

(A newsletter concerned with Polanyi studies)

Professor Michael Polanyi, F.R.S. died on Sunday, 22nd February 1976 at the age of 84. We include with this newsletter excerpts from two obituaries published in 'The Times'.

Times ,Monday, February 23, 1976.

"Born in Budapest he became a doctor of medicine at Budapest University in 1913. His first scientific paper, Chemistry of the Hydrocephalic Liquid , was published when he was 19 In the period 1913-1914 he published a number of papers in Hungarian and in German scientific journals on the application of quantum theory to the third law of thermodynamics, and on the thermodynamics of adsorption.

Somehow he was able to continue these speculations while serving as a medical officer in the Austro-Hungarian army. His work on the third law , during the war, was assisted by a voluminous correspondence with Albert Einstein While a patient in hospital during the war, Polanyi completed the outlines of his theory of adsorption, which he submitted for a Ph.D. in Chemistry at Budapest University in 1917. This theory of adsorption, through a curious series of accidents, subsequently fell into disrepute, only emerging half a century later, to be acknowledged as a major contribution to understanding of this phenomenon.

... in 1918 he spent a year at the University of Karlsruhe where he met his future wife Magdalene Kemeny. They were married in 1920 in Berlin, where Professor Polanyi had gone to take up a post at the Kaiser-Wilhelm Institute of Fibre Research. They later had two sons.

.....Within months of his arrival at the Institute he made the first interpretation of the X-ray diffraction pattern of natural plant fibres (cellulose). This work in its subsequent elaboration with K. Weisenberg, led to the rotating crystal method of X-ray analysis which remains to this day probably the most powerful weapon in the vastly expanded armoury of the X-ray crystallographer. The second of the new fields into which Polanyi ventured in this period was that of the plasticity and strength of solid material. His studies of this phenomenon culminated in a theory of dislocation, whose effects are still to be seen in the large numbers of papers in current journals of solid state physics dealing theoretically and experimentally with dislocations and their consequences.

Polanyi's changes of field were subsequently to be proclaimed as a great loss to reaction kinetics, to patent law, to economics, and to social studies.

It was for his work on the theory of reaction rates (reaction kinetics) that Polanyi was best known to British scientists.

.....This work continued in full flood over a period of 15 years until 1940, diminishing in the years 1940 to 1949. Professor Polanyi's speculations during this period related to the fundamental mechanics of molecular dissociation at surfaces, the uncertainty principle for angular momentum (with E. Wigner in 1925); an absolute rate theory for unimolecular dissociation (again with E. Wigner); a theory of bimolecular activation energy (with H. Eyring); a generalized theory of absolute reaction rates (with M. E. Evans); as well as extensive work on ionic reactions in solution, on bond dissociation energies and on the mechanism of polymerization.

Much of this work was done in England. In 1933 Polanyi had resigned his position at the Kaiser -Wilhelm Institute, in protest against Nazi legislation and moved to the chair of Physical Chemistry at Manchester University, where he very quickly built up a major research school.

Even as he did so, his mind was adventuring in new directions. In 1935 he published USSR Economics. This was followed five years later by The Contempt of Freedom Professor Polanyi's fascination with the workings of a free economy led him in 1940 to make Unemployment and Money, one of the earliest diagrammatic films in Patent Reform (1944) Polanyi proposed a major revision in the laws governing the granting of patents, in order at the same time, to encourage and reward invention while yet providing the greatest benefit to the economy through easy access to the substance of the innovation.

In 1946, with the publication of Science, Faith and Society, Polanyi embarked in earnest upon the philosophical journey which was to occupy him for the remainder of his life. Two years later he exchanged the chair of Physical Chemistry for a chair in Social Studies at the same university. He had already been elected an FRS in 1944.In 1952 he delivered his Gifford Lectures, which developed into his major work, Personal Knowledge (1958), and its sequels The Study of Man (1959) and Beyond Nihilism (1960). These reflections found a parallel in the sphere of action first in his co-founding of the Society for the Freedom in Science and later in the Congress for Cultural Freedom, an international organization which functioned not only as a forum for debate, but also as a body exerting its influence in every way possible to extend freedom of thought.

.....In 1958 he retired from Manchester University where he was made Professor Emeritus, and went to Merton College, Oxford as Senior Research Fellow.He was Distinguished Visiting Professor at the University of Virginia in 1961-62; a Fellow of the Institute for Advanced Studies in the Behavioural Sciences, Stanford University 1962-63; and Visiting Professor of Religion at Duke University in 1963-64. Princeton, Leeds, and Aberdeen Universities awarded him honorary Doctorates and he was a member of numerous international scientific societies.

Those who knew Polanyi well will attest to his sweetness of character, to a pervading sadness which none the less at every other moment illuminated by sparkling humour, gentleness tempered by a strong and courageous spirit, patent honesty and the humility which is invariably the property of the wise."

The Times Wednesday February 25, 1976

"Robin A. Hodgkin writes :

Michael Polanyi's "change of field" from physical chemistry to philosophy may have been seen as a loss by some of his colleagues. But to many others, especially to those of us who were younger, his Personal Knowledge offered as it still does, an intellectual journey of profundity and moment. This aspect of his work has been more widely acknowledged in the United States than in this country. It may reasonably be asked, however, whether any philosopher has built so sure a bridge between the questioning of science and the faith of religion.

Polanyi's central insight was a discovery about discovery: that all human creativity, all high level skill and thinking - prior to any verbalizing of it - is rooted in tacit knowledge. We know more than we can tell. In the actual performance of a work of art or in the execution of a skill we integrate both our conscious understanding of the art and many less accessible physiological processes in a focused passionate endeavour. Important acts are the acts of whole persons acting freely; not of detached intelligence or of automata.

Polanyi never belittled the importance of rational thinking in checking and communicating knowledge or in planning the search for it; but he recognized that a commitment to certain overall directions and principles must often precede clarity. This is a message of great importance for teachers in all subjects and at all levels. Polanyi only occasionally touched on theology, for the knowing of God lies at the limit of the processes of discovery which he describes. Nevertheless his view of man and nature opens the way towards it. "

A memorial service for Michael Polanyi was held at the chapel of Lady Margaret Hall, Oxford on Wednesday, 7th April 1976. Canon V.A. Demant gave the address and Mr. Walter James gave a reading from the works of Professor Polanyi (Personal Knowledge, 1962 edition pp.197 -199. "The religious mystic achieves contemplative communion as a result of an elaborate effort of thought supported by ritual Christianity sedulously fosters, and in a sense permanently satisfies, man's craving for mental dissatisfaction by offering him the comfort of a crucified God.")

Items of interest

A one day conference on 'Michael Polanyi and Education' was held at Oxford University Department of Educational Studies on Wednesday 7th April 1976. This was a highly successful conference with over 50 people attending. Papers were read by Mr. Robin Hodgkin, Oxford University, Dr. G.L. Price, Manchester University, Mr. Richard Allen, Loughborough College of Education, and Dr. R.J. Brownhill, Surrey University. Mr. John Brennan took the chair for the last

session of discussion. Summaries of papers given at the conference are included in this edition of Convivium.

A weekend conference on 'Science and Society' is to be held at Surrey University, Guildford . It will start on the evening of Friday 25th March, 1977 and end after lunch on Sunday 27th March, 1977. It is to be organized jointly by Convivium and the Department of Philosophy , Surrey University. It will be a residential conference but non-residents can attend. Further details can be obtained from Dr. R.J. Brownhill, Department of Philosophy, University of Surrey, Guildford but information will in any case be sent round to Convivium members.

It is hoped to hold a joint meeting , Convivium and the British Society for Phenomenology , on aspects of Polanyi's thought during February 1977. This meeting will probably be held in Manchester and be a one day meeting. It is proposed that there should be two full sessions and then shorter sessions with discussions. The organisers would be pleased to receive suggestions for topics for both types of session. Contact Mr. Richard Allan, Education Department , College of Education, Loughborough for further details and suggestions for topics.

There is to be published during 1977 an issue of 'The British Journal of Phenomenology' devoted to the writings of Polanyi. Further details later.

An appeal is in preparation to set up 'The Michael Polanyi Memorial Fund' for the purpose of awarding an annual philosophy prize to a student in the University of Manchester. Details can be obtained from the Hon. Treasurer, Mr. H. Leslie Kirkley, C.B.E., M.A., 25, Capel Close, Oxford.

Re-newal of Subscriptions

It is now time to renew your subscription to Convivium. Please write out your cheques to Convivium for £1 and send it to R.J. Brownhill, Department of Philosophy, University of Surrey, Guildford, Surrey.

Aims of Convivium

This information was included in the first number of Convivium.

" Convivium is a newsletter which provides information about research into the work of Michael Polanyi. However, it has a wider aim than this, for Michael Polanyi is above all a heuristic thinker who has instigated new ideas in many areas of thought. We are, therefore, also interested in research developing within the spirit of his 'post critical' philosophy. The main purpose of the news letter is to provide interested persons with a communications network by which they can communicate their work and interests to others."

In fact we have done more than this we have organised conferences and are in the process of organising more conferences. However, we would like the 'communications network' idea to get off the ground so would be pleased to receive more information about on going research in our field of interest as well as short reviews of relevant books, etc.

Publications

Geoffrey Price, The Politics of Planning and the Problems of Science Policy, SISCON publication. It is concerned with the 'Freedom or Planning in Science' debate in Britain 1930-1950.

This SISCON publication is a trial unit designed for use by the student and teacher together with other reading. This particular unit examines Polanyi's contribution to the debate. Further information about this unit and other units can be obtained from the Siscon Project Co-ordinator, Dr. W.F. Williams, Physics/Administration Building, University of Leeds, Leeds LS2.

Courses

The Department of Adult Education, University of Surrey is organising a course of 20 meetings commencing on Wednesday, 6th October 1976 at 7.00 p.m. at Surrey University, Guildford entitled 'Great Thinkers of the 20th Century'. The course will be concerned with the work of Karl Popper and Michael Polanyi and the lecturer is R.J. Brownhill, Ph.D.. Further information can be obtained from Dr. G. Easting, Assistant Director, Liberal Studies, Department of Adult Education, University of Surrey, Guildford, Surrey GU2 5XH.

Article

Polanyi and Coleridge

The reading of a new book has sent me back to a book I read many years ago. That book was 'The Road to Xanadu' by John Livingstone Lowes, and the newly published book, to which I owe the pleasure of re-reading it, is 'Meaning', by Michael Polanyi and Harry Prosch. This is based on lectures given by Michael Polanyi in America in 1969-72, now edited by Harry Prosch and placed in a selected summary of Polanyi's other writings. The lectures, which form the new part of the book, are concerned with the extension of Polanyi's theory of knowledge to the aesthetic field; to metaphor, symbol, painting and poetry, myth and ceremony and lastly to religious ritual and belief.

The structure of knowledge elaborated in other Polanyi books where knowledge, however explicit, is shown to depend on a tacit awareness of clues which are not fully specifiable but are integrated into our focal awareness of the object to which we attend from them - this is here adapted to explain the part that imagination plays in understanding. A work of art calls on our imaginative fusion of contradictory clues - such as awareness of the flat canvas in a painting contradicting the illusion of depth; the stage 'frame' of a theatrical performance contradicting the reality of the murder taking place in it; the

rhyme and rhythm of a poem framing and detaching the content from imaginative reality. The great religious myths are accepted by the same imaginative fusion of tacit incompatibles to give a truth which could not be expressed in explicit prose statements of the separate elements.

The argument of these lectures is of great power and interest, opening up new vistas. What actually led me from it back to 'The Road to Xanadu' was a negative clue, an objection that I felt; but this soon revealed a positive connection of which I had been tacitly aware, and which could be valuable to students of Polanyi, for 'The Road to Xanadu' is in fact a marvellously rich field for the study of tacit knowledge and the creative imagination; a vivid illustration of Polanyi's ideas.

I start then from my objection. Polanyi is at pains to deny the mimetic theory of art, and in the course of the argument there is a statement, three times repeated, that Coleridge was mistaken in thinking that art requires a 'willing suspension of disbelief'. I was jolted by this, having a fairly firm conviction that Coleridge would not be mistaken on this subject; a conviction which became more obstinate with every repetition of the accusation. So I looked up Coleridge's phrase in context.

"During the first year that Mr. Wordsworth and I were neighbours", Coleridge writes in 'Biographia Literaria', "our conversation turned frequently on the two cardinal points of poetry; the power of exciting the sympathy of the reader by a faithful adherence to the truth of nature, and the power of giving the interest of novelty by the modifying colours of imagination". From these talks between the two poets sprang the joint enterprise of the 'Lyrical Ballads' in which, says Coleridge, "it was agreed that my endeavours should be directed to persons and characters supernatural, or at least romantic, yet so as to transfer from our inward nature a human interest and a semblance of truth sufficient to secure from these shadows of imagination that willing suspension of disbelief for the moment which constitutes poetic faith. With this view I wrote the Ancient Mariner."

The comment in 'Meaning' is - "We do not appreciate a work of art by suspending our disbelief in its prose content". But it is quite clear from Coleridge's statement and from the 'Ancient Mariner' that Coleridge did not mean that. It would be ridiculous to suppose that he expected a reader of the poem to believe the story as a factual account of what actually happened. "Suspension of disbelief" clearly means acceptance within the terms of the poem. Coleridge explained further - "The incidents and agents were to be, in part at least, supernatural, and the excellence aimed at was to consist in the interesting of the affections by the dramatic truth of such emotions as would naturally accompany such situations, supposing them real."

I hope to show that in fact Coleridge meant something very like what Polanyi is saying in these chapters. If we look again at Wordsworth and Coleridge dividing up the work of the "Lyrical Ballads", Wordsworth was to write about familiar subjects, Coleridge about unfamiliar and supernatural. "The principal object which I proposed

to myself in these poems", Wordsworth wrote in the preface, "was to choose incidents and situations from common life, and to relate them as far as possible in a selection of the language really used by men, and at the same time to throw over them a certain colouring of imagination, whereby ordinary things should be presented to the mind in an unusual way."

Thus the pattern of their intentions was symmetrical; Wordsworth to lift common things out of the common by imaginative colouring, Coleridge to bring uncommon things within the grasp of the common imagination by truth of human interest. In fact, to use Polanyi's language, both were intending to provide contradictory sets of clues to be integrated into a poetic experience, but opposite ways round; Wordsworth's subject matter and language belonging to the everyday world, his 'frame' which would distance and detach it being the "colouring of imagination"-and the verse form. While Coleridge made the subject, (strange and supernatural), his distancing frame, and the contradictory content, the everyday reality of human feeling involved.

In 'The Road to Xanadu' Livingstone Lowes shows how the magic quality of the 'Ancient Mariner' arises from Coleridge's success in just this; that the supernatural elements of the story and the strange eerie setting are brought within our emotional compass by the deep and universal human feelings invoked, by the vivid homely language steeped in the actual experience of the early explorers, and by the inwardly cohesive logic of the poem's structure. It is all compelling and convincing within the experience of the poem, just as a play can carry us away in its own terms.

Now this is not at all incompatible with what Polanyi is saying, and is indeed very close to the explanation in 'Meaning' of how we grasp the meaning of a work of art or a play or ritual by imaginative integration of conflicting clues, which does assume a "suspension of disbelief" within the artistic experience. Without this we could not be moved by the experience, as Polanyi recognizes we are by a fine metaphor for instance. He quotes Shelley as saying that poetry reveals "the wonder of our being" by purging our usual chaotic experience of the film of familiarity -(this is Wordsworth's aim) - and he admits as something involved in the acceptance of a work of art that -"the story part of such works must have some degree of plausibility. It must strike us, the audience, that a man like Hamlet might kill a man like Polonius, under the circumstances presented in the play ... the requirement is slightly different from the merely objective judgment of its logical possibility. As Aristotle pointed out, a convincing impossibility in a play is better than an unconvincing possibility." Surely this is just what Coleridge means by "willing suspension of disbelief", and the Ancient Mariner is a classic example of a convincing impossibility.

If it can now be agreed that Coleridge and Polanyi are on the same side, we can turn to the working of Coleridge's poetic imagination as described in 'The Road to Xanadu', and consider this as a field for the study of tacit knowledge.

'The Road to Xanadu' begins from Coleridge's notebooks with their strange farrago of facts and phrases. Livingstone Lowes followed the tangled trails of these jottings back to their sources in

Coleridge's voracious reading, and on to their places in the 'Ancient Mariner'. This part of the book has all the fascination of a good detective story. But if that were all, it would be of limited interest. What concerns us is the study that follows of the ways of the poetic imagination. Livingstone Lowes was fascinated by the problem of what happened to this vast reservoir of knowledge in Coleridge's mind - the "amazing throng of images"; and of what transmuted the hoarded nuggets of fact into the pure poetic imagination of the "Ancient Mariner". He shows how in some earlier poems Coleridge used some of the material raw, so to speak. He calls this "joiners work", for Coleridge was fitting together pieces of his material in verse, unmodified by imagination. But when Wordsworth and Coleridge talked together in a state of heightened poetic excitement, and the right subject appeared, to power the thrust of the creative imagination, the throng of latent images was drawn out from the "deep well" of the subconscious where they had mingled and coloured each other. They were no longer bits of Coleridge's reading, but pure poetry.

In trying to understand the process, Livingstone Lowes comes very close to talking in Polanyi's terms. It is interesting that they both quote Henri Poincare's account of the process of scientific discovery and point out its similarity to the process of imaginative creation in the arts. There is first the intuitive search for a good problem. As Polanyi puts it - "At the inception of an inquiry, intuition predominates. Imagination enters at this stage only by keeping intuition alert to the sensing of a problem ... the whole course of the quest is filled by labourious efforts of the imagination, broadly guided by a questing intuition, which also continues to select from the fragments mobilised by the imagination those which promise to become part of the solution."

The quest for a problem in science becomes the quest for a subject in poetry. Coleridge's reading was not random but guided by an intuitive feeling for a possible subject; he gathered his material with insatiable curiosity along the lines that drew his interest. At this stage he did not know what the subject would be; for some time "a Hymn to the Sun, Moon and Elements" was in his mind: but the vague intuition of a subject guided his reading, while the material he gathered in turn shaped the search for a subject. When he did the 'joiner's work', one could say that he was still viewing focally the material he had gathered; but when the thrust of the imagination came, the garnered images had fallen into subsidiary awareness and were able to become part of a rich new imaginative meaning.

Livingstone Lowes' analysis of the verses in the Ancient Mariner about the water-snakes is particularly interesting. It might have fallen under Polanyi's criticism of such analysis of poetry, that it destroys the poetic vision by focussing on the separate elements, but it begins and ends with such feeling for the imaginative truth and beauty of the verses that it does not have this effect; and in showing the multitude of sources which have coloured and enriched these few, simple, perfect lines, it illustrates beautifully Polanyi's words - "This rich and delicate pattern of subsidiaries imbues a poem with the quality of a distinctive artifact. It lends the poem

harmonies that no other speech possesses, and establishes its claim to be received for its own sake. A poem's story is thus exempted from being heard as a mere communication of fact and asks instead to be heard by the imagination. Therein lies its independence as a work of art."

Compare with this Livingstone Lowes' comment - "It is as if the separate images from Coleridge's reading had carried with them into their new environment a shadowy penumbra of other images with which they had once been joined, or as if each focussed within itself subtle potentialities of suggestion caught from associations which it had before the poem was" "The rich suggestiveness of a masterpiece of the imagination springs in some measure from the fact that infinitely more than reached expression lay behind it in the shaping brain, so that every detail is saturated and irradiated with the secret influence of those thronged precincts of the unexpressed."

I hope this may be enough to indicate that the "Road to Xanadu" could be worth exploring in the quest for more light on the tacit dimension in meaning.

Drusilla Scott

Summary of papers presented at Oxford Conference April 1976

Education: The Fear of Commitment and Disengagement

Questions of truth and correctness are necessarily involved in education, but, once made explicit, there arises today a distrust of our capacity to attain to truth and correctness. The aim of the paper was to show how we may once again teach what we cannot prove, what we might conceivably doubt, and what might conceivably be false, so that we shall not fear to commit ourselves and our pupils.

(1) Pseudo-substitutions for truth (simplicity, fruitfulness, etc.) are today proposed by ordinary school teachers as well as philosophers. On the emptiness of these devices Personal Knowledge pp. 16, 147-8, 166, 307, 354.

(2) The fear of 'indoctrination', of teaching unprovable beliefs, often leads to calls for 'neutral teaching' or the neutral chairmanship of discussions, so that pupils may make up their own minds without the teacher imposing his beliefs upon them. But: (i) to apply rules of procedure in a discussion is to teach something substantive about how to behave in discussions; (ii) if the adult teacher should not pass on his beliefs, why should the children be allowed to pass on theirs to each other? (iii) even worse, why should he deliberately set up opportunities for them to 'indoctrinate' each other? (iv) if there is no ascertainable truth in religion, morals or what have you, it should be the teachers duty to point this out, to discourage all substantial beliefs in these areas, and not to promote irrationality by setting up discussions of them (cf our attitudes to alchemy and magic): and (v) silence implies consent, and by not intervening the teacher implies it is all right to hold (allegedly) baseless beliefs and to 'indoctrinate' others with them. Neutral teaching is no teaching at all, and to teach is not to be neutral regarding truth and error, correctness and incorrectness, and right and wrong.

(3) The teaching of methods is proposed as a way of avoiding 'indoctrination' and commitment to substantive questions of truth - see J. Wilson's 'Introduction to Moral Education' and 'Education in Religion and the Emotions'. But (i) as Polanyi shows, rules, when they can be formulated, are formulated by induction from previously successful and accredited practice; (ii) to teach a rule you have to test your pupil's ability to apply it correctly; (iii) all knowledge relies upon unspecifiable rules (on maths see PK pp. 124-31); (iv) these rules are picked up tacitly as the pupil follows the substantive judgements of his master (PK p. 53); and (v) while all universities teach the articulate contents of science, only some transmit the unspecifiable art of scientific research (PK p. 53). Thus personal judgement and commitment cannot be eliminated. Even if we had a complete casuistry of rules, that would render the pupil's personal judgement superfluous, and we can develop his only by exercising our own.

(4) Objective tests are alleged not only to simplify marking but also to reduce or eliminate the subjective element of judgement and commitment. But (i) to call a marking scheme by that name is to accredit its correctness (cf PK p. 259); (ii) One must still interpret the figures or marks written as answers (cf the footnote PK p. 20); and (iii) one cannot specify in advance all the eventualities that may happen and must use our personal judgement to decide unexpected ones. The older style of open question or problem required the exercise of the pupil's own personal judgement and intellectual powers, and one's own in assessing it and them: objective tests test only mechanical calculation, mechanical memory or sheer guesswork.

(5) Discovery methods are today proposed as a means of avoiding 'indoctrination' by letting the child find out for himself. But either the teacher comments (openly or by gesture) upon an alleged 'discovery' and so accredits it or rejects it as a discovery, or he does not and so he does nothing. In the former case he indicates, if he does not obviously say, what is or is not the case. If we cannot trust the teacher's personal judgement, and so do not permit him to tell the children things, why do we accredit children with sufficient personal judgement to discover the truth for themselves?

We cannot avoid the use and the development of personal judgement and commitment in education, nor the risk of being honestly mistaken and of passing on our honest mistakes. In Personal Knowledge these risks are openly faced and from it we receive a bracing infusion of the sense of intellectual adventure and courage which animates its pages.

R.T. Allen

Levels of Tacit Knowledge: the relevance of Polanyi's ideas to education.

The paper is concerned first with the neglect which educationists have displayed towards Polanyi. This is discussed and one cause suggested is the lingering influence in the social science of positivism. A contrast is then drawn between Popper's view of the 'Third World' of shared, articulate knowledge which, though open in principle to change, does not explore the origins of change, and Polanyi's comparable view of articulate knowledge as an island rising from the unclear but potent shallows of Tacit understanding. Polanyi is profoundly interested in the transition from what is shadowy to what is clear: Popper concentrates on the latter.

The levels of tacit knowledge are then discussed using an extended version of Bruner's terminology to describe the more and more abstract systems through which we represent our experience of the world. In increasing order of abstraction these may be summarised as follows:

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|------------------------|-----------------------------------------------------------------------------------------|
| The interpersonal mode | - at first mainly through the mother |
| The enactive mode | - through sensory-motor action-often autonomous |
| The iconic mode | - through images and models |
| The semiotic mode | - having references to signs which are part of a coded, articulate language-like system |

Music is not discussed but the hierarchical nature of these modes, with earlier ones providing a foundation for the later, more abstract ones, and the necessity of teachers being able to move up and down them as they create appropriate learning experiences - all this is discussed at some length. So too is the symbolic function of words and images which open windows on complex ideas long before a learner is ready to assimilate them in a rational and analytic way. The education of hand and heart is thus seen as an essential basis, and as part of, the education of ear, eye and brain.

It is argued that by developing our thought about education and culture along the lines opened up by Polanyi an important shift can be brought about. 'His philosophy is about doing and knowing, about passion and courage, truth and commitment. Its relevance will be increasingly evident as we work towards an education which must surely become more open, more creative and more adventurous.'

Robin Hodgkin

Some references: M. Polanyi Personal Knowledge
M. Polanyi Knowing and Being
J.S. Bruner, Toward a Theory of Instruction
R. Lewin ed., Child Alive
and M.P.M. Richards, The Integration of a Child into a Social World for articles by John Shotter and others. See also Chs. 10 & 11 in R. Hodgkin Born Curious for a full discussion of these themes.

Concepts of Political and Social Education

I attempt to do two things in this paper: to look at Polanyi's general political philosophy, and then see what this suggests the state's function in education and in particular political education should be. Another point is brought out and this is his confusion between description and prescription. This is noticeable when he writes about the scientific community but becomes of greater importance when he carries his analysis of man searching for the truth into his study of society in general.

Polanyi takes up a common theme in political philosophy, the conflict between freedom and authority. It is this theme which runs through all his work on community structure; man as a free agent discovering for himself what he has to do, and man operating within an authoritative structure necessarily bound by tradition. An early appearance of this theme appears in 'The Foundations of Academic Freedom' where Polanyi examines the structure of the scientific community, and develops an early version of his epistemology. The theme of conflict between freedom and authority emerges because of the nature of the relationship of the scientist to his own research and his relationship to other members of the scientific community, who jointly make up the decision procedure of the community, and are guardians of the systematic ideas of science.

The individual scientist must make his own contact with reality by a process which Polanyi later calls 'indwelling', in other words he becomes immersed in his research and becomes committed to each stage of his discovery. Only on the completion of the process will he put his theory forward for acceptance. The theory is judged by other members of the scientific community, who estimate the worth of the theory by reference to their communal knowledge. A consensus about the acceptability of the new theory will appear.

It can be seen that freedom has to be allowed for an individual scientist to conduct his research because it is the individual scientist who innovates and leads to the development of science. At the same time an authority based on traditional beliefs is needed to exercise control over the results of research, for Polanyi rejects the possibility of either verifying or falsifying a theory by reference to experimental evidence. He, in fact, claims two sorts of freedom can be found in 'The Republic of Science': an English utilitarian form of liberty, and a Lutheran type of freedom. The former, he claims, achieves its ends through individual initiative, the latter by moving outside individual selfishness by devotion to universal ideas. I think he is incorrect here for within his own analysis Lutheran freedom allows devotion and initiative.

In the 'Republic of Science' the scientist to be a member of the community must share the faith and task of other scientists. He is not free to do nothing. He is not free from external restraints,

indeed there is a considerable amount of pressure on him to undertake research and produce results, and if he does not he will very soon cease to be a member of the community.

In the 'Foundations of Academic Freedom he argues Luther is the prototype person who gains freedom from personal ends by submission to impersonal ideals. In the same way the scientist submits himself to the ideals of science: ideals which declare that a scientist must struggle to achieve the truth, and present it to his colleagues for recognition. Like the Lutheran priest Polanyi's scientist is bound by his conscience without reliance on anyone else to declare that which his conscience indicates. Yet, nevertheless, this conscience remains bound by the traditions of the community or the scientist cannot remain a member of the community. By following the traditions and standards of science the scientist is acting on individual initiative, and submitting to the obligations of the community. By acting on his own initiative in choosing his research, and eventually producing his discovery he is accepting the obligations of the community. This exercise of individual initiative is not a separate freedom but part of the submission to impersonal obligations, as only by acting on individual initiative can one fulfill one's obligation to apprehend and reveal reality. An obligation which it is necessary to accept if one is to remain a member of the community.

The authoritative element in the community is necessary in order to control the excesses in the speculation of individual scientists. This is an additional check as the scientist's conscience has already provided one. The nature of science itself provides another reason why authority is important. Science is made up of systematic ideas which it is the task of scientists to expand, and before they can expand it they must accept and understand a large part of the system. He has to accept large areas as interpreted by his colleagues in the scientific community. They derive their own authority from the fact that they are recognised as master interpreters of science, and acting together form the decision procedure of the community.

Polanyi's study of the scientific community reveals the essential moral element in its make up but in his later works it is used as a prototype for his studies of other communities, and eventually the basis for his study of society as a whole.

Three factors seem important so far: a belief that knowledge progresses under the control of interpersonal knowledge, that scientific activity is a moral activity, and that a person can become a scientist only by participating in scientific activity.. These factors remain important when we examine other communities.

In expanding his analysis to other communities he argues other intellectual communities develop systematic ideas and expand in a similar way to the scientific community. And that communities not concerned with scholarship will possess a body of coherent beliefs with which to check innovations.

It is the coherent beliefs which make up the basic tradition of a society which is important when we consider political education, as it is by gaining experience within this tradition that we develop the necessary equipment for operating within a democratic society. In Polanyi's ideal community the core tradition would include transcendental obligations to reality (the truth), the operation of individual initiative under the control of authority, the exercise of authority by the interpersonal knowledge of the community..

His concept of tacit knowledge and the gaining of this knowledge through participating in an activity strengthens the hold of tradition. The state's function in education is to allow a person to imbibe the tradition of a discipline by being trained and eventually working within it. In the political sphere the state should do the same. It should allow a person to pick up the social practices and values of society through participating in normal political and social activity. An attempt to indoctrinate cannot succeed because the person indoctrinating will be making use of an ideology which by its very nature must be an abridgement of a tradition, and cannot include the 'unspecifiable art' of operating the practices of a tradition, which can only be transmitted by working within it. It is as impossible to transfer the political tradition of one country into that of another, which will have its own tradition, as it is to transfer the practices of the market place into the pursuit of pure science.

This does not give the state a completely passive role in the sphere of education as it needs to be active in maintaining the necessary educational aims. It is easy for an educational system to be turned towards a concentration on vocational and utilitarian ends rather than rather than being dedicated to a search for the truth. Material ends are more concrete than transcendental ideals but it is Polanyi's claim that it is these transcendental ideals that a free society must follow or it will destroy itself.

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Theory as the Vocation of the University: The Contemporary Significance
of Michael Polanyi.

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G.P. Grant's recent diagnosis of the functions of the university curriculum in an industrial society argues that it has become increasingly hard to define any criteria on which to base the enquiry, "Can and should an account of the characteristic intellectual activity of the university be given which is not equivalent to, or an effective legitimator of, the public valuation of technology as the highest good"? The present study points out that Polanyi's epistemological enterprise was in origin and intention addressed to just this type of problem, particularly as he perceived it to arise in relation to the war time debate over planning in science. It then suggests that the position that Polanyi developed under the circumstances of this challenge contains elements of the characteristic orientation of the classical political theorist, in so far as he was consciously facing the task of deriving an account of human existence which differed from that which he believed to predominate in society, and which implied critical opposition to it.

To examine this suggestion in detail, a comparison is made between the major features of "theoretical" vision, as explicated in the study of E. Voegelin,² and the successive levels of Polanyi's argument. Polanyi's response to the challenge of arbitrariness that it raised against the endeavour of the 'theorist' is examined by reviewing the way in which he sought to develop an epistemology independent of that of his opponents in the "planning of science" movements. Polanyi is then seen as extending the "theorist's response" by developing in and from his epistemology an independent philosophy of man. The resultant "anthropological" principles of the relation of science to basic human intentions are then examined as the fundamental basis for Polanyi's position on University-State relations in a technological society. Thus the challenge to the fact-value distinction developed in Polanyi's account of the relations between knower and known implies a challenge to the autonomy of technology and thus to the reduction of the purposes of the State or the goals of the scientific life of universities to wholly technical ends.

The study ends on a questioning note. In the perspective of the theorist, an independent conception of man is an essential element in the challenged to self-enclosed political systems, but it cannot stand alone: at the limits of "anthropology" are found further questions

of the status of man in any general account of being .Unless these are faced , the enterprise of an independent anthropology cannot escape the problems of arbitrariness. At points Polanyi seems to embark on this further exploration , but it is suggested here that his position remains incomplete to the extent this task is not pursued. Ultimately this would involve developing a metaphysics grounded in an examination of the structure of experience : and the discussion ends with some comments on what this might involve.

References

- 1 G.P. Grant , "The University Curriculum and the Technological Threat " in W.R. Niblett, (ed .) The Sciences, The Humanities and the Technological Threat University of London Press 1974.
 - 2 E. Voegelin, The New Science of Politics , University of Chicago Press 1952.
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Copies of these papers given at the Oxford conference will be available for 20p per paper. They can be obtained from the editor of Convivium.

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