical because the Continental members of the Society were still short of food in the aftermath of war and were interested in the effects of malnutrition on physical performance etc." (Tape recording, 1990).

For Valerie Stewart, "the big influence on my career was Neil Rackham" who was a contemporary of hers at Sheffield University. "When we moved into the Ph.D. stage, Neil got attracted into the industrial psychology unit (SAPU) that was just being set up. He started to do some consultancy work there and took me along with him, so my orientation was set by Neil". After post-doctoral research in the United States, she returned to Britain and Neil Rackham suggested she went into industry "Everybody was advertising for Management Development people, I hadn't a clue what they did! In 1970 I applied to IBM and was accepted. Which was how I became an industrial psychologist as opposed to any other kind of psychologist".

On graduating from Bedford College, London, Sylvia Shimmin saw herself as a social psychologist and, although she had been a research assistant to Eric Farmer for a year (a job taken at the suggestion of her professor, Denys Harding) and had also worked alongside Joan Wynn Reeves, an ex-NIIP and ex-Army psychologist, had no inclination to specialise in occupational psychology. However, when employed on an experimental social psychology project at UCL in 1953 "I was asked to join the MRC Industrial Psychology Research Group (later Unit) which had been transferred to the department there on Stanley Wyatt's retirement and under Roger Russell, the then Professor, was embarking on a programme of research funded by the Joint Committee on Human Relations of the MRC and DSIR I took up the position because it was there and because the job I was then doing was coming to an end. Also because Denys Harding, when consulted, advised me that to work with and be

well thought of by John Whitfield, Reader in the department and Hon. Deputy Director of the MRC Unit, would be a valuable introduction to the widely dispersed and influential Cambridge network that dominated much of the field." It was to be the start of 10 years with that Unit, "through which my knowledge and experience of occupational psychology extended considerably".

Until his final year at UCL, Don Wallis inclined towards educational psychology as a career option, being strongly influenced and impressed by the intellectual stature and high reputation of Sir Cyril Burt. However, two events changed his outlook irrevocably. "One was an enlightening talk to the College Psychology Society by Alec Rodger, describing the work and possible future of his psychological team at the Admiralty. The second was a chance recommendation, by Harry Maule during another invited address, to read a book which so completely captivated me that I determined to seek an outlet in the kind of applied psychology the authors were describing. The book was Applied Experimental Psychology: Human factors in engineering design by Chapanis, Garner and Morgan (1949). I also needed to earn more than was offered to me as a demonstrator in the UCL Psychology Department - a slim salary of £300 p.a. A post in the Admiralty's Psychology branch, SP(N), appealed to me on all these grounds, especially as I had served previously in the Royal Navy".

Alastair Heron who was to direct the MRC Unit on the Occupational Aspects of Ageing from 1955 - 1968 and later to occupy university chairs in Zambia and Australia, also came to occupational psychology through a research appointment: "On obtaining my M.Sc. in psychology from Manchester in 1949, I was offered a job in the MRC Unit of which Sir Aubrey Lewis was the Hon. Director concerned with Occupational Adaptation. This was based at the Maudsley, but a small group was being formed in Manchester to be active in the industrial setting, consisting of a psychiatrist, an economist and myself. During the next 4 years I was engaged on a series of studies to determine the extent to which, if any, psychological handicaps such as inadequate general intelligence or emotional instability were connected systematically with occupational handicap." (Tape recording, 1987). Peter Venables, later the first Professor of Psychology at the University of York, was another member of this Unit, joining it from his first degree at UCL; as was also another future professor, specialising in the field of mental handicap, Jack Tizard.

Research studentships were also the means whereby many of those seeking to become occupational psychologists were able to enrol on the Master's programme at Birkbeck, illustrated by the quotation from Allan Williams, given earlier. Others, such as Gerry Randell, who had obtained employment as an industrial psychologist at J.Lyons, working on the LEO computer were able to take the course on a part-time basis. There were, however, relatively few openings in private industry at that time and so graduates in the immediate post-war decades were either absorbed into the research units of the Medical Research Council and other bodies, as indicated above, or they joined the newly established Psychologist Class of the Civil Service as described in Chapter 2. Those with relevant industrial experience could also look for employment with the National Institute of Industrial Psychology. Thus D. Mackenzie Davey, who later founded his own consultancy organisation, on arriving in the UK from South Africa where he was born and educated, joined the NIIP in January 1954, as did Pat McDonnell from Australia at almost the same time. He writes "we used to compare our impressions then and have been doing so again very recently (1988). We both felt a great affection for that amiable, tolerant organisation. The staff were civilised, friendly, free from political guile and generally concerned to do an agreeable job in a relaxed and unhurried way". But they were also struck by the "indifference of the clients. Assignments were more like donations to charity than fees for a service which could radically improve the efficiency of the clients' organisation". In his view, "while the research activities did not show any sense of urgency they appeared to be well handled, but not directed to the needs of industry". He

quotes an appeal made by Sir Walter Puckey, who urged psychologists to do research which "will make a dent" on the many industrialists who regard "you lot" as a "hefty overhead" and cannot see how applied psychological research could help them solve some of their real problems. (Davey, personal communication, 1988). But industry, on the whole, was not prepared to consider the idea. In the taped recollections referred to earlier, Donald Broadbent observed how, outside the Government agencies linked with the three Armed Services, the general picture in the country was much less sympathetic to applied psychology. He continues that "I myself would probably not have stayed in Cambridge if I could have found a job in industry, but there seemed to be none going at the time". Hence the great bulk of the work done at the APU in this period was on problems emanating from the Army, Navy and Air Force. Commenting that some civilian work did begin to come in during the 1950's, he noted that it tended to be of a one-off nature and "to come from large organisations such as the Post Office and such dinosaurs of nationalised industry. Private industry scarcely ever showed an interest and some industrialists were positively obstructive. I remember a British car manufacturer arguing that it was materials costs not labour costs that mattered in production, so the main task was to improve production engineering and not worry about the cost of labour or the human factors involved". He added wryly that it was not until "continental manufacturers wiped the floor with them in the 1970's that attitudes changed within this organisation".

RECOLLECTIONS OF KEY PEOPLE AND INSTITUTIONS IN TIIE 1950s AND 1960s

The vivid, and often, detailed descriptions of life and work in the institutions in which occupational psychologists were mainly employed during this period are, unfortunately, too lengthy to quote in their entirety. Rather than trying to compress, and possibly distort, the impressions of a number of people about a particular organisation, it has been decided to let the recollections of one individual provide a 'pen picture' of the situation as they experienced it at a given time, recognising that others will probably remember and appraise events differently. John Parry, who joined the Air Ministry in 1942 as a research assistant and became Head of Science 4 in 1947, after describing the informality and incongruities of Air Ministry life during the war when "the attitude of very senior officers was positive and friendly" saw a change in the climate of opinion after the war. He writes: "Was there a place for psychologists in the post-war Defence Ministries? It was true that the emergency that had called for our advice had passed. The Army, the Navy and the Air Force looked nervously at one another, each hoping for a lead. It was no use to seek guidance from the Treasury, in theory the master mind of the Civil Service, since they had even less idea of psychology's potential contribution than the services. (One Treasury minute, unearthed by Drew, found us classified as Canteen Welfare Workers!). In the Air Ministry matters reached a head in 1949 when members of the Air Council decided that if psychologists were to be retained they must at least have their wings drastically clipped. To further this intention they set up a Committee under the Chairmanship of an Air Vice Marshal. Unfortunately this Committee, of which I was a member, reported that we were doing a splendid job. This caused much gnashing of teeth in high places and led to a reversal of attitudes within the RAF, those of the highest rank hankering for a restoration of past practices, while up and coming officers favoured our continuance to an almost embarrassing degree. There were indications that senior members of the Service had no notion how social conditions had changed since 1939, or anyway how these changes would affect the RAF. For example, one highly intelligent Air Marshal produced a pamphlet for potential officer recruits which made clear the assumption that they would patronise Savile Row for their tailoring. It needed tact to point out that while this might have been a valid assumption in the thirties, it bore no relation to the social and economic conditions of 1950. As civilian employees, we were in a position to draw attention to such anomalies without risk of being thrown into the street. On the whole it was found better to let requests for fresh research topics germinate in the minds of the service directorates rather than make outright proposals oneself. This meant that those who asked for new studies were under the impression that the idea had originated in their own minds whereas it had

sometimes been sown surreptitiously by one of us. To set up occupational psychology it was necessary to underline the importance of scientific rectitude to a degree that, at times, suggested puritanical otherworldliness. Once establishment had been achieved it was possible to relax a little, always with the uncomfortable feeling that a shade too much relaxation could lead to a compliant laxity. How far this has happened in the last 20 or 30 years it is hard for me to say; I saw no sign of it in any milieu I worked in up to 1980." (Personal communication, 1988).

We have referred in passing (Chapters 2 and 3) to the different aims and approaches which distinguish academic and independent research groups from applied psychologists working as specialists and professionals in organisations like the armed forces. Certainly one of the authors (DW) has firm recollections of occasional but quite serious differences of 'policy and practice' between MOD psychologists and extra-mural research groups working on sponsored or commissioned studies for the services. Two views from senior persons on either side of that divide are apposite to that theme. First from Donald Broadbent, writing in early 1990 (Personal communication, Feb. 1990). "The question of the perceived relationships between the MRC-based research for the Navy and the internal work. You will recall that we talked about the early tensions which were so puzzling to a junior person, and I was of course gratified to realise that I was not altogether paranoid in feeling that there were some tensions. We in Cambridge certainly appreciated the need for internal experts, because of all the multiplicity of factors that might be relevant to a particular problem but which an occasional visitor from outside could not appreciate. This might be called 'Wing A' of the units policy, but there was also 'Wing B', which was that the unit should keep up a substantial number of strictly applied projects. The analogy I used to use was drawn from medicine, and the distinction between general practitioners and specialists. The specialist is quite dangerous when dealing with an individual patient, because he may fail to know all sorts of things about this person's family, occupational stresses, previous illnesses. He is also likely to see every symptom in terms of his own speciality, and neglect obvious signs that something is wrong from some other medical area! These are exactly the problems that I think the unit used to have in dealing with Naval situations, and I appreciated them at the time. On the other hand, it is also true that dealing successfully with cancer or dermatitis really does need somebody who has a big database of similar problems in other patients. Hence what we were trying to achieve was that I knew about noise, not only in the Navy but in many other places."

Secondly, from Edward Elliott who as the MOD (Navy's) chief psychologist during the late 1960's and 1970's, provided us with detailed and thoughtful reflections on the relationships between and respective contributions of internal psychological groups and external ones like the APU (Personal Communication, December 1988): "As the largest and best established group of its kind in the UK the Cambridge APU acted as a source of inspiration for people working elsewhere, as individual researchers or applicators. The APU started several lines of research which inspired extensive programmes of experimentation in many laboratories. Hackworth's work, despite its defects, must surely be credited with bringing on the spate of studies of vigilance in so many centres." However, in Elliott's judgement much of the APU's early post war work for the services, during the regime of Mackworth as Director, was flawed because of its "naivety in approaching not only the realities of military tasks but in understanding subjects i.e. human guinea pigs". A major weakness was that "the notion of the task of the experimental psychologist was to take a real life task and reduce it to some essential and simple core task which could be manipulated in laboratory experimentation. That noble sounding precept was at the heart of everything wrong with the earlier Cambridge experiments. Take the Clock Test for example." (See our reference to this particular issue in Chapter 2).

Elliott and Broadbent were much more in tune with each other's approach, and should be credited with having done a great deal to harmonise relationships between Service and

Research Council groups. The former expressed as his considered view that the most effective way to develop and apply psychological solutions to an organisation's human problems was through a partnership between "in house and outside groups, if only there could be some sort of loose management link between them, enabling movement of staff between (them)."

For an account of the National Institute of industrial psychology in the 1950's we turn to David Duncan: "I joined NIIP in 1958 to work with John Handyside on research into the selection and training of supervisors sponsored by the MRC. There followed some culture shocks. The first shock was of statistical rigour. I had read some statistics in my degree course, but had very quickly to relearn them and take them to a very much higher standard. John Handyside was very patient and a source of really expert advice. The second shock was one of intellectual discipline as applied by Clifford Frisby (the then Director). One of the attractions to me of the Institute was the possibility of publishing, and I felt there was a considerable amount of case study material which would be of interest and instruction to business if published. I also felt I had a contribution to make to the subject area of Economic Psychology. However, I reckoned without Dr Frisby. He was a textual critic in the Enoch Powell mould, very critical, punctilious and threat sensitive and fired with a desire for academic respectability. So he found it extremely difficult to allow publication of anything new and original, and the published output of NIIP was consequently prosaic and dull as a whole.

The exception was book reviews for Occupational Psychology, which were approved by the editor, Alec Rodger. So every time my frustration reached boiling point I would get a book to review. Here I could say what I liked, and a number of these reviews contained shafts aimed at Dr Frisby. He never took offence and indeed seemed to like them. After a year of research, I was transferred to industrial investigations under Winifred Raphael. She was an excellent person to work for, warm, friendly and encouraging, but with a very sharp intellect. Because of her ample frame, clients sometimes underestimated her. At one visit, she appeared to fall asleep while I was interviewing a works manager. When I completed the interview, she surprised us both by being able to ask a number of questions supplementing the information which I'd secured. Industrial investigations included installing apprentice selection test batteries, investigating industrial inspection problems, installing staff assessment procedures and doing attitude surveys... Winifred was strongly of the view that, in addition to looking at conditions and methods of work, you had also to investigate how the work was perceived by those who were doing it.

Attitude surveys were conducted by means of non-direct interviews which were recorded almost verbatim, with check backs for accuracy, on to edge-punched cards with 120 holes round the edge. Back at the office ensured a laborious job of developing a coding frame, coding all responses for frequency and for depth of feeling and building it all up into a credible report (Tape recorders were not allowed in the Institute, banned, it is said, because Dr Frisby once dictated into one for two hours which was not switched on). It is of interest that when I left (in 1958) to go into consumer motivation research, experience of attitude survey techniques, including the sampling statistics necessary proved invaluable." (Personal communication, 1989). Pat Shipley, who joined the staff of the Department of Occupational Psychology, Birkbeck College in 1967 and remained there until her retirement, is the source of the following observations on that Department:

"I was a Ph.D. student in the Department on a DSIR studentship for 3 years before Alec Rodger asked me to join his staff, so I already knew the Department well from the students' point of view. In 1967 the whole area of psychology was taking off. It was a period of expansion in science and social science education in the country as a whole, with new universities coming on stream and the establishment of the SSRC. At the College we were moving into our own quarters, outside the psychology department, and within Birkbeck it was

the height of the Rodgerian era. Alec was not only a very shrewd individual in internal politics, but he had a great deal of outside influence. This had an enormous effect on the growth of the Department and on occupational psychology as a whole during the decade 1962-72, when he backed out. He had a charisma which attracted students to his field and saw himself as a missionary for occupational psychology, rather than as an academic. His whole outlook was practical and pragmatic, with too little emphasis on theory and systematic research and academic development". (This tradition continued well beyond Rodgers retirement so that, of a later period, she said "it's amazing to think that, before 1982, research in occupational psychology at Birkbeck was entirely ad hoc, individualistic and reactive and generally seen as a second-order activity").

"I've always felt that the College has never truly embraced us as an integral part of its mission, but has tolerated us as a money-spinner because we've never had any problem in attracting students. But there have been continual difficulties about levels of staffing, research ratings, unfinished higher degrees, particularly the old M.Phil. programme which so many failed to complete because they didn't write their dissertations. It's a very traditional type of university college in many ways, with Oxbridge types of pretension that have only recently been challenged (1990). I think this context has a part to play in understanding later events (when the survival of the Department became an issue) because throughout its time at Birkbeck there seems to have been things pushing for it and things pulling against it". (Taped interview, 1990).

PERCEPTIONS AND EVALUATIONS OF PSYCHOLOGY AND ITS APPLICATIONS

Cherns (1982) observed that "occupational and organisational, along with other applied psychologists have always thought they were doing good, were on the side of the angels, and alleviating the lot of man". There is little doubt that the possibility of using psychology to alter and improve the conditions and performance of people at work was one of the reasons why our respondents and others made their careers in this area. Also that some have felt that their expectations in this respect have not been fulfilled and/or that psychology has not advanced as a discipline in the ways they hoped it would. For example, Edward Elliott, formerly the Senior Psychologist (Naval) of the Ministry of Defence (Navy), writes that "Having let myself slip into the meshes of psychology rather than mathematical physics, which should have been my trade I started at a very low level of confidence in the subject and had little expectation that it would soon develop as an important branch of study". As a student "I thought it was a subject of too slight a content to be worthy of the status of an honours degree". A viewpoint similar to that of Tom Singleton and his contemporaries on the psychology course at Cambridge, who "all agreed that Bartlett was right that there really wasn't enough content in psychology to justify a full degree in the subject and that we could cover it adequately in twenty weeks of study" (the length of the final year undergraduate course in psychology for the first part of their Trip's). Singleton continues "this may seem arrogant, but it does reflect a reasonable perception that psychology at that time, and even now, is not a very mature subject. There isn't really anything very difficult about it intellectually" or, as Elliott puts it "psychology is made up chiefly of ideas and techniques which are too simple and accessible to laymen. Any active and intelligent person can quickly get hold of the essence of most psychological techniques and set about using them diluting the accomplishments of professional psychologists". It is noteworthy that both these men have held positions of responsibility and been influential in promoting applications of psychology in the Ministry of Defence and within industry. Neither calls himself an occupational psychologist, Elliott because he sees no need for the adjective and believes "that a really effective psychologist must be a generalist above all", arguing that, in the course of his career, "I very much doubt whether the role I had within naval staff directorates would have been so readily accepted and our work so effective, if I had been unable to range widely across all aspects of human behaviour." For Singleton, the term was inappropriate as "it meant to me the London group based on the NIIP, Birkbeck and UCL,

which had a different history and style from the Cambridge group to which I belonged". The crucial factor, in his opinion, is that psychology "has an elusive kind of complexity" requiring "an awareness and an understanding that is more than mere intellectual grasping" if it is to be applied effectively. Others too have noted the subtleties of psychological practice and the demands it makes on individuals. Valerie Stewart, in the interview with her in The Occupational Psychologist cited earlier, states that in her view, "you shouldn't teach kids of 18 psychology". She maintains that "I think I have actually only become a psychologist in the last five years or so, in the sense of actually trying to think what are the variables that I can use to account for this persons behaviour and to orient my behaviour in this situation, using psychological constructs as a means of operating in the world that I'm in. To expect very young people of 18 or 20 to have the capacity for a mature reflection and judgment about people, is a bit silly really" (p.18). Likewise, Sylvia Downs feels that her 20 years of research and "basic curiosity in reflecting on and asking questions to discover why something happens", before making any attempt at data gathering, was an invaluable preparation for her subsequent work as a consultant. In so doing, she was following the approach advocated by Bartlett to his students, which she learned from Eunice Belbin, "to look at a problem and let one's mind work upon it, get an idea about how it might be tackled and what issues are entailed and only then look at the literature and see what others have done". This 'open-ended' approach is not easy to tolerate by those "for whom the rigour of experimental design and statistical analysis are all important"; and she, too, thinks a generic approach to applied psychology is more appropriate than "sub-dividing the field into occupational, clinical, forensic and so on". Ken Tilley, who succeeded Parry as head of the Air Ministry's psychologists, has left us an informative account of how international collaboration was organised among psychologists working since the late 1950's for the defence services in various NATO countries, and in the Commonwealth (Australia, Canada, and New Zealand). He too pointed out that "Psychological research is demanding both because of the complexity of the problems it addresses and in terms of the time it often takes to accumulate the required information. The proper utilisation of men is critical in all the NATO countries and requires an understanding of men's abilities and inclinations and their interactions with other men, machines and the environments in which they function." He drew attention also to cultural and linguistic problems. "Productive international co-operation is not easy to achieve. Differences in the philosophies underlying national psychological research programmes, the varying priorities attached to different issues and the research resources available to deal with them all make for difficulty. These problems are exacerbated by language differences amongst the contributing nations." It is not surprising that, as Tilley added fruitful collaboration was most clearly established among psychologists from the UK, USA, Canada, Australia and New Zealand nations with a common language and common defence interests (Personal Communication; April 1992). Problems of subdivision and fragmentation in the field were expressed also by Gerry Randell in connection with the growth of organisational behaviour and the teaching of psychology within management and business schools. Commenting that, in the 1960's in the USA an increasing separation developed between personnel psychology, on the one hand, and organisational psychology and ergonomics "in the wider sense", on the other he said that this "undesirable split" has tended to be reproduced in the UK. "Different people are attracted to each, e.g. the selectors, counsellors, stress merchants and so on, who focus on the individual, and the systems thinkers, environmental psychologists and work and organisational designers who have more of a macro-focus. In reality these are complementary and need to be taught in tandem, but this doesn't happen. Ideally, in the UK one would see, as nearly happened at Bradford, 3 Chairs - in Industrial Relations, Industrial Sociology and Applied Psychology, to encompass the macro-micro, applicable, and applied aspects of the subjects and the theoretical and technical aspects of each. What has happened, however, is that 0.13 (i.e. organisational behaviour.) "has been brought in as a non-subject, a very loose umbrella under which an amorphous collection of topics can be taught". Like Allan Williams, he is concerned to see a firm foundation of applicable psychology taught within a business school environment. But whereas the latter feels that a first degree in psychology is a desirable pre-requisite for MBA

and graduate studies in organisational psychology, Randell considers that undergraduate courses in most universities are inadequate in this respect "unless and until academic psychology departments get their acts together on this front, the business and management schools will remain in the van and amorphous O.B. will flourish". This is a theme to which we shall return in Part 2, Chapter 6.

THE RECENT PAST

PREFACE

We come now to recording our impressions of what has occurred in occupational psychology in the last twenty years. This has been a period of immense change on the social, political, technological and economic fronts creating a climate of uncertainty, rather than stability, for both individuals and organisations. Whereas in the 1960's, despite dissent and criticism in some quarters, the 'mood of the country' was generally optimistic (Marwick, 1982), economic difficulties in the following decades led to much more gloom and pessimism. For example, the 1970's saw an upsurge of strike activity in both the public and private sectors, a continuing shrinkage of Britain's industrial base, rising inflation and increased unemployment accompanying the ongoing struggle to compete in world markets against European and Far Eastern countries with higher rates of growth and productivity. Although there was a short boom in the mid-eighties in which those in the financial sector service occupations, and the new field of information technology prospered especially, the ensuing recession brought to the fore previous anxieties, reinforcing the seemingly intractable problems of inflation and structural unemployment. In all organisations dependent largely on Government funding for their resources, such as universities, research councils, hospitals and so on, there has been a progressive squeeze on their finances over this period, particularly during the 1980's as Government economic and fiscal policies sought to cut costs and contain the Public Sector Borrowing Requirement. The emphasis now is on achieving more with the same or fewer resources in the interests of 'efficiency' and 'value for money', often resulting in staff reductions and/or more short-term contracts of employment, organisational re-structuring, closures and mergers. In the private sector, the same trends can be discerned, with the 'displacement' of personnel occurring at all levels of a company and not merely among production workers. These events have led, directly and indirectly, to increased opportunities for occupational psychologists, particularly in consultancy activities. There has also been an increasing diversification of the field. At its boundaries, especially in the realms of management development and of organisational psychology, there is often a blurring with those of other disciplines, so the image of occupational psychology can vary according to the practitioners encountered. For this reason, occupational psychologists themselves have become far more alert than formerly to the public relations aspect of the subject and to the requirements and organisation of their profession. In Chapter 5 we describe the changing content of the field, and the influences that appear to have shaped the directions taken in the recent past. Developments in academic and professional practice during this period are then considered in Chapter 6. As we explained in the Prologue, these chapters contain less personal content than those in Part 1, but they nevertheless represent our view of events. It is what we experienced and observed at first-hand that has determined the selection and ordering of the material. Others, looking back on the 1970's and 1980's from a different position will no doubt see some things differently. However, we hope that the overall picture presented contains the essential features of a complex and confusing scene.

CHAPTER 5

THE CHANGING NATURE OF OCCUPATIONAL PSYCHOLOGY

INTRODUCTION

The ever-widening dimensions of the domain of occupational psychology over the years are reflected in the length and topics covered in the BPS Annual Occupational Psychology conferences. In 1970, the third of these conferences to be held lasted one and a half days and the papers presented were devoted mainly to selection and related issues and to industrial relations. Ten years later, the thirteenth conference lasted three days and dealt with a multiplicity of topics, including selection and recruitment, vocational guidance, accidents, absenteeism, the management of change, management information systems, consciousness and organisational problems, decision making, the uses of the repertory grid, among others. Sessions were held in parallel to accommodate these varying interests. What has brought about this expansion and changing configurations? Throughout this project we have asked ourselves constantly whether it is possible to discern the influences shaping developments in an applied subject like occupational psychology. For example, is progress largely dependent on advances in scholarship and research in its parent discipline? Or has it developed along independent lines? Have other disciplines been as much or more influential than psychology on theory and practice in the field? To what extent have the particular interests of key figures in its history, such as C. S. Myers, F. C. Bartlett or Alec Rodger, been important? Do significant changes in theory and practice arise from adventitious, but salient, field projects such as the Hawthorne investigations (Roethlisberger and Dickson. 1939) or the Tavistock Institutes Longwall coal-mining study (Trist and Bamforth, 1951)? Or is the reality that the subject develops as a succession of expedient responses to the needs of employers? Or, thinking of the origins of the Work Research Unit described in Chapter 2, perhaps to the opportunities and constraints afforded by political, social and economic policies and initiatives? It seems to us that a qualified affirmative can be given to all these questions, although their relevance varies at different times and in different circumstances. In the Epilogue we present a model that seeks to depict how these various influences connect with one another; but first we consider here the nature of recent changes, not only in context and content but also in the prevailing assumptions underlying theory and practice, as outlined below.

Levels of analysis
From the earliest days of industrial psychology, a major component of occupational psychology has been the study of individual differences. It underpins all the work of psychologists engaged in selection, placement and vocational guidance and focuses on the individual as the main unit of analysis. The emphasis is on measuring human attributes which will predict how well a person will perform a specific job, with the related assumption that the task elements in a given job can be identified and specified in such a way as to deduce what personal attributes are required for its successful execution. This presupposes both clearly bounded and relatively stable jobs and steady state work organisations, assumptions which have had unintended consequences. Thus, according to Argyris (1976), occupational psychologists tend inadvertently to support the status quo and, in Dachlers (1989) view, to ignore relationships in the workplace and "the question of what and how each of the interdependent jobs contribute to the overall performance of an organisation" (p.50). The Hawthorne investigations and the resulting 'human relations movement" led to an awareness of the importance of the work group, as distinct from the individual, in shaping the behaviour and performance of people in organisations, although their impact was not evident in this country until after WW2. Focus on the small group as a unit of analysis was stimulated after the war by the publication of far-reaching studies made by the research division of the U.S. War Departments Information and Education Division which showed the key role played by primary group relations in maintaining morale and efficiency (Stouffer et al, 1949), and by

LeWin's (1947) work on 'group dynamics' and the use of groups to bring about changed attitudes. To some psychologists, particularly those for whom human functioning at the individual level is a paramount interest, the study of groups belongs to social psychology and is of marginal relevance to occupational psychology. Others see it as an intermediate step to the field of organisational psychology which, conceptually, requires examining human behaviour at the individual, group and organisational levels as well as taking account of the wider environmental context of such endeavour. The first textbooks bearing the title 'Organisational Psychology' appeared in the 1960's (Bass, 1965; Schein, 1965) and publications on the topic soon proliferated. It is generally conceded that the study of organisations is a multi-disciplinary area so, whether they like it or not, psychologists cannot claim exclusive rights to this territory. As one of us (Shimmin, 1982) has pointed out, in defining organisational psychology, much depends on the relative emphasis given to the two words. Those who stress 'organisational' take as their frame of reference the work of theorists and researchers from a variety of fields who are seeking to develop our knowledge of organisations. While those who emphasise 'psychology' see this emergent area largely as an extension of that discipline and, as such, distinguishable from 'organisational behaviour' and 'organisational sociology'. The situation is also compounded by 'organisational practitioners'. such as OD specialists, who may or may not have had a formal training in psychology, but who have acquired a fair knowledge of the subject and its techniques which they use in their interventions and consultancy assignments, today few, if any, occupational psychologists operate across the whole spectrum of the field, with the result that there is little cross-fertilisation of ideas between the various segments. In addition, as these draw on different data bases, and use different concepts and theoretical models, we have no integrative framework within which to conceptualise behaviour and responses at the individual, group and organisational levels of analysis. There is therefore an in-built tendency for the field to split or fragment; and it seems to us that the main challenges in occupational psychology arise because there is still very little in the way of agreed conceptual and methodological foundations on which to build.

Science and Values
As students of psychology in the 1940's we were trained to be scientists, that is to approach the study of human behaviour from the perspective of the positivistic, classic scientific paradigm, entailing a systematic approach to well-defined problems, control of variables, control of measurements etc. with 'objectivity' and 'scientific detachment'. This approach is still taught in mainstream psychology departments, although in the intervening years positivism and the notion of scientific detachment have been severely criticised, philosophers of science pointing out that, even for the most tightly controlled scientific experiment, subjectivity enters the interpretation of data. Nicholson and Wall (1982) note how Koch who, in his many-volumed Psychology: A Study of a Science (1959-63), did more than most to establish the scientific credentials of the discipline, by the 1970's was inveighing forcefully against the scientific aspirations of his colleagues and the 'pseudo knowledge' so often resulting from their endeavours, particularly from laboratory experiments. In his view, a prime cause of this sterility was the attempt to create a coherent discipline from an enormous field. He argued that, rather than striving for a psychological 'science', it would be more fruitful to pursue relatively autonomous fields of 'psychological studies' in which "the meanings of human experience, actions, and artefacts at their most value-charged reaches" could be explored. His plea to concentrate on how people construe events and experiences has been echoed by others, notably social psychologists such as Gergen (1982) but it has also permeated the thinking of some contemporary work and organisational psychologists. Thus, Dachler (1989), writing on selection and the organisational context, argues that problem definition, criteria of success and the meanings of jobs are "emergent phenomena" from complex networks of relationships and social-political processes, i.e. they are socially constructed interpretations of reality and not objectively determined. In the following-sections of this chapter we look at some of these issues in more detail, noting how changes in society, in scientific and social values, in psychological methods and concepts are intertwined with

ethical considerations and questions of allegiance for occupational psychologists. Specific aspects of occupational psychology as a profession are then considered in Chapter 6.

THEORETICAL MODELS AND CONCEPTUAL FRAMEWORKS

The lack of an overarching, agreed and widely applicable theoretical formulation from which to understand the mass of empirical data now at our disposal is, as we have indicated above, one of the major problems of occupational psychology. Explanation of particular events in the workplace is still largely post-hoc and only generalisable to a very marginal extent. Prediction of behaviour under any but the most frequently studied circumstances remains tentative and imprecise (if, indeed, it will ever be possible); and, although in some areas theoretical credibility has been achieved, in others pragmatism and empiricism predominates. This is due in large measure to the reciprocity between the underlying assumptions ('models of man') about the nature of human beings and about the nature of society and scientific enquiry, awareness and discussion of which have grown markedly in recent years. Cherns (1982) summarised this as the "interaction of context, problem, model and response" pointing out how the various models in occupational psychology are products of their times, e.g. the view of workers as economically motivated but poorly utilised 'machines', which was advanced by the scientific management school, emerged from (and seemed appropriate to) the rapidly industrialising United States at the turn of the century. At that time the USA was faced with the problems of a largely immigrant, untrained workforce. Wartime needs which gave the impetus to selection and classification of civilians volunteering or called up for military service similarly set the stage for the model of "man as peg, task as hole" as Cherns puts it. The notion of a 'complex' individual with a hierarchy of needs came to the fore when the effects of widespread education led to a wider choice of work and lifestyle for many people.

Elsewhere in the same paper, he argues that:

"At any time, then, there is a set of topics and problems which are understood to constitute the subject matter of an applied discipline. The set changes over time less because the topics are exhausted and the problems solved, than because they are differently perceived; the cultural context has changed." (p25)

This being so it is not surprising, perhaps, that occupational psychology has seen many paradigmatic shifts and fads and fashions over the years, compounded by financial considerations when a change of policy or switch of emphasis on the part of research funding bodies, or remunerative, but short-term interests of customers, lead to failure or lack of opportunity to consolidate earlier work.

Accumulation of alternative perspectives
At the beginning of our period, the prevailing framework in industrial psychology was based on differential psychology, which is still fundamental to systems of personnel assessment and selection. It afforded a systematic basis for investigating and explaining the characteristics of performance at work in terms of individual differences in capacity, ability, skill, motivation personality, or whatever 'traits' seemed relevant. In the 1950's, these differences were defined and their interrelationships explained within the factor-analytic models of human capacity and personality espoused by Cyril Burt, Philip Vernon, Hans Eysenck and other members of the London school. Although this way of thinking has always been more productive of technical developments than theoretical understanding (and is regarded by many contemporary occupational psychologists as hopelessly sterile and politically incorrect), it has never proved possible to explain away individual differences in terms of simple notions like 'experimental error' or complex ones like 'social facilitation' and 'occupational stress'. Furthermore in the world of work, many of the difficulties which arise from, say, incentive payment systems, or the design of jobs, are due to an assumed

commonality of response that discounts the possibility of more than minimal degrees of individual variation. The other main perspective in the early years was an analytic approach based upon experimental psychology. This was favoured particularly by Oxbridge psychologists (notably members of the Applied Psychology Unit at Cambridge) and subsequently at the universities of Sheffield and Bristol under the direction of Professors Harry Kay and George Drew. It concentrated on the generalities and customary trends in work behaviour to which all people (at least those in laboratories!) presumably subscribed. Within this framework, individual differences were not exactly ignored, but were certainly regarded as a nuisance to be removed from serious consideration as random or experimental error. Just as differentialist data have been explained by a variety of factor-analytic and trait theories, so the generalised data from the experimentalists have been accounted for within a range of different descriptive and explanatory models. Preferred explanations were advanced successively in terms of classical behaviourist conditioning theory (Mackworth, 1950), and of models of the 'skilled operator in a man machine system' based on components of advanced technology like servo-mechanisms (Craik, 1947. 1948) and selective detectors (Broadbent, 1958). From the late 1950's, after the advent of communication and information theory, theorists were attracted by the notions of communications channels and information processing as mechanistic metaphors of human functioning. By the early 1970's, these were giving way to explanations of problem-solving and decision-making, and indeed of skilled work behaviour generally, couched in terms of the cognitive psychology which has largely replaced the behaviouristic and cybernetic thinking of former decades. These formulations apply to the individual level of analysis, to which we referred earlier, based on the performance of individuals studied in isolation from their normal working environments. For the IHRB and NIIP psychologists, however, it was the effects on people at work of the conditions in which they had to perform their jobs, that were their main concern. Although their concern initially embodied an essentially biological and behaviourist model of the human being, their field observations soon led them to adopt a more clinical and social psychological perspective. This anticipated by some years the trend away from studies of 'the individual person at work' to studies of 'people who work together' that came into prominence soon after the end of WW2.

The emphasis on social perspectives in examining work behaviour came largely from the United States, yet in Britain distinctive theoretical contributions concerning the nature and functioning of small groups, and of the relations of group processes to the social structure of organisations, came from members of the Tavistock Clinic and Institute. In a series of papers in *Human Relations* (1948-61), W.R. Bion first put forward his formulation of the ways in which unconscious processes in small group's conflict with their manifest purposes, ideas which were to have a profound effect on the new field of group dynamics. Although too psycho-analytically orientated for some and expressed in rather obscure language, they have crept into common parlance over the intervening years to the extent that, for example, the 'hidden agendas' often underlying formal discussions between group members are a well-recognised phenomenon. Bion's psycho-therapeutic work fed into the group relations training methods developed by the Tavistock Institute as the British equivalent to those already in use in the United States. The latter, run by the National Training Laboratory at Bethel, Maine, and its allied institutions, were inspired largely by Lewin's theories. However it was the perspective on the behaviour of groups in their working environments arising from the Tavistock Institutes coalmining studies (Trist and Bamforth, 1951; Trist, Higgin, Murray and Pollock, 1963) that caught the imagination of social scientists from a number of disciplines concerned with social and technological changes in the workplace. This led to the concept of the organisation as an open, socio-technical system, still used by many consultants and action researchers, which derived not only from psychological and psychoanalytic thinking, but also from the notion of open systems in biology and physics (Von Bertalanffy, 1950). It represented one of the first, and one of the most enduring multilevel frameworks for considering individuals, groups and organisations in relation to their environments, although it has not been without its critics (Kelly, 1978). Since the 1970's,

it has become widely recognised that any theoretical foundations of occupational psychology as we know it today, must take account of 'organisational behaviour', i.e. the actions and interactions of the people comprising an organisation, both with each other and with the outside world. It is no longer sufficient to operate solely at the individual or even the small group levels of analysis, nor to consider the characteristics of occupations in isolation from their organisational contexts. This was marked in the United States by coupling 'organisational' with 'industrial' in the title of Division 14 of the American Psychological Association; as it has been in Britain, more recently, by including 'organisational' and 'occupational' in the title of the relevant BPS journal. The use of the conjunction signifies, however, that 'organisational psychology' is regarded as different from the more individually oriented tradition of 'industrial' or 'occupational' psychology. There are good reasons for this because, whether styled 'organisational psychology', 'organisational behaviour' or, as some have suggested, 'organisational science', the study of organisations is a complex field which draws upon many disciplines. Psychologists who work in this area inevitably move beyond the boundaries of their parent discipline in the concepts they employ and the perspectives they adopt; but they find too that the problems of integrating different perspectives and levels of analysis are extremely complex, not least because different orientations within their own discipline are not integrated. Some attempts have been made to suggest how these problems may be overcome, e.g. by Roberts, Hulin and Rousseau (1978), and by Growler and Legge (1982), but all these authors stress that progress in this direction is far from easy. As Hage (1982) puts it, writing of the 'basic three-tier perspective on organisations', that is the three levels of analysis to which we have referred, "there is a danger that in our desire to be on the frontiers of knowledge, we are unlikely to connect the new with the old" and the organisational focus "becomes an interest in itself rather than a way of deepening our understanding of other levels" (p.142). Others are more optimistic. Thus, Hollway (1991) describes organisational theory as in a "fertile state" following "major changes in the theoretical orthodoxies of social science" over the last twenty years. In her words:
"The epoch witnessed qualitative changes, under varying labels such as post-Marxism, post-structuralism, feminism and post-modernism. Three concerns are characteristic of these new approaches: history, meaning and subjectivity. After several decades of a pronounced a historian in the social sciences, an interest in history has penetrated even into psychology and work psychology Semiotics and similar traditions in the theory of language stressed the production of meanings within wider social and material relations rather than in relation to objects. The third concern raises new questions about subjectivity, and uses this concept to approach the traditional object of psychology, the individual, from a non-individualistic perspective, stressing power relations, language and the part played by unconscious forces" (p.185).

It must be admitted that these perspectives have found favour more with sociologists than with psychologists, but they have not gone unnoticed by those of the latter who are attracted to critical social science theory. Whether they will have a wider impact on occupational psychology as a whole remains to be seen.

Alternative methodologies
Methodology in mainstream social science generally, and in psychology especially, has sought to emulate the natural sciences, aiming to describe and explain phenomena in the social world in a manner that permits generalisations to be made. Implicit in this approach is the view of psychologists as 'scientists' dealing with clearly defined problems, using 'objective' methods and pursuing their investigations with impartiality and detachment from the situations and people being studied. The traditional methods of occupational psychologists, i.e. both experimental and psychometric procedures, were seen in this light and co-existed until after WW2 as the principal modes of enquiry in this field. Those psychological projects which utilised subjective data obtained from interviewing people and directly observing them, rather than appearing to measure their characteristics and performance independently, tended to be accepted apologetically as betraying a weakness

in psychology's claim to be 'scientific'. From the early 1960's onwards, the limitations of the conventional view of scientific detachment and objectivity in both the natural and social sciences became more widely recognised, influenced by ideas such as those of Heisenberg (1958) on the 'uncertainty principle' in physics, which postulated that what a scientist observes in scientific research is determined by the nature of the interaction between the scientist and the object of investigation. With the broadening horizons that occurred as organisations became the focus of research and professional practice, and the accompanying influx of ideas from social psychology and sociology, the attention of occupational psychologists turned to field research methods such as interviewing, questionnaires and participant observation (Bouchard, 1976). In Britain, descriptive data based on survey research techniques became widely used, following substantial improvements in the design and analysis of questionnaires and interviewing schedules, and in the statistical techniques for handling survey data. For example, they became the mainstay of data collection at the Social and Applied Psychology Unit at Sheffield (see Chapter 8). It was also evident that these methods were being employed on an increasingly wide and influential basis within government departments (Moser and Kalton, 1971). Around the same time, interventionist approaches came into prominence as strategies of organisational research, associated particularly with the concept of 'action research' developed by Lewin. That concept was extended later by members of the Tavistock Institute to denote researchers and the various parties in the client-system agreeing jointly on the nature of the problem, the type of solution sought and the methods to be used, together with the active involvement of the researchers in any implementation of the findings. A rather different interactive methodology, developed by another prominent Tavistock psychologist (Heller, 1976) was known as 'group feedback analysis' and introduced the idea of involving clients in collecting their own data, which was then analysed by the researcher, but discussed and interpreted jointly in open feedback sessions. It is not our intention to provide an exhaustive review of the different methodologies now employed to varying degrees by occupational psychologists and others in related spheres of practice such as 'organisation development', but to indicate the diversity of approaches that have emerged in the past few decades. Debate about the relative merits of different procedures and their underlying philosophical foundations have become far more numerous in the last decades (e.g. Mitroff and Kilmarm, 1978; Morgan, 1983). We take the view that, as different kinds of research strategy are designed for different purposes and rest on different assumptions, they have to be evaluated by different criteria of effectiveness. What does strike us as important is that psychologists do not become wedded to a particular approach and use it indiscriminately or fail to recognise its limitations in comparison with other procedures that may be more appropriate in the circumstances of their enquiry. For example, while laboratory studies using 'psychological simulation' of operating procedures have been used to good effect in the design of training and of equipment for complex tasks such as controlling an aircraft, regulating the production process of an oil refinery, and operating radar detection systems (Rolfe, 1973; Duncan and Shepherd, 1975; Wallis and Samuel, 1961), this was not a successful approach when used to study the work stress experienced by air traffic controllers (Shimmin, 1971). However realistic the simulation of the technical aspects of the task, what could not be simulated was the awareness of lives at risk. Similarly, psychometric methods (often regarded by other specialists as the distinctive psychological approach), have been applied in some circumstances as 'technology' without appreciation of their conceptual bases or due regard for the context in which they are used.

ETHICS, VALUES AND OBJECTIVES

Choice of method relates to whether the principal objective of occupational psychologists is to solve practical problems or to search out generalised data from which to construct theories. A closely related issue is the question of to what use the resulting knowledge will be put; that is, on whose behalf

occupational psychologists are employed and who are, or should be, the beneficiaries of their activities. How this is answered depends, in turn, on whether the psychologist espouses a deterministic View of human nature, of people subject to external and internal influences beyond their control, or a humanistic perspective that views people as choosing agents and as ends in themselves. Arguments on both sides of the debate about values and ethics came to a head during the 1980s. They are well represented in a series of papers published at that time (Hallway, Cassell, Cherns, Seymour, Rowan, Fryer, 1986). Protagonists of the humanistic position argue that occupational psychologists are morally and socially bound to use their expertise primarily to promote the well-being of individuals and working communities. Those who are perhaps less idealistic point out that, as it is private employers and public authorities who pay for nearly all research and professional activities, it is inevitable that their interests take precedence over wider, social. Others have argued that the two sets of objectives, or moral imperatives, are not necessarily incompatible. In other words, they see it as incumbent on responsible researchers and practitioners to seek solutions to clients' problems that are advantageous to workpeople and managements alike, an aim which is totally unrealistic to those of radical political persuasions, but perfectly feasible to pragmatists who believe in compromise! As Cox (1982) pointed out, "whether they care to recognise it or not, and indeed, whether they like it or not, most occupational psychologists are advocating a particular type of industrial society through their beliefs and activities" (13.14). Argyris (1976) suggested that the debate can be seen in another form in the contrasting approaches of 'industrial' psychologists centrally involved in testing, selection, job evaluation etc, and 'organisational' psychologists involved in individual and organisational change. He cited Alderfer (1972) to the effect that the two subgroups have different intellectual traditions and outlooks, the former holding values associated with the adjectives scientific, experimental, precise and objective; and the latter those characterised by adjectives such as clinical, holistic, organic and humanistic. However it is unwise to make too much of such distinctions or dichotomies. As Blackler and Brown (1978) argued in a critical analysis of the humanistic paradigm in organisational psychology, its declared concern with enhancing people's life experiences and realising their potential has, in some of its organisational applications, served to legitimate managerial practices masquerading as progressive which, in reality, are inhibiting and restrictive ("you will strive to achieve self-actualisation on our terms"). This view accords with Hollway's (1991) contention, presented within a different conceptual framework, that work psychology is, and always has been, concerned with enhancing workplace regulation by influencing management practice. It is clear to us that the traditional and primary thrust of developments in occupational psychology has been to serve the economic ends of industry and commerce and, particularly in wartime, to enhance the operational efficiency of military forces. Although this may be deplored, it is inevitable when, as we have said, almost all the financing of applied psychological work is by those who represent these interests. For many years, occupational psychologists found this unproblematic as they were cushioned by their belief in their role as impartial scientists from confronting the political and ethical implications of their activities, and saw these as improving the lot of the worker. What has changed in recent decades, particularly in the wake of the upsurge of humanistic values and rejection of traditional views of power and authority that characterised the student protest movements of the 1960's, is the climate of opinion concerning people and work organisations and the relationships within and between them. This has been accompanied by awareness of the conflicting values of our industrialised society, e.g. between economic growth and personal growth, which are not easily reconciled in the workplace, and between the pursuit of knowledge for its own sake and knowledge directed to solving practical problems. As a result there is no protected role for the occupational psychologist, who has to decide for himself or herself what stance to take on these matters and be prepared to examine and declare his or her interests. Much of the criticism of occupational psychologists has been directed at their professional roles (e.g. Ford, 1977) and on the perceived tendency to allow their work to be dominated by managerial drives for 'efficiency' and 'cost-effectiveness'. Another criticism is that they claim a wider range of competence to solve psychological problems than is justified by the limits of

psychological knowledge. Thus Edwards (1988) was impelled to offer a mild rebuke to Howarth (1988) for what seemed overenthusiastic claims for occupational psychologists. In an otherwise sober and defensible presentation of the case for employing them, Howarth stated that 'The only professional training which covers all the skills required for appropriate application to selection, training, equipment design, organisational health and organisational development, is that of the occupational psychologist. The greatest advantage of employing an occupational psychologist is the least understood and appreciated, i.e. the ability of a broadly based and experienced professional to select the most cost-effective solution to an occupational problem" (p.4). Many of us would hesitate to attribute such all-round excellence to more than a very small minority of the profession; and those of a humanistic persuasion would disagree with making cost-effectiveness the major criterion of evaluation. In recent years attention has focussed on values and ethical considerations in research, as well as in professional practice. For example, Fryer (1986., 1988) pointed out the dilemmas faced by occupational psychologists like himself in studying the psychological consequences of unemployment concluding that the very nature of such research exposes it to the charge of 'unethical' enquiries and outcomes. Another instance was given by Levine (1982) in the context of studies of ageing. She described the misrepresentation of the population of old people that occurs when subjects for research in this area are selected solely on the basis of chronological age and other important variables such as sex, social class and ethnic background are ignored. In organisational research, according to Mirvis and Seashore (1982), ethical dilemmas arise from the conflicting expectations engendered by the researchers multiple role relationships and engagements with employees, managers and sponsors, and the power structure of the enterprise. For the action researcher or participant observer, immersed in a particular context and culture, access to some informants may be denied if they are deemed to have identified too closely with others in the organisation, despite conscious efforts on their part to avoid this. At the present time, when academic institutions are under increasing pressure to engage in income producing activities, heads of departments and salaried staff are finding they are subject to some of the same pressures as those experienced by practitioners, e.g. to claim expertise that they do not have in competitive tendering for a research grant or contract, or to engage in political manoeuvres to preserve the jobs of their research assistants which are not justified by their track record of research. It seems to us that the underlying issues of social responsibility and accountability are of the same order as those faced by fulltime consultants. For occupational psychologists of either group, we cannot assume that matters of this kind and other ethical dilemmas have been resolved completely, even by close adherence to the Code of Professional Conduct for members of the BPS Division of Occupational Psychology. The prescriptions it contains deal mainly with very important, but relatively uncontroversial, issues such as confidentiality, attitudes and behaviour towards subjects and clients, and a paramount regard for their interests. How to deal with more subtle and unexpected questions of values and ethics that may be encountered rests with the individual scientist or practitioner.

CHANGING EMPHASES AND DOMINANT TOPICS

In the foregoing sections we have described how occupational psychology has changed and developed in general terms, and we turn now to consider its content in relation to some of the dominant themes in its discourse over the last twenty years. Some of these are 'hardy perennials' which crop up regularly throughout the whole period of our review; others are more recent topics. One of the problems in the field is that concepts are not always well-defined and may be used differently by different people. Another is that phenomena may be described in a currently fashionable terminology which represents only a re-labelling rather than an advance in knowledge. The concept of 'job satisfaction', as we shall show below, is one example where lack of clarity in definition and usage has led to many inconclusive studies and much debate as to the relationship between job satisfaction and performance.

Since the 1950s, but especially during the seventies and eighties, the expansion and increasing complexity of occupational psychology has been characterised by frequent and sometimes short-lived, changing emphases and direction of effort. These changes usually reflected whatever themes or problems happened to be of theoretical and practical concern at the time, and which also commanded the support of research funding agencies or client organisations. Latterly, they have often been the result of proactive initiatives by these bodies, as the reactive response mode of research funding has declined to a considerable extent. Although, when considered separately, these themes give more of a kaleidoscopic impression than of an integrated whole, they may be seen as responses to challenges arising from the changing nature of work and employment. These are outlined below, together with an indication of related areas of psychological research and practice, to show the kinds of issues predisposing the emergence of 'dominant themes' in occupational psychology in recent years.

(i) Rapid changes in technology have led to changes in the content of jobs and in the number of jobs available. These have led to research on the design of 'user friendly' equipment and operating systems; to studies of the problems of VDU operators such as RSI (repetitive strain injury); to the development of training methods appropriate to the new skills; to redundancy counselling of those displaced from their jobs by technical change; and to studies of the impact on their lives of unemployment.
(ii) Many operations have become more hazardous, and the consequences of human error far more widespread and costly, than formerly (e.g. the Chernobyl disaster of 1986). This has led to increased concern for health and safety at work, stimulating studies of accidents at work, risk-taking behaviour by individuals and groups, and more applied ergonomics directed towards the creation of safe working procedures.
(iii) There have been changes in the pattern of working hours, with more shift-working, flexible hours and part-time working. In some instances, these arrangements have facilitated 'job sharing' between two individuals. These developments have led to continuing interest in the physical and psychological effects of 'unsociable hours' and patterns of shift-working.
(iv) The composition of the labour force has altered significantly, with both married women and ethnic minority groups of both sexes now looking for equality of treatment with established male employees in the workplace. This has led to both research and action by psychologists relating to the difficulties of implementing equality legislation and of the problems faced by women in combining home and work responsibilities.
(v) Work organisations have become larger and more complex, often as the result of take-overs and mergers and the growth of multi-national corporations. These have highlighted differences in organisational cultures, as well as structures, a topic that has been much to the fore in the last decade. There has also been far greater interest in the nature of an organisations environment and its influence on its internal structure and functioning.
(vi) Linked with all the trends listed above, employees at all levels are likely to face uncertainty and be called upon to adapt to changes in the interests of their own and their organisations future. Managers, in particular, are not only expected to be flexible and adaptable regarding their own careers but also to engender like attitudes in their subordinates. There has been a great deal of research, and even more of the marketing of packages by consultants, directed towards helping organisations and individuals to cope with these changes.
(vii) Finally, we should note the advent of teleworking, whereby their home may become their place of work for increasing numbers. It is a development which has the potential to reverse the separation of home and work that followed the Industrial Revolution, so it is not surprising that it has become the focus of research by some psychologists.

Given these changes, and the list is not exhaustive, the variety of themes emerging as a central interest in occupational psychology in recent decades should perhaps have been expected. They sometimes appear disparate because they usually focus on only one of the three levels of analysis described earlier; although each, in practice, has implications at the

other levels. Thus the application of research relating to the motivation and job performance of individuals, for example, occurs in organisational settings. Likewise, concentration on teambuilding and group effectiveness is usually one strand in a programme of planned organisational change embracing strategies at all levels. To attempt to review all the themes we have mentioned would entail writing a large text-book, which is not our intention. We have, for example, decided to omit an account of developments in personnel assessment and selection. This major topic has always figured prominently in reviews of occupational psychology, and has retained a conspicuous place in the repertoire of practitioner and consultancy skills. It is therefore likely to be the most familiar to our readers of all topics within our field, both as regards historical development and recent state-of-the-art. For an up-to date publication which covers our field comprehensively, including recent British work, see McKenna (1994). In the following sections, we confine ourselves to those topics and themes with which we have been personally involved, either in the commissioning or execution of research, or as members of advisory panels and consultative bodies relating to other projects.

Design of Work and Job Satisfaction

In the past, these topics were regarded as distinct and separate areas of research and application, but in recent years it has come to be seen that the two are interconnected. Indeed, one of the attractions of the QWL movement for occupational psychologists was that it brought the two together under a single 'umbrella'. We shall therefore comment first on these two areas of interest and expertise before returning to the issues of the quality of working life (see also Chapter 2).

Job design: The design of equipment and machines with proper regard for human capacities and limitations has engaged the attention of psychologists specialising in 'human factors' from the early days of industrial psychology. From an initial focus on the design of individual jobs which the operator could then learn and perform without undue difficulty this ergonomic objective was extended later by occupational psychologists influenced by sociotechnical and organisational theory to the design of work systems, including improved methods of organising work groups and controlling their working practices. However, the criterion of successful design measures was usually that they led to higher productivity, with fewer errors and accidents. Higher levels of satisfaction at work might be psychologically desirable, especially if they were associated with low levels of absenteeism and labour turnover; but, before the 1970's, they were not widely regarded as an additional criterion of optimal design. They were certainly not seen as an alternative to standards of performance in this respect. While the psychological principles appertaining to 'user-friendly' equipment and effective work design are still today the central interest of a substantial minority of occupational psychologists (e.g. Oborne, 1982) their approach differs from that of their predecessors in a number of respects. For example, they are immersed in problems arising from the spread of information technology and communication systems, concentrating on the higher intellectual abilities required by those employed in these industries or using their products at home. But perhaps the most obvious difference is that the 'cognitive ergonomists' and psychologists who specialise in this area are expected to take account not only of skill and performance variables but also of factors associated with job satisfaction and work motivation.

Job satisfaction: Reference has been made above to this entrenched concept in occupational psychology which lacks clarity in its definition and use. There is much confusion as to whether it refers to positive feelings about a job, regardless of how well one performs it (e.g. in conditions of high unemployment, simply having a job may lead one to regard it with behaviour, or whether it signifies the pleasure and satisfaction resulting from being able to use one's talents on the job. The useful distinction made by Daniel (1969) between satisfaction with a job and satisfaction in a job is pertinent in this connection, but has been largely ignored in the plethora of publications on the subject. As Landy (1985)

observed, from the earliest days of industrial psychology the relationship between satisfaction and performance has been a kind of 'holy grail'; but it has never been resolved whether it should be seen as the cause or consequence of successful performance. Our concern here is how the topic has figured in the last twenty years, so we cannot dwell on its earlier history. Some seminal contributions from previous decades should be noted. However, because they have influenced later approaches, early attempts by Hoppock (1985) and others to measure how the various elements of a job affects a person's expressed satisfaction with that job, set the pattern for many subsequent enquiries. Another classic, but little known, paper by Balchin (1947) anticipated by some years the ideas of Herzberg et al (1959) and of the QWL enthusiasts of the sixties. Indeed, Nigel Balchin, remembered now more as a novelist and as the designer of Black Magic chocolates, suggested a far more radical approach to work satisfaction than anyone else has put forward, namely the abolition of work as a separate. "By this I mean that we should arrange for work to merge into human activities, so that it ceases to be a separate concept and yields as much satisfaction as any other part of life - that we should seek to eliminate those factors which distinguish work from pleasure." (p.128).

As Mace (1948) commented in a contemporary paper, Balchin's arguments were persuasive and laid the foundations "for a philosophy of incentives more stable than the traditional philosophy of the carrot and the stick": although, in our modern era of financial imperatives and all-pervasive cost consciousness, they seem Utopian and impracticable. But their lasting appeal for at least some of our present-day colleagues can be seen in a recent paper by Ford (1993) in which he acknowledges the influence of Balchin's views upon his own thinking. The focus of much British work on job satisfaction in the late sixties and seventies was on the construction of effective measures of the construct, exemplified by the rewarding attempts of psychologists at the Social and Applied Psychology Unit at Sheffield to produce sound instruments tailored for use in this country (Warr and Routledge, 1969; Cross, 1973; Warr, Cook and Wall, 1979). Informative reviews of these and other measures of work attitudes relating to job satisfaction were published by Cook et al (1981). Although improvements in measurement were parallel by a stream of studies investigating many facets of what is clearly a complex and multi-dimensional construct (e.g. Cope, 1981; Wallis and Cope, 1980), it remains an elusive concept which is difficult to operationalise. The relationship between expressed job satisfaction and an individual's propensity to stay with a particular employer or to leave for another job is ambiguous, to say the least. For this reason, some psychologists now invoke the concept of 'organisational commitment' to denote the relative strength of a person's attachment to and identification with an organisation (Mowday, Porter and Steers, 1982; Arnold, Robertson and Cooper, 1991), which is perhaps a latter-day term for what used to be called loyalty!

Improving the Quality of Working Life: The QWL movement, which was prominent in the late sixties and which faded from the centre of attention a decade or so later, was in many ways a late outcrop of the earlier human relations movement. It resembled it in the missionary zeal and idealism shown by its advocates in propagating its benefits and, unfortunately, resembled it also as an ultimately failed enterprise. The reasons for this were primarily adverse pressures from the economic and social environment which mounted during the 1970's, together with growing doubts within the social science community about the claims made for the achievements of QWL. A basic tenet of these claims was that QWL applications not only improved the quality of life for people at work but also that they had beneficial effects on productivity and cost-effectiveness. It was the lack of convincing evidence to support this last contention that was the principal source of criticism by some psychologists who had initially supported QWL objectives. Papers by Cherns (1975) and Blackler and Brown (1975) in the journal of Occupational Psychology illustrate the views of British psychologists of that period; other sources include Wilson (1973). Baker and Hansen, (1975), Gruneberg (1976), Murrell (1976), and Taylor (1977). We have pointed out previously that, before the period of enthusiasm for QWL, the objectives of greater

productivity and cost-effectiveness, on the one hand, and of enhanced job satisfaction and work motivation, on the other, were pursued more or less independently, and that the assertion that the two aims were not incompatible was one of the attractions of the QWL movement. With hindsight, we suspect that the seeds of dissent and disillusionment with the approach lay in this proposition and the prescriptive ways in which many sought to apply it. Not everyone wants their job to be 'enriched' or 'enlarged', or to engage in participative decision making about how it should be done. In recent years, as fears of redundancies and plant shut-downs have become commonplace, motivational factors 'intrinsic' to the work itself have seemed less important to many employees concerned about 'extrinsic' ones like pay and job security. For managers under pressure to increase productivity and efficiency, the inclination is to keep control in their own hands and not to risk any devolution to others; while the trade unions are apt to view with suspicion any attempts at work reform that ignore the conflicting interests of employees and employers and the adversarial character of British industrial relations. Measures of different facets of job satisfaction continue to be used by occupational psychologists for research purposes (Warr, Cook and Wall, 1979; Clegg and Wall, 1981); and sometimes to assess the need for, and outcomes of, organisational change programmes. However, the focus of interest in the subjective experience of work and related behaviour has shifted towards 'psychological well-being' and 'occupational stress'. It is to this subject of stress that we turn next.

Occupational Stress
Interest on the part of government officials and industrialists in this topic was aroused in the late 1960's by high levels of sickness absence among industrial workers. These levels appeared to be associated with symptoms of illness and psychological disorder thought to be 'stress-related'. It was far from clear, however, just how predictive these data might be of the stressful effects of particular circumstances for particular individuals. As Cooper and Baglioni (1988) observed much later: "Illnesses such as coronary heart disease, mental ill-health and other stress-related manifestations have been on a steady upward trend over recent decades in most industrialised nations (Kasl and Cooper, 1987). It has commonly been posited that the increase in stressors in the environment, both on and off the job, has contributed to this increase in morbidity. However, most discussions concerning the impact of environmental stress, particularly occupational stress, on individuals has not been empirically based."(p.98)

The need for detailed evidence was certainly appreciated by researchers; and also by officials, alarmed at rising costs to the public purse and to industry from illness and absence from work, whatever the causes might be. Accordingly, a programme of research into occupational stress was initiated by the Medical Research Council, supported by the Department of Employment and the Trades Union Congress. One of the authors took part in this programme, conducting a study of stress among factory workers (Shimmin, McNally and Liff, 1981; Shimmin, 1984). Correspondence between the former and Donald Broadbent, whose field and laboratory-based studies of stress among car assembly workers (Broadbent, 1985) were also part of the programme, shows some of the conceptual, methodological and political problems encountered in formulating proposals for research on "mental stress in industry". In the light of the misunderstanding and false expectations of research on the part of industry mentioned in Chapter 4, Broadbent's comments in July 1976 are pertinent:

"As you say, I think there is a considerable danger that scientifically adequate field research will either prove impossible, or will make no difference to industrial practice. The former is evident from the extremely cautious manner in which both sides of industry treat all enquiries; although nobody will say they are against such research, it is quite difficult to find a location where they are actively enthusiastic. It is also undoubtedly true that there are strong pre-established positions in favour of certain modes of organising work, and that those who hold these positions usually want their preferred method to be adopted without any research, or any that we would regard as scientifically adequate. Although the impact of

any possible results on practice is harder to assess, one is bound to be doubtful about this side of things when there seems comparatively little enthusiasm for the research itself'.

Notwithstanding these circumstances, research into stress soon got under way at a number of locations and the late seventies saw the flowering of many studies by occupational psychologists and other specialists, directed at all manner of jobs and occupations, with resulting publications (Cox, 1978; Cooper and Payne, 1978; Cooper, 1980; Cooper and Marshall, 1980; Corlett and Richardson, 1981; Wallis, 1987; Wallis and de Wolff, 1988). A bewildering range of stressors was identified, with diverse effects of sufficient practical relevance and theoretical complexity to command the lasting interest of an increasing number of occupational psychologists.

As with job satisfaction, there was a lack of agreement as to the precise meaning of the term, especially in the early phases of work on the subject. Thus there was an unfortunate tendency to use 'stress' to cover both the stressors which act upon a person at work and the resulting tension (or strain) experienced by that individual. Nor was it always easy to distinguish the latter, as reported by respondents, from expressed dissatisfaction with their jobs. At least it was clear from all this commissioned research what a large and complex set of variables needed to be disentangled if there was ever to be a satisfactory explanation of occupational stress. Some indication of the pressures placed upon people in modern work environments can be seen from the following graphic quotation from an Australian study of telegraphists (Ferguson, 1973):

"The successful operator has to code and decode symbolic information, to exercise selective vigilance, decision-making and short-term memory in conditions of distraction, and also to resist anxiety about error. He has to respond to peaks of load, yet is exposed to the boredom of repetitive manipulative actions or of monitoring his equipment. Introduction of semi-automation has decreased personal contact in the task, and has increased machine pacing. There is less opportunity for those features of the job, such as sense of self-expression, achievement, satisfaction and craft status, which previously redeemed a monotonous, repetitive task." (p .660)

We are puzzled by the seeming contradiction of that last sentence (craft status and self-expression are not usually associated with monotonous, repetitive work); but the excerpt shows that it would be far from easy to 'humanise' this job and others like it. Equally vivid accounts of the stresses of managerial and professional work have appeared in the occupational stress literature in the last twenty years. This period too has seen a number of courageous attempts at theory-building and conceptual refinements. Fruitful concepts include those which identify adaptive behaviours in the face of stressors ('coping': Lazarus, 1976; Cooper, 1988); those conducive to the onset of coronary heart disease ('Type A': Cooper and Marshall, 1976). Among theoretical formulations which have stood the test of time, in so far as they have continued to attract partisan support and stimulate further research and practical advice on stress problems, are the 'transactional' model of Cox and Mackay (1978) and the structural model of Cooper and Baglioni (1988). Broadbent's (1985) view of the relationship between occupational, cognitive and clinical factors has also been influential.

Stress management: The focussing of interest by occupational psychologists on the relationships between stressful conditions and overall health and well-being, has influenced the contemporary rise of 'health psychology' as a wide-ranging field of general psychological development. It has also led to rewarding professional assignments for practitioners of occupational psychology, for whom 'stress management' has become almost, as prominent an outlet for consultancy as assessment centres and executive selection (see The Occupational Psychologist, No 6 1988). Techniques for reducing the ill effects of organisational stressors like role ambiguity and role conflict are in great demand; as are

training courses for harassed executives, which aim at helping them to develop coping strategies to deal with unavoidable stressful situations. These techniques were reviewed by Murphy (1984), who warned against too great a reliance on remedial, rather than preventive, methods. As he said:

"There is a clear danger of organisations offering stress management training to workers and making no attempt to improve work conditions which generate stress. For an organisation to bring in a consultant to offer several stress management seminars and contend this meets their obligation in addressing the problem of job stress reduction would constitute an injustice to the employees." (p.13).

Stress management is one of the areas of professional application of common interest to clinical and occupational psychologists. One of the most popular 'treatments' practised by both groups to relieve accumulated psychological and physical tensions is to teach people to use relaxation techniques. Another method advocated by both sets of specialists is 'stress counselling' of employees exposed to demanding and stressful conditions. There has therefore been some speculation about the desirability of overt recognition of this overlap, even to the extent of considering the creation of a new professional category of 'clinical occupational psychologist' (Cooper, 1986).

Unemployment and stress: During the 1970's, a substantial amount of research and professional effort relating to stress was diverted towards its distinctive manifestation in loss of jobs and unemployment. The rise in these statistics was accompanied by governmental concern about the social and political consequences, though not at first by any alarm at the possible adverse psychological effects. Both the Medical and the Social Science Research Councils took a leading part in sponsoring research in this area and, as redundancy and 'early retirement' extended to managerial grades as well as operatives and clerical workers, support was also forthcoming for research and ameliorative programmes from the public and private sectors of industry. Interest among occupational psychologists was stimulated particularly by Marie Jahoda's (1979) reflections on the psychological implications of losing one's job. The outcomes of this preoccupation with the stressful and other psychological effects of unemployment have been documented by Peter Warr and his colleagues at the Social and Applied Psychology Research Unit at Sheffield (Hartley, 1980; Hepworth, 1980; Stafford et al, 1980; Warr, 1983a and b; Warr, 1987). Other useful sources from that time are Fineman, (1979), Hayes and Nutman (1984), and three papers in the BPS Bulletin in 1981 (Shepherd; Gurney and Taylor; Winfield). Although it is difficult to point to any substantial governmental action following publication of these findings and recommendations for alleviating the stressful consequences of employment, many employers took steps in this direction. 'Redundancy counselling' and opportunities for re-training in new skills were offered by those who acknowledged a moral imperative to give some help to their displaced employees. (Perhaps also because they perceived the possibility that they themselves might suffer the same fate at a future date.) How beneficial these measures were in practice is difficult to tell from the literature (see the special issue of the Occupational Psychology Newsletter, No. 16, 1984 on this topic). Some practitioners saw the market for them and responded to the rise in unemployment by producing 'packages' to meet the demand for redundancy counselling and other palliatives to relieve the associated stress. It is an activity that still features in contemporary professional applications, but is no longer a conspicuous element, moral pressures and financial inducements to alleviate the stressful aspects of unemployment having subsided in the harsher political and economic climate that characterised the 1980's.

Absence and Accidents
It is apposite at this point to mention briefly two topics, not unrelated to stress, which held the stage for a time in the late sixties and early seventies. Both belong to that category of ever-

present phenomena which attract attention and call for action only when they reach unacceptably high levels, but otherwise tend to be regarded as unfortunate 'facts of life'.

Absence: As with the programme of studies of stress described above, high levels of sickness absence have often been the stimulus promoting research into the health and well-being of workers, starting with that of munition workers in WW1 outlined in the Prologue. In the 1960's, the incidence of 'absenteeism' in British industry was sufficiently widespread to alarm the Department of Employment into commissioning research into the reasons for this voluntary, unauthorised absence. As a result, there was a thrust of research effort and theoretical speculation directed to this topic in the 1970's (Chadwick-Jones et al, 1971; Nicholson et al, 1976). Chadwick-Jones' studies in the transport and other industries of South Wales were a key component of this programme. They were also the occasion for an embarrassing faux pas committed by one of the authors. As the Departments chief psychologist, he was responsible for setting up the project under Dr Chadwick-Jones' direction at University College Cardiff. Unfortunately, he omitted to inform the recently established Welsh Office of this intervention from another government department in London; with the result that the full wrath of a sensitive department of state was expressed in no uncertain terms by a very senior administrative official in Wales to his counterpart in the Department of Employment. The offence had been 'political' in nature, as local liaison and consultation had been effected through the Departments own 'Wales Office' in Cardiff without informing the Principality's own 'Welsh Office'. The chief psychologist was duly taken to task - an experience which reinforced the lesson that is mandatory for all professional advisers, i.e. that proper observance of political niceties and ritualistic behaviour is at least as important for success as specialist knowledge and competence!

Accidents: It may not be widely known that psychologists made an important contribution (Hale and Hale. 1972), to the research reviews on accident causation and prevention prepared for the Robens Commission, the report of which gave rise to the Health and Safety at Work Act, 1974. Since that time, accidents at work have not figured largely among the problems accorded priority by occupational psychologists, e.g. few studies have been reported since Boyles (1980) analysis of accident rates in a so-called found experiment in an industrial workshop. In certain industries, however, such as construction, how to induce safe working practices and to avoid accidents is a continuing source of concern, reflected in the commissioning of research on the topic by the Building Research Establishment in the 1980's (Leather. 1987). Whatever else has emerged from studies of accidents at work, there is little doubt of the multiplicity of psychological factors that may be among the predisposing or precipitating causes (Powell et al, 1971). It is also evident that field studies in this area present particularly acute methodological difficulties. Some of the factors which occupational psychologists have seen as relevant are age, risk-taking and 'withdrawal' behaviour, and the effect of 'life stress', the latter indicating that it is not only stress in the work situation that may lead to both absence from work and industrial accidents but also the personal stresses and anxieties arising outside the work environment (Kay, 1978; Oborne, 1982).

Unfair Discrimination
The topics we have discussed so far are by no means the only ones to have had more than an average share of attention in recent years. Another which burst into prominence in the seventies was unfair discrimination in employment on the grounds of a person's sex or ethnic origins (Pearn, 1976. Goodman and Novarra. 1977). As the literature of that period reveals occupational psychologists who supported the aim of preventing discrimination of this kind were also acutely aware that some of their tests and assessment procedures might, inadvertently, be used improperly in this connection (Closs, 1976; Freeman, 1979). Their main grounds for anxiety were that psychological tests of ability, scales assessing personal qualities, and questionnaires about occupational interests and preferences, would be an easy target of criticism from opponents of psychological methods generally. Furthermore, these procedures would be at risk of legal action if it were thought that they did not comply

with the spirit and letter of the relevant legislation (i.e. the Race Relations Acts of 1968 and 1976, and the Sex Discrimination Act, 1975). In the face of this situation, the BPS took swift action to review the circumstances in which their members might encounter problems, particularly in the context of vocational guidance and selection. The Report of its Working Party on the Sex Discrimination Act (BPS, 1978) provided guidelines for 'safe' professional practice on gender issues; whilst the Report of a Joint Working Party on Employment Assessment and Racial Discrimination (BPS and Runnymede Trust, 1980) was published as an authoritative review and guidebook available to psychologists and non-psychologists alike. Although this country did not experience the alarms and public outcry which afflicted American psychologists in the wake of the Civil Rights Act of 1964 (see the American Psychologist, 1965), there have been court actions under our anti-discrimination legislation. These have underlined the fact that it is the misuse of psychological tests and procedures which are likely to lead to infringements, rather than the measures themselves. Restrictions on eligibility for employment represent a more frequent ground for complaint as illustrated by the case of Price (the applicant) versus the Civil Service Commission and Civil Service National Whitley Council (Staff Side), which led to the Civil Service Commission having to review its entire eligibility requirements regarding age (Wallis, 1980). Recently, there has been a revival of earlier social pressures to ban discrimination on grounds of age. If this is enacted, it will be interesting to discover whether the paradoxical situation noted by Wallis, in the paper cited above, will also become subject to legal sanctions. The paradox is this "should there be an unsatisfactory psychological test which happens (perish the thought!) to be equally unreliable or invalid for both sexes (or whatever the other relevant groups), then there would seem to be no grounds for complaint by any individual under any of the anti-discrimination legislation." (p.4). If demonstrable unfairness to an individual was nevertheless traced to the use of such an instrument, it would be assumed that the supervision and sanctions operated by the BPS through its Divisions were inadequate. Occupational psychologists could then face the unwelcome imposition of statutory control, rather than just professional standards and codes of practice, of the technical requirements for valid assessment procedures.

Training Research and Training Technology
We now turn to a subject that has engaged the attention of applied psychologists from the early days of industrial psychology, but which assumed a much more central position in Britain following the Industrial Training Acts of 1964 and 1973. Psychological research on training, defined in the Department of Employment Glossary of Training Terms (1971) as "The systematic development of the attitude/knowledge/skill behaviour pattern required by an individual in order to perform adequately a given task or job", has been directed towards discovering the most effective methods of learning a particular task. It has also sought to assist trainers to learn how best to train others to acquire the necessary competences. Whereas formerly training research focussed on jobs with a specific operational or technical content, the last twenty years have seen it extended to social skills and supervisory and managerial behaviour. These, as Downs (1983) pointed out, are far harder to research and validate in depth; although certain techniques such as role-playing, case studies, T-groups and similar procedures have been investigated (see Campbell, 1971; Carroll et al, 1972; Babington Smith and Farrell, 1979; Goldstein, 1980). It may be noted in passing, that managerial training has been particularly susceptible to the promotion of well-publicised approaches and 'packages' that lack a rigorous research foundation, but which have enjoyed a vogue for a period until displaced by the next technique in fashion with certain consultants.

A good example of sustained and rewarding systematic research which has had lasting effects on the training procedures for a wide range of industrial and commercial skills, is the work of the industrial Training Research Unit at Cambridge. Founded and directed by Dr Eunice Belbin in the 1960's with financial backing from the Department of Employment, ITRU increased its size and the range of its activities beyond its early work on the effects of age on learning and the development of training methods suited to the needs of older

trainees (Belbin, 1969). Among the enduring innovations introduced by members of the Unit are 'trainability testing' (Downs, 1977; ITRU, 1978) whereby selection is based on tests which assess individuals' training potential for a specific job. Another is the radical training approach labelled by its creators 'learning to learn' (Downs and Perry, 1982) which involved teaching the process of learning (e.g. asking questions, developing ones own mnemonics) instead of concentrating on task content. It is now taken for granted that a systematic psychological approach to the design of effective training will include a task analysis behavioural expression of training objectives, detailed feedback on progress and objective assessment of performance after training to check whether the objectives have been realised. Effective techniques for doing this were first developed in the cause of programmed instruction (P1), with which many occupational psychologists were involved in the 1960's (Mager, 1962; Wallis, 1966; Annett and Duncan, 1967; Annett, 1964; Duncan, 1974). Interest in P1 was linked with exploiting the use of so-called 'teaching machines' then on the market, but it waned when the advent of 'computer-aided instruction' (CAI) made earlier methods of presenting instructions and learning material obsolescent. However, the psychological rationale for successful CAI developed from the preceding intensive research and trials of P1 (or 'programmed learning' as some preferred to call it). Occupational psychologists with an interest in training and computers have devoted their efforts in recent years to the problems of harnessing computers to meet industrial and military training objectives (Hooper and Toye, 1975; Patrick, 1992).

Occupational Guidance and Counselling
For the last topic in our selective review we have chosen one which used to be regarded as absolutely central to occupational psychology. It is still featured prominently in most professional training courses, even though only a small minority of academics and practitioners in our field specialise nowadays in occupational guidance or counselling. However, what is currently taught and practised differs markedly from the approach fashioned sixty years ago by the NIIP and applied on a wide scale until the late 1960's, particularly by occupational psychologists who adopted it from Alec Rodger's courses at Birkbeck College.

Vocational guidance, as it was termed in those days, sought to guide people towards jobs and careers which appeared to 'match' their particular blend of abilities and personal qualities. This somewhat paternalistic approach, which was rooted in psychometrics and differential psychology, was giving way by the 1970's to one based instead on developmental theories of occupational choice. Rather than relying upon the assessment, information, and advice of the 'expert' to help clients, the new approach employed non-directive counselling methods. Though derived from earlier American ideas (e.g. Super, 1957; Holland, 1966), it was adopted here enthusiastically by occupational psychologists who were dissatisfied with what they saw as ethical, as well practical and theoretical, objections to the 'traditional' guidance model (Hayes and Hopson, 1968; Watts and Kidd, 1978; Holdsworth, 1982). Moreover, cutting across the debates about 'counselling' versus 'guidance' and 'careers' rather than 'job' choices, the advent of computer-based systems during the 1970's opened up exciting new opportunities for widening the scope and improving the effectiveness of both approaches. (See the Special Issue on computers in guidance, journal of Occupational Psychology, 1978). By the end of the 1970's, however, it seemed that the re-awakening of sustained interest in the topic was short-lived. This was due in large measure to the contemporary growth of a distinctive profession of counselling, which extended far beyond the bounds of occupational and careers problems but encompassed these within its own domain. No doubt the demise of the national Occupational Guidance Service (see Chap 2), and the appearance of specialist 'careers teachers' in many schools, played a part in the reduction of active participation by occupational psychologists. Even so, we should not prematurely discount the possibility of a revival in the future, judging by persuasive arguments advanced in recent publications (e.g. Watts, 1990; Kidd and Killeen, 1992; Bray, 1992).

EXPANDING JOB HORIZONS

To conclude this chapter with another angle on the expanding field of occupational psychology, we have looked at the range of jobs advertised under this heading in the BPS Appointments Memorandum during the four years November 1989 to November 1993. Ignoring academic and related research positions, which were few in that period, twenty eight public and private sector organisations advertised in-house posts for occupational psychologists. In addition, twenty different consultancy firms sought to recruit them to their staff. The salaries offered were good in comparison with those advertised for other psychologists, some consultancy posts carrying the highest rates of remuneration of all the jobs in the Memorandum in a given month, different types of expertise were wanted by different organisations. For examples, openings for human factors engineers/ergonomists were mainly in electronics companies; whereas regional health authorities, a building society and an insurance company, wanted organisational change advisers and organisation development specialists. In organisations which have employed occupational psychologists for many years, such as British Telecom, the Employment Service and the Post Office Psychological Services, the job content was described in general terms such as "wide-ranging applications of occupational psychology". The traditional areas of selection and assessment, including the development of assessment centres for recruitment and accelerated promotion, constituted another constellation of in-house posts. In both the public and private sector, applicants were usually expected to have a degree in psychology (with ergonomics named as an alternative for the human factors specialists), and preference was expressed for a postgraduate qualification in occupational psychology as well, together with eligibility for, or possession of, BPS Charter status. However, for some personnel selection positions, a professional qualification "in personnel management of similar" that included knowledge of occupational testing and assessment procedures was mentioned as an acceptable alternative to one in occupational psychology. The vacancies in consultancy firms similarly covered a wide spectrum, but could be categorised broadly into those concerned with psychometrics and general "human resources consulting"; those specialising in interpersonal skills training and group processes; management and organisation development; executive counselling and executive outplacement; and a combination of some or all of the above. As with the in-house posts, applicants were usually preferred with postgraduate degrees in occupational psychology, relevant work experience and Charter status, but not always. For example, one organisation stated that "our requirement is for mature, experienced and commercially aware psychologists who can further develop this human resources consultancy". Another specified that "you should have a behavioural science degree with psychology as a major element; a postgraduate qualification in organisation behaviour or an MBA would be an advantage". On this evidence from a publication for BPS members, there are now openings for occupational psychologists in a much wider range of organisations than formerly, when government departments and agencies, universities and research groups were the main employers. Most of these posts are at a relatively senior level, requiring not only relevant qualifications but also appropriate experience. There seem to be far fewer jobs advertised for those wishing to specialise in the field who are at the start of their careers. Although the spread in the types of organisation with posts 'ring-marked' specifically for occupational psychologists (i.e. requiring Chartered status and a postgraduate qualification in the subject) is to be welcomed, it is almost impossible to assess whether they are numerous enough in relation to potential applicants. It should be noted too that vacancies for senior management consultants advertised in the national press, particularly in the spheres of human resources and of organisational change, often include responsibilities that impinge on or overlap with, those of psychologists e.g. "selecting and developing people who can contribute to superior performance". However, it is previous consultancy experience, rather than qualifications, which is named as a pre-condition of appointment in these instances. This diversity of opportunity has implications for the training and education of occupational psychologists and

for their organisation as a profession. It is to these issues that we turn our attention in the next chapter.

CHAPTER 6

ACADEMIC AND PROFESSIONAL DEVELOPMENTS

INTRODUCTION

We noted in the Preface to Part II that twenty-five years ago the prevailing mood in the country was optimistic. This optimism was reflected in the expanding horizons of occupational psychology, not only in the breadth of its fields of research but also in the scope and organisation of its professional application. The previous chapter reviewed the changes in content and methodology which accompanied the expansion and shifts of emphasis during the past two or three decades. It concluded by referring to the increased employment opportunities that now exist for occupational psychologists, particularly in commercial and industrial consultancy. We take up the latter development again later in this chapter, which is concerned with the recent past as it relates to academic and professional issues and their implications for the future of occupational psychology. Events in the seventies, eighties and early nineties have been both favourable and unfavourable to our discipline. We begin, therefore, by reviewing some of the positive and negative aspects of recent years which show that grounds for optimism persist in some areas, but that in other respects the picture is bleaker and more uncertain. This leads to a consideration of the growing demands from an expanding profession for recognised status and control. In connection with the latter we devote some space to the establishment of a professional Division of Occupational Psychology within the BPS. Although the Division is still evolving in line with developments in the Society itself and the introduction of the category of Chartered Psychologist for recognised practitioners, we feel it is important to record its origins and subsequent progress for the benefit of future members for whom the relevant Minute books and Society's Annual Reports will not be available.

ADVANCES AND SETBACKS IN THE 1970's

Expanding horizons: Links with mainland Europe
A significant development during this decade was the formation of active links between occupational psychologists in Britain and their European counterparts in 'work psychology'. Prior to this, as in psychology generally, it was the United States which represented the main overseas influence on the subject, although active co-operation between psychologists associated with defence and military projects in NATO European countries occurred much earlier. As far back as the late 1950's, for example, one of the present authors (DW) took part in a programme of studies which entailed extended periods of mutual exchange with psychologists from the Royal Netherlands Navy and the Institute of Perceptual Research at Soesterberg. Shortly afterwards, and largely through the initiative of the NATO Science Committee and its Advisory Group on Human Factors, enduring links were also established between psychologists in Britain and those with similar interests in France, Italy and West Germany. Ken Tilley, a former head of the group of psychologists serving the RAF, has left an informative summary of how the Advisory Group tackled the problems which have to be overcome if genuine inter-communication and international co-operation is to be achieved (personal communication, 1992). However, for the majority of occupational psychologists awareness of contemporary developments on the mainland of Europe was aroused, if at all, through the International Review of Applied Psychology published by the International Association of Applied Psychology. For most of us, the only well-known European researches in our field were the Norwegian and Swedish applications of the Tavistock Institutes socio-technical theory and their experiments on 'industrial democracy', which were apt to be discounted by the academic establishment of the time. But, after the reluctant admission of Britain into the European Economic Community, opportunities and funds for direct liaison with Western European universities and research centres became more readily

available and attention began to turn increasingly across the English Channel instead of across the Atlantic Ocean.

Beginnings of a European Network: Ironically, one of the first initiatives that led to closer association between Western European 'work' psychologists came from the United States! In 1978 the Editor of Personnel Psychology invited a group from seven countries to prepare an account for this American journal of how they saw their subject developing in their homelands. A first review of work psychology in Europe appeared three years later (de Wolff and Shimmin, 1976), and was followed by a much larger survey to which members of the original group and others contributed (de Wolff et al, 1981). As the authors noted in their preface "Some European psychologists have the feeling that they know more about what is going on in the United States than about what happens in a neighbouring country" (p.viii), a wry observation that certainly applied to Britain regarding the Irish Republic and France, despite their geographical proximity. As a direct consequence of that exercise, a group of twenty professors of 'work psychology' from ten different countries met at Cumberland Lodge, Windsor, in April 1981. Among them were the present authors and Professor Peter Warr. Having explored a number of possibilities for collaboration in research, professional training programmes and exchange of information, they decided to form themselves into a European Network of Organisational and Work Psychologists (ENOP). With generous support from the Maison des Sciences de l'Homme in Paris, and assistance to its members from their own national resources (such as the Social Science Research Council here), ENOP has been able to organise an annual series of meetings, workshops on specific topics, exchanges of staff and students, as well as sponsoring publications and participating in other collaborative international projects. Perhaps its greatest contribution has been as an active network and channel of informal contacts and communication, with its membership expanding steadily to include most of the former Eastern European countries as well as present and prospective members of the EC.

Initiatives by the British Psychological Society: The first formal gesture by the BPS towards our Continental colleagues occurred in 1978. Members of the corresponding Dutch psychological organisation were invited to take an active part in the annual conference of the Occupational Psychology Section and Division, held that year in Cambridge. About 50 Dutch psychologists attended. Five years later, the BPS Section collaborated with its counterparts in the Netherlands, Belgium and West Germany to stage the First North-Western European Conference on the Psychology of Work and Organisation at the Catholic University of Nijmegen. This conference attracted over 200 work psychologists, 41 of whom were from Britain (BPS, 1984 p.71; Koopman-Iwema & Roe, 1985). Since then there has been a quite dramatic surge of interest and activities here and in Europe, not only with respect to EC countries but increasingly with others from the former Eastern bloc. Some countries, like Spain, which claim a proportionately larger number of occupationally-minded psychologists than Britain or the Netherlands, despite having entered the field comparatively recently, have been eager to join in the cross-cultural exchanges and international meetings. A second European conference was held at Aachen in 1985, this time with the work psychology branch of the French psychological association supplementing the four original national groups. Since then five more conferences on Work and Organisational Psychology in Europe have been held at two-yearly intervals, arranged by representatives of ten national societies under the banner of the 'European Congress of Work and Organisational Psychology'. It seems likely that twice that number of national bodies will be clamouring for representation before the end of the present millennium. The success of these expressions of a trans-European dimension to developments in the field owes much to the efforts and foresight of the BPS members serving on recent committees of the Occupational Psychology Section and Division. They have ensured a creative and influential role for British occupational psychologists in what is already a European forum of some significance. The recent formation of a European Association of Work and Organisational Psychology open to individual members as well as to its constituent national societies (Zawisza, 1991; Williams,

1993) is the latest outcome of the initiatives described above. (See also: The Occupational Psychologist, 7, April 1989.) Other examples of the institutionalisation of European exchanges and collaboration, not confined to work psychologists but to which they have made an active contribution, are the European Federation of Professional Psychological Associations (EFPPA) and the First European Congress of Psychology, held in Amsterdam in 1989. In addition, cross-national research studies have proliferated in recent years and in 1991 a new journal appeared, published in association with the International Association of Applied Psychology, entitled The European Work and Organisational Psychologist.

Two major setbacks in the sphere of application
In contrast with the beginnings of what were to become substantial international linkages, outlined above, British occupational psychology also suffered serious retrenchment in the 1970's when two of the largest groups in the domain of applied psychology ceased to operate and their staff were disbanded. These unanticipated disasters, one in the public sector and one in the private sector, sent shockwaves throughout the entire 'establishment' of occupational psychology and are still recalled with dismay by those who were at the centre or on the fringe of these events.

Public Sector - The Behavioural Sciences Division: The first, group to suffer a sudden demise was the Behavioural Sciences Division (BSD) of the Civil Service Department in Whitehall. (The CSD itself was later to become absorbed within the Cabinet Office and Treasury.) Although it may have been threatened or planned earlier, as one of the arbitrary cutbacks and 'economies' which began to afflict the public services in the seventies (and have done ever since), the dismemberment of the BSD actually followed the retirement of its distinguished Director, Dr Edgar Anstey (see Chapter 2). It meant that the Division's research and development relating to the Civil Services generic problems of personnel management and effective deployment of civil servants was largely abandoned. Many of the psychologists sought transfers to other government departments and some left government service altogether. The remainder were split up and posted to other sections of their parent department, such as the Civil Service Selection Board, where psychological expertise was still regarded favourably. Although it never grew quite as large as the psychological branches serving the Ministry of Defence, Home Office and Department of Employment, the Behavioural Sciences Division had appeared to be well regarded within civil service circles; and it was certainly productive during its relatively brief span as an integrated and professionally directed unit. Its strategic location at the very heart of the administrative authority (the Civil Service Department) responsible for policy and practice relating to the selection, deployment and career structures of all civil servants, should have enhanced its influence and security from outside intervention. But this illusory advantage offered no immunity against attack and, in a conversation with one of the authors (SS) at the time, the Director reproached himself for not having paid close attention to the political manoeuvres of those who saw the Division as expendable and prepared his staff accordingly. The sudden and untimely end of this apparently well-entrenched group was probably more severe a blow to the prestige and practice of occupational psychology in central government than was realised at the time. It immediately cut off the only direct avenue of internal psychological advice and influence, from a relatively high-ranking professional source, to central policy making in the civil service administration.

Private Sector - the National Institute of Industrial Psychology: An even more disturbing event was the suspending of its operations by the NIIP in August 1973, followed by its final closure in 1977. In the intervening four years the Director, Dr R B Buzzard, the Assistant Director, Dr Isabel Blain and two others had soldiered on part-time to ensure that the Institute's library, information service, journal and its test publishing survived to be taken over and continued under other auspices. Thus ended an organisation which, for half a century, had been a national focus for the development and application of psychology to industry. Its reputation had been earned more by a distinguished past than by its more

recent achievements, but at the time of its demise it was still held in high regard by many contemporary occupational psychologists.

The blow was all the greater because, on 16 November 1971, the Institute had celebrated its Golden Jubilee when a distinguished gathering of psychologists and industrialists had saluted its achievements in the fifty years since its foundation by C.S. Myers. They were addressed on the theme 'Man at Work - the Next Fifty Years' by the Earl of Halsbury (President of the NIIP), Leonard Neal (Chairman of the Commission on Industrial Relations), Theodore Tromp (Director of the Netherlands Institute for Industry and Commerce) and the meeting was wound up by no less a commentator than the Duke of Edinburgh. Amidst the general expressions of goodwill and satisfaction, the Director observed that "the priority we give to application and the research built into it makes us in many ways unique, but we do not want to stay unique. We want to consolidate what has been achieved in the past fifty years in order to do much more in the next fifty, and in order to help others going in the same direction." (Halsbury et al, 1971, p. 190).

The audience on that auspicious occasion could be forgiven for predicting a long and healthy future for the Institute. Indeed, good wishes and confident expectations were expressed on all sides during that year (e.g. Rodger, 1971; Wallis, 1971). It seems that few, if any, within or outside the NIIP realised how suddenly and irrevocably the situation would deteriorate. The virtual winding-up only two years later was therefore all the more disturbing to the self-esteem of British occupational psychology because it was unforeseen by so many.

How did it happen? This question was posed in the NIIP's Annual Report and Statement of Accounts for the year ended 30 September 1973 and answered under a number of headings: First it mentions the use by competitors (consultants, academic researchers, etc) of methods developed by the NIIP and of practitioners trained by it without having incurred the cost of either, "With the exception of its copyright of tests, NIIP has no way of patenting its ideas and methods which must be published so that anyone can use them. It cannot therefore expect to succeed solely as a commercial organisation even if its Constitution allowed it to do so" (p.4). Second it refers to the effects of the Government's demands in 1964 for it to increase its research for industry "rapidly and extensively" and its recognition by the Department of Trade and Industry as a research association in 1965 which led to over-dependence on government funding. From 1969 "support from Government came only from grant aid awarded in slowly decreasing proportion to membership subscriptions and the contributions industrial or commercial companies made towards research". The latter declined from 1970 onwards as the country entered a period of financial difficulties, but the NIIP's income from other services kept it afloat until 1972-73 when the demand for investigations and for training courses deteriorated sharply. In addition, it identifies as a third factor the costly effects of the research into industrial accidents, finally sponsored by the Ministry of Technology and the Department of Employment in 1965 on estimates prepared and submitted in 1960. As it became clear in the course of the research that the original estimates were by then too low, "In financial terms NIIP was wrong to complete this work (but) in moral terms it had to be completed", resulting in a loss to the Institute of several thousand pounds. The report on this ambitious accident project was actually published during the Institute's jubilee year (Powell et al, 1971) and had a mixed reception. On the whole it was well received by its academic and professional readers, although at least one of these described it as using a 'blunderbuss approach', but it was not liked by its sponsors, the Factory Inspectorate. There seems little doubt that the moral commitment to complete this study probably finally tipped the balance against the Institute's precarious finances, but it is also clear that its Constitution as a non-profit-making organisation made it difficult for it to pay its way comfortably right from the beginning. In this connection, the observations of the late Denys Harding in a letter of April 1989 to one of the authors (SS) are worth quoting: "The various branches of work that were all carried out by the NIIP in its pioneering years developed into separate specialisms, some of them (like 'business consultancy')

commercially profitable, others (like 'ergonomics') academically rewarding too. When I joined in 1928 the vocational guidance work and the personnel selection were two sections of the Institute, separate from the main work of industrial investigations. But that main work covered all sorts of things that were soon looked after more and more by specialist firms: heating, lighting and ventilation, seating, design of work places (and often jigs and templates), machine design, production flow, training schemes, payment schemes, personal relations and supervisory methods, time and movement studies. At one place I had even to venture into costing. I suppose it's possible that with imaginative foresight and very ample and adventurous investment these various branches might have been kept together within the one organisation as they developed into specialisms. But this was beyond the sort of business men whom Myers gathered to his support in founding and running the Institute (and who at one of the frequent crises sacked him in a way he never forgave - he never pretended to have got over the hurt and bitterness, though he kept on, I suppose for appearances sake as the honorary scientific adviser or some such thing). I think that a fee-earning but non-profit-making organisation was a sort of hybrid that could only survive in the pioneering phase of the work when the NHS could function as a sort of GP able to cope with a wide variety of the patient's needs. It was liable to loss when the independent commercial (or in other ways self-interested) undertakings offering specialist advice came to dominate the field." (Personal Communication, April 1989).

In retrospect, it seems remarkable that, in these circumstances, the NIIP survived for so long and, particularly in its earlier decades, was so successful. For many years it was the principal training ground for psychologists applying their knowledge and skills to industrial and commercial problems, and maintaining the highest professional standards. The invaluable contribution made by NIIP staff in WW2 (see Chapter 1) is one example of its importance in the development of occupational psychology. Another is the wide dispersion of former members of staff in a variety of senior appointments in industry, commercial consultancy and the academic world, which occurred both before and after its closure and which disseminated the best of its principles and practice to users and students. Although more formal training programmes are now available for would be practitioners and professionals, which we discuss below, Britain has no equivalent institution to the NIIP today and our discipline is the poorer for it.

ACADEMIC EDUCATION AND TRAINING

The expansion of universities in size and numbers, which characterised the 1960's, was accompanied by a steady growth of applicants wanting to read psychology. There were 86 university departments of psychology with at least one professor by the end of the decade besides two other departments of applied/occupational psychology at Aston and UWIST (Cardiff). Five more psychology departments were established during the first half of the 1970's, together with a commensurate growth in the teaching of psychology in the polytechnics and the emergence of business and management studies as an expanding sector of undergraduate and postgraduate teaching.

University courses: For the majority of students taking a first degree in psychology in university departments of psychology, occupational psychology was available, if at all, only as a final year option. A notable exception was UWIST, where it was possible to take a first degree in Occupational Psychology. Started in 1965 by KFH Murrell (1969; 1980), it was at first viewed askance by purists within academic psychology, although it rapidly became popular with undergraduates aspiring to a career in this field, and was soon accorded recognition by the BPS as meeting the requirements for graduate membership, traditional views prevailed elsewhere. Whether overtly expressed or not, most academic psychologists tend to view 'applied' psychology either as too pragmatic and intellectually shallow, or as too complex and specialised, to form the substance of an undergraduate education. Even at UWIST, where a commitment to occupational psychology was never in doubt, the HF&E

scheme founded by Murrell soon evolved into a broader Applied Psychology degree, offering applied social psychology as an alternative to the occupational specialism in the final year. In contrast, the climate of opinion within university business and management departments has generally favoured the inclusion of occupational psychology as a core subject in undergraduate programmes. At the postgraduate level, support for the subject was also limited to a small number of university departments, the main one being the Department of Occupational Psychology at Birkbeck College, London. Its annual output of twenty or more qualified occupational psychologists represented nearly half the total of new entrants to the profession in Britain. Also, through the medium of a Master's degree in Manpower Studies, it offered postgraduate tuition in occupational psychology to graduates with first degrees in other subjects. In many quarters, the two institutions of the NIIP and the Department of Occupational Psychology at Birkbeck, were seen as epitomising the subject in this country, but both were to face a crisis in the 1970's. For the Department these were the start of a turbulent period caused by internal and external factors that continued for many years.

The 'Rodgerian' Scheme: As recorded in a previous chapter, Alec Rodger was the initiator of postgraduate training at Birkbeck and the first professional head of the Department. His pioneering course was influenced by his pre-war experiences as head of vocational guidance at the NIIP and the ideas and practices of that institution. Hence the prominence in the Birkbeck programme, first of the 'Seven Point Plan' for psychological assessment (which Rodger modified from an original scheme by Cyril Burt), and secondly of the ubiquitous FMJ-FJM framework (fitting the man to the job and the job to the man) which was Rodger's own distinctive contribution to occupational psychology. The FMJ component was represented mainly by vocational guidance and personnel selection, but the FJM element was given far less attention; even less was accorded to the social and organisational aspects of working environments, although both these areas were developing strongly throughout the late fifties and sixties. Rodger's maxim, which we have cited elsewhere, that occupational psychology must be "technically sound, administratively feasible, and socially acceptable" governed his pragmatic, essentially a theoretical approach. Neither was there any marked emphasis on experimental or statistical skills, perhaps reflecting the low priority given to sustained and innovative research in the Department under his aegis. This pattern persisted for a number of years without substantial change. It seems likely that the large numbers of high calibre students who were attracted to the Birkbeck course, and their undoubted success afterwards in securing influential appointments as academics or practitioners, helped to sustain Alec Rodger's conviction that his model was entirely adequate. Likewise, it tended to obscure the fact that his course in style and content was being overtaken by radical developments in the discipline elsewhere. By the late 1960's a growing number of other academic institutions were offering postgraduate training of a more eclectic and research based kind. Criticism of the Rodgerian framework of teaching and practice grew more insistent, both within and outside the Department, and some of the more recently appointed staff tried hard to broaden the curriculum. Gerry Randall recalls:
"Denis (Pym), Frank (Sneath) and I began to see the narrowness of the course, which was generating a lot of complaints from students, but when we tried to introduce wider issues it caused schisms. Alec Rodger gave me a notebook and told me to record in it everything I taught the students". (Personal Communication, May 1990. See also Pat Shipley's comments in Chapter 4).

Turbulent Years for Occupational Psychology: The crisis erupted after Alec Rodger retired in 1972, ending an era in which he and his most dedicated disciples had provided the archetype for occupational psychology in the UK. There followed a period of more or less constant upheaval and change in the Department's affairs, first under the headship of Dr Nicholas Georgiades whose approach was heavily influenced by American humanistic psychology and who sought to introduce a more participative, democratic regime before he left in 1979 to take up a non-academic post. He too was a pragmatist who did not accord a high priority to research, but he initiated a review of the Master's programme and the

updating of its content. A threatened 'takeover' bid by the erstwhile parent Department of Psychology in the College was averted when Professor George Shouksmith of Massey University, New Zealand, was offered the post of head of the Department of Occupational Psychology. His sudden illness which prevented his taking up the appointment then led to more uncertainty and, until the arrival of Professor Peter Herriot in 1981, Dr Pat Shipley took on the headship of the Department 'under protest' and steered it through a difficult two years. In her words: "The first year was hell, but by the second the department was functioning as a semi-autonomous working group as Nick Georgiades had envisaged. I started the ball rolling on the research side, on which I was always keen (and) when Peter Herriot came his brief from the College was to build up research and before taking up his appointment he spent several weeks talking over with me what I had started. To his credit, he picked up the ball I had put down and ran with it". (Personal Communication, 1990).

Towards the end of the 1980's, just when the tide of misfortune seemed to have receded, another disaster loomed in the form of a Government squeeze on the funding of part-time students. For Birkbeck College as a whole, which derived about forty per cent of its income from part-time postgraduate students, the consequences were serious, but for departments like Occupational Psychology with all its students in this category, the situation was critical. Faced with the need to double its student numbers almost immediately, the Department considered various possibilities and opted for the launch of an additional Master's programme in Occupational Psychology and Organisational Behaviour by 'distance learning'. This imposed a heavy burden on staff and curtailed their research activity once again. A radical restructuring of the College, placing each department in cost centres, also occurred and led to renewed anxiety about Occupational Psychology continuing as a separate entity. The story does not end there. Another crisis occurred at the end of the eighties when Peter Herriot left Birkbeck for another institution, other staff resigned, and the question of a merger with the Department of Psychology was once more considered. Fortunately the decision was taken to re-appointna professor and head of department to Occupational Psychology and Dr David Guest took up this position in 1990. He is consolidating and leading the Department in new directions to embrace Organisational Psychology, in line with the developments in the field which we outlined in the previous chapter.

Change and survival: We have summarised these events at Birkbeck partly because it has had such a central role in the development of occupational psychology in Britain and partly because it affords a kind of 'case-study' of the 'turbulent' environment, to use the term as defined by Emery and Trist (1965), which pertains to educational and other institution in contemporary society. This is characterised, among other things, by the deepening interdependence of economic, political and other facets of society and a gross increase in the area of 'relevant uncertainty' confronting organisations of all kinds. However strongly established or successful an academic department, training course or research unit may appear in the short run, this would seem to be no guarantee of its survival in its present or in adapted form, if influences beyond its control determine otherwise.

'Occupational' or 'Managerial' Psychology?
Even so, different areas of academic endeavour have been favoured in official circles from time to time and the last decades have seen an endorsement and encouragement of all forms of management education and training. The consequences for occupational and organisational psychology, as we have indicated earlier, have been a larger representation of the subject in business schools and university management departments, including those in the former polytechnics, than in 'orthodox' university departments of psychology. A clear example of this is shown by looking at the journal of Occupational Psychology (as it was styled until 1992) which, in the past five years up to the time of writing, published 132 papers. Of these, 45 were contributed from overseas 'management' departments of one kind or another and a further 30 from overseas departments of psychology. The remaining 57 comprised 33 from British departments of management and an additional 10 from joint

authors in departments of management and psychology. Only 14 papers could be attributed entirely to authors in British psychology departments; and it is of some significance that more than half of these came from one source - the Social and Applied Psychology Unit at Sheffield. Another example was mentioned in Chapter 3, namely that it was the Management and Industrial Relations Committee of the Social Science Research Council, rather than its Psychology Committee which received and dealt with most of the research proposals relating to occupational psychology.

Implications for Occupational Psychology: The expansion of occupational psychology in a management environment and ethos, rather than in a specialised psychology setting, is in our opinion one of the most significant events of the last decades. It occurred partly as a result of the deliberate policy of government and private industry to invest in and support the education and training of British managers in the 1960's; and partly because the majority of university psychology departments, with some half dozen exceptions, have given little attention to this area of application.

Although, in the past, managers in this country have tended to take a cautious and sceptical view of psychology (Heller, 1970), those concerned with their professional training have seen it as more relevant. For example, 'industrial' psychology was a compulsory subject for candidates seeking the professional qualification of the Institute of Personnel Management in the mid-1950's. A decade later, the then Principal of the London Business School (Earle, 1966) indicated that professional managers should possess skills in key areas of 'behavioural science'. The influence of Harvard Business School and other prestigious American centres of business and management education, where occupational and organisational psychology figured prominently in the curriculum, was apparent in the programmes developed in British institutions. Therefore, as the possession of an MBA degree became the objective of ever-increasing numbers of professional managers during the eighties, one may assume that they have more than a passing acquaintance with ideas and practices drawn from work psychology. (It has to be said too, that for many honours graduates in psychology who subsequently enrol on an MBA course, this may be their first introduction to the 'basics' of occupational psychology.) However, the psychological input to these programmes varies. It is often taught under the rubric of 'behavioural science' or of 'organisational behaviour' which, as Gerry Randell has said (see Chapter 4), may amount to no more than an 'amorphous collection of topics' or it may have a strong psychological or sociological basis. Much depends on the background and qualifications of those responsible for teaching in this area. By no means all those who teach psychology to business and management students are qualified occupational psychologists, despite increasing numbers of them being appointed to senior positions in such departments. Also, given the extending parameters of our field, described in Chapter 5, and the resulting tendency for it to fragment into sub specialisms, there is probably considerable variation in the content of different courses, whether taught by a psychologist or someone with another disciplinary background. Even in a fulltime Masters course devoted to the subject, comprehensive coverage of the field is difficult. Within an MBA programme, comprising a number of disparate elements, the limited time that can be given to applied psychology may mean that it is presented as a set of useful techniques and procedures without conveying adequately the theories on which they rest. How far those graduating from these courses utilise the psychological knowledge they have acquired in their day to day activities is impossible to determine. Hopefully, the country now has a growing cadre of informed managers who eschew simplistic notions about people and organisations and who are less prone to adopt uncritically the latest 'packaged' solutions of persuasive practitioners. Although fashions and priorities in management education can change as rapidly and as frequently as they do in other spheres, there is no sign yet of any diminution of opportunities for applied social scientists in this area. For the most part, occupational psychology is now rooted firmly in departments of business and management studies and its ties with its parent discipline have been weakened considerably. The situation is not unique to this country. A similar degree of separation

between 'work' psychologists and their academic counterparts in general psychology is found elsewhere in Europe. It has been common in the United States for many years and is happening fast in Australia. This then may be the pattern for the future, but what it portends for occupational psychology as a distinctive field of study is far from certain. One likely scenario is that the concepts and concerns of other 'management' subjects will have a greater influence on future theory and practice in occupational psychology than its parent discipline. While some would say that this would not be altogether bad, ensuring that its applicability and 'relevance' were to the fore, we think that in the long-term the subject would lose its identity. It would lack the stimulus to seek (if not always to find) firm foundations in psychological theory for a coherent and systematic body of knowledge; and, if separated from the rigorous methodological tradition and research orientation of general psychology, would be liable to concentrate on short-term approaches and relatively untested procedures. Likewise, we believe teaching and research in general psychology would be impoverished if there were no incentives and opportunities for staff and students to pursue studies in occupational psychology. Without the challenge of 'real world' problems and the realisation of the potential of psychology to contribute to the solution of these problems, the parent discipline runs the danger of drifting into academic unreality and public indifference. There are some indications that this danger may be averted in that, latterly, some psychology departments with no previous interest in the field are now beginning postgraduate courses in organisational and/or occupational psychology. In addition, as mentioned at the end of Chapter 3, the emphasis that is to be given to applied research in determining the research rating of university departments in 1996 may help to restore occupational psychology to a more central position in the discipline as a whole.

The Growth of Consultancy and Private Practice
Another factor contributing to the managerial orientation of occupational psychology in recent years has been the tremendous increase in psychological consultancy. We cannot recall anyone in the 19603's who predicted the extraordinary expansion in professional consultancy and private practice on the part of occupational psychologists that took place subsequently. Whereas the number of consultancy firms in 1970 could scarcely have reached double figures, Ford (1993) reported that by 1993 the number of commercial occupational practices had increased to nearly 200 businesses. Just how many occupational psychologists are employed in this way is difficult to estimate; some work for general management consultancy companies, others are self-employed and others are on the staff of specialised psychological consultancies, such as Saville and Holdsworth Ltd or Psychological Consultancy Services Ltd which employ as many as 40 or more psychologists. In addition, there seems to be a steady stream of psychologists leaving internal consultancy roles in large organisations to set up on their own in private practice, as well as of academics and research workers who engage in psychological consultancy on a part-time basis. This growth reflects a growing demand for psychological services that has not diminished during the economic recession of the eighties and early nineties. Indeed, the latter has probably enhanced requests for help in dealing with the human consequences of closures and redundancies. But other factors have also been influential in recent decades. Perhaps the most significant was a long overdue appreciation among larger industrial and commercial firms of the benefits they could expect from a systematic application of methods in the management of their 'human resources'. The dramatic spread of 'assessment centres' throughout organisations all over Britain bears witness to this heightened appreciation (Boyle, Fullerton and Yapp, 1993). This form of psychological application has provided a fertile and rewarding ground for a majority of consultants to cultivate. Moreover their enterprise in this context has not been limited to the UK; a number of prominent consultancy firms have extended their operations overseas on behalf of multinational and foreign client organisations. Another influence was the upsurge of interest in the training of employees as all levels which followed the passing of the Industrial Training Act of 1964. That interest provided a powerful stimulus to psychological interventions. A clear need emerged for knowledgeable people to translate the fruits of training research and development into

practical techniques for employers and psychological consultants applied themselves enthusiastically to meeting that need. It soon became one of the mainstays of private practice to undertake task and job analyses for client organisations and to deliver training courses custom designed to suit their particular training objectives. A third innovation creating opportunities for private practice was the rise of organisational psychology and organisational development during the 1960's. Coinciding as it did with an influx of progressive ideas in the practice of management, such as a drive to exploit new technology and marketing procedures by introducing appropriate organisational changes organisational psychology offered a timely source of interventions for consultants, by no means all of whom were trained as psychologists. They were able to give advice and to assist in overcoming employees' resistance to change, as well as introducing procedures designed to enhance motivation, organisational effectiveness and personal development. Recently, yet another growth area in occupational psychology has been seized upon by many consultants, adding a further marketable item to their portfolio of professional services. Ever since the early 1970's when industrial and commercial managers first became aware of the dire consequences of stressful jobs and working conditions, there has been a growing demand for 'stress management'. Psychological factors related to occupational stress received wide publicity as one outcome of the research on stress mentioned in Chapter 5. Subsequently, there emerged a plethora of recommendations and remedies to counter or minimise the alleged causes and effects. Recipes for alleviating stress ranged from preventive measure like the redesign of jobs and organisational procedures, to remedial ones like teaching people to adopt 'relaxation' techniques and other coping strategies when experiencing pressure at work. Many of these approaches were taken up swiftly by consultants and applied within various organisations. It remains to be seen whether this latest addition to the repertoire of professional services proves to be as effective in reducing occupational stress, or in helping people to cope with it, as its protagonists expect.

Growth of Consultancy in Government Service
We have observed in previous chapters that the 'image' of the applied psychologist in the three Defence Ministries, and to some extent in the Civil Service Department, was principally that of the applied scientist; who carried out experiments and trials and developed technical solutions to personnel problems. In the Department of Employment, and to a large extent in the Home Office, the image has always inclined much more towards that of the professional practitioner. An important secondary role for all government psychologists has been to give advice and training on special psychological issues. During the past twenty or so years there seems to have been a married tendency in all these departments to accentuate the professional and advisory aspects, and to adopt the mantle of the 'internal consultant' rather than the practising applied researcher and developer of technical instruments. The practice of employing a small cadre of professional specialists, to advise on what should be done and then to manage or monitor the steps taken to have that advice put into practice by other external agencies and private firms, would seem to be in accord with recent governmental policies; which have been to 'privatise' public services and cut back on internal resources for research and production. This trend towards recognition of consultancy as their primary role has been generally welcomed and indeed strongly advocated by contemporary government psychologists as indicated, for example, by contributions to symposia at the BPS London Conferences in December 1991 and 1992 (Boas, et al, 1992.; McHugh, et al. 1993); and by the series of papers published last year in The Occupational Psychologist under the heading of "Occupational Psychology in the Public Sector" (King and Newton, et al, 1993).

It is too early to speculate with any confidence about the longer-term implications of this trend upon the practice of occupational psychology in the public sector as a whole. It may not be unconnected with the radical changes in the organisation and scope of work in the Defence departments and establishments. As cuts in defence expenditure and numbers of staff take full effect, there may be further disruptions like the recent break-up and dispersal of the large group which worked for many years at the former Admiralty Research

Establishment, Teddington. On the other hand, fresh opportunities may be in the offing to use consultancy skills in departments like Health and Social Security, and Education and Science, where members of the Psychologists Group have never yet been employed. This must depend partly upon the efforts of occupational psychologists themselves to create a better understanding of what their subject is about, and how it can fit into the machinery of modern public services. As Newton and King remark in their 1993 paper cited above, "the NHS rarely formally acknowledges the presence of occupational psychologists, although it clearly sees the need for what they do." (pg. 23). An encouraging sign of their wish to strengthen their professional identity across organisational boundaries, was the formation in 1991 of a Special Group for Psychologists in Central Government within the British Psychological Society.

Future Trends in Consultancy Practice: In noting the upsurge in the demand for psychological consultancy services in recent years it is easy to give the impression that all who provide them are professionally qualified and competent practitioners. Unfortunately this is not always thecase and although, through the Chartering of its members engaged in professional practice, the BPS seeks to exercise a measure of 'quality control' it is difficult to ensure this in all circumstances. For example, as reported in The Observer, 2/10/94 "many academics, lawyers and companies are worried by the appearance of cowboy operators selling invalidated tests" and the misuse and misunderstanding of psychometric procedures. Likewise in the realm of organisational change and development, there has been a tendency for some practitioners to rely heavily on attractive-sounding packages of remedial action for companies to adopt. Evidence for the effectiveness of such packages, originally developed to meet the needs of aparticular situation, has not always been favourable or clear cut when applied to a wide range of different people and organisations (e.g. 'job enrichment' techniques). Strangely, however, academics and researchers have also shown a tendency to over-estimate the practical value of some 'solutions' based on the latest ideas or findings to find favour in occupational psychology, perhaps because they are detached from the realities of commercial life. By so doing, they have inadvertently colluded with those practitioners who give the impression that applied social science is largely a succession of passing fads and fashions as one panacea gives way to another. The values, standards and priorities of the academic environment and of the competitive and cost-conscious world of commerce and industry are such that those who operate solely in one are unlikely to have a realistic understanding of the other. This may change with the growing trend among academic teachers and researchers to undertake part-time psychological consultancy on a fee-earning basis, which has been accentuated by increased financial pressures on their institutions. If these pressures continue, there will be more incentive in future for individuals (and perhaps also for their employing departments) to engage in consultancy activities. Whether this will help to reduce the divide between the scientists and the practitioners to which we have referred frequently is impossible to say. There have always been powerful arguments that those who teach an applied subject, especially at the postgraduate level, should also be able to 'do'. Our own experience suggests that, although this is desirable, it is very difficult to discharge both functions simultaneously. If occupational psychologists in the higher education sector feel it necessary to seek supplementary sources of income on more than an occasional basis, the training and supervision given to their students may decline in quantity and quality. And if they charge fees which 'undercut' those of independent consultants in private practice, they may be accused of unfair competition. What does seem certain about consultancy in the immediate future is that it will continue to thrive, but that it will not consist merely of 'more of the same'. The problems and topics pre-occupying organisations are becoming increasingly complex and interlinked and pose the question of how far these can be handled by psychological specialists rather than generalists. For example, an item about the Tavistock Institutes Organisational Change and Technological Innovation programme in QWL News and Abstracts No 120 (1994) points out that, to promote 'team working' in a company, "Changes are needed over time across a wide range of company activities-overall strategy, manufacturing and engineering information systems,

financial systems, job design and human resource practices," and that it is "difficult to make progress in any one of these areas without raising change issues in several other areas, which are often difficult to predict. This interdependency between change initiatives poses serious challenges to the relevance of most linear approaches to planning". Accordingly, Institute researchers have been working on an innovative planning technique to take account of such interdependencies (p.6).

For the First North-Western European Conference on the Psychology of Work and Organisation in 1983, one of the suggested topics for discussion by Derek Pugh (personal communication, 1990) was the proposition that "there is little future for industrial / organisational psychologists as specialists in organisations (except as redundancy counsellors). We need to become more generalist, managerial, entrepreneurial, autonomous, self-actualising, self-controlling, double-loop learning, alternative employing participators in the black economy". Intended no doubt as a stimulus to lively debate, we do not recall it being taken up by the conference organisers. It is of interest, however, as the observation of an academic researcher that the contribution of occupational psychologists to organisational problems will be limited if they confine themselves to narrow specialisms. Likewise, from a different background and perspective, Edward Elliot (see Chapter *2)* wrote to Don Wallis in 1988 that "I believe that a really effective psychologist must be a generalist above all. My own natural bent perhaps is toward man-machine problems; but if thinking about those had dominated my attention I could not have sponsored work in other fields. I very much doubt whether the role I had within naval staff directors would have been so readily accepted, and our work so effective, if I had been unable to range widely across all aspects of human behaviour. I suppose that not everyone wants to tackle their work that way; but some psychologists at least with the capacity to range very widely are essential for the success of the groups within which they work. The Divisions of the BPS seem to me to work against that generalist philosophy". There is probably a role for both generalists and specialists in providing clients with professional advice and services in occupational psychology, especially in view of its extensive and expanding domain. It is against this background that we now turn to consider, in some detail, the origins and development of the professional 'wing' of occupational psychologists, i.e. the Division, within the BPS.

DEVELOPMENT OF A PROFESSION IN OCCUPATIONAL PSYCHOLOGY

Origins of Professional Status within the BPS
Formed originally as a learned society, rather than as a professional body, it was not until after WW2 that distinctive professional Divisions in educational and clinical psychology emerged in the British Psychological Society. In both instances Divisional membership was linked clearly with the career structure of psychologists practising in these fields. A latent desire for professionalism among occupational psychologists only surfaced after the publication of a paper by John Handyside (1961). Not that he referred explicitly to 'professionalism' or advocated its active promotion, but he identified a number of factors affecting both the public image and future development of the specialism and he noted the problem of defining a distinctive area of expertise: "Would-be users of our services get confused when they find that there appears to be little in the way of agreed subject matter between one occupational psychologist and another" (p.20). The difficulty of setting agreed parameters to the field, as we have shown, is one that has not disappeared in subsequent years. Nor has another feature mentioned by Handyside, namely the disproportionately few occupational psychologists employed in industry and commerce in comparison with those in academic or research appointments; though recent trends suggest that this may be changing fairly rapidly. Handyside's comments were taken seriously by a number of his contemporaries. There was a growing enthusiasm among the psychological community in general for reform within the BPS to formalise arrangements for overseeing professional membership and behaviour. It culminated in May 1965, when the Society's Petition for Incorporation by Royal Charter was approved by Her Majesty the Queen in Council (BPS,

1966). By that time, awareness of the opportunities and obligations resulting from a Charter had stimulated a number of leading occupational psychologists to examine issues arising from their own professional practices. Thus Alec Martin (1968), in his Chairman's address to the Occupational Psychology Section, discussed some of the fundamental issues relating to the scope and relevance of the specialism. He also reminded his audience how clinical and educational psychologists had won recognition as 'professionals' from their employing authorities largely through their insistence on rigorous standards of postgraduate training. The next few years saw intensive discussion and active lobbying about 'professionalisation' among occupational psychologists. Pressing towards an overt professional structure was not seen as a high priority by the majority of those in academic posts, but most other practising members of the Section saw the arguments in its favour. If occupational psychologists really aspired to a clear identity, with better training and more rigorous criteria of qualification, together with a mechanism for regulating standards of professional conduct, the route forward to professional status was to follow that taken by their clinical and educational psychology colleagues. It was not only consultants in private practice who supported this development. Practitioners in salaried positions in industry and commerce, and also many of the groups in government service, seemed equally anxious to press the idea forward. They feared that a policy of "giving psychology away" (Miller, 1969) to anyone who laid claims to being able to use it, if not held in check, would damage public confidence in their credentials and performance. No doubt it was also appreciated that tighter control could enhance their status and employment opportunities. But the legal registration of occupational psychologists as an exclusive professional body was not advocated seriously, then or later. Even those who supported it in principle realised the impossibility of imposing agreed boundaries, encompassing all the different specialists practising in the work environment.

The Case for Establishing a Professional Division
Following Martin (1968), successive Chairmen of the Section devoted their Annual Addresses to one or more aspects of this issue prior to a formal proposal being submitted to the BPS Council in October 1970. Future historians of this phase of our history will find these Addresses and the Sections Annual Reports of this period invaluable as a guide to the progress of events. We review briefly some of this material here. The basic problems facing occupational psychologists were stated clearly by Stan Thorley (1969) who argued that any 'profession' worthy of the title must adhere to exemplary criteria of membership and practice. Such criteria would specify acceptable qualifications and training, and the application only of research-based knowledge and techniques. He also cited some aspects in which occupational psychologists fell short of 'real' professionals like architects, doctors and lawyers, e.g. in having a preponderance of university teachers and researchers rather than practitioners; and in lacking a distinctive status in the estimation of employers and the general public. Nevertheless, Thorley wound up his Chairman's Address with a rousing call for the formation of a Division charged with facing up to these circumstances and proceeding without delay to remedy them. In line with his recommendation, the views of Section members were canvassed and the results presented at the next annual conference (Buzzard and Werr, 1970). These had come from 200 individuals, about half the membership, of which academics were still the largest category. There was a clear majority in favour of three propositions:
(a) to compile a register of persons working in the field;
(b) to form a Division of Occupational Psychology;
(c) to publish a directory of members of the Section.

A fourth suggestion, to tie registration to the proposed Division, proved distinctly controversial and less than half the respondents were in favour of it. This may have been due to heightened awareness of what 'registration' might mean in terms of eventual legislation to control professional activities, a topic which had been recently discussed by Denburg (1969). Writing in the context of clinical psychology, Denburg doubted whether the BPS was really in a position to control its members. The question of professional registration

was raised again by the succeeding Chairman of the Section in his Address at that conference (Buzzard, 1970). In fact, he presented a well- documented case for not proceeding directly to an independent registration of occupational psychologists. Instead he suggested a form of conjoint registration with ergonomists, industrial sociologists and perhaps other specialists concentrating on the human problems of work alongside occupational psychologists. This idea aroused no perceptible enthusiasm. However, Buzzard also expressed his firm support for action to "form a Division which will specify the standards required of occupational psychologists as they are now" (p.309).

This stance, together with a large majority of the respondents to the abovementioned survey supporting the idea of a working party to examine how to achieve an acceptable form of registration for practising members, led to active steps being taken to initiate a Division of Occupational Psychology within the Society.

Birth of the Division: The Sections working party moved swiftly to prepare its formal proposal to the Council's own Working Party on the Organisation of the Society (BPS. 1971 p.19). Two points were emphasised in the submission; (1) concern that professional standards of occupational psychologists in central and local government service were threatened by unprofessional practices of others claiming to offer psychological advice; (ii) concern about misrepresentations of psychology in the media not only of occupational psychology but also of subjects ranging from vocational guidance through child behaviour to experimental psychology. It was argued that these problems could be dealt with more effectively by occupational psychologists if there were a professional Division to represent them. With regard to (i), the Society was recommended to "pursue the question of registration and licensing of psychologists in ways that would (a) limit the use of the title 'psychologist', (b) identify those entitled to call themselves psychologists and (c) lead to control of standards of work in the field of applied psychology". This formal proposal, duly backed by 32 Fellows and Associates, was approved by the Council in October 1970, marking a watershed in the development of occupational psychology in Britain at least as important as the establishment of a Psychologist Class in the public service twenty years earlier (see Chapter 2). It was endorsed at a Special General Meeting of the Society held during the Sections annual conference in January 1971, at the University of York. Ending four successive years of preoccupation with professional aspirations, the Chairman's Address to that conference was structured around issues which the professional organisation would have to face when it finally materialised. He focussed on three problematic topics. First there was the nature and scope of occupational psychology, particularly those parts of the discipline which other scientists and occupational specialists might perceive to be distinctive; secondly, the variety of roles undertaken by practitioners in industry and elsewhere; and, third, the place of ethical principles and social values in the context of professional practice. He also observed that although the Occupational Psychology Section would maintain its interest in the continuing development of the subject matter and its fluid boundaries, it would no longer be appropriate for its officers to pronounce on such matters as control or regulation of professional training, qualifications, and practice (Wallis, 1971). Criteria for membership of the proposed Division were circulated to the whole Society so that anyone who met these and wished to join was free to apply. In May 1971 the Council formally elected 131 Founder Members to the Division, which actually came into being at an inaugural meeting on July 2 at University College London. 38 of the founding members attended and elected Sylvia Shimmin to the Chair. Pending its first annual general meeting, the following members were formed into an interim Divisional committee: Edgar Anstey; Dick Buzzard; David Duncan; Sylvia Downs; Alec Martin; Hywel Murrell; Don Wallis. Gilbert Jessup became the first secretary/treasurer. The mood on that occasion was optimistic. It was felt that the occupational branch of applied psychology had matured to the point where it could shoulder responsibility for shaping its own professional future.

Relations between the Division and Section

After the excitement and hard work of preparing the ground for a new professional organisation, the tasks which confronted the first Divisional Committees appeared mundane, but formidable, as they were charged inter alia with setting up the machinery for regulating professional affairs in occupational psychology. As even a swift glance through the Divisions official Minutes and Annual Reports will confirm, remarkable progress was made in its early years, even if to some of those closely involved it seemed slow and tedious! An interim solution was found to the urgent, but complex problem of defining acceptable criteria for qualification and rules of membership. Then procedures had to be devised for approving relevant academic courses, prescribing a code of professional conduct and drawing up a register of members whom the Division recognised as competent to practice.

The focus on these issues engendered by the Division's early efforts to meet its obligations under the Society's Charter led to the questioning by Section members of its own purpose and role. In his Report to the Society for 1973, the retiring secretary of the Section (Arthur Gardner) referred to these discussions (BPS, 1974 pp.56-60). He mentioned that queries had arisen about whether an Occupational Psychology Section was now necessary; that there was some concern about the nature and scope of the subject itself; and about the conditions for Section membership. The possibility of links with other learned societies in related fields like ergonomics, manpower studies and sociology had also been considered. A more positive note sounded that year was the agreement reached with the Division to organise the annual conference jointly.

Ripples Of Discontent: Only a year later, the Section reported that "The main concern of the Committee this year has been to resolve the difficulties of working alongside the Division and within a changing Society" (BPS, 1975 p.49). The concurrent report of the Division was more explicit. Referring to a joint meeting of the two committees, it stated that "certain anxieties were expressed about the role of the Division in relation to the Section. There was agreement that the Section should be concerned with scientific matters and developing Occupational Psychology, while the Division should be concerned with professional matters such as training. The difference was aptly summarised in the phrase that 'the Section dealt with Psychology while the Division dealt with Psychologists.' (BPS, 1975 p.46).

On the face of it, so neat a dichotomy appears to dispose of grounds for ambiguity and dispute, but in practice the matter is not so simple. Later experience of the Professional Affairs Board convinced one of the authors (SS) that, in the Society as a whole, when the 'scientific' and 'professional' aspects of some matter are closely inter-linked, it is not always easy or helpful to consider them separately. Despite their agreement to organise the annual conferences jointly, relations between the Section and the Division were uneasy for most of the seventies. Judging by its annual reports, the Division was relatively unperturbed by this; though its chairman did write in the Occupational Psychology Section Newsletter of November 1977 of his own disappointment at having failed to steer opinion towards abolishing the difference between the two complementary bodies. In fact, the Sections annual report for the year commented that "Initial steps were taken throughout the year to rationalise the situation between the Section and the Division though they faltered somewhere along the way" (BPS, 1978 p.55). By the end of the decade, relationships had improved, although not all differences had been resolved. Both Section and Division had substantially increased their membership and were providing a full programme of activities, some of them organised jointly. The Section also became involved with initiatives (clearly within its agreed remit) to promote European collaboration in occupational psychology. However, the Division in the eighties appeared to interpret the 1974 'agreement' somewhat liberally when it instituted, in 1986, an annual student competition for the best dissertation or project report contributing to a degree award, which some would consider more properly the concern of the Section. A clear example of dual scientific and professional interests handled by only one body, appears in the Divisions annual report for 1980 (BPS, 1981 pp.46-47)

where it is recorded that "The Division made representations to the Master of Birkbeck College about the need to fill the Chair in Occupational Psychology". As this appointment clearly affected the future of the subject, it could be regarded as a matter for the Section in its concern with 'psychology'. On the other hand, it also had strong implications for the training and employment of 'psychologists' and thus was a Divisional issue.

What Future for Dual Representation in the Society?

The question of whether one or two subsystems are needed for occupational psychologists within the BPS has lingered on unresolved until the present time. A decision was taken in 1988 that, from then on, all 'occupational psychology' events within the Society should be jointly sponsored (BPS, 1989 p.69). Moreover, the Section Committee acknowledged that, with the advent of a Register of Chartered Psychologists, a more fundamental review of the situation was called for: "The eventual complete merger of the Section and Division has become the matter to be resolved". Yet, quite soon afterwards, it reported that, following extensive discussion, "it was concluded that both Section and Division had separate but complementary functions within the Society, and should continue to exist independently while working together" (BPS, 1991 p.68, p.77). There the matter rests at the time of writing. It would seem that the underlying sensitivities have not troubled the majority of occupational psychologists unduly. Membership of both Section and Division has continued to grow. The former has been available to members of the Society without any additional subscription, an arrangement regarded as equitable by occupational psychologists with no desire to engage in professional practice. For the latter group, membership of the Division, with its quite hefty annual subscription, is essential if they wish to obtain professional recognition within, and the protection of their interest by, the Society as Chartered Occupational Psychologists. Although it is not mandatory for any psychologist to belong to the BPS, and both clients and employers may not have been able to appreciate what distinguishes psychological expertise from that of other practitioners, the situation is changing. Among these groups there is now widespread recognition that they should look only to Chartered Occupational Psychologists to deal with psychological problems in the workplace. This is a powerful inducement to qualified occupational psychologists to join the Division. Another is that the Division has revised its rules for membership to remove the criticism that "the stated requirements have been vague and difficult to interpret" (Crawshaw, 1993). One objective of this change, mentioned by Williams (1992) in his account of the relevant discussions between the Section and Division committees, is to overcome the frustrations of those Section members who "make their living by the practice of occupational psychology" but who do not meet precisely every requirement for Division membership specified in the original rules. In this context, it is pertinent to note the brief but cogent commentary by Shaw (1992) on consultants and their desire for Chartered status. He sees a distinct possibility that occupational psychologists who find (or believe) themselves excluded from the benefits of Divisional membership will shift their allegiance to other professional associations. In many areas of application, e.g. in counselling or organisation development, there are other practitioners with legitimate claims to a territory in which psychologists cannot claim exclusive rights.

Some indicators of positive development

Although some of the problems of cohesion and identity inherent in the diffuse domain of occupational psychology persist, in our opinion the actions of the Section, Division and of the BPS itself to promote the professionalisation of its members have had positive results. One of these has been an increased confidence on the part of occupational psychologists who no longer appear to agonise about who they are, what they do and how to convince others of their role in the way that they did formerly. At least one contribution to the discussion at the annual conferences in the early seventies used to be on those lines it was reflected in a letter in September 1974 from Gilbert Jessup, then at the Department of Employment and also Secretary of the Occupational Psychology Division, to other Division Committee members expressing his concern "that occupational psychology is not realising its full potential", particularly in relation to the industrial problems facing the country at that time. He

suggested the setting up of a working party to consider matters such as the funding of occupational psychology, the training and employment of occupational psychologists, the nature of their activities and so on, and "to make recommendations on where we should be going". In due course, the Professional Affairs Board, in conjunction with the Scientific Affairs Board, set up a Working Party on the Future of Occupational Psychology early in 1976. The late Jack Davies was in the chair and there were ten other members. Thus began an ambitious and inconclusive exercise, as the Working Party never submitted a final report, although it met for a number of years and commissioned two surveys. To one of the authors (SS), who served on it this unsatisfactory outcome could have been foreseen. The members of the Working Party held such different, and irreconcilable, views on occupational psychology that it was evident early on that they were unlikely to agree on any conclusions and recommendations. (She and Sylvia Downs, another member, recall its meetings as some of the most exasperating experiences of their lives!) We mention the Working Party here because it not only shows how occupational psychologists in the seventies were concerned that their discipline should confront and contribute to industrial problems, but also how ill-equipped they were to advance their interests within the BPS structure of the time. Hopefully, the developments described in this chapter suggest that any comparable effort today would be more realistic and more productive.

Growth of Membership: Comparison of BPS membership figures for the twenty years either side of 1971, when the Division came into being, shows a healthy growth in the number of occupational psychologists in the Society. The following table gives data extracted from the BPS Annual Reports for 1990-91 and 1993-94.

Occupational Psychologists				All Psychologists (i.e. BPS Members)
Year	Division		Section	
1950	-		254	(13.4)	1897
1960	-		281	(10.6)	2655
1971	131	(3.4)	483	(12.7)	3811
1980	241	(3.2)	548	(7.2)	7645
1990	533	(3.8)	2134	(15.1)	14,105
1993	661	(3.4)	2252	(13.1)	17,173

(Figures in brackets are proportions of 'all Psychologists')

It is interesting to note that, despite some variations over the years, the proportion of Society members in the Section in 1993 was roughly the same as it was in 1950; also that in the twenty or so years of its existence, the proportion of Division members has not changed markedly. The situation may change as more of the latter seek Chartered status and an authorised 'practising certificate', and we can expect Divisional membership to go on rising in response to the demands of the market for professional services. However, for reasons stated earlier, it is unlikely that all practising occupational psychologists will join the Society and the Division. In comparison with the Divisions representing clinical and educational psychologists, who have much more bounded areas of practice and a clear-cut career structure, occupational psychologists are likely to continue to be less strong numerically within the Society.

Journals and Publications: Effective professional practice is underpinned by the relevant psychological literature. Charles de Wolff (1984), in concluding the second Alec Rodger Memorial Lecture, stated that as an experienced consultant and practitioner in the Netherlands; "I have learned immensely from what colleagues have published. Even after thirty years of experience, I regularly find new and exciting knowledge in books and journals and through professional contacts. I use this information to assist clients, helping them to

understand their problems. And I have often experienced that clients highly appreciate the passing on of that knowledge" (p.25).

Occupational psychologists in academic positions in Britain, as de Wolff is in Holland, are now well provided for by British journals in their field, quite apart from an ever-growing number of American publications. For many years the NIIP's quarterly Occupational Psychology was the only reliable source of research and applied studies published in this country. It was taken over by the BPS in 1975 and renamed the Journal of Occupational Psychology, becoming more academically orientated and gaining an enhanced reputation in scientific circles. Other British journals relating to particular sub-areas of occupational psychology, such as Ergonomics and Human Relations, have been available for many years and two more appeared in the last two decades: the journal of Organisational Behaviour in 1975 and Work and Stress in 1987. These all feature reports of original research and scholarly reviews of contemporary studies, so are primarily of interest to the academic community. Practitioners, however, have no equivalent psychological journals. They rely on those relating to their particular interests, such as 'training or human resource management' to gain up-to-date information on matters or practice. Applied Ergonomics caters for the minority who specialise in this area but occasional pleas for an analogous publication covering the whole spectrum of applied occupational psychology have fallen on deaf ears. This is partly because a journal of this kind is unlikely to pay its way without a subsidy, as evidenced by the short-lived Irish publication Manpower and Applied Studies which appeared in 1967 and survived for only three years. It offered an informative mix of review articles and accounts of practical applications. Latterly, some headway in this direction has been made by occupational psychologists within the BPS. The Section introduced an informal Occupational Psychology Newsletter in 1976, which soon developed into a thrice-yearly 'house-journal' distributed to all Section and Division members. By 1987 this had evolved into The Occupational Psychologist, which has a characteristic mixture of contributions from academic as well as professional members, providing a forum for discussion and debate on topics of particular interest to practising psychologists. The Division launched another publication of special interest to practitioners in 1985. Known originally as the Guidance and Assessment Review it was intended "to broaden the understanding and enhance the expertise of those directly engaged in assessing other people" (BPS, 1985). It has had problems in getting enough subscribers and in obtaining copy, but in 1991 the Division was able to report that 'Thanks to the astute combination of scientific rigour and practical edge achieved by the Editors, Guidance and Assessment Review (GAR) has continued to be an effective, profitable and respected publication" (BPS, 1991 p.68). Since then it has changed its title to Selection and Development Review with the aim of achieving a larger circulation. Informational sources for occupational psychologists, therefore, have improved greatly in the last twenty-five years, for some of which the credit is due directly to the Division and Section. We think this is a sign of the increasing maturity and strength of British occupational psychology, although there is probably still more that could be done on this front to meet the special needs of professional members.

Meetings and Conferences: Another sign of progress is the increase in scientific meetings, conferences and workshops that has occurred since the seventies. When we began our careers, scientific meetings of the Section were lunch-time gatherings at Birkbeck College, which served well those members who worked in or near London, but were no resource for those who lived and worked elsewhere in Britain. Indeed the number who attended rarely exceeded thirty. However, these small numbers enabled people from different organisations to get to know one another far better than would have been possible at a large meeting. They created a 'network' of occupational psychologists, many of whom were instrumental in later developments, without which subsequent expansion might have been much slower. By the end of the sixties, it was clear that this pattern of meetings was no longer adequate. The Section's annual report for 1969 noted that only two meetings had been held that year at Birkbeck and both were poorly attended (BPS, 1970 p.60). It was discovered that an all-day

or two-day meeting attracted many more people, even if the event were held in London. Consequently the former style of meeting was abandoned in favour of a programme of one-day seminars and workshops on specific topics, which were well supported, the Section reporting that attendance had quickly doubled. Since the advent of the Division, both Section and Division have continued to operate on the basis of four or five thematic 'conferences' a year, varying the location in different parts of the country. Those organised by the Section tend to be of a 'scientific' nature and, following requests from its members for 'meetings of a professional nature' (BPS, 1976 p.41), the Division has sought to arrange a programme that meets this need. For example, in 1981, five one day symposia were held on: 'systems' psychology; unemployment problems and prospects; occupational psychologists as expert witnesses; advanced consultancy skills; and face to face consultancy skills. As we have noted before, the 'scientific' 'practitioner' divide is not always easy to determine and there are many issues that require consideration from both perspectives. The growth of events arranged jointly by the Section and Division, to which we referred earlier, we see as a positive move in this respect. One of these, the annual occupational psychology conference, has become an important institution, attended not only by academic psychologists but by practitioners and those in related disciplines who wish to keep abreast of developments in our field. It is reported in the quality papers of the national press and in the broadcasting media with the help and advice of the Society's Information and Press Officer and his staff. Occupational psychology is thus far more 'on the map' nowadays, within and beyond the BPS, than seemed possible a quarter of a century ago. As a matter of policy, it is also given a slot in the Society's London and Annual Conferences.
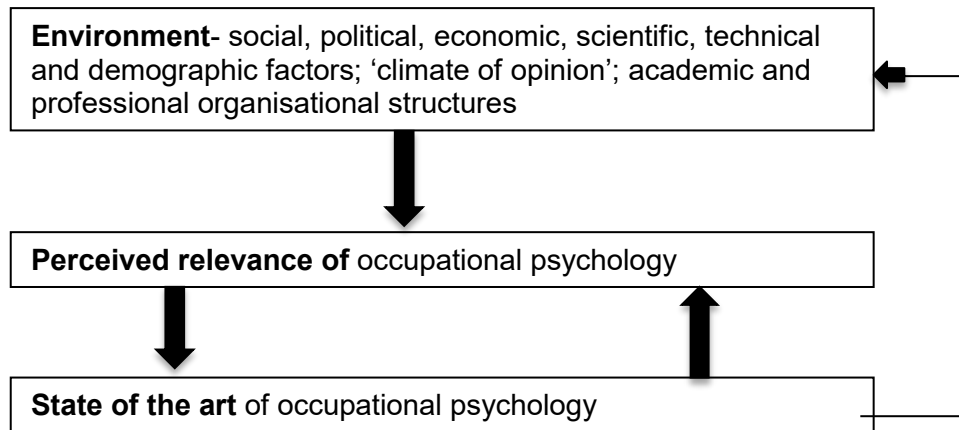
EPILOGUE

Introduction
In the foregoing chapters we have recorded the varying fortunes of our subject as we have observed them over the past fifty years. We shall now try to bring our impressions together to end this volume. As we noted in a paper to the 4th European Congress on the Psychology of Work and Organisation (Shimmin & Wallis, 1989) this means finishing on a note of uncertainty. It was not clear to us then and it is not clear to us now whether to be optimistic or pessimistic about the future of our discipline. Despite the positive indicators and progress outlined in Chapter 6, the field lacks well-defined boundaries. In some respects there is a real danger of its becoming fragmented into segments with multidisciplinary bases and with its practitioners more closely allied to other professional groups, such as human resource managers, counsellors, or information technologists, than to psychologists. It is a trend not confined to Britain, e.g. similar doubts were expressed by de Wolff, Shimmin and de Montmollin (1981) about the future of work psychology in Europe. They discerned increasing role ambiguity and role conflict among members of the profession in the face of social, political, economic and technological developments throughout the world and presented a number of possible scenarios for future trends, none of which seemed to stand out as the most likely to occur. In the United States, the diverse nature of the domain was noted by Dunnette (1976) in the first edition of his Handbook of Industrial and Organizational Psychology, although at that time he felt that a fusion between scientists and practitioners was taking place and strengthening the subject as a whole. In the third edition (Dunnette, 1992), however, he perceives the schisms between them to be as wide as ever due to institutional influences that perpetuate the divide. Chief among these, in his opinion, are "reward systems in both academic and non-academic settings that emphasise short-run accomplishments as contrasted with more thoughtful, larger, and more thorough enhancements to the overall knowledge base of their field". This applies equally in Britain at the present time where short-term considerations pervade thought and action in public life and institutions from central government downwards. Any attempt to assess the present 'state-of-the art' of occupational psychology, therefore, has to take account of factors of this kind that shape the circumstances in which the subject is taught and applied. The past cannot be taken as an adequate guide to current and future trends. To take but one example, the chapter on Personnel Selection in the 1992 Annual Review of Psychology raises the question as to how long it will be possible, politically and legally, to use valid selection procedures "in our litigious and multicultural society", observing that scientific research cannot "resolve the conflict between competing American values of individual merit, economic efficiency and international competitiveness, on the one hand, and economic equality and opportunities for minorities, on the other" (p.662). Even if such a threat to one of the most well established areas of applied psychology proves ill-founded, its identification as an issue in the *Annual Review* shows that applied psychologists need to be aware of the political dimension of the contexts in which they work and cannot restrict themselves to a strictly scientific, technical role. They must also be prepared to be accountable publicly for their actions. By 'state of the art' we mean the theoretical bases of the subject and its adequacy in accounting for the phenomena to which it appertains; its applicability as represented by the opportunities available to occupational psychologists in the form of assignments, jobs and grant-aided research; and the supply of qualified psychologists willing and able to respond to these opportunities and to further the development of the discipline. The influences shaping this 'state-of-the-art' at any one time are many and various, but we have found it helpful to frame in outline a tentative, explanatory model linking antecedent (or 'input') factors to outcome (or 'output') variables, through a series of intervening or contingent factors. This model formed the substance of our 1989 paper and its principal components are reproduced here to illustrate features of the process of change and metamorphosis in our discipline that we have observed in the course of our careers.
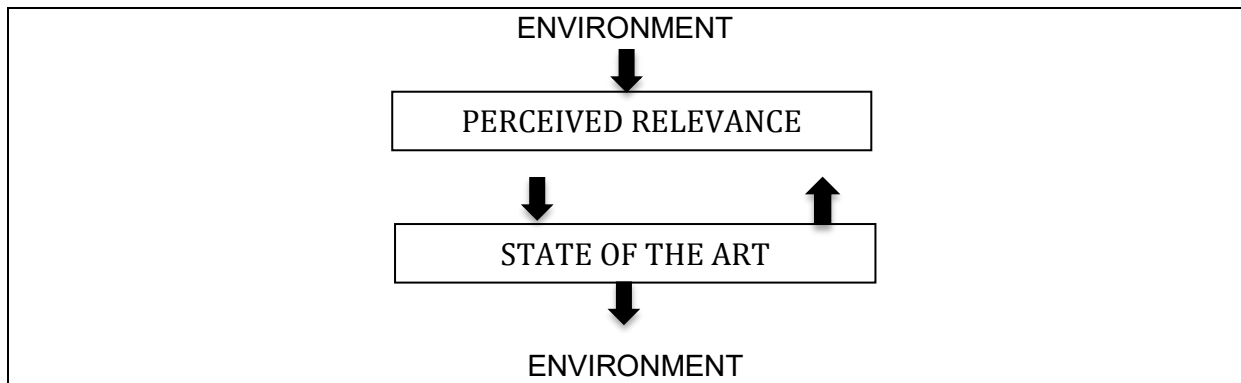
GENERAL DESCRIPTION OF THE MODEL

In its simplest form, there are 3 tiers or components in the model:-

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┌────────────────────────────────────────────────────┐
│ Environment- social, political, economic,           │
│ scientific, technical and demographic factors;       │
│ 'climate of opinion'; academic and professional      │
│ organisational structures                            │◄──┐
└────────────────────────────────────────────────────┘   │
                    │                                      │
                    ▼                                      │
┌────────────────────────────────────────────────────┐   │
│ Perceived relevance of occupational psychology       │   │
└────────────────────────────────────────────────────┘   │
         │                        ▲                        │
         ▼                        │                        │
┌────────────────────────────────────────────────────┐   │
│ State of the art of occupational psychology          │───┘
└────────────────────────────────────────────────────┘
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Essentially, a set of environmental or contextual factors (such as the state of the nation; the political ideology of the government of the day as embodied in its educational, social and employment policies and relevant legislation; the composition of the work force in relation to that of the population as a whole; the state of scientific knowledge and technological developments; the prevailing 'ethos' of public opinion, media influences, and the strength or weakness of its representation in academic and professional circles) all contribute to whether or not occupational psychology is perceived as relevant by those in positions of influence. Such individuals may be in government departments, industry, the social services, education, the armed forces or other organisations; but they are able, directly or indirectly, to affect the resources available and the opportunities open to occupational psychologists. Hence the 'state of-the-art' of the subject depends not only on the corpus of knowledge and the technical skills required for professional practice but also on individuals who perceive the potential of occupational psychology and who can persuade others of its value. It is a two-way process in that 'perceived relevance' both influences and is influenced by the 'state-of-the-art' of the discipline, enabling its applicability to problems and issues in the 'environment' to be identified by those who would seek to use it. The clearest example of the operation of this model is to be found in Chapter 1 when the country faced severe crises in the conduct of the war, particularly after the fall of France in 1940. These antecedent factors, as we have described, led to willingness on the part of service chiefs and others to turn to psychologists for assistance in dealing with acute problems relating to personnel and their performance. The achievements of psychologists in meeting these demands not only advanced the knowledge base of the discipline and its applications but also enhanced the status of the profession among those in high places in government and military circles. Many of those who had never heard of psychology or who viewed it with suspicion initially came to perceive its relevance as the war proceeded, illustrating the interaction between the lower boxes in the model. Furthermore the thrust of research and development and the applications of psychological knowledge of the war years carried over into the post-war period of reconstruction and, in many instances, influenced practice in industrial settings. In considering this example, it should be noted that, critical as the 'environment' was with the country engaged in all-out war, without the input of psychologists like Alec Rodger and Frederic Bartlett pressing the claims of psychological expertise in the right quarters, the opportunities and challenges presented to psychologists might not have emerged until much later and the discipline might not have made the great leap forward that we recorded. It seems to us that the absence of such willing advocates (or, more strictly the lack of influential individuals in the field with sufficient political skill and 'clout' to promote the interests of occupational psychology), may account in part for some of the reverses of the last twenty years, e.g. the various setbacks described in Chapter 6. Unlike some other professions, such as medicine, whose employment is mandatory in specific situations,

applied psychology has to earn recognition and support. But, as we have argued previously, its boundaries overlap increasingly with those of other disciplines so that potential clients and users are often not aware of what constitutes psychological expertise. This confusion mirrors the confusing and complex nature of the 'environment in our model, much greater now than in the war years when the country's survival was a clear-cut objective so that it has become more difficult for would be ambassadors of occupational psychology to know to whom to present their credentials. Since the 1960's, as Klein and Eason (1991) point out, a 'splitting' has occurred between academic research, usually financed from public funds, and industrial applications, usually undertaken by in-house or private consultants. The latter assignments, frequently under the generic title of 'applied behavioural science', may have a research component, but often have no research base at all. In these circumstances, accentuated since the late 1970's by government policies of privatisation and emphasis on cost-effectiveness through competition and financial constraint, occupational psychologists who do not subscribe to the values of the 'enterprise-culture' will seek to concentrate on academic research and not concern themselves with application. It is perhaps not surprising, therefore, that a 'public awareness group', set up by BPS occupational psychologists in 1983 to examine ways of promoting the image of occupational psychology, reported two years later that to achieve this end a prerequisite appeared to be the raising of members' own professional awareness (Occupational Psychology Newsletter No 18, April 1985). In our view, it is crucial by whom and for whom occupational psychology is perceived as relevant, if it is to survive as a distinctive field of psychology with a recognised contribution to make to practical issues. A case in point is the letter from Frank Heller in The Psychologist, Vol 7, No 5, May 1994 under the heading 'Management without psychology'. It draws attention to an ESRC Report by a Commission charged with identifying high quality management research, the members of which included sociologists but no psychologist and which "apart from a small caveat in a footnote" refers consistently to the work of business schools and management departments, ignoring the research done in psychology departments and related units. Heller contends that, unlike the situation in the United States, "the bulk of management-relevant psychological research is still carried out in psychology departments" in this country, a position we would challenge given the under-representation of occupational psychology in several mainstream departments of psychology known to us where, for the majority of the staff and students, it is of marginal interest. Our impression is that, in terms of teaching, if not of research, the subject is more conspicuous in the business schools, although perhaps its theoretical bases may be overlaid by an emphasis on techniques. Be this as it may, we have here a specific example of the 'invisibility' of psychology to those who should have seen its relevance; and, as Heller observes, this may be partly our own fault. Occupational psychologists, as noted above, have not been particularly concerned about promoting public awareness of their field which, in consequence, may be discounted or overlooked. It is true that the subject is not easy to delineate clearly, since its boundaries overlap with those of other disciplines, e.g. social psychology, sociology, ergonomics and the diverse field of organisational behaviour. But it is somewhat ironic that a body of knowledge that gave rise to the now largely separate, and specialised, activity of marketing and market research, should not have produced more effective publicists on its behalf in recent years! This raises the question as to whether the 'state-of-the-art' of occupational psychology does have any influence on the 'environment' in our model; which, in its original formulation, showed no direct link between them. However, we believe it would be misleading to assume that the 'outputs' represented by the 'state of the art' of the subject have no impact on the contextual factors we have grouped under the heading of 'environment'. Research findings may influence the deliberations of policy-makers as well as the work of other academics; and in as much as the organisational structures associated with the academic and professional aspects of the subject both cater for, and reflect, the strength of the discipline at a given time, it is appropriate to indicate a feedback of this kind. We have, therefore, added a dotted line to our model to show this linkage; although it might be better to envisage changing the format to show the 'environment' as a box enclosing the other two, with multiple interactions between them:

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┌─────────────────────────────────────────────────────────────┐
│                      ENVIRONMENT                              │
│                          ↓                                    │
│              ┌──────────────────────────┐                     │
│              │   PERCEIVED RELEVANCE     │                     │
│              └──────────────────────────┘                     │
│                     ↓           ↑                             │
│              ┌──────────────────────────┐                     │
│              │    STATE OF THE ART       │                     │
│              └──────────────────────────┘                     │
│                          ↓                                    │
│                      ENVIRONMENT                              │
└─────────────────────────────────────────────────────────────┘
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To us, this represents just the 'bare bones' of a set of complex, dynamic relationships. We hope those who are active in the field will be stimulated to relate the model to their own particular situations and identify the key variables in each box which apply to them. Perhaps some future researcher into the history of our discipline will examine in depth how these variables interact. Our own observations and reflections have convinced us that the discipline as a whole depends more for its continued vitality and growth upon how favourably it is perceived by potential employers, clients and funding agencies, than upon any other factors. To this end, it is important that occupational psychologists look not only to other psychologists and members of their profession but also to related disciplines and to those who may call upon their services. In the past, there has been a tendency to approach 'significant others' on the basis of assumptions about how they see us and how they should see us. In the course of compiling this review, we have been reminded by a number of experienced practitioners and researchers of the need to approach sponsors, clients, administrators, and others whom we wish to persuade of the relevance of occupational psychology, at the point where they are and not where we assume them to be. Many misconceptions about what occupational psychologists actually do might be avoided in this way.

IN CONCLUSION

To the best of our knowledge, no one else has recorded the last fifty or so years of occupational psychology in Britain as we have done here. Our narrative has been constructed principally for a readership of occupational psychologists; but we hope it will be interesting and informative to a wider audience of psychologists too, and perhaps to some specialists in allied fields. There is much detail that could have been added in a larger publication, but we have tried to cover the essential features and events of the period as we have experienced it, and to document our sources for the benefit of future historians of the subject. No doubt their contributions will make good any misconceptions and omissions in our own account. Although we shall not be here to read it, we look forward to another publication in the next century covering the fifty years from where our review leaves off. Anyone at the start of his or her career who is so tempted should perhaps begin to assemble relevant material now!

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