

Convivium

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NEWS AND NOTES

The Future of Convivium. Since October, members of Convivium will have received a sample copy of the Science and Religion Newsletter. Their subscribers were also sent the October issue of Convivium, so that everyone concerned has now had a chance to consider the pros and cons of a merger. I have had very little feed-back, just six favourable comments and no unfavourable ones. I have also heard from two Science and Religion Forum subscribers, warmly appreciative of Convivium and looking forward to a fruitful 'marriage': The Science and Religion Forum Committee will meet during their Easter Conference in Durham and will discuss whether they want to proceed with the amalgamation. Since Convivium has no committee now, I have to be guided by such reactions as I receive. Since the majority of members have not reacted at all, I am assuming there is no strong feeling against amalgamation. I would, however, just say this. If the merger does take place, the thought of Michael Polanyi will become one amongst many areas of concern which are relevant to the relationship between science and religion. It will then be all the more up to members of Convivium to feed the Editor, (who will not be me), with information, articles and other material that will commend itself to an enlarged readership on the basis of merit and intrinsic interest. No doubt Polanyi himself would thoroughly approve of this test of survival!

Subscriptions and Membership.

If and when the time comes to join forces, it is important that Convivium's 'house' should be in order. As you will realise, I have regretfully removed the names of a number of lapsed members from the list during the last year and there are one or two more who will have to go if I don't hear from them soon. When you read this, please take it as a personal reminder that subscriptions are due in January of each year. £2 just about covers costs for members resident in the U.K. Overseas members need to pay more, especially if they prefer airmail. As a general rule, I send everything by surface mail.

In order to help you know if your subscription is paid for 1983, I am marking the names of paid-up members with an "+". (My typewriter doesn't have an asterisk!) I apologise humbly if I have made any mistakes, but human error apart, you can take it that if your name does not have a mark, you owe this year's subscription. I am making a fuss about subscriptions, not because of any financial embarrassment. We have, thanks to a few generous donors, a very healthy balance. But subscriptions are an indication of sustained interest, sometimes the only indication, and there is no point in having an unrealistic membership list. You will notice that a few names have FR against them. This stands for 'Final Reminder' to those who have not paid since 1981. If I do not hear from them, I will take it that they no longer wish to receive Convivium. We have gained one new subscriber since the last issue of Convivium, which puts our current list at fifty-four.

It has been suggested to me that we might set up a small fund to finance subscriptions of young postgraduate students to the new combined Newsletter, thus

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recruiting new blood for the whole enterprise. This suggestion can be followed up, if and when the merger takes place. Another suggestion was that we might afford a small advertisement in, say, the T.L.S. which would help circulation. This reminds me that I was delighted to be asked by two Convivium members to send them some spare copies of Convivium to pass on to friends. This is probably one of the best ways of increasing circulation.

Dr. Richard Allen. It is good to be able to offer Richard our congratulations on obtaining his doctorate at London University. The subject of his thesis is Transcendence and Immanence in the Philosophy of Michael Polanyi and Christian Theism.

The Higher Education Group. At a conference at St. Anne's College, Oxford, March 25th- 28th, three members of Convivium are amongst those giving papers. The subject of the conference is: Reductionism; The Quest for Unity of Knowledge. Arthur Peacocke is speaking on 'Reductionism as a mode of scientific thought', Robin Hodgkin is speaking on 'From playing to Exploring', and Geoffrey Price is speaking on 'The vacant throne; reductionism and a holistic view of man'.

Ivan Ellingham is a Ph.D. candidate in counselling psychology at the University of Illinois. He has been put in touch with us by Bill Coulson and would like to be put in contact with any psychologists in Britain who share his interest in applying the ideas of Polanyi in the study of psychological phenomena. If any Convivium reader could help Ivan by suggesting appropriate names and addresses, the address to send these to is: University of Illinois, Dept. of Psychology, 603 East Daniel, Champaign, Illinois 61820. The title of Ivan's thesis is: A holistic Account of Human Mental Functioning with special reference to Schizophrenia, Mysticism and Scientific Discovery, and also to Artistic Creativity, Extra-sensory Perception and Psychedelic Experience. I have been sent a three page summary of this thesis, which I will be glad to lend to anyone interested. There is only room to say here that the core of his thesis is "a schematization of Polanyi's hierarchical conceptualization of the universe, vis-a-vis both objectively conceived reality and the subjective act of knowing. Into this schematic hierarchy, and augmented by the views of Alfred North Whitehead and Ernst Cassirer, I have slotted the ideas of Suzanne Langer concerning the developmental progression of consciousness in the history of the world. By means of this schema I endeavour to make theoretical sense of various and diverse psychological phenomena, including, of course, scientific discovery, which brings me back again to Polanyi."

Dr. Aaron Milavec. As a result of reading the review of his book in the October Convivium, the Editor of Edwin Mellen Press, Prof. Herbert Richardson, has authorised me to offer readers of Convivium a special rate for purchasing the book directly from the publisher. Anyone wishing to accept this offer should send

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a cheque for £10 (17 dollars) to: The Edwin Mellen Press, P.O. Box 450, Lewiston, N.Y. 14092 U.S.A. together with name and address, and some means of identification as a bona fide Convivium reader. (I suggest sending the members' list from the back.) Dr. Milavec mentions that hardbound copies can be obtained for 42 dollars or £25. The £10 offer represents a 50% reduction. The full title of the book is: To empower as Jesus did: Acquiring Spiritual Power through Apprenticeship.

The following information has been received from Bob Brownhill, whose new book is reviewed elsewhere:

These theses are available in microfilm obtainable from University Microfilms International, 30/32, Mortimer St, London, WIN 7RA:-

David O.Jenkins Ph.D. 1982 Loyola University of Chicago,

The Ethical Dimension of Personal Knowledge.

Earl Thomas Kumfer Ph.D. 1982 Southern Illinois University at Carbondale,

Loneragan and Polanyi on Cognitive Meaning.

Jerry Howard Samet Ph.D. 1980 City University of New York,

Tacit Knowledge.

Polanyi Society Newsletter, U.S.A. Fall 1982. The following news and notes came too late to be included in the October Convivium, but I have Richard Gelwick's permission to pass them on.

Jerome R.Ravetz, Senior Lecturer at Leeds University published in 1971 Scientific Knowledge and its Social Problems, O.U.P. This book, which seems to have been missed among us, expresses a major dependence upon Polanyi for his systematic development of science as craft work (p.75). The entire book uses and depends on Polanyi's notion of tacit knowing and the ways it functions in both the individual and social activity of science. It is also a contribution to the general problem of the nature of scientific thought and its social organisation and impact that advances the evidence developed by Polanyi. Persons on the edge of the history and philosophy of science will find the references and bibliography in Ravetz's work especially helpful in seeing the growing support for an alternative philosophy of science.

Carl R.Rogers, distinguished American humanistic psychologist at the Centre for Studies of the Person, 1125 Torrey Pines Rd. La Jolla, California 92037, contributed a chapter, "Some New Challenges", to Advances in Altered States of Consciousness and Human Potentialities, Vol 1, Psychological Dimensions, N.Y. 1976. In this chapter, Rogers discusses the importance of Polanyi for developing a human science. Moreover, he does it by showing how the well known behaviourist, B.F.Skinner, contrary to his intent, actually described his own becoming a scientist as being pulled by his subjective vision into a deeper and more significant view of reality!

Richard Gelwick's book, The Way of Discovery, is being translated into Japanese

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and is scheduled for publication in 1983. There is a significant interest in Polanyi in Japan since the request to O.U.P. for publication rights was initiated by a press there. Prof. S.Nagao of Meiji University is doing the translation. R.Melvin Keiser, Prof. of Religion, Guilford College, Greensboro, N.Carolina 27410, presented in August, 1982, a major paper "Inaugurating Postcritical Philosophy: Creation and Conversion in Augustine's Confessions" at the Annual Meeting of the Society for Values in Higher Education. The paper examines why Polanyi could claim Augustine as the originator of post-critical philosophy. Much more than the usual principle of faith precedes understanding. Keiser's paper shows how the structure of tacit knowing applies to the way Augustine's autobiographical account in the Confessions relates to Augustine's cosmology. It seems that Augustine's founding of knowing upon belief explains why there is an intrinsic connection for Augustine between his conversion and his understanding of God's creation of the world. Keiser concludes his paper with suggestions on how Augustine's "post-critical" method can help us in developing language for creation in our day.

The American Polanyi Society is appealing for taperecordings of Michael Polanyi lecturing or in dialogue. If you have any, the Polanyi Society will pay for copying or will have copies made and return your tape. Please contact Richard Gelwick, General Co-ordinator and Editor of the Newsletter, Dept. of Religion and Phil. Stephens College, Columbia, MO 65215.

The American Polanyi Newsletter also contains a note on Organisational Development, which shows that they feel the need to assess their work and consider how best to continue to facilitate the growth of Polanyi's influence and to reflect it. I quote the rest of the paragraph. "Some persons are interested in a publishing programme that would gather up the published and unpublished articles into Polanyi volumes readily available. Some persons are also interested in enlarging the title of our society to "Post-Critical Studies" in order to unite the various movements sharing Polanyi's general aims. Several people have offered to host a meeting on their campus. A number of people have recognised the need to inform better the academy (American Academy of Religion) about the range of Polanyi studies, the need for graduate research directors to help their students avoid duplication of earlier work, and to facilitate a more informed growth of the implications of Polanyi's thought. Such thoughts as these all point to the need for a national consultation with each other." Gelwick ends by inviting proposals and assessments for a meeting that would help to guide things forward for at least the next five years. In the past, the Polanyi Society has been able to use the annual A.A.R. Consultations to provide an informal caucus for planning and has also been able, with permission of the A.A.R. Programme Committee, to have their own official session. In future, however, I understand that this facility will not be automatic, but will depend on relevance of topic, demand, etc.

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Zygon: Journal of Religion and Science, March 1982. Vol 17 No 1.

In November, 1980, the American Academy of Religion held a Consultation on Science and Religion in the Thought of Michael Polanyi. All of the eight papers given at this Consultation have been published in Zygon. I received a copy too late for it to be reviewed in the October Number of Convivium and intended to review it in this Number. Dru Scott discussed three of the papers given at the Consultation in the Newsletter of March, 1981 in a brief article: A Note on Three Views. Owing to lack of space in the present Issue and in view of the importance of the matters raised by these eight papers, it has been decided to include a full review of the Polanyi Issue of Zygon in the October Number of Convivium. I am hoping that Richard Allen, who recently submitted his doctoral thesis on Polanyi and Christian theism and who is now back in this country settling into a new job and a new home in Bristol, will be able to undertake this. In the meantime, copies of Zygon, Vol 17, No 1, are available, price 5 dollars by writing to: The Council on the Study of Religion, Wilfrid Laurier University, Waterloo, Ontario, Canada N2L 3G5. The contents of this special Number focus around issues in Polanyi's last book, Meaning, and include papers by Phil Mullins, Richard Gelwick, Harry Prosech, John Apczynski and William T.Scott.

A COMPARISON OF MODELS IN PHYSICS AND IN RELIGION

BY MICHAEL POLANYI

(Reproduced from the Polanyi Society Newsletter.)

(The following text is excerpted from an unpublished manuscript of Michael Polanyi dated December 7, 1939. It was found by Prof. William Scott of the University of Nevada at Reno, who is writing a biography of Polanyi.)

Physicists say that the supreme proof for the validity of natural laws is that they make the world look tidy. No single piece of evidence is ever adopted against the general idea of a natural law, it is rather assumed that if a single fact or even more than one fact do not fit in, the weakness lies in the crudity of our generalisation which is not profound enough to allow for certain apparent exceptions. It is expected that a super-pattern will be found, revealing a more essential reality, which will comprise and comprehend the old evidence and the new one alike. This feeling of the provisional nature of all our ideas is fundamental, it is the ever vigilant guide of science to new planes of synthesis, in which more and more elements of thought, believed to be essential at a lower level, are resorted by further abstraction.

Take for example the atomic model of Bohr. It contains electrons circling fixed orbits, with definite velocities. At this stage the energies of atoms seem inseparably connected with the speeds of the orbital motions. And yet in wave mechanics these same energy values reappear arising as the property of a more abstract substrate: the standing waves of Schrodinger, which reflect the interaction of nucleus and electron without any reference to an orbital motion. In the matrix mechanics of Heisenberg and Dirac even these waves have vanished; yet the same energy values can be deduced. At each of these three stages a part of the idea which appeared essential before, has been reduced to the role of mere scaffolding, it is removed and the essence retained in a purer form.

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Intimations of Fruitfulness.

Joan Crewdson included a short note in my November, 1962 edition of Convivium asking whether I would write a piece on the relevance of Polanyi's work to that of an Industrial Chaplain. My reaction when I received it was one of inner bafflement; "surely there isn't any relevance?" I thought. But of course there is.

The first inkling of any connection (other than that accessible only to my unconscious) arose when I asked the inverse question; why did I, sometime mathematician, theologian, philosopher, disciple of Polanyi, and anglican minister, decide to move into the uncharted wilderness of industrial mission? The answer to this, crudely articulated, is that it seemed like a good idea at the time. In Polanyi's words, it was because of an intuitive perception of its potential importance based upon intimations of fruitfulness (Personal Knowledge, p148). This "yes" to industrial chaplaincy followed three successive "no"s: "no" to insurance work as a mathematician; "no" to research immediately after graduating in theology; "no" to parish work after serving a curacy. The validity or wisdom of each "no" could not be justified by clear evidence; in none of the cases did someone else bar the door. But in each case another intuition indicated a distinct lack of fruitfulness, the complementary negative which must also guide the scientist in his search for hypotheses to pursue.

These experiences are unavoidably personal; they do not indicate, and should not be taken as indicating, that to work in insurance, theological research or parishes is unfruitful per se. What is more, the intuitive "no" is not (and perhaps cannot be) based upon any clear, fixed and articulated understanding of who I am or what my particular vocation must be. Yet paradoxically, the "yes" comes over with extreme power; if you are to do anything at all, you are to do this. Such justification as was possible in advance amounted to no more than a feeling that my mixture of disciplines and experiences was not sufficiently rich for me to stop and sum up and then move on again.

The Industrial Chaplain's task is not easy; he can easily suffer from an identity crisis when he finds himself like a stranded whale between the incomprehension of industry and the incomprehension of the church. "But what, exactly, does an industrial chaplain do?" he is perpetually asked. And the honest answer is that I do not, exactly, know. But I remain convinced that it is worth doing, even if I have felt near the threshold of pain the truth of Polanyi's words:

In order to be satisfied, our intellectual passions must find response. This universal intent creates a tension; we suffer when a vision of reality to which we have committed ourselves is contemptuously ignored by others. For a general unbelief imperils our own convictions by evoking an echo in us. Our vision must conquer or die.

Personal Knowledge, p150.

How can I explain to a managing director or a shop steward, each of whom operates within a framework largely dictated by "the bottom line" of balance sheet or pay-slip, that their measure of worthwhileness or value is neither the only possible one, nor my own?

How can I explain to a congregation, a bishop or a monk, each of whom operate within a framework largely dictated by "the top line" of spiritual values and ideals, that their exhortations seem wildly unrealistic when measured by the very real constraints of industry and competition?

Here Polanyi's notion of dual control is valuable. Without proper values, goals, and meanings the structures dictated by the boundary conditions imposed by the bottom line of economic viability become dissipative and destructive of human life; without the limitations imposed by the realities of production and competition the ideals and goals dreamed up by visionaries in the churches (or philosophers in the universities) become detached from reality and lose all credibility. In Christian terms a good news which is visionary, worthwhile, realistic and accessible can only arise when the ideas and visionary principles are grounded in and bounded by the constraints of the material world, in other words, when the Word becomes enfleshed. Such an incarnational model for ministry, of the logos dwelling in the saxx of the world, is a central rationale behind industrial mission, which seeks to avoid leaving the church in its heaven and industry in its earth, not simply by trying to build a bridge between the two, but by fleshing out the gospel in an environment of industry and commerce.

Polanyi's thought provides a framework within which this combination of theory and practice makes sense. He sees with such great clarity that intellectual passions are not based initially upon empirical evidence, or considerations of whether what is envisaged is even conceived to be possible at all, that we can see through the doubts about industrial chaplaincy and the misunderstandings, even contempt of churchmen and industrialists alike for what many regard as a fruitless exercise (a luxury the church cannot afford), to a vision of what theology insists must be possible if its claims are true.

Christian mystics and theologians down the centuries have spoken of a feeling of being grasped by God (rather than of reaching out for him). What I have spoken of as a conviction that if I am to do anything, I am to do this, seems to me to amount to the same thing, and closely to parallel the notion we find again and again in Polanyi concerning the intellectual passions which virtually demand of us that we pursue them to their goal. Just as certain observed perturbations of planetary orbits demanded that Neptune exist and be in a certain place at a certain time, so observations of perturbations in our social and industrial fabric demand that we look for a new integrative factor arising initially out of theoretical considerations about the nature and destiny of man. The Christian vision (and it is above all in this sense that Polanyi's indebtedness to Christianity is apparent), is that mankind can achieve fruition and fulfilment if and only if individual men and women become fully personal (in all the senses implied by that word). Therefore, as I shall try to articulate in a preliminary fashion in what follows, the place that we should look for our "Neptune", our hitherto unrecognized explanatory agent for social and industrial perturbations, is in our failure fully to develop structures in which all men and women at all levels of work and play are enabled to become fully human, fully persons, fully personal.

The churches and their theologians have too easily resolved the tension of their universal intent by failing to remain true to the consequences of their presuppositions. When our world-view is based upon a vision of God and man which demands universal love, we should not be surprised (but have been) when a system which ignores the need for that love founders. Karl Marx did not invent the idea of a system carrying within it the seeds of its own destruction; the old testament prophets knew that. They saw, as the churches too often have failed to see, that morality cannot be superimposed on society, almost as a luxury; morality must be intrinsic to a society, for a real God who gives real guidance and who loves his children does not give orders which can be ignored with impunity. As some of the psalms proclaim, it is not so much that God punishes those who disobey him, but that disobedience creates a world in which we punish ourselves. Therefore, the consequences of universal intent include prophetic utterances; if you ignore human needs, and fail to create social structures conducive to personalising their members, then your efforts will fail, and your kingdom will fall. Love is not a luxury; it is a necessity.

Polanyi criticises the Laplacean system for being motivated by a misguided intellectual passion, "a passion for achieving absolutely impersonal knowledge which, being unable to recognise any persons, presents us with a picture of the universe in which we ourselves are absent" (P.K. p142). A form of misguided perfectionism leads to its own inversion. The servant of science, mathematical logic, was allowed to usurp the place of the goal of science. Instead of using mechanics to understand the workings of the universe, science devoted itself to showing that the workings of the universe were mechanical.

The same inversion is now occurring in economics. The measure of success and relative success, "the bottom line", has usurped the place of the goal of the industrial enterprise. Economics has removed from the picture the people for whom and around whom the industrial enterprises existed by substituting a monochrome value-system, profitability, for a plethora of less well articulated values necessary for the well-being of mankind. As with Laplacean mechanics, we have reduced the world to a measure which eliminates the people it was designed to serve. This has become so much the case that when we seek to protest at wasted resources, the defoliation of the world, the exploitation of the seas, and the need to nurture and preserve the environment, we find that we lack a vocabulary sufficient to articulate our opposition to the stock reply, "that would cost too much". Yet, as if to prove the point, this philosophy of endless depletion of resources has even been applied to profitability itself, with disastrous consequences; we have taken out of industry so much profit, and reinvested so little, that industry is dying. Not only does the Christian view of man demand that we change our industrial practices; the Christian view of creation as a gift over which we have stewardship demands that we replace the shoddy, the short-term, the wasteful and the inefficient with quality. The Japanese already know that quality makes good business sense; but they also regard it as a moral requirement. We need to learn that production of goods of quality and provision of services of quality by people of skill and commitment in a personalising world, is not only good for business, but good for mankind.

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Many cynics, and many others who should know better, blame the demise of British industry on wage settlements that are too high relative to productivity, and on the disincentives strikes provide to investors. But that is simply to blame the symptoms for the disease. Certainly wages have been high relative to productivity, and certainly there have been strikes which have put off investors. The question is: why? The cynic then says that working men are greedy (want more money for less work) and lazy (go on strike at every opportunity). I see no evidence for this that can be called primary. Economists may only have one measure of value, but most workmen have others, and they include quality, satisfaction with a job well done, self-esteem, comradeship and craftsmanship. Concern with wage settlements, and shop-floor militancy ~~are~~ the results of the experience of loss of meaning, not its cause. Men and women who no longer find their work satisfying, who see standards eroded and morale drop, become concerned with the only measure of value that the social system recognises (which is of course the same one as the economist can measure). Evidence in support of this comes from the fact that more strikes in Britain occur as a consequence of disputes over unfair dismissals than over wage claims.

A particularly important example of the consequences of economic inversion is the lack of a value system which can measure the experience of a lifetime in a trade. When a man of forty-five loses his job having spent thirty years as a centre-lathe turner, miller or technician he is reaping the harvest of an accountant's arithmetic, which says that he costs £6000 per year multiplied by a factor to cover overheads. No attempt is made to value his experience, and there seems to be no recognition that his experience is irreplaceable, that neither £6000 nor £60,000 could equip a neophyte with his skill.

Even more short-sighted is the blindness of monetary measures to the multiplicity of skills which never become redundant. Certainly numerically controlled machines may replace centre-lathes so that the ostensive skills of a man may no longer be required. But skill is a deeper and more complex thing than mere manipulative ability would indicate. The implicit skill is relocatable; the specificity and rigidity of the ostensive skill contrasts with the generality and plasticity of the implicit skill. Reading drawings, obeying instructions, understanding work relationships, keeping time, adjusting machinery, ensuring accuracy and quality control are all skills, but none of them is ever redundant. Unfortunately, like Laplace or the type he represents, we like precise measurements which are easy to describe. We value balance sheets, production figures, examination successes, and we persuade ourselves that in the end they are what matter and all that matters. So we confuse, tragically, the redundancy of the ostensive skill with the uselessness of the man who wields it. Moreover, we are deliberately replacing the old four-year apprenticeship system (based upon a broad variety of skills) with a much narrower (modular) training system, failing completely to learn or see that early specialisation involves built-in obsolescence together with a narrowness of vision which will ensure that for any problem we will only ever have sufficient imagination to consider a narrow field of solutions. And all this is taking place in an age where change is accelerating and the need for plasticity of skill and innovativeness of approach is more important than ever before.

I would like to conclude this rather garbled jog through our economic malaise with some incomplete thoughts about the idea of the paradox of self-set standards. During one factory visit I asked a man what he was making on his machine, and he showed me an intricate piece of turned metal. Asked how long it took him to make each one he replied, "well the man from production engineering tells me I can only make fifteen an hour, and he's paid twice as much as I am so he must be right; but if he just left me to it I know I could make twenty-five". This little parable must be repeated thousands or millions of times throughout the world. It represents one consequence of undervaluing and underusing human resources by taking decision-making away from those in the front line. We have not begun to realise that there is room between inflexible chains of command (on the military model) in which few make decisions and all others obey them without argument, and complete anarchy in which everybody does as he likes. Men and women in every factory and office in the country know more about the job they are doing than anyone else. But we seem terrified to allow them to set their own pace, organise their own work, or set their own standards. In other words, we seem terrified of allowing them to be persons; we treat them like inefficient machines. And of course, when you treat a person like a machine he is inefficient, because he isn't a machine. He has a need for self-respect, fellowship, job satisfaction, motivation, participation, involvement.

Why do we do it? Not, as a cynic would say, because we are all basically neurotic, selfish, power-hungry, distrustful, but because we suppress imagination, vision and personal values by pressing people into pre-set moulds they do not fit. People who do not fit feel uncomfortable and insecure, and someone who is insecure will fight to prevent change which promises greater insecurity. When we encourage people to be themselves, to live by the paradox of self-set standards within a framework of conviviality in which we each serve common goals in our uniquely personal way, then they will feel secure in a well-fitting world. When they feel secure they will grow in confidence. And when they grow confident they will cease to be afraid of change. The most worthwhile changes are made intuitively, by dwelling in the present and being guided by intimations of fruitfulness in the future.

John C. Puddefoot,
28 January, 1983

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The idea of tolerance partakes of similar experience. It recognises that our imperfect expressions of truth cannot formulate any parts of it without distorting some other parts; that, therefore, all honest expression of conviction is to be considered as an ore from which closer analysis is likely to be able to extract some truth which perhaps is not recognised anywhere else. In fact it seems likely that the most valuable source of inspiration for religious truth still remains the tradition of the Churches in spite of all the dross of ritual superstition and the glaring contradictions to common knowledge with which and through which devotion is expressed. Teachers of the Church may often feel that they would prefer to dispense the wisdom of the higher levels, as it were the Heisenberg-Dirac matrix mechanics of religion in which the claptrap of Heaven and Hell (which correspond to the picture book level of atomic orbits according to Bohr) as well as the substance of God (which resembles the essentially unobservable waves of Schrodinger) would be resorted to (sic) in favour of a purer doctrine of higher abstraction. But they may prefer to teach, as I do myself, in the case of atomic theory, in terms that can be understood, even though these are crude and less true.

The Education of Tacit Consciousness¹

For many centuries the knowledge and skills of painters and sculptors were transmitted through a system of youth apprenticeship. Though their products were highly prized, these artisans were understood to work with their hands rather than with their minds, and their status was correspondingly low. With the renaissance came a dramatic revision as men of letters began to acknowledge and even to practice in these fields, a change which culminated in the acceptance of painters and sculptors in the company of princes and, in the case of Titian, ennoblement. Attention was now given to the elements of practice as bodies of knowledge, and to the institutionalization of that knowledge--notably by the establishment of the French Royal Academy of Painting and Sculpture in the seventeenth century. One consequence was that painting, sculpture and drawing were collectively identified as the "fine arts." Later, in Germany, the special property shared in common by these "arts" was to become the subject of a new branch of philosophical investigation under the title of "aesthetics." During the 19th century the study of the fine (and applied) arts entered the college curriculum.

However, from the time of the earliest academies it has proved difficult to separate or to reconcile knowledge and practice: perceptions and skills tended to remain ineffable, whilst the successful formalization of, for example, the rules of perspective, anatomy and sciagraphy led to results which were stilted and mechanical. It comes as no surprise therefore to find that the recent Le-verhulme Seminar on The Arts in Higher Education points to an ". . . uneasy balance between theoretical and practical work. . ." and acknowledges frankly that: "There

is a widespread suspicion, especially in the universities, that practical work is not of the essence of degree work." Discussion of art education is clouded by doubts about its knowledge base.

There is another source of difficulty. Recent studies indicate that in certain circumstances the inhibition of articulate thought and expression can open the way to accelerated artistic development.² More commonly, we observe that, between those aspects of art studies which demand to be handled in purely visual or "aesthetic" terms, and those which require verbal analysis, there can be a disruptive interaction.³ People engaged in the processes of art education therefore tend to doubt the utility of articulate thought, and some openly declare the opinion that these are subjects which cannot be taught.

The question underlying these observations centres on the nature of the knowledge which has to be acquired in the study of the fine arts: is it of a qualitatively different kind to the knowledge represented by subjects which hold their place more confidently within the university curriculum? More bluntly, is the artist's "knowing" of a more primitive kind than that of the natural scientist?

The central thrust of Polanyi's thinking suggested an answer to the inverse of this question. He insisted that practice and example form an ineluctable component of scientific study--that, if we restrict our attention to the formalized components of scientific knowledge, then we run the risk that its symbolic operations will outrun our powers of tacit integration. Thus:

. . . explicit knowledge must rely on being tacitly understood and applied. Hence all knowledge is either tacit or rooted in tacit knowledge. (4.)

For scientific study is, at the highest level, an "unspecifiable art," and not a mere accumulation of disembodied facts. The teacher of science is therefore the master of an "art" the rules of which are not all explicitly known to him. He is not merely a medium for knowledge but rather adds to his account of it a personal affirmation, and his actions provide an example of what it is to make a tacit integration. The essence of learning is here; this is the point at which a tradition is passed on: that which is explicitly known is brought together with those components of the individual's knowing which cannot be rendered wholly explicit.

So Polanyi makes it clear not only that the physicist can know more than he can tell but also that the ineffable, or tacit, component of his knowing power is of central importance. This is still an unfamiliar and rather radical proposition in our industrial culture because it remains closely wedded to reductionist thinking⁵ and where the main quest is for objective knowledge. But we now possess, in the theory of tacit knowing, a means of identifying as acts of knowing experiences which might earlier have been thought to employ that verb merely as a figure of speech: one can "know" how to ride a bicycle, a good picture, or a familiar face. More importantly, one can be sufficiently confident about the potential fruitfulness of an as yet unrealized project to embark on a vigorous pattern of preparation and research.

To answer the question directly we have to look at the processes of art education in Britain⁶: what is striking about these processes is that they are directed at eliciting a pattern of "personal development." That is, we do not seek to tell the student exactly what constitutes an excellent work of art; and, since we do not specify some narrow canon of artistic practice it follows that we do not give central importance to teaching students how

to perform. Both art critical and technical considerations are treated as subsidiary to encouraging the development of a "working process": by this is meant a continuity of concerns and organized working practices which enable the student to know, at any particular moment, what it is that he is doing, and how to go about (or how to find out how to go about) doing it.

Our answer might therefore be that the knowledge to be acquired by an undergraduate student of fine art in Britain is parallel in many ways to that which Polanyi requires of the research student. Both for art and for research students the knowledge sought is not solely or even significantly the "articulate contents" of his subject, but its "unspecifiable art." Discovery is a guiding principle here: the student is not told what is meaningful; he does not create meaning out of nowhere; what he does is to discover a working process--images, forms and articulate ideas--which together constitute what is, for him, meaningfulness, and in the appreciation of which he must engage others. Art education thus stands at the farthest pole from those areas of higher education which encourage the student merely to reproduce information⁷: as is the case with research study, the authentic features of fine art learning can be detected when the individual is groping for the solution to a problem.⁸

It has been suggested that Polanyi's concept of tacit knowing may find physical embodiment in the right cerebral functions of "lateralized" subjects.⁹ There is no space in which to discuss this aspect of brain research here, but it is important to our consideration of the question posed above to consider one of its implications. Which is that, as I have suggested elsewhere,¹⁰ we are now justified in employing a concept of "tacit consciousness." Man's existential and pre-verbal grasp of visuo-spatial reality is associated with his ability both to synthesize the

elements of the stimulus manifold into perceived "things," and to recognize such entities. These functions are further associated with the individual's sensitivity to and orienting responses within a given situation which enable him to "make sense of" that situation and which lend to his behaviour specifically human nuances. Thinking in the tacit mode is coloured with emotion and is directed towards the significance or meaningfulness of the objects of attention.

What is important about this notion of a tacit mode of consciousness is what appears to be a physiological imperative: that is, the need to maintain a continuing effort to translate the products of tacit consciousness into some logical articulate form; and, correspondingly, the formalized products of what we normally think of as "consciousness" into the tacit mode.

Experimental evidence points to a tendency on the part of engineers and scientists to become locked into the articulate mode, and for artists to resort habitually to the tacit, even in inappropriate situations. The aim of both groups is to utilize these fundamentally distinct strategies of thought to augment one another; they are the complementary and interdependent foundations of any high-level activity. Habitual resort to one or another mode is, it seems, a consequence of the selective forms of exercise found within a specialized educational environment, and may be aggravated where an individual finds himself inhibited in what is, for him, the less accustomed mode. Here we return to the central difficulty faced by students of fine art, which arises out of the need to verbalize non-verbal aspects of their studies: the difficulty of communicating tacit skills, perceptions and meanings for the purposes of the tutorial dialogue.

The danger is that the artist may become lost in thrall to his tacit consciousness to the extent that

internal critical dialogue is excluded. When artistic activity is more than a mere pastime explicit knowledge and formal reasoning do contribute to the working process. Western industrial culture identifies consciousness with verbal and analytical skills, while the artist, feeling himself to be alienated from that culture and the custodian of a different tradition, has concerned himself with vision and synthesis. Art education has thus held itself warily aloof from the mainstream of educational and intellectual activity. Not surprisingly there has been some impoverishment of debate in art educational circles. What is often assumed is that we should institutionalize the artist's presumed reliance upon subjectivism so as to shield him from what are seen as the inappropriately rational-linguistic demands of an educational system whose normal requirements are established with reference to our industrial society's compelling need for objective knowledge. But what is suggested here is that the tendency is to claim too many privileges for the art student's tacit consciousness; to demand insufficient effort on the part of those engaged in art education to describe and to interpret what is done; to give too little value to the critical analysis of results. For while it is true that the exercise of tacit consciousness will be disrupted by the intrusion of the rational-linguistic mode of thought, it is equally true that activities pursued entirely within the tacit mode will tend to wander, becoming aimless and repetitive; there is a balance to be struck between the tacit and articulate components of the student's knowing power.

What has been argued is that we should treat the visual arts as a field of advanced study demanding both modes of thought (forms of knowing) associated with learning in other fields. Fine art students do make special demands of the student and do create an unusual

balance of consciousness; but it is both dangerous and misleading to characterize the knowing involved as either peculiar or primitive. It does seem likely that differing situations will call for different learning strategies which are to some extent exclusive, and must therefore be used alternately. However, just as Polanyi's cardinal point about scientific research is that it must be rooted in a living tradition (which alone can ensure the transmission of its tacit components) so fine art education must avoid the danger that--in defending conditions in which tacit consciousness can re-establish itself at post-school level--we do not lose sight of the need to achieve a full and integrated development of the student's mental faculties.

Stroud Cornock

Notes

1. Based on: *Forms of Knowing in the Study of Fine Art*, monograph, Leicester Polytechnic, 1982a.
2. See e.g. Lorna Selfe (1977), *Nadia* (London: Academic Press); and Cornock (1982b), *Learning Strategies in the Study of Fine Art*, monograph, Leicester Polytechnic, pp. 9f.
3. Stroud Cornock (1983), *Towards a Methodology for Students of Fine Art*, Journal of Art and Design Education, 2, 1, pp. 81-99.
4. Michael Polanyi (1966), *The Logic of Tacit Inference*, Philosophy, 41, pp. 369-386.
5. The Higher Education Foundation is mounting a symposium on reductionism in science this Spring, and its newsletter contains a discussion of the case for reductionism by A.R. Peacocke.
6. Described in Cornock (1982b; 1983), op cit.
7. Relevant educational research reports have been published by Ference Marton, by Noel Entwistle, and by Diane Laurillard, among others.
8. See: John Brennan (October 1977), Polanyi's transcendence of the distinction between objectivity and subjectivity . . . , British Society for Phenomenology Journal, 8. 2. especially p. 144.
9. The suggestion was made in an article by Gill: this reference, together with a critical survey of relevant brain research is given in Cornock (1982c), *Implications of Lateralization of Brain Function for Art Education*, monograph, Leicester Polytechnic.
10. Cornock (1982c), op cit.

'PERSONAL KNOWLEDGE' AND POETIC IMAGINATION III
(The last of three articles by Frances Stevens)

In only two parts of Personal Knowledge does Polanyi write directly on mysticism. One, in which he justifies discarding the beliefs of the Azande and replacing them by naturalistic explanations, does not concern us. In the other (pp. 197-8), he confines his attention almost entirely to religion, and implies, though he does not state, that the mystical is essentially a variety of religious experience. (He writes here only of Christian worship). The arts, he then says, 'are a dwelling in and a breaking out which lie somewhere between science and worship'. He quotes with approval Bertrand Russell's 'The true spirit of delight, the exaltation, the sense of being more than Man, which is the touchstone of the highest excellence, is to be found in mathematics as surely as in poetry', though he maintains that artistic enjoyment and creation are contemplative experiences more akin than is mathematics to religious communion. Akin, but not identical. 'Art, like (my underlining) mysticism, breaks through the screen of objectivity and draws on our pre-conceptual capacities of contemplative vision'. But, he says, religious ecstasy is unique in that its end is not satisfaction or achievement: 'Christian worship sustains, as it were, an eternal, never to be consummated hunch; a heuristic vision which is accepted for the sake of its unresolvable tension'.

So far it looks as though, according to Polanyi, scientist, artist and religious worshipper are alike in 'looking at the unknown', trusting their intuitions of truth, and surrendering themselves with faith to the experience of the search; but the outcome is, for the scientist, the dwelling within a great theory; for the worshipper, the immersion in ecstatic but never-to-be-satisfied striving. For painter, poet or musician the achieving of creation is comparable to the scientist's arrival at a theory, but the excitement generated has something of the quality of religious ecstasy; particularly, we may add, since - though Polanyi nowhere explicitly says this - there is nearly always a sense of the further reality which is unexpressed and inexpressible.

How all's to one thing wrought!
The members, how they sit!
O what a tune the thought
Must be that fancied it.

In a straightforward and limited sense, then, I understand what Polanyi is saying. I am, however, left confused for several reasons. First, it seems to me that he slides off the subject of mysticism itself to concentrate on the rituals by which the worshipper seeks to achieve communion. He leaves unexplored the fact that by 'mystical experience' most people understand a direct, not consciously sought, often sudden revelation: Saul's vision on the Damascus road,

Joan's voices, John Wesley's 'heart strangely moved'. (That such experiences may be the outcome of long unconscious preparation in no way invalidates the absoluteness and incurative quality of the phenomenon). In some arguments, the omission might not be serious. But Polanyi is writing of personal knowledge, and a distinguishing mark of mystical experience is that the experiencer claims immediate knowledge, of a kind susceptible of no analysis, proof or explanation. Another factor overlooked is the precision and frequent matter-of-factness of the knowledge claimed. As Chesterton once remarked, the author of Revelation had no shadowy vision of the New Jerusalem: he knew exactly how many gates it had, how tall they were, and what they were made of.

A further slide is from a consideration of contemplative vision, in relation to religion and art, to that of negative existentialism in art. The transition is made by the following sentences:

The mechanism by which a negative theology opens access to the presence of God is applicable here to a process of artistic creation.

There is no intention to deceive or persuade - Personal Knowledge is not propaganda - but the effect is of a sleight-of-hand, making the reader feel as though he/she has followed a steady progression from the nature of religious experience to that of artistic creation. It is not: it is, rather, tangential to the main discussion. From an account of the purpose of ritual for the worshipper, Polanyi has moved to dwell on one of the most important disciplines of mysticism, the 'desiccation of the world of sense'. He has from this point followed a derivatory path to show the philosophical and artistic consequences of pursuing the *via negativa* for its own sake, not as a means to revelation. This is a theme well worth exploring; but in terms not of intrinsic value but of structural placing it is subsidiary to the main subject (a particular kind of knowledge) and its introduction here distracts the attention.

I am also confused by what seems to be an inconsistency in Polanyi's major argument. As we have seen, he dissociates scientific, and to some extent artistic, knowledge from mystical experience, finding both kinds analogous in some respects but not identical. At one point, writing of Kepler, he makes the dissociation explicit:

Therefore Kepler remains a great scientist to us, in spite of his erroneous reference to the Platonic bodies. It is only when he talks of such things as the mind residing in the sun which listens to the planets, and puts down in musical notation the several tunes of the planets, that we no longer regard him as a scientist, but as a mystic. (p.144)

Yet in other places he comes very near to ascribing a quasi-mystical certainty to the hunches of science and the creations of artists, as may be seen from the following passages:

...transcendence which renders an empirical theory irrefutable by experience is of course present in every form of idealization ... But ... the theory of crystal symmetries ... is not merely a scientific idealization but the formalization of an aesthetic ideal closely akin to that deeper and never rigidly defined sensibility by which the domains of art and art-criticism are governed. (pp. 47/8)

Gause is widely quoted as having said: 'I have had my solutions for a long time but I do not yet know how I am to arrive at them'. Though the quotation may be doubtful it remains well said. (pp. 130/1)

We should declare ... candidly that we dwell on mathematics and affirm its statements for the sake of its intellectual beauty, which betokens the reality of its conceptions and the truth of its assertions. (p. 192)

Scientific discovery ... bursts the bounds of disciplined thought in an intense if transient moment of heuristic vision. And while it is thus breaking out, the mind is for the moment directly experiencing its content rather than controlling it by the use of any pre-established modes of interpretation ... (p.196)

It would be interesting to consider whether the religion or superstition of great mathematicians and scientists - Kepler's astrology, Newton's apocalyptic speculations - should be regarded as integral to their vivid and creative perceptions or as an accidental adjunct to their theoretical discoveries, to be tolerated but not taken very seriously. Polanyi seems to incline towards the latter position, though not without a 'longing lingering look'. Bronowski (in Science and Human Values) masks his own ambiguity with a half-joke:

... astronomy (in Newton's day) also had some standing because it was used very practically to cast horoscopes. (Kepler used it for this purpose; in the Thirty Years War he cast the horoscope of Wallenstein, which wonderfully foretold his character, and he predicted a universal disaster for 1634 which proved to be the murder of Wallenstein).

But later he comes out decisively on the side of the visionary:

Kepler felt for his laws by way of metaphors, he searched mystically for likenesses with what he knew in every strange corner of nature. And when among these guesses he hit upon his laws, he did not think of their numbers as the balancing of a cosmic bank account, but as a revelation of unity in all nature. To us, the analogies by which Kepler listened for the movement of the planets in the music of the spheres are far-fetched. Yet are they more so than the wild leap by which Rutherford and Bohr in our century found a model for the atom in, of all places, the planetary system?

The personal beliefs of great scientists, though they cannot be isolated, are not quite to the present point. What is to the point is to consider whether their intellectual leap of faith is ever to be called mystical. As I have said, Polanyi does not seem to me to be entirely consistent in his terminology. It is interesting to find that Bertrand Russell, exponent of the 'impersonal cosmic outlook' of science, has less hesitation in applying the word 'mystical' to intellectual insight. In his essay Mysticism and Logic he puts a cogent and temperate view:

I ... believe that ... there is an element of wisdom to be learned from the mystical way of feeling, which does not seem to be attainable in any other manner. If this is the truth, mysticism is to be commended as an attitude towards life, not as a creed about the world.

... the opposition of instinct and reason is mainly illusory. Instinct, intuition, or insight is what first leads to the beliefs which subsequent reason confirms or confutes; but the confirmation, where it is possible, consists, in the last analysis, of agreement with other beliefs no less instinctive. (My underlining) Reason is a harmonising, controlling force rather than a creative one. Even in the most purely logical realms, it is instinct that first arrives at what is new.

It may be remembered that Kekulé said:

Let us learn to dream, then perhaps we shall find the truth ...
but let us beware of publishing our dreams before they have been
put to the proof by the waking understanding.

This has been a long preamble to the consideration of mysticism, as a form of knowledge, in respect of poetry. I have found it necessary because of the difficulty I encounter in identifying Polanyi's position. I felt that, before turning to poetry, I must understand that position as far as possible.

In my previous article I quoted the passage in which Eliot distinguishes the imagination of a scientist arriving at a discovery from that of a poet possessed of scientific knowledge who invests that knowledge with poetic emotion. I think a similar distinction can be made with reference to mystical experience. That some poets have been mystics needs no proving. (So have some carpenters, shepherds and shopkeepers). It is also true that mystical experience has been the subject of poetry. But we have to consider whether the poet's arrival at the truth of a poem - that is, its total form, not its descriptive, discursive or narrative content - is ever through an experience that may be called mystical. It will be convenient to consider examples in each category.

Many, indeed most, poets are not mystics; Chaucer is not; Pope is not; Wilfred Owen is not. Dante is evidently a mystic; Milton as evidently is not. But there have always been mystics who were poets and poets who were mystics. We may think of Blake, who could stare at a knot in a piece of wood until it terrified him, or of Vaughan who

saw Eternity the other night
Like a great Ring of pure and endless light.

Welsh congregations of an earlier generation waited for the hwyf of the preacher, in which he was moved to a poetic eloquence beyond his conscious powers. Ancient peoples have recognised the poet as one touched by a god, to be set apart as sacred (in both senses of the word) for that reason:

Weave a circle round him thrice,
And close your eyes with holy dreed,
For he on honey-dew hath fed,
And drunk the milk of Paradise.

Writing of the mystical state, Polanyi says:

... as we lose ourselves in contemplation, we take on an impersonal life in the objects of our contemplation; while these objects themselves are suffused by a visionary gleam which lends them a new vivid and yet dreamlike quality.

He echoes consciously or unconsciously the very phraseology of Wordsworth's *Immortality Ode*:

There was a time when meadow, grove and stream,
The earth, and every common sight
To me did seem
Apparell'd in celestial light,
The glory and the freshness of a dream.

—
Whither is fled the visionary gleam?
Where is it now, the glory and the dream?

Bertrand Russell writes:

All who are capable of absorption in an inward passion must have experienced at times the strange feeling of unreality in common objects, the loss of contact with daily things, in which the solidity of the outer world is lost, and the soul seems, in utter loneliness, to bring forth, out of its own depths, the mad dance of fantastic phantasms which have hitherto appeared as independently real and living ... Many men to whom this negative experience is familiar do not pass beyond it, but for the mystic it is merely the gateway to an ampler world.

In the same *Ode*, Wordsworth speaks of

those obstinate questionings
of sense and outward things,
Fallings from us, vanishings,
Strange misgivings of a Creature
Moving about in worlds not realised,
High instincts, before which our mortal Nature
Did tremble like a guilty Thing surprised ...

I have been considering the *Ode* not as poetry but as evidence (which might as authentically have been embodied in a journal) that Wordsworth, though he does not always write as a mystic, was well acquainted with mystical experience. Since, however, the *Ode* is not merely a record, but poetry embodying the experience, it can lead us to the second class of poetry to be considered.

There are poems of (the word 'about' should not be used in connexion with poetry) mystical experience. I will quote Vaughan again, from his poem

The Night:

Gods silent, searching flight;
When my Lords head is fill'd with dew, and all
His locks are wet with clear drops of night;
His still, soft call;
His knocking time; The souls dumb watch.
When Spirits their fair kinred catch.

Yeats expresses, in the following poem, an experience which, though not tied to any definable religion, must be called mystical:

My fiftieth year had come and gone,
 I sat, a solitary man,
 In a crowded London shop,
 An open book and empty cup
 On the marble table-top,
 While on the shop and street I gazed
 My body of a sudden blazed;
 And twenty minutes more or less
 It seemed, so great my happiness,
 That I was blessed and could bless.

A distinction can perhaps be made between the situation in which the mystical experience has swept, or one might say catapulted, the poet straight into poetry, and that in which he re-creates the experience of another. The second is exemplified in Crashaw's Hymn to Saint Teresa. Both can be found in Hopkins's Wreck of the Deutschland. In the first passage he speaks for himself:

The frown of his face
 Before me, the hurtle of hell
 Behind, where, where was a, where was a place?
 I whirled out wings that spell
 And fled with a fling of the heart to the heart of the Host.
 My heart, but you were dove-winged, I can tell,
 Carrier-witted, I am bold to boast,
 To flash from the flame to the flame then, tower from the grace
 to the grace.

In the second, he 'dwells within' the apotheosis of the heroic nun:

Now buzz, newborn to the world,
 Doubled-natured name,
 The heaven-flung, heart-furled, maiden-furled
 Miracle-in-Mary-of-flame,
 Mid-numbered He in three of the thunder-throne!
 Not a dooms-day dazzle in his coming nor dark as he came;
 Kind, but royally reclaiming his own;
 A released shower, let flash to the shire, not a lightning of fire
 hard-hurled.

But to show that poets can be mystics, or that poetry can arise out of mystical experiences, does not take us to the heart of the matter, which is the question whether poetic creation itself can be mystical - that is, whether the poem is ever received as revealed knowledge. We have to rely here on the testimony of poets themselves, which is fairly plentiful.

Then flew one of the seraphims unto me, having a live coal
 in his hand, which he had taken with the tongs from off the
 altar; and he said: Lo, this hath touched thy lips ... (Isaiah)

The voice said, Cry!
 And he said, What shall I cry?
 All flesh is grass ... (Isaiah)

I was in the spirit on the Lord's day; and I heard behind me
 a great voice as of a trumpet saying: I am Alpha and
 Omega, the first and the last; and, What thou seeest,
 write in a book ... (Revelation)

The first claim for a mystical origin of poetry in England was made by Bede in the eighth century, in his account of Caedmon, the illiterate herd-boy in the Abbey of Whitby who was commanded by 'a man who stood before him through his dream' to sing a song in praise of the Creator and instantly obeyed. Dreams and visions are often seen as the mystical source. We think of Kubla Khan, from which I have already quoted, and for the directness of which there is Coleridge's own testimony. Blake does not need the screen of a dream. 'I write when commanded by the spirits', he said, 'and the moment I have written, I see the words fly about the room in all directions. It is then published, and the spirits can read'. He also said of his Jerusalem that he had written this poem 'from immediate dictation, twelve or sometimes twenty or thirty lines at a time without premeditation, and even against my will'.

The existence of mystically derived knowledge cannot be proved or disproved. Nor, if such knowledge could be presumed to exist, is it possible to say conclusively that it is the same kind of knowledge in poetry and in science. We can only listen to the testimony of those who, respected for their achievements in their own fields, speak with conviction, and ourselves 'by indirections find directions out'. But a hint of the possible imaginative synthesis is found in a book from which I have already quoted, Bronowski's Science and Human Values:

[Copernicus] did not in the first place find this [his theory] by routine calculation. His first step was a leap of imagination - to ... put himself wildly, speculatively into the sun. 'The earth conceives from the sun', he wrote; and 'the sun rules the family of stars'. ... Perhaps Copernicus took the picture from the drawings of the youth with outstretched arms which the Renaissance teachers put into their books on the proportions of the body. Perhaps he had seen Leonardo's drawings ... To me, the gesture of Copernicus, the shining youth looking outward from the sun, is still vivid in a drawing which William Blake in 1780 based on all these: the drawing which is usually called Glad Day.

When Polanyi writes of man's 'firmament', I take it that he means the universe of physical events, living creatures, belief systems, traditions, societies, auditory and written creations, in which human beings exist and operate, and of which they form a part. He maintains that the search for harmony and coherence is continually being rewarded by discoveries of the mind, but that - as I recalled in my first article - the power over man's mind of the truth and greatness discerned in this firmament evaporates if the searcher dissociates himself from what he contemplates. The harmony of observed and observer must be maintained.

Perhaps it was the cultivating of detachment over many years that resulted in the condition to which Darwin, as is well known, testified in later life. Remarking that the poetry, pictures and music in which he took delight up to his thirties are now for him inaccessible and meaningless, he writes:

My mind seems to have become a kind of machine for grinding general laws out of large collections of facts ... The loss of these tastes is a loss of happiness, and may possibly be injurious to the intellect, and more probably to the moral character, by enfeebling the emotional part of our nature.

This kind of detachment can induce severe depression, as it did in John Stuart Mill. It can also, appear as a characteristic of depression, and this state of mind has been vividly expressed in poetic literature. The occasion which springs most readily to mind is Hamlet's soliloquy 'What a piece of work is a Man!' - but I turn rather to Coleridge's Dejections: an Ode - the poem which contains that most poignantly expressive line, 'I see, not feel, how beautiful they are!'

O Lady! we receive but what we give
 And in our life alone does Nature live;
 Ours is her wedding-garment, ours her shroud!
 And would we might behold, of higher worth,
 Than that inanimate cold world allowed
 To the poor loveless ever-anxious crowd,
 Ah! from the soul itself must issue forth
 A light, a glory, a fair luminous cloud
 Enveloping the Earth -

. . .

But now afflictions bow me down to earth;
 Nor care I that they rob me of my mirth;
 But oh! each visitation
 Suspends what nature gave me at my birth,
 My shaping spirit of Imagination.
 For not to think of what I needs must feel,
 But to be still and patient, all I can;
 And haply by abstruse research to steal
 From my own nature all the natural man -
 This was my sole resource, my only plan;
 Till that which suits a part infects the whole,
 And now is almost grown the habit of my soul.

Once again, however, it is not sufficient to find poetic expressions of what Polanyi has asserted. We must look for some witness that the commitment which is the opposite of detachment is necessary to the creation and enjoyment of poetry. Such witness is not hard to find. It is subtly expressed by Leavis:

{Lawrence's emotion in the poem Piano} is a kind of object for contemplation, though one that isn't 'there' except in so far as we are also inside it. (Scrutiny Vol. XIII, 1945).

Writing in Poetry Review, September 1981, Philip Hobsbaum says:

Redgrove uses his range of natural imagery as a correlative to his emotional preoccupations; that is to say, if he writes about moths, shadows or gulls, it is not as entities in themselves, however visualised they may be, but as symbols of a personal universe.

And Coleridge has, once for all, defined the commitment as

That willing suspension of disbelief for the moment, which constitutes poetic faith. (Biographia Literaria).

It is relevant to the present enquiry to subject this often-quoted statement to some analytical scrutiny. I feel that the word 'willing' carries here a verbal as well as an adjectival flavour: that is, it implies volition rather than acquiescence. 'For the moment' is no trivialising phrase: 'moment' signifies either the instant of decision when one takes the plunge (or steps through the looking-glass) or the temporal framework - for the time being - within which the reader (whose activity is the reciprocal of the poet's) submits himself/herself to a poetic experience. 'Poetic faith' is the state of trustfulness, of surrender and submission, without which objects, including poetry itself, are merely 'there', without resonance.

Detailed attention cannot be given here to several other matters, of which Polanyi treats, which seem at first sight to be even more closely allied to poetic than to scientific knowledge: indwelling and unspecifiability, incompleteness of utterance, culture and communication. It must suffice to select a few aspects only for comment or illustration.

Poets testify to the unspecifiability of their objects of perception. Eliot does so again and again, but I turn for illustration to a beautiful and little-known statement of the perpetual paradox, in Thomas Carew's elegy on the death of John Donne, whose soul

[Did] the deep knowledge of darke truths so teach,
As sense might judge, what phansie could not reach.

'Just as, owing to the ultimately tacit character of all our knowledge, we remain ever unable to say all that we know, so also, in view of the tacit character of meaning, we can never quite know what is implied in what we say'. The truth of this statement in relation to poetic composition is expressed thus by Eliot:

The Divine Comedy ... is ... a constant reminder to the poet, of the obligation to explore, to find words for the inarticulate, to capture those feelings which people can hardly even feel, because they have no words for them ...
(What Dante Means to Me)

The same kind of sense is exemplified in the endless - and inexhaustibly fruitful - debates about the meaning of Shakespeare's plays.

Polanyi emphasises the cultural and traditional context of thought.

'A society', he says, 'which wants to preserve a fund of personal knowledge must submit to tradition'. And again,

Only a small fragment of his own culture is directly visible to any of its adherents. Large parts of it are altogether buried in books, paintings, musical scores, etc., which remain mostly unread, unseen, unperformed. The messages of these records live; even in the minds best informed about them, only in their awareness of having access to them and of being able to evoke their voices and understand them, (p.375)

Closely connected with this is the 'conviviality' of scientific thinkers, and it may be noted that Jonson says, of poets and poetry, something closely comparable to what Polanyi says about the mutual validations of scientists:

To judge of poets is only the faculty of poets; and not of all poets, but the best. (Discoveries)

From the many poetic counterparts of both ideas - the consciousness of the cultural universe and the function of conviviality - I choose Keats's sonnet On First Looking into Chapman's Homer. The poet has travelled freely (he needs no passport) in the many territories of poetry. He has heard of another, further away. ('The messages ... live ... only in people's awareness of having access to them'). He hears a poet who died two hundred years earlier 'speak out loud and bold'. He enters the new country confidently but with delighted awe. He compares the experience, significantly for our present purpose, with that of

... some watcher of the skies,
When a new planet swims into his ken.

Perhaps the 'wild surmise' is even more significant. A real poet does not use words or comparisons idly. Keats, therefore, is strictly comparing the poet's achievement of insight, which simultaneously creates excitement and relieves the tension of the search, with the sudden vision ('he stared at the Pacific') which promises to confirm the intuition that guided his exploring. It is relevant here also to remember another of Polanyi's statements:

The mark of true discovery is not its fruitfulness but the intimation of its fruitfulness. (p.148)

Polanyi emphasises the metaphorical nature of language, and shows how the striving to be articulate leads to verbal innovation, which in turn is generative of fresh thought:

We grope for words to tell what we know and our words hang together by these roots. 'The true artists of speech', writes Vossler, 'remain always conscious of the metaphorical character of language. They go on correcting and supplementing one metaphor by another, allowing their words to contradict each other and attending only to the unity and certainty of their thought'. (p. 102)

This, naturally, is true above all of poetry, as can be seen in the Hopkins passages I quoted. These may be also taken as a special case of another assertion:

The mind which entrusts itself to the operation of symbols acquires an intellectual tool of boundless power; but its use makes the mind liable to perils the range of which seems also unlimited. (p. 95)

Originality, says Polanyi (p. 143), must be passionate. He also shows that the passion with which a new theory or a new form of art is upheld is matched by the passion with which it is opposed (as in the angry demonstrations which attended the first performance of Stravinsky's Rite of Spring). There is good reason for this, because 'In such conflicts the two sides are actually fighting for their lives, or at least part of their lives'. (p. 200)

All kinds of artists, and poets in particular, have identified to this sustaining position. As part of the strenuous course of study which Milton proposes in his tractate of Education, he includes 'logic ... with all her well-couched heads and topics, until it be time to open her contracted palm into a graceful and ornate rhetoric ...' - and continues:

To which poetry would be made subsequent, or, indeed, rather precedent, as being less subtle and fine, but more simple, sensuous, and passionate ...

We must make a similar differentiation to that made earlier, and distinguish between the inherently passionate character of poetry, which Milton has here identified, and the fact that passion is often the subject of poetry, and the greatest poetry. A fine illustration of the latter is found in Lamb's writing on King Lear:

The greatness of Lear is not in corporal dimension, but in intellectual: the explosions of his passion are as terrible as a volcano; they are storms turning up and disclosing to the bottom that sea, his mind, with all its vast riches. It is his mind which is laid bare. This case of flesh and blood seems too insignificant to be thought on; even as he himself neglects it. (On the Tragedies of Shakespeare).

It will be noticed that I have drawn hardly at all on the poetry of the last twenty-five years, either as witness or exemplar. This has not been for want of trying; but neither should it be taken as an adverse judgement on contemporary or near-contemporary poetry. To explore the reasons would take an article in itself, and lead us far from Polanyi. Part of the failure to make the relation undoubtedly lies in my own slowness to perceive. Part lies in the extreme subjectivity and the isolated particularity of many modern poems, fine though they often are. (I think of poems like Larkin's 'Home is so sad' or Thom Gunn's The feel of Hard). And there, inconclusively, I am afraid the matter must rest. (It may or may not be helpful to recall that Personal Knowledge was published in the fifties, when 'surrealism' and obscurity could still seem modern to Polanyi).

In conclusion, I must address myself to the question I asked in the second article: Are the paths of poet and scientist parallel or convergent? I consider the best guides to be Coleridge and Wordsworth, those careful analysts both of the character of poetry and of the workings of the mind. First, from Coleridge's lecture on poetic genius, I take his differentiation of the creative power and intellectual energy, and his assertion that in the greatest art they are held together in tension:

No man was ever yet a great poet, without being at the same time a profound philosopher. For poetry is the blossom and the fragrant of all human knowledge, human thoughts, human passions, emotions, language. In Shakespeare's poems the creative power and the intellectual energy wrestle as in a war embrace. Each

in its excess of strength seems to threaten the extinction of the other. At length in the drama they were reconciled, and fought each with its shield before the breast of the other ...

Wordsworth continually declares his belief that science (which, by implication, is a mental activity differing in kind from poetry) is a proper subject for poetry. In his essay supplementary to the 1817 Preface to the Lyrical Ballads, he makes the distinction:

The appropriate business of poetry (which, nevertheless, if genuine, is as permanent as pure science) ... is to treat of things not as they are, but as they appear; not as they exist in themselves, but as they seem to exist to the senses, and to the passions.

In the first Preface he writes:

Poetry is the image of man and nature. The poet writes under ... the necessity of giving immediate pleasure to a human being possessed of that information which may be expected from him, not as a lawyer, a mariner, an astronomer, or a natural philosopher, but as a Man.

And later:

The remotest of discoveries of the Chemist, the Botanist, or Mineralogist, will be as proper objects of the Poet's art as any upon which it can be employed, if the time should ever come when these things shall be familiar to us, and the relations under which they are contemplated by the followers of these respective sciences shall be manifestly and palpably material to us as enjoying and suffering beings.

If we follow Wordsworth - as I do - we must conclude that the paths, though they are close enough to catch resonances from each other, are parallel rather than convergent. But then, we no longer inhabit a Euclidean universe.

Information about new Contributors.

John Puddefoot is an Industrial Chaplain at Crawley. Readers will be glad that he has at last been prevailed on to explore the relevance of Polanyi's thought for his work. I apologise for not retyping the manuscript double spacing, but hope that the sheer interest of his Intimations of Fruitfulness will compensate for any difficulty in reading it. I also hope that this perceptive and thought-provoking article will encourage other members of Convivium to try and articulate the relevance of Polanyi for their own professions and spheres of experience.

Stroud Cornock is an artist, author and lecturer at Leicester Polytechnic. He did a research degree in Systems at Lancaster University and is now concerned with educational research into Fine Art. He has found Polanyi extremely useful in enabling him to approach problems of art education in a constructive way. He would be glad to have comments on his article from Convivium readers.

Dr. Frances Stevens is not a new contributor, but for the benefit of those who did not see Convivium Newsletter No 14, she was a Senior Lecturer at Leeds University Institute of Education and has lectured at various American Universities. Back numbers of Convivium are available, if anyone has missed the first two parts of her interesting trilogy on Personal Knowledge and Poetic Imagination.

Book Reviews

Education and the Nature of Knowledge by Robert Brownhill. Croom Helm Ltd. 1983, 144 pp. £13.95. A Volume in the New Patterns of Learning Series, Ed. P.J.Hill.

In the first chapter Dr. Brownhill poses a major question for the educator, 'Is it possible, while accepting the general approach of the Wittgenstein/Kuhn argument, to establish the objectivity of the knowledge gained, and the non-arbitrariness of the process of education?' The question is repeated in the final chapter, 'Must we consider all our knowledge subjective or perhaps intersubjective: the arbitrary beliefs of our own profession or discipline?' His answer is that our knowledge need not be subjective and our beliefs arbitrary but they can be objective, although not in the traditional sense. Much of the book is concerned with establishing this new sense of objectivity relying a great deal on Polanyi's concept of personal knowledge.

In developing this theme the process of education is examined from an epistemological point of view: how do we acquire knowledge and then pass it on to pupils? - a Polyanian perspective. And from a teaching and learning perspective: in what way do we impart the skills and techniques necessary for the proper understanding and use of knowledge to pupils? - an Oakeshottian perspective. In fact the book makes considerable use of the complementary ideas of Michael Polanyi and Michael Oakeshott related to education. It is much concerned with the inculcation of skills and expertise or, as Oakeshott would say, the development of style.

However, knowledge is not a personal thing but exists in the public world of science, history, the law, etc. Brownhill in developing this argument goes on to examine the development of knowledge and the process of education in the intellectual disciplines. He concludes that education has to be authoritative in order that a pupil may develop the expertise to operate in the communities controlling the disciplines - what Oakeshott and Polanyi call the master/apprenticeship relationship - but must lead an apprentice 'to a degree of independence and freedom'. This social context of knowledge is examined with reference to three intellectual communities - the scientific, the judicial and historical - and a non-intellectual community: the moral community. The linking of epistemology to practical aspects of a community's make up is well brought out in the short analysis of the moral community:

' A moral person should not be annoyed and harsh in his judgment of others for he will know that a moral activity is an arduous activity based on deliberation and skilful judgment but also tinged with doubt. He will therefore be compassionate, loving and sympathetic - a case of epistemology blunting the edge of moral passion.'

Brownhill devotes a chapter entitled Argument and Persuasion (ch.9) to the further consequences of the adoption of a Polanyian epistemological position. If there can be no conclusive tests and we have to rely on our own commitments and judgments then our obligation to the truth leads us to develop the persuasive arts in order to uphold our beliefs in public debate. This point is related to another major theme in the book, and this is an analysis of the main features a professional community must have if it is to achieve the status of a profession and maintain it. The major feature Brownhill perceives is that of professional integrity for without professional integrity there can be no community and no profession. The necessity for this integrity arises out of the arguments indicating the uncertainty of knowledge. Communities are bound together not because they are vehicles of revealed truth but because of their mutual obligations to the truth and to each other. This point is brought out very early on in an interesting comment on Popper and Polanyi, 'Whereas Karl Popper looks at the scientific community from the point of view of the logic of scientific discovery Polanyi mainly looks at it from its moral aspect.'

The book is clearly of interest to the educationalist in general with its emphasis on the imparting of skills and judgment but also to the specialist who is particularly interested in professional education. It should also interest philosophers and sociologists of science, history, etc. as a number of Polanyian insights are further developed.

Mark Newman
Fernihurst

Review

"American Specialists: Cartesian Experts or Polanyian Guides?" by Shirley Thomas

Shirley Thomas, a Polanyi enthusiast from Oregon, flew to England last summer bringing her bicycle with her, and cycled about seeing places and meeting people. Harry Prosch had given her names of some fellow enthusiasts in this country. When she came to Aldeburgh, she and I found ourselves in so much agreement that we could have talked Polanyi all night.

Here are a few notes about her Ph D Dissertation, titled as above, which she left with me.

I found it illuminating, as it places Polanyi ideas about knowledge in an unfamiliar context and shows how they cast new light there. Her concern is the dominance of the expert, particularly in American Society, and the problem that this dominance poses for a democratic community of any kind. In the modern world, specialists and experts are increasingly necessary, yet too often they arrogate to themselves a position of power, claiming a control of the area of their expertise which leaves the layman, the non-expert, helpless and inarticulate. We see this happening in many areas in this country too; for instance, in the area of child care we see parents discouraged, with their confidence and responsibility undermined by the expert on child psychology. In the area of health too, the expert often takes over and dispenses cures or forms of treatment with a mysterious authority, to an increasingly passive and bemused public.

Shirley Thomas argues that this dominance is made possible by a wrong understanding of what knowledge is. Consciously or unconsciously held, a Cartesian view of knowledge bolsters the arrogance of the specialist, and it is assumed that there are only the two alternatives - either this expert knowledge which is explicit, clear and value free, acquired by certain approved methods, or a purely individual solipsist 'knowledge' unprovable and unreliable - the 'knowledge' of the layman which is not really knowledge at all.

If this were so, democracy would have no justification, for who would think that wayward private beliefs have any real contribution to make to the government of society?

The field which Shirley Thomas explores, in her inquiry into

such assumptions about knowledge, is the Lutheran community in America and in particular the contents of the American Lutheran magazine 'Dialog'. This is a limited field, and one unfamiliar to me at any rate. I think this has advantages, although to the reader to whom it is so unfamiliar it may seem that too long is spent arguing on some relatively minor points. What makes the area so apt for this investigation, however, is that not only is the Lutheran community a democratic one in the sense in which any voluntary society may be democratic, but the Lutheran belief in the doctrine of "the priesthood of all believers" is an explicit and fundamental assertion of the reality of democracy, in knowing as well as in action. If Lutherans hold a Cartesian view of knowledge they cannot believe in "the priesthood of all believers".

Shirley Thomas shows that although the various editors of 'Dialog' have not explicitly held Cartesian views, they often have unconsciously written from Cartesian assumptions, and this has vitiated their teaching at some points. She briefly explains how Polanyi's ideas of indwelling as a form of knowledge, his insistence that all learning, even in Science, begins in trust, and his finding of authority in the person of the scientist, in the setting of the scientific community, provide an epistemology that finds a way between these two extreme views. Thus a place is found for the layman's common sense, practical or intuitive wisdom, without which democracy and the priesthood of all believers make no sense. She claims, I think justly, that other studies of the relationship of the expert to the layman - for instance, the writings of Illich and R D Laing - do not examine the epistemological basis which makes the relationship what it is. "Clearing up such blurred epistemology can open the door to a mutually rewarding relationship between the specialist as guide and the layman as participant."

She gives a brief but wise explanation of Polanyi's ideas of "indwelling" as a way of knowing, and his demonstration of the impossibility of value-free impersonal certainty. Later chapters explore the background of the Lutheran writers and editors she is examining - Lutheran background, general educational background and language environment, all of which carry Cartesian assumptions about the way we know, which prevent these writers being always true to their best insights. We all unconsciously inherit various epistemological assumptions which can distort our thinking. About these writers she says:

"The paradox is that they assume a Cartesian certitude for their scholarly conclusions, though the gist of their scholarly statements about everything except their scholarly method is very often that there is no such certitude."

They need, she says, to face the question of the validity of the layman's knowledge, but in a variety of ways they imply, without actually stating, that there is no such validity. They want to "initiate dialogue" with layman, but are hampered by not recognising the dialogical nature of all learning. Yet, she says, there are writings in the magazine from which they could learn - writings for instance about the treatment of story and myth, showing how analysis of the content has come to seem more important, more real, than "indwelling" understanding of the story in its own right. We all know how easily schools come to put more emphasis on academic study of the footnotes to a Shakespeare play, than an active dramatic enjoyment of the play itself. This is partly because you can measure the footnote knowledge, you can set examinations about it. It is the same reason that makes the missionary journeys of St Paul so favourite a subject for school scripture lessons. Either the pupil knows where St Paul went next or he doesn't. It is definite, yes or no, and the answer can be marked - whereas to know whether he has any understanding of what St Paul was talking about is far harder.

I hope this dissertation will be published in some form; it is valuable and well written and the author avoids the authoritarian trap that she condemns; she writes without jargon and with the true understanding of Polanyi that comes from indwelling his work. I suppose it might need a slightly more general orientation in order to be published, but it is a fine piece of work, and I have felt it a privilege to read it.

Dru Scott

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