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FREDERIC CHARLES BARTLETT
1886-1969
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Frederic Charles Bartlett was the first Professor of Experimental Psychology in the University of Cambridge. As such he exerted a crucial influence over the development of the subject throughout the whole country: his students staffed the newer departments which have since arisen, and his approach has coloured all subsequent research in England. His role in the subject was therefore unique.

Before 1914

He was born on 22 October 1886, the second son of William Bartlett of Stow-on-the-Wold. The conventional statement of place is in his case especially important, because both sides of his family had lived in the Cotswolds for many generations. He himself was very proud of this fact, and always emphasized his origins in that part of England. The attachment may well have been strengthened by an unusual adolescence; for in his teens he suffered from pleurisy, was pronounced unfit for school, and spent a substantial period living at home. He read widely during this time and walked over the surrounding countryside.

At this crucial stage therefore his experience was different from most young men of his time, and this may have influenced his choice of an unusual subject for his career. Psychology was not in Edwardian times a popular subject in England. Traditionally it was centred upon Germany, with flourishing offshoots in the United States. In this country, however, it was scarcely beginning to be studied, and Bartlett's own path towards it was indirect.

He went first to London, read philosophy, and obtained first-class Honours in that subject in 1909. Two years later he received an M.A. with special distinction in sociology and ethics. But he was even before his B.A. receiving some tuition by post from Cambridge, from Dr Rush; and he shifted his allegiance there from London, arriving as he said himself without specialized training and unsure what to do. Through his sociological interests, however, he had already read some of the work of W. H. R. Rivers of St John's College, and it was to that college that he went. But Rivers was not only an enthusiast for anthropology, he was also the first Cambridge Lecturer in Experimental Psychology, and through him Bartlett was drawn
firmly towards psychology. Indeed, it was Rivers’s view that anthropology should be approached through psychology, and especially through a knowledge of the ‘psychophysical methods’.

The psychological scene in Cambridge at that time revolved round a small group of men, Rivers, James Ward, and C. S. Myers. Ward was the Professor of Mental Philosophy, but had a strong interest in experiment: it was he who in 1891 first persuaded the University to give some money (£50) for apparatus for psychological experiments. His account of psychology in the 1886 *Encyclopaedia Britannica* certainly influenced Bartlett, and probably helped to lead the younger man from a philosophical to an experimental stance, although in later years Ward felt Bartlett was diverging from his own views.

Rivers on the other hand linked psychology both to social studies and to medicine: his lectureship had been founded through the Professor of Physiology, Sir Michael Foster, and the first laboratory was a room in the physiology department. Myers was his pupil, and they both went on the 1898 Torres Straits expedition: from which Rivers returned with a lasting taste for studies in different societies, while Myers specialized in the precise methods of measuring the limits of human sensation and perception, the ‘psychophysical methods’ which Rivers advocated as technique. Myers also was an organizer and administrator, who got most of the money for the new psychological laboratory which was built between 1911 and 1913. Lastly, he emphasized strongly the application of psychology to practical problems.

Bartlett’s training therefore linked psychology to philosophy, to medicine, and to anthropology while emphasizing laboratory experiment on behaviour. In 1914 he attained first-class Honours in his Tripos: and became Assistant Director of the New Psychological Laboratory under Myers.

**FROM ONE WAR TO THE SECOND**

After his unusual education, Bartlett found himself again in a peculiar position at the next stage, and once again the reason was his health. Both Rivers and Myers joined the Army as doctors; so that the newly completed psychological laboratory was short of senior men. Bartlett himself, who might still at this stage have gone further into anthropology, was unfit for military service; and he felt that his war work was to be the ‘caretaking’ of the laboratory until the end of the war. To that, therefore, he devoted himself, together with the start of a series of experiments which were to issue in 1932 in his greatest book, *Remembering*. He must, however, have been occupied to a great extent with the ordinary business of a university laboratory: so that before the major book came out he had already published a revision with Myers of the latter’s *Textbook of experimental psychology*, as well as books on *Psychology and primitive culture* and *The psychology of the soldier*; which probably reflected his teaching.

Both Myers and Rivers returned from the war as changed men, or so Bartlett felt. The former had become heavily involved in the debate over
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'shell-shock', and was one of those who struggled for recognition of mental illness due to experiences in battle. Myers felt that the spirit of Cambridge was similar to that which he had fought in this way, and he began to look elsewhere: the University had made him a Reader on his return from the war, and he did not go until it was clear that this job would pass to Bartlett, but in 1922 he left to establish the National Institute of Industrial Psychology.

Rivers meanwhile had returned to Cambridge full of general schemes and activity, quite different from the pre-war person preoccupied with his own work and expeditions. Then in 1922 he died: and Bartlett was left without a senior in Cambridge. The burden of developing the subject in that University was clearly his.

During the years between the wars, he built the department slowly but surely into a recognized and respectable part of the University, so that in 1931 the Chair of Experimental Psychology was established, and by 1933 he had three lecturers to assist him. The teaching system thus established by the 1930s produced a brilliant crop of students who, after the Second World War, held the lion's share of the Professorships of Psychology in Britain; and indeed quite a number elsewhere in the Commonwealth.

This alone would have made Bartlett a person of outstanding distinction: but meanwhile his major book, *Remembering*, had appeared and began to influence thought. Briefly, the book described a few experiments on perception, and a larger number on recall of life-like materials, especially stories. Given the time when the work was done, one could hardly expect that sophisticated statistical techniques should be applied, and indeed the method was rather one of selecting significant incidents which had happened during the experiments, and which seemed to Bartlett to illustrate general truths about the process of perception and remembering. Such a method places enormous strain upon the ability of the experimenter to grasp what is truly significant, and in some ways a measure of Bartlett's stature is that nobody seriously questions the factual results of his experiments. His observations can be repeated, and have been very widely.

In modern terms, what he emphasized was the selective and constructive character both of perception and of memory. A few details, especially unusual or striking ones, would be accurately reported even under extremely difficult conditions: but in many cases both perception and memory would differ from the objective facts. When this was so, one could see that the imported events, which had never happened, were such as would naturally be constructed from general knowledge of the world, and from the particular experience of the individual. A hand pointing at an aeroplane might be seen as an anti-aircraft gun, or illegible writing on a notice be read as 'Trespassers Will Be Prosecuted'.

Thus it seemed that complex scenes and events were perceived and remembered by the selection of a few aspects; from these aspects the remaining parts of the scene or event could be calculated from general knowledge
and would appear in the experience of the person concerned as a perfectly genuine perception or memory.

Furthermore, the process of selection and the rules of construction reflect the motives and interests of the person, including those which he shares with the rest of his society. To an African, the most noticeable feature of an English street might be the policeman stopping the traffic with a gesture used frequently in his tribe; to an Englishman, an African folk story would be 'remembered' with a conventional framework of spirits leaving the body at death, which might be absent from the original tale. Thus Bartlett linked his older interest in anthropology with the pursuit of individual psychology.

How could these observations be handled theoretically? Here Bartlett went back to a concept produced by a colleague of Rivers, Sir Henry Head, the neurologist. Head had observed that in certain cases a patient might lose the awareness of current position of his limbs without loss of the ability to detect movement of them. He had therefore spoken of a 'schema' stored in the brain, which represented position and was modified by each new sensory input. Bartlett adopted and generalized the term 'schema': he regarded all experience, not merely that of bodily position, as stored in the brain in a condensed form. This condensation was such as to lose detailed information about the series of past events, but merely to preserve a present state representing the current position: and each new event was perceived in the light of the appropriate schema. Thus it would be seen both selectively and in accordance with experience.

Similarly, the schema is able to produce appropriate performance of practised skills or other routine behaviour. When, however, conscious recall of an individual event is needed, some further process is required, in which detailed items from memory are used in combination with schemata to give the constructive process already mentioned. This further process was named, perhaps notoriously, 'the organism turning round upon its own schemata'.

These concepts provoked enormous discussion, because they and the experiments they described were clearly central to human psychology. It is fair to say, however, that this discussion is now dead, and that the term 'schema' appears to have become completely disused. From one present-day standpoint the concepts were probably too complex for the language being employed. Thus the schema itself had no list of defining properties, but was simply a label for something whose operation was illustrated by experimental results such as the examples given above. Different people reading these results formed different concepts; it even seems clear from one footnote in the literature that Bartlett himself later forgot quite what he had meant by 'turning round on the schemata'. Theoretical concepts of this kind, without public definitions, are almost bound to be self-defeating. Like others of its breed, schema expired unregretted among mutual misunderstanding.

However, the fate of this particular word is very different from the more general influence of Bartlett's approach. We may consider that approach more broadly in the light of his later writings; but it is worth noting at this
stage the sharp contrast between Remembering and much other psychology of the time. In America, the early forms of behaviourism were restricted to chains of elementary stimulus—response links; in Europe, the Gestaltists thought of experience as determined by field-forces in the brain, comparable to those governing distribution of charge on a conductor. Neither party allowed for anything so complex as the mixed and hierarchical levels of processing which Bartlett was discussing; nor for the intimate links of social structure and of individual psychology. They were confining themselves to facts about behaviour which they had the theoretical apparatus to handle; Bartlett was pointing onwards to facts which are certainly true of human nature, which he could grasp in his own mind and for which a language needed to be created.

**The Second World War**

By 1939 therefore Bartlett had achieved a combination of a major development in teaching, and a unique step forward in research. He had been elected a Fellow of the Royal Society in 1932, and his achievement would already have been respectable for a full life-time. Two major influences combined, however, to bring him to a further stage of development. The first and most important of these was the appearance in his laboratory of a young Scot, K. J. W. Craik, whose interests and way of thought were different from Bartlett’s and yet immediately aroused sympathy from him. Kenneth Craik is in himself a fascinating subject for biography: coming to Cambridge in 1936, he did a Ph.D. on visual adaptation and related problems, while simultaneously learning all he could of other subjects from physiology to plumbing. With this breadth of interest, he knew about the first crude adaptive systems then being developed by engineers; and saw immediately their relevance to psychology. In the most stressful days of war, Craik was writing a monograph, *The nature of explanation*, which set forward as a programme the understanding of human nature by analogies drawn from the new ‘cybernetic’ machines.

The second influence upon Bartlett was the war itself. The influence of Myers, and his own inclination, made him seek always to link psychology to everyday problems. In war the sudden blossoming of new technology raised many questions requiring a psychological answer. How should a tank gun be controlled? What kind of flares should be dropped to indicate targets for bombers? What were the effects of fatigue on the skill of pilots? Might drugs reduce fatigue? To answer such problems, the formerly peaceful Cambridge laboratory became a centre for many investigators of different backgrounds and purposes, some psychologists, some from medicine, some from the Services. In all this Craik was an enthusiastic lieutenant and the answers to the needs of war used also the new theoretical concepts from mechanical analogies. Bartlett served on the R.A.F.’s Flying Personnel Research Committee, on the Medical Research Council, and in many other positions...
of influence; and the powerful combination of the brilliant young investigator with the experienced older professor was able to solve many problems. In 1944 the M.R.C. agreed to found an Applied Psychology Research Unit under Craik's direction and within Bartlett's department. As peace came, it seemed that a fresh and invigorating step forward was to come.

Then on 7 May 1945 Craik was killed in a road accident. In Bartlett's mind his death was linked with that of Rivers nearly twenty-five years earlier. In both cases the death was sudden, the world went on cheerfully, and yet Bartlett was conscious of irreparable loss. His obituary of Craik reflects his feelings; but he turned from them to face the task of teaching psychology to the mature students returning from the war.

The post-war years

At this point occurs one of the most remarkable stages of Bartlett's life. In his sixties, he gripped the new generation coming to his department, fired them with enthusiasm for a combined version of his earlier views and Craik's new wine, and sent them out into the world burning with zeal for the mixture. As one of that generation has said: 'We had driven tanks, laid artillery barrages, one of us had flown over Hiroshima. But Bartlett taught us about skill.' I second the testimony; for I was there too.

This was, of course, a time of honour: doctorates of Athens, Princeton, Louvain and London came his way (to be followed after his retirement by Edinburgh, Oxford and Padua). The American Philosophical Society, the National Academy of Sciences and the Swedish Psychological Society honoured him (again to be followed later by the U.S. Academy of Arts and Sciences, and the British, Spanish, Swiss, Turkish and Italian Psychological Societies). He had received the C.B.E. in 1941, and the Baly and Huxley Medals in 1943. In 1948 he was knighted, and in 1952 awarded both the Royal Medal, and the Longacre Award of the Aeromedical Association. But at the same time he was launching a new movement. In his laboratory strange fresh ideas such as information theory were being applied to human performance; and above all he was kindling enthusiasm.

The views he was putting forward have been published only in various separate articles, and probably never formed a complete system. Indeed that was their strength, because they were a flexible method rather than a rigid dogma. The key concept was that of skill: the ability of men to produce for each new situation a fresh and yet perfectly adapted sequence of movements. No prewar model comparing the brain to a telephone switchboard could cope with such facts. Rather they required a subtle and hierarchically organized system which could predict the future, launch actions at appropriate times, handle local difficulties by peripheral closed-loop sub-systems, remember for brief periods the stage reached in a continuous process, monitor its own level of performance and adjust to inadequacies, and so on. When such a system is stressed, it would yield first by errors of timing or of integration between sub-units of the performance, rather than by crude
forms of breakdown. Each of these topics formed the start of a whole line of research, on which were engaged the bright young men who now in their turn are filling the chairs of psychology. Lastly, the recurring theme of his sociological interest was represented by his suggestion that similar analyses should be applied to societies as well as individuals.

After his retirement in 1952, he developed some of these ideas into an attack on the problem of thought, *Thinking*. It was exploratory rather than definitive, but set forward the view that the key feature of problem solution was the filling of a gap between the data and the answer: extrapolating from one end or interpolating from the other. In principle the thought could be seen as an extension of the skills already present in cricket or in flying aeroplanes, where the present must be extrapolated into the future. But the details of this approach he left for posterity.

In those later years also he continued his active committee life, remained an active consultant of the Applied Psychology Unit, and indeed up to the time of his death was still to be seen at meetings. To the last his comments were valid, kind, important, and never those to be got from anybody else.

The style of leadership

The foregoing pages set out an achievement but not the methods used; for Bartlett’s writings would frankly not explain his extraordinary dominance inside his profession. For the public and especially for children he could write in lucid and enticing style; but his technical writing is obscure, even though shot through with brilliant observation. It was rather his handling of everyday relations in his department which gave him influence. He taught informally, throwing out ideas faster than they could be appreciated, encouraging students to think for themselves. His whole method supposed that they would read up factual information, that they would come to him with ideas of their own, that the details of human behaviour in everyday life would provide a constant fund of illustration and stimulus. It was incredibly easy to approach him, both because the modern hurdles of secretaries and ante-rooms were missing, and also because of the beaming and attentive welcome with which he would greet brash and ignorant potential students or importunate and worried postgraduates. His weekly lecture-discussions were a festive performance which nobody would have dreamed of missing, so that every corner of the small room was crammed. Out of hours, the staff and students might meet for tennis at his house: mixed with discussion with the Professor and Lady Bartlett, herself one of the earliest members of the laboratory. On another occasion as many as possible might go to Louvain to pay a visit to his old friend Professor Michotte. Some of the stories about his handling of departmental paper-work are, one hopes, apocryphal; but there is no doubt that to him people were always more important than forms, timetables, or academic syllabuses.

This characterization sounds as if his magic was simply an attractive personality; but in fact there were a number of broad strategies of scientific
method which his students learned from him. First and foremost was empiricism: a respect for the concrete observation and a casual disregard of arid formalization. Next, lack of personal involvement in ideas; and the importance of weighing other people’s according to the value of the idea itself and not the status of the source. Thirdly, flexibility and the cheerful willingness to admit past errors. Lastly, constant awareness of the complexity of psychological mechanisms.

These lessons were passed on by infection; and they were valuable ones.

**The long-term significance of Bartlett’s thought**

In the interval of nearly twenty years since Bartlett’s retirement from his chair there have been enormous changes in British psychology. The expansion of departments already mentioned, often carried out by his pupils, has been accompanied by a proper emphasis on aspects which he neglected. Animal studies, and physiological psychology, are the most noticeable examples; his thinking drew little from an evolutionary source, and placed no emphasis on the structure of the brain. Nowadays these missing areas have been rightly and eagerly developed, and British psychology is heavily weighted towards rats, monkeys, brain lesions and effects of stimulating parts of the nervous system. This is in no way to be regretted, and only repeats on the national scale the early alliance of psychology and physiology in Cambridge. But its debt to Bartlett is indirect, and only through his training of psychologists who saw the importance of these areas for themselves.

On a longer time-scale, however, his ideas are likely to survive and even to become more important as the years go by. The development of mechanical systems for processing information has now, as he was one of the first to recognize, provided the theoretical language which his factual observations always needed. In the models which modern investigators construct one finds selective operations upon the input, storage of state rather than transition information, enormous emphasis upon probability as affecting the optimum encoding for memory, analysis of false perceptions and memories as an index of synthetic operations by the man himself, and so on. The mathematical sophistication of these authors might have produced a wry expression on Bartlett’s face; but the concepts with which they are operating are his.

There is little possibility now of such concepts vanishing again from the subject; and it is fascinating to note that there are stirrings again of interest in social pressure upon the individual, and the ways in which language and thought are moulded by society. I myself feel that some of Bartlett’s insights have still not had their full impact, and they they will come into their own in the next generation. But even if this is not so, those ideas which are already fully appreciated have a secure place, and are unlikely to be seriously challenged.

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