Fortuitously, this year is the nine hundredth anniversary of the birth of a man commonly regarded as the forefather of the tradition of rational speculation in western universities: Peter Abolard. His world was, of course, very different from ours, and it is one which I am not competent to recreate. But it is part of my thesis that all human knowledge has about it an element of error, and I may perhaps adopt Abolard as a source for my learning even though I am not true to his teaching.

He was of course a great dialectician, and by virtue of this a great teacher. We should say today that his research field was dialectics and that it fed directly into his teaching.

'It is,' he wrote, 'one thing to inquire into truth by deliberation, but quite another to make ostentation the end of all disputation for while the first is devoted study which strives to edify, the second is but the mere impulse of pride which seeks only for self glory. By the one we set out to learn the wisdom which we do not possess; by the other we parade the learning which a trust is ours. (1) To call for research-based teaching is, I suggest, to ask us as teachers to share with our pupils or students the process of our learning the wisdom which we do not possess so that they can get into critical perspective the learning which we trust is ours.

Research-based teaching is more demanding than teaching which offers instruction through a rhetoric of conclusions. Abelard tells us that he slipped from one to the other under the distraction of his love for Héloïse.
'In measure as this passionate rapture absorbed me more and more, I devoted ever less time to philosophy and to the work of the school. Indeed it became loathsome to me to go to the school or to linger there: the labour, moreover, was very burdensome, since my nights were vigils of love and my days of study. My lecturing became utterly careless and lukewarm: I did nothing because of inspiration, but everything merely as a matter of habit. I had become nothing more than a reciter of my former discoveries, and though I still wrote poems, they dealt with love, not with the secrets of philosophy.'

My colleague, Professor Malcolm Bradbury, has hinted fictionally that some modern dons may have like problems, though their diaries in the Times Higher Education Supplement appear to claim that travel and administration outweigh even family and television as contemporary distracters.

The idea that research is a necessary basis for good teaching is not universally admitted - much less practised - even in universities. Joseph Ben-David, reviewing Centres of Learning for the Carnegie Commission on Higher Education, provides an excellent statement of a contrary position. Addressing the difficulty of reconciling research and teaching, he regards the competing demands on time and effort as only a superficial impediment, and reaches after a more fundamental conflict. He suggests that 'knowledge that can be taught no longer requires investigation, while knowledge that still needs to be investigated cannot yet be taught,' and he claims that 'teaching requires a body of established authoritative knowledge.'

Now, Abelard worked in the context of a 'body of established authoritative knowledge' far more secure than most of us could recognise today: the Scriptures, the writings of the Fathers of the Church, and the authority of the Church itself; and this was
not an authority he questioned. Yet his position was almost
the opposite of that taken by Ben-David. Established
authoritative knowledge hardly required teaching: it was
embodied in the Church or was a matter of mere instruction.
Teaching was required where doubt or bewilderment caused by
obscurity or apparent contradiction in the authorities required
clarification by dialectic. His aim was understanding as a
fortification, but not the ground, of faith, for he conceded
that the final mysteries were inscrutable. Christian doctrine,
the knowledge of God and his ways attainable by human beings,
was for Abelard 'essentially rational and logical, and....it
lay within the province of human thought.' [4] Whenever
appeal to the authority of the Church and its tradition left
space for interpretation and hence for error - called 'heresy' -
there was space for research and hence for non-authoritative
teaching. The teacher could not, of course, claim to be an
authority without offence to the power of the Church.

Only in the presence of doubt is teaching called for, one
might gather from Abelard. Only that which has the warrant of
certainty can be taught, Ben-David answers. And he can relate
his view to the one I have represented by Abelard.

In....relatively closed traditions of higher learning,
combining research with teaching presented no difficulty
since the difference between elementary and advanced
knowledge was not one of substance or certainty, but one
of mastery. Original research consisted of novel
interpretation or systematization of the tradition and
could be done as part of the organisation of the material
for teaching. For academic teachers in the humanities
the ideal of their being original investigators was not a
nineteenth century innovation. The university had been a
seat of creative scholarship in philosophy throughout the
Middle Ages, and many universities continued to employ
original scholars throughout the seventeenth and
eighteenth centuries. [5]
This is to attribute the difficulty in reconciling research and teaching to the nineteenth-century development in research in which the German universities were leaders and of which we are all heirs. In this development the pioneer field was history with its attendant technical studies such as philology, palaeography, diplomatic and archaeology. Behind history came the natural sciences and later the social sciences.

Now the environment of research in this new tradition was not the lecture hall where the speculative disputation might be conducted, but the archive, the library, the laboratory or the field site. Research became collaborative by virtue of the network of journals and the talk in coffee-break, but the actual activity was conducted in private. It had become industrialised. The steel rolling mill is not open to inspection as the local blacksmith is. In place of the speculative disputation open to the student as participant observer, inquiry was expressed in the archive search or the series of laboratory experiments, mute occupations whose meaning was not self-explanatory to the observer.

Ben-David contributes an interesting analysis of the problems of keeping research and teaching in mutual and fortifying interaction, and concludes that by the end of the nineteenth century 'the implementation of the ideal posed serious problems.' To these the American graduate school was one response, associating research-based teaching with the training of professional researchers. Ben-David's diagnosis of the Post-War situation is not encouraging.

There have been no serious efforts at constructive restructuring of the relationship between research and teaching... The resulting frustrations have reinforced the long-standing trend towards the transfer of the seat of advanced research from the universities to non-teaching research institutions.
The Centre for Applied Research in Education was founded by this university in 1970, initially as a non-teaching research institution within a university setting. The fact that we have developed a graduate teaching programme on the basis of the resultant research activity, has prompted me to address the problems explored in this lecture.

The knowledge we teach in universities is won through research; and I have come to believe that such knowledge cannot be taught correctly except through some form of research-based teaching. The grounds for this belief are epistemological. Knowledge of the kind we have to offer is falsified when it is presented as the results of research detached from an understanding of the research process which is the warrant for those results.

Abelard has a lot to teach us here, for he is correct in his understanding that what is represented as authoritative, and established independently of scholarly warrant, cannot be knowledge. It is faith. What is unquestionable is unverifiable and unfalsifiable. It may be true belief, but it is not knowledge in the sense in which we in universities deal with it or are equipped to deal with it. Our knowledge is questionable, verifiable and differentially secure. Unless our students understand that, what they take from us is error; the error that research yields established authoritative knowledge. That this error is widespread must be apparent to anyone who has listened to the questions asked of academics by laymen on television. And if we educate teachers who will transmit this error to their pupils, the error will continue to be widespread. We shall support by our teaching the idea that faith in authority is an acceptable substitute for grasp of the grounds of knowledge, even perhaps a substitute for faith in God. Once the Lord spoke to man: now scientists tell us that...

This epistemological falsification in teaching research-based knowledge authoritatively is compounded by a simple error.
We in the course of our research have made and witnessed a large number of audio and video-recordings of teaching, and we find it virtually impossible to locate passages of authoritative exposition by lecture which are not criticised by observers, who are as well-qualified as the lecturer, on the grounds that they contain errors of fact or indefensible judgements. And these shortcomings are perceptible to only a small proportion of students. This intrusion of error into exposition and instruction is not surprising, nor is it a serious criticism of teachers as scholars. The archetypal effort to compress and present knowledge in accessible form, the encyclopaedia, encounters the same problem, for all the resources at the disposal of its editors.

No teacher of normal endowments can teach authoritatively without lending his authority to errors of fact or of judgement. But my case goes deeper than that. Were the teacher able to avoid this, he would, in teaching knowledge as authoritative, be teaching an unacceptable proposition about the nature of knowledge: that its warrant is to be found in the appeal to the expertise of persons rather than in the appeal to rational justification in the light of evidence. I believe that most teaching in schools and a good deal in universities promotes that error. The schooled reveal themselves as uneducated when they look towards knowledge for the reassurance of authoritative certainty rather than for the adventure of speculative understanding.

How to teach a different lesson is an educational problem of considerable technical difficulty. Even though education be voluntary - and it is largely not so - the act of will by which a person devotes himself to a sustained and arduous course is not easy to maintain. The teacher is not concerned simply with the justification of knowledge. He needs to motivate and to set up social situations conducive to work.
Leadership is necessary, authority is inescapable. The problem is how to design a practicable pattern of teaching which maintains authority, leadership and the responsibility of the teacher, but does not carry the message that such authority is the warrant of knowledge.

This problem is not unlike that of explaining to a naive person with no experience of our world that a television set does not make pictures but transmits images of things taking place outside itself. The view of knowledge one can get in a classroom or lecture theatre is most often comparable to that offered by the television set: Plato's simile of the cave holds even if we do not locate reality in ideal forms. Taught knowledge is a shadow or picture of knowledge rather than knowledge as it is apprehended by the researcher who creates or discovers it.

This problem of the relationship of the authority of the teacher to the representation of knowledge in teaching has been a central theme of my own work and that of some of my colleagues in the Centre for Applied Research in Education. In the jargon of our field it is the problem of inquiry - or discovery-based teaching or of teaching through discussion. To my mind the essence of the problem is expressed by declaring the aim of teaching in its fullest ambition to be: to develop an understanding of the problem of the nature of knowledge through an exploration of the provenance and warrant of the particular knowledge we encounter in our field of study. Any education which does not achieve this leaves its recipients disadvantaged as compared with those who have followed courses where it is achieved: for we are talking about the insight which raises mere competence and possession of information to intellectual power of a kind which can emancipate.

On this occasion I do not want to get trapped in the details of educational research. Rather I shall confine myself to
three specific problems encountered by those attempting research-based teaching in the sense I have given it. They are: the need to cover ground in a subject; the psychological barriers to this kind of teaching; and the interpretation of the idea of research-based teaching into the practice of primary and secondary schools.

The problem of coverage is generally formulated by asserting that discovery and discussion are such slow procedures for learning that the need for a quantity of information precludes their use. If we are to cover the curriculum we set ourselves, we must needs resort to instruction.

Of course we need instruction. And text-books too. The key is that the aim of discovery and discussion is to promote understanding of the nature of the concessions to error that are being made in that part of our teaching where we rely upon instruction or text-books. The crucial difference is between an educated and an uneducated use of instruction. The educated use of instruction is sceptical, provisional, speculative in temper. The uneducated use mistakes information for knowledge. Information is not knowledge until the factor of error, limitation or crudity in it is appropriately estimated, and it is assimilated to structures of thinking - disciplines, realms of meaning, modes of experience - which give us the means of understanding.

Two parallel activities need to be pursued: instruction, which gives us access to conclusions which represent in simplified, and hence, distorted, form our best grasp of a realm of knowledge and meaning; and learning by inquiry or discovery, which enables us to understand how to utilise such a representation of knowledge, to assess its limitations and to develop the means of pushing outwards beyond these limitations.
The interaction between inquiry and instruction is perhaps best understood through a concrete instance. A person of my acquaintance is practising as a non-graduate research worker in biochemistry in a government research agency and at the same time taking an undergraduate degree in the Open University. At once, therefore, a professional researcher and an undergraduate, this student is advantaged as compared with those not engaged in research by the clearer perception of the status and use of text-book knowledge made possible by research experience. The justification of research as a basis for learning or for teaching is the perspective to be gained from the hill of inquiry over the plain of knowledge.

But more than this, the seeker, the questioner, the researcher, is always at an advantage vis a vis the person who claims to be a knower; hence, the dramatic structure of Plato's dialogues. One can combine inquiry-learning and instruction appropriately only by using the inquiry to teach the student to question the instruction.

Heroin lies the psychological barrier to research-based teaching. It may leave me in authority, but it asks me to depreciate my claim to be an authority.\(^{11}\) The article on research in the eleventh edition of the *Encyclopaedia Britannica*, the memorial summary of the British perception of knowledge on the threshold of the First World War, observes that investigations of every kind which have been based on original sources of knowledge may be styled 'research', and it may be said that without 'research' no authoritative works have been written...\(^{12}\) The implication is that research, by allowing us to produce authoritative work, makes us authoritative. Such authority is prestigious and highly satisfying personally; but it is vulnerable to the next questioner, and even more so to changes in the paradigm of knowledge.\(^{13}\) Sir Walter Scott remarked of the persistence of astrology:
Grove and studious men were loth to relinquish the calculations which had early become the principal objects of their studies, and felt reluctant to descend from the predominating height to which a supposed insight... had exalted them over the rest of mankind. (14)

The psychological reluctance to abandon the claim to be an authority is reinforced by fear of the implications for the social order, where such authority holds hierarchy in place, as my colleague, Professor Robert Ashton perceives. 'Like the schoolmaster, the university don, the householder, the civil magistrate and the King himself, the master (of apprentices) wields an authority which is in essence paternalistic and contributes to the maintenance of order in society as a whole.' (15)

Our deep psychological and social needs for that conception of knowledge which makes the elders curators of truth are yet further reinforced by our need as teachers for institutional authority in the schools and universities in which we work. As Derek Morrell and John Witherington wrote in their Schools Council Working Paper on the **Raising of the School Leaving Age** - from which our Humanities Curriculum Project sought its validation:

If the teacher emphasizes in the classroom, his common humanity with the pupils, and his common uncertainty in the face of many problems, the pupils will not take kindly to being demoted to the status of children in other relationships within the same institution. (16)

In authority-based teaching the teacher is Promethean: in research-based teaching the teacher evokes a Promethean response from the student, who casts his master in the role of Hephaestus. In teaching there is always a retaining of power as well as a conferring of power. Research-based teaching,
conceived as inquiry-based teaching, shifts the balance of power towards the student. It is his own research or inquiring which gives the teacher the strength to do this. Yet it happens that, fathering an Oedipus, the teacher is tempted to expose him to destroy him.

These are difficult matters, and most of us go for compromises; but they are compromises charged nonetheless with the emotions aroused by the extremes. I claim no more than that a research base offers the teacher a security for his authority in a mastery of seeking rather than of knowing, and hence provides him with a necessary protection in the enterprise of educating those who will, he wants to hope, exceed his grasp.

The view of knowledge and teaching which I have outlined seems at first sight to apply to universities, but not to schools. This is not a limitation I accept.

Research may be broadly defined as systematic inquiry made public. The inquiry should, I think, be rooted in acutely felt curiosity, and research suffers when it is not. Such inquiry becomes systematic when it is structured over time by continuities lodged in the intellectual biography of the researcher and co-ordinated with the work of others through the cumulative capacity of the organisation of the discipline or the subject.

Systematic inquiry of this sort - or approximation to it - is a pattern of learning by a thoughtful study of problems. Such study becomes research when it is made public by being published, at which point the student makes a claim intended to evoke a critical response: that the reported inquiry has resulted in a contribution to knowledge, being soundly based and in some sense new.

Saving only this final stage of publication such inquiry is possible as a basis for learning at quite early stages of
education. When it takes place the teacher is not an instructor but instead takes the critical role assigned in fully blown research to the scholars in the subject who react to publication. And there is no better experience than to work on this pattern with a teacher who has the imagination to initiate inquiry and the judgement to discipline it. The pupils make trials or essays within the inquiry, and the teacher offers an experienced critical reaction.

Thus, when a teacher of six-year olds separates two children who are fighting and, using them as independent witnesses, invites the class to question them and attempt to reach a judgment concerning the causes of the conflict, that teacher is already equipping these children to understand that the averred causes of the First World War, which they may some day consent to rehearse for 'O' level history, are not unproblematic. Only such teaching can tend to provide the learner with an acceptable view of accepted knowledge: that is, as questionable knowledge which for present purposes does not need to be questioned.

One of the teachers with whom our Centre is working is known to her pupils in a Dorset middle school as 'the hypothesis teacher', a tribute to her capacity to stimulate hypothetical thinking within the American social studies curriculum, MAN: a Course of Study, which, under the inspiration of Jerome Bruner, reached after a framework to support children in an inquiry into the nature of humanness as it can be understood through the study of animal behaviour, anthropology and comparative sociology, set in a context of values.\footnote{17} Bruner spoke of a 'courteous translation' of knowledge into the grasp of children.\footnote{18} I think that the courtesy lies in conceding the importance of the right of the learner to speculate, to learn autonomously to criticise and correct intelligent errors which reach after understanding.
Inquiry-based teaching of this sort necessarily aims at higher levels of attainment than are commonly settled for in schools and it naturally needs the support of instruction. Such instruction is best provided, not through the lecture given by the teacher, but rather through books and audio-visual materials, since this enables the teacher to maintain his critical stance towards the instruction. But the teacher will feel secure in such a role only if he is research-minded to the extent of having an inquiring habit of thought. It will be his task to interpret his claim as a man of knowledge to support his capacity to manage an inquiry towards understanding, 'to validate the search'.[19] He must not diminish the importance of that search by suggesting that it can be avoided by appeal to him as an authority who can warrant knowledge.

The teacher's qualification is in that knowledge of which the universities are curators, knowledge based upon inquiry organised as research. Such knowledge celebrates the capacity of the human mind to deal with problems or doubts in at least some areas of human concern, not by a leap of faith, but by a calculated and secure uncertainty. Confronted by the fact that if there is knowledge which is absolute it is, like Abelard's God, 'finally inscrutable, we settle for serviceable approximations which can be progressively sharpened by sceptical, but systematic, questioning. Only by keeping teaching in touch with inquiry can we do justice to this element in the knowledge we represent.

The university stands - or should stand - behind inquiry in schools as the curator of that uncertainty without which the transmission of knowledge becomes a virtuoso performance in gentling the masses. We do not live up to our principles, of course, but it is of the first importance that we do not rest from trying to do so, routinely from day to day. Whenever we assert and bully with our authority instead of reasoning on an equal base with those we teach and helping them to liberate
themselves from our authority as the source of truth, we invite them to faith rather than to knowledge. And our credentials to teach do not support our claiming faith from our students. The University holds no secrets of life and experience except through what Oakeshott has called 'arrests of experience', (20) the partial perspectives which alone give us a purchase on the limitless universe of experience and hence the possibility of understanding, which we call 'Knowledge'.

We are within reach of Abelard, whose 'statement that our beliefs must be understood does not mean that in his view a complete comprehension of divine matters was possible to man' (21) But while Abelard's element of uncertainty, constituting as it did a limitation of understanding of the divine, was associated with a sense of deficit, for some of us at least the uncertainty of research-based knowledge is a valued asset. The alternative presents itself, not as the mystical apprehension which supports faith founded in God, but as the threat that certainty will be ideologically based and that truth will be dictated by political authority. It is the thesis of Thrasymachus we oppose.

And, since Thrasymachus spoke with the confidence of the practical man, let me at this point, warned by experience, combat what I believe to be a misapprehension about the relation of speculation to action. (I am forewarned of this by criticism of our Humanities Curriculum Project, which sought to offer a speculative style of education through dialectic to those who would leave school at sixteen). (22) The uncertainty or provisionality of knowledge which I have associated with research is not to be equated with uncertainty of commitment or failure of the will to act. It does not preclude faith or commitment as 'that which we hold firmly in our minds', but rather builds upon it and elucidates it. Commitment needs to be interpreted before it can inform action, and the man of
action is more typically he who can act without the reassurance that his interpretation is certain than he who can act only when unafflicted by doubt. Security in uncertainty is the armour which a speculative education can offer. It is a valuable equipment for the practical man.

Not everyone will agree with my analysis of the nature of knowledge and its relation to research and to action. There are those who agreeing, will judge knowledge dangerous because it gives power to the dispossessed and those who, wishing it were more dangerous, will believe that it lacks the power to break the domination of the hegemony. But the achievement of secondary education for all signals, if it does not realise, the aspiration towards a knowledge-based education at every stage of schooling and for everyone - not merely for scholars - and commits the teaching profession to a struggle with the consequences of that ambition.

Historically the great majority of the children of this country have been offered in the state educational system, whether through the elementary school or the secondary modern school, no more than a rudimentary education in the basic skills and such an acquaintance with knowledge as might be expected to inculcate a respect for those who are knowledgeable. Their lot has been to accept that truths are defined by the authority of others. This tradition has lain alongside a tradition among the gentry of knowledge as a more accomplishment or appurtenance of style. The juxtaposition of these traditions has not merely impaired our capability in the industrial arts, it has also defined scholarship in the liberal disciplines as merely technical, and the results of this are to be observed in the discontent with higher education of many intelligent students, who resist the idea that technical prowess is the precondition of curiosity rather than its servant.
In the familiar tradition the uses of knowledge are reserved for an elite, while the burdens of knowledge are imposed on the generality by an imperious pedagogy. Schools provide students with competences without enhancing their powers. There are gross inequalities in the distribution of the means of thinking and hence of the power thinking confers and consequently the creation of a proletariat of the intellect.

To provide an alternative tradition of access to knowledge is a formidable problem for teachers, and it is not a problem to be solved by a change of heart. Important as it may be to declare worthwhile aims for education, good intentions do not pave the way to their fulfilment. What is needed is progress in the art of teaching as a public tradition and a personal achievement.

The character of the art of teaching is to represent to learners through social interaction with them meanings about knowledge. The succession of experiences we provide for them, and within the framework of those experiences the nuances of our questions, our judgements of their work, our tutorial advice, even the very gestures and postures of our bodies, are expressive of those meanings, sometimes explicitly, sometimes as elements in what has come to be called a 'hidden curriculum.' Teaching represents knowledge to people rather as theatre represents life.

Some of those who have called teaching an art appear to think that this suggests it is all flair and no learning. As if actors or dancers or musicians have nothing to learn. Others, on the contrary, imply that it is all skill and can be learned by the imitation of models on the pattern of apprenticeship.

Under the regime of the elementary school, which emphasized a training in skills for pupils, teaching itself
could be reduced at the level of minimum competency to a set of skills for pupil teachers. Under such assumptions the training of teachers might be conducted through some sort of apprenticeship, for the masters could do in masterly fashion what the apprentices would be called upon to do. This is not true today. It is not only that the past masters would find themselves inadequate in present classrooms, though I believe this to be true. It is because the act of teaching as a representation of knowledge is inherently problematic.

Teaching which accepts fidelity to knowledge as a criterion can never be judged adequate and rest content. Teachers must be educated to develop their art, not to master it, for the claim to mastery merely signals the abandoning of aspiration. Teaching is not to be regarded as a static accomplishment like riding a bicycle or keeping a ledger; it is, like all acts of high ambition, a strategy in the face of an impossible task.

It is the existence of such vocations with open frontiers for development which provides a basis within the modern university for the second traditional strand in the universities which intertwines with that of liberal education; the professional schools, and among them schools of education. Changes in society, changes in knowledge, related changes in professional role all contribute to professional doubt and uncertainty, which is confirmed by the experience that old recipes no longer work. And I have argued that the controlled and organized exploitation of such uncertainty in the disciplines of knowledge - the research tradition - is central to the modern university tradition. Research as a strategy is applicable not only to the humanistic and scientific but also to the professional disciplines.

Most of you will have noticed the ambiguity in my title. Just as research in history or literature or chemistry can
provide a basis for teaching these subjects, so educational research can provide a basis for teaching and learning about teaching. Professional skill and understanding can be the subject of doubt, that is, of knowledge, and hence of research.

In education what might such research look like,

In this country, since the nineteen fifties, the received doctrine has been that the core of education for teaching lies not in research in education, but in the application to education of the conclusions of research in the 'contributory disciplines' of philosophy, psychology and sociology. Most of those teaching these disciplines to teachers have not been able to share research with their students, who are clearly quite unlikely to become philosophers, psychologists, or sociologists, since they are on professional courses for teachers. All too easily philosophers, psychologists and sociologists, whose researches are problematic in their own fields, become - only sometimes - authorities in courses for teachers.

An alternative to the constituent disciplines approach is to treat education itself - teaching, learning, running schools and educational systems - as the subject of research. This alternative is not characterized by a neglect of disciplines, upon which it draws eclectically, but rather by the fact that what is drawn from the disciplines and applied to education is not results or even the theories which give shape to each discipline, but methods of inquiry and analysis together with such concepts as have utility for a theory of education. The problems selected for inquiry are selected because of their importance as educational problems, that is, for their significance in the context of professional practice. Research and development guided by such problems will contribute primarily to the understanding of educational action through the
construction of theory of education or a tradition of understanding. Only secondarily will research in this mode contribute to philosophy, psychology or sociology. And this principle of applied research is, I think, appropriate mutatis mutandis in all the professional schools of our universities.

How can I best make clear the implications of such a position? Let me take as a point of departure an example of research and training which I take to be sub-professional.

In Ohio State University I visited the Disaster Center, a research and development unit concerned with making more effective the response of the emergency services to disasters. There I saw in a laboratory an exact replica of the Columbus, Ohio, police nerve centre. Police staff were released to man their familiar positions while simulations of disasters were fed through their information channels and their responses were studied. While I was watching, a simulated airplane crash on a Columbus suburb was enacted. It was cleverly contrived. News that the wife of one of the men on the switchboard had just given birth to a son was fed through as a distractor. Information that the deputy superintendent's family had been badly injured when the plane hit his residence invited the team to override public priorities with private ones. Research and training were well integrated. The task was to find the best procedure, to test it against interference and then to enable the emergency team to react smoothly and automatically without needing to pause for thought or run aground on difficult judgements. The laboratory situation was a godsend. You cannot keep crashing planes on Columbus as a research strategy.

If we were to take this as a model for educational research, then we should provide laboratories which simulate classrooms. Desks carefully carved with graffiti might be
assembled, walls might be hung with the Fall of Icarus and contre-spreads from the Teachers' World, fans could pump in the scent of sweat and damp clothes mixed with chalk dust. But what of the pupils?

We deal in education - as in medicine or law or social work - with human action which cannot be channelled through headphones. We need real pupils, and we cannot properly engage them in doubtful experiments or even in placebo treatments.

In short, real classrooms have to be our laboratories, and they are in the command of teachers, not of researchers. This is the characteristic of professional schools; the research act must conform to the obligations of the professional context. This is what we mean by action research. It is a pattern of research in which experimental or research acts cannot be exempted from the demand for justification by professional as well as by research, criteria. The teacher cannot learn by inquiry without undertaking that the pupils learn too; the physician cannot experiment without attempting to heal. As the Tavistock Institute put it: "No therapy without research, no research without therapy". (26)

Such a view of educational research declares that the theory or insights created in collaboration by professional researchers and professional teachers, is always provisional, always to be taught in a spirit of inquiry, and always to be tested and modified by professional practice. The teacher who founds his practice of teaching upon research must adopt a research stance to his own practice: it must be provisional and exploratory.

It is this that marks him out as a professional, as compared to the Ohio police emergency team; for while the object of the disaster simulations is to allow them to respond
effectively without pausing for thought, the object of educational research is to develop thoughtful reflection in order to strengthen the professional judgement of teachers.

This implies that the educational researcher and the teacher must have a shared language. No doubt there is a need for increasing the research literacy of teachers, but there is also a lot of room for research couched in the vernacular. Here the language of history is a good model: George I instituted professorships of history in 1724 for the purpose of training public servants, and historians still speak of politics in language politicians can understand. If we want to influence action, we must have very strong excuses when we abandon the vernacular of action.

It also implies that the teacher be committed to inquiry in the process of his teaching on the grounds that nothing he is offered by teachers of teachers should be accepted on faith. Anyone who doubts this scepticism would do well to study the case of Cyril Burt.

In teaching about teaching as in teaching about the disciplines of knowledge we can offer some tips and rules of thumb, but these should not don the mantle of expertise. Moreover, such lore is sub-professional. Professionalism is based upon understanding as a framework of action and understanding is always provisional.

The infusion of teaching by the spirit of inquiry is difficult enough in the context of teaching the disciplines of knowledge. It is even more difficult in professional schools where the natural cry from the fields of professional action is for the reassurance of certainty to ameliorate the agony of responsibility. It is still more difficult in initial training.
situations, where some are in more need of instruction in clinging to an overturned dinghy than in navigation. But even here the short cut of accepting a 'rhetoric of conclusions' is one we must struggle to avoid. As the McNair Report said: 'The training of teachers must always be the subject of experiment. It is a growing point of education.' (29) Growing points are uncertainties because uncertainties are potentials. It is the task of universities to keep those potentials open.

The ambition of the programme I have proposed might be understood to remove it from reality. Inaugural lectures in education can too comfortably address the problems of the school in the sky. Not so in this case. I am talking of my everyday practice as an educational researcher and teacher of teachers. But my practice is not successful. Success can be achieved only by lowering our sights. The future is more powerfully formed by our commitment to those enterprises we think it worth pursuing even though we fall short of our aspirations. Abelard's setting out 'to learn the wisdom which we do not possess' commits him and we who follow him to the pursuit of an elusive, ever-receding goal. In such an enterprise research is by definition relevant for its gains accrue, not from a leap towards finality, but from the gradual cumulation of knowledge through the patient definition of error. Its achievement is always provisional, the base camp for the next advance. We shall only teach better if we learn intelligently from the experience of shortfall, both in our grasp of the knowledge we offer and of our knowledge of how to offer it. That is the case for research as the basis for teaching.

20th February, 1979
NOTES AND REFERENCES


4. J.G. Sikes, p.50

5. Joseph Ben David, pp. 94-95

6. Joseph Ben David, p. 124


11. The distinction is taken from R.S. Peters, Ethics and Education (London: Allen & Unwin, 1965) See also the same author's Authority, Responsibility and Education (London: Allen & Unwin 1959)


14. Sir Walter Scott, Guy Mannering, Chapter IV


17. MAN: a course of study was developed by the Educational Development Center, Cambridge, Mass. and is published and disseminated by Curriculum Development Associates of Washington, D.C. The British dissemination agency is the Centre for Applied Research in Education, University of East Anglia.


21. J.G. Sikes p.36


24. As has been argued by Correlli Barnett in "Technology, education and industrial and economic strength", the first of three Royal Society of Arts Cantor Lectures on Education for Capability. The Royal Society of Arts Journal, 127, 5271, 117-130


