CONVIVIUM

A six-monthly review of post-critical thought

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Information about Contributors

Rev. Dr. Kenneth Wilson - Principal of Westminster College of Higher Education, Oxford.

Phil Mullins, Ph. D. - Assistant Professor of Humanities, Missouri Western State College.

Douglas Adams, Th. D. - Associate Professor of Pacific School of Religion and Graduate Theological Union, Berkeley.

Robin Hodgkin - Retired Lecturer in Education.

Rev. Dr. John Puddefoot - Ex-Industrial Chaplain. Now teaching at Eton College.

Dru Scott - Author and housewife.

Dr. David Holt - Psychiatrist.

Joan Crewdson - Retired Lecturer in Theology.

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Sent out by Joan Crewdson, 12, Cunliffe Close, Oxford, OX2 7BL (0865 53661)
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NEWS AND NOTES

Convivium and its Future During the last twelve months, we have acquired twenty new members, including two University libraries and a few who have rejoined after letting their subscriptions lapse. We usually continue to send Convivium for two years before removing names from the list. Please look carefully at the current up-to-date list to see if your name has an asterisk, which would mean that you have not yet paid for 1984. Many of you are very generous in sending more than the basic subscription of £3, which now barely covers costs. You will see that the current membership stands at 76. No-one has come forward offering to act as 'promotions officer' yet, but I live in hope.

Peter Forster has written giving his ideas about the future. He writes,

> My own view is that the way forward is probably for a merger with the United States Polanyi Society/Newsletter and that if there is a place and a sufficient demand for a Journal of Post-critical Thought, then it would probably be essential that it was a joint American/European project.

The American Polanyi Society is engaged in similar heart-searchings. We ought to feel gratified that they have begun to issue their 'periodical' in a new form, inspired by the appearance of Convivium. They are also discussing what to call it. In many ways they are more ambitious than we are and have, of course, many more members. They have an impressive list of 'Disciplinary Coordinators' under the 'General Coordinator', Prof. Richard Gelwick, which covers the following studies - Art, Communication and Rhetorical, Education, Medical and Psychiatric, Philosophy, Religion. I wish we could get folk to coordinate material on a similar scale!

I will be interested to get reactions to Peter Forster's suggestion. I am not sure myself whether we want to amalgamate with the Polanyi Society, partly because we already have a mutual arrangement for using each other's contributions. Most of what comes out of Convivium appears in the American publication, and they always give us some free publicity. We also make good use of their material, depending on space. However, it may be unrealistic to imagine we could create sufficient demand for a U.K. Journal of post-critical thought, so a joint American/European Journal may be the only live option.

I am letting it be known that I would be grateful to have a year 'off' from preparing Convivium for 'press', so we need a 'guest editor' for the next two numbers. Any offers? I will get things typed and sent out as usual.

One bit of encouraging news is that Prof. Torrance wrote recently that Personal Knowledge is being translated into Chinese, and he hopes that it

will have a great impact on the Chinese programme for modernization and in their struggle for an open and free society.

Social Accountability and Selfhood. John Shotter. Blackwell: Oxford. 1984. Robin Hodgkin draws attention to the above book with a comment.

This is a book which is likely to be of great interest to anyone concerned with post-critical, non-reductionist trends in psychology and sociology. Among other good things in it is a clear presentation of Vico's two kinds of 'truth' - verum and certum.

This is not a review but here is a paragraph where the author explains what he is trying to do.

> We have concentrated far too much attention upon the isolated individual. As a result, we have failed to study the sense-making procedures made available to us by the social order (or orders) into which we have been socialised; procedures which have their provenance in the history of our culture. Such procedures are ... constitutive of people's social being in a very deep way. For among other things, they enable the members of a social order, not only to account for themselves to themselves and to one another, when required to do so, but also very generally, to act routinely in an accountable manner. (p. 173)

What Shotter does is to explore the social-psychological origins of much of tacit knowledge; though he only occasionally uses Polanyian language. He also plunges boldly, and occasionally incoherently, into a hermeneutic (non-reductive) sociology which takes account of the more diffuse process models of how living and non-living systems work. He draws on General Systems Theory, Paul Weiss's last book, Prigogine and David Bohm. An impressive, pioneering book.

Tacit Knowledge and the Implicate Order. A cutting was recently sent to me by a subscriber from a paper, (unfortunately no details given) by David Bohm, because of the use he makes of Polanyi's theory of tacit knowledge in illustrating his theory of implicate order. In view of Prof. Morris Berman's critique of holistic thinkers, which includes David Bohm, in this number of Convivium, I thought readers would find the following extract of interest:

> I would like to consider all this from a kind of implicate order. To do this, I first recall Polanyi's notion of tacit knowledge. He illustrates this with the example of riding a bicycle. In order to remain stable and upright, it is necessary for the rider to turn into the direction in which he is following. The rider actually accomplishes this by an indescribably complex set of movements of the details of which he is largely unaware. When he learns to do this, he has what Polanyi describes as tacit knowledge.

Now, from Newton's laws of motion, it can be shown that when the bicycle is being properly ridden, the angle at which the wheel is turned and its angle of tilt are related by a certain simple formula. But of course, it would be of no use for the rider to try purposefully to follow this formula. Rather, an overall movement that is described (to a high degree of approximation) by the formula is the net outcome of an entirely different level of movement (involving muscles, nerves, and brain). I would like to propose that this latter may be regarded as an implicate order, which unfolds into an explicate order of movement of the bicycle that is described in part by the formula. The law of the explicate order is thus seen to furnish an abstraction of what is actually a single feature of a much larger implicate order.

It is evident that all knowledge of the explicate order must be related concretely to reality as a whole through tacit knowledge of this sort (e.g. when it is applied in practice). But ultimately, this tacit knowledge arises in an activity of learning, which is simultaneously perception (as a non-conceptual attention to the complex movements involved) and action (that is ordered by such attention). Indeed, as indicated by the Latin root of the word "perceive," which is "percipere," meaning "to grasp thoroughly," there is at bottom no separation between the act of attention and the physical action of "grasping" which flows out of it (and back into it). The ultimate origin of such knowledge is then in this kind of perception, and only later is this knowledge gradually accumulated as skill and memory.

Thus far, I have been discussing the activity of learning <u>concrete physical movement</u>. But now I suggest that learning of <u>abstract knowledge</u> is basically similar in structure. As attention to the actual inward process shows, all thought, however abstract, is carried out in a set of movements, involving fleeting images, feelings, sensations, intentions, muscular tensions, etc., which is at least as indescribably complex as is that involved in bicycle riding. So thought also originates in an implicate order, of which we are generally hardly aware, as happens with physical actions. In the beginning a given content is <u>learned</u>, in an activity of perception through the mind, leading to understanding or comprehension (i.e. "grasping all together"), and gradually this is accumulated as tacit knowledge (which we experience, for example, as skill in thinking of a familiar subject). As with riding the bicycle, the net outcome of the subtle movements of such tacit knowledge corresponds to what we call the <u>content</u> of our abstract knowledge. Evidently, such features are actually contained in an immensely greater implicate order of unspecifically complex and fleeting mental movements. When these latter are being properly carried out, the abstracted (explicate) features will be found to obey the rules of logic, and this comes about in a way that is similar to how the formula describing the movement emerges from the activity of riding a bicycle.

Further reflection and attention to what actually happens in thinking will make it clear that the implicate order of thought and the implicate order of physical movement are not separate. Rather, they merge and interpenetrate in a single larger implicate order, in which mental and physical aspects are to be understood as sides of a greater whole. Thus, for example, an image of danger in thought is simultaneously a movement of preparation of the body to meet it (e.g. increasing adrenalin, muscular tension, etc.) while a physical sensation is the beginning of a mental movement in which thought changes accordingly, to provide some notion of what the sensation means.

Continuing along these lines, one may be led to suggest that matter in general arises in a similar way as an abstractible feature (so that the mathematical laws of nature come out rather similarly to how the movement described by the formula emerges in bicycle riding). The body participates inseparably in the implicate order of what may be called the material universe. Mind, participating similarly in the body, is also participating in the universe. What I propose therefore is that the whole of reality, mental and material, merges in a single (ultimately unknown) implicate order, containing sub-implicate orders that are abstractible (because of relative autonomy and independence). This could then provide the basis of an explanation of how knowledge and its object may be related. For because of the common ground in an immense totality of implicate order, thought can not only reflect certain areas of reality (in a relationship or correspondence as described earlier), but it can also operate within such areas as a further constituent of reality by participating in activities that creatively realize hitherto unknown potentialities that could not have been realized without the operation of thought.

So I am saying that knowledge is not primarily in reflective correspondence with its object (though there is a limited and abstract form of such correspondence). Rather, knowledge and its object are both primarily merging and interpenetrating movements in a larger implicate order. In this larger order, both may be said to be active as well as acted upon. At bottom, however, they are one, in the sense that the very being of one is a contribution to the being of the other, while both are contributions to the being of the larger implicate order.

Conscience, Tacit Knowledge and the Art of Judgement. Students of Polanyi's thought are sometimes understandably confused when thinking about the relationship between subsidiary/focal and tacit/explicit. In the Spring of 1983 an article appeared in Soundings (Vol LXVI No 1) with the above title, by Douglas Adams and Phil Mullins. The extract reproduced below throws light on this question in the course of an interesting discussion on the role of responsible conscience in making personal judgements.

Section C. Conscience and its Deep Structure - The way Polanyi brings

together a treatment of knowledge, the communal locus of knowledge, and the skilled personal agent holding knowledge is important. This triadic approach allows Polanyi to develop a double focus in his conception of human judgment. On the one hand, Polanyi emphasizes the significance of individual judgment; judgment is an implicit element in all human action. More conceptual forms of knowing are acts of explicit judgment in which Polanyi stresses the importance of conscience as a guide to judgment. On the other hand, Polanyi unravels the nature of conscience and personal decision-making, suggesting that individual judgment is shaped largely by tacit factors learned in social interaction.

In the development of his thought, Polanyi had to struggle to balance these two emphases. The scientist in Polanyi's early philosophical essays is portrayed as one who must confront his own discovery as a moral dilemma: the discoverer must decide whether to break with traditional conceptions and trust the intuition which led to a new vision or to rely on well-learned caution and assume that a hard-won new vision is in error. Polanyi early (1946) asserts the importance of conscience as the key to the problem of knowledge:

> The scientist's task is not to observe an allegedly correct procedure but to get the right results. He has to establish contact, by whatever means, with the hidden reality of which he is predicating. His conscience must therefore give its ultimate assent always from a sense of having established that contact. (Science, Faith and Society. Chicago: University of Chicago Press, 1946, p. 40.)

Later, in Personal Knowledge (1958), Polanyi again argues that moral and epistemological issues are inextricably linked. The central question which Polanyi must address in this his magnum opus is whether a personal knowledge can be a responsible knowledge, Part of Polanyi's argument rests on his affirmation of the validity of individual conscience, which he discusses here in relation to the theme of commitment. Impassioned commitment is a very important criterion of personal knowledge. Within the framework of passionate commitment to knowledge, Polanyi argues, the personal and the universal require each other. Personal knowledge rises above whimsical subjectivity because the knower's commitment to such knowledge is marked by universal intent: to claim to know at the most serious level is simultaneously to claim that other knowers can and should appreciate the vision which such knowledge has opened. (P.K., p. 308)

The strong emphasis on commitment with universal intent in Personal Knowledge occasionally emerges as a rather strident focus on duty: "The freedom of the subjective person to do as he pleases is overruled by the freedom of the responsible person to act as he must." (P.K., p. 309) Such a forceful appeal to duty, however, must be seen as Polanyi's affirmation of the individual's ability to make responsible decisions. Polanyi views the person seeking a particular kind of knowledge as a figure who must

become an apprentice in the community of inquiry concerned with such knowledge. In becoming immersed in such a community, the apprentice acquires the skills necessary to make sophisticated individual judgments which may in fact ultimately revolutionize the patterns of thinking within the community of interpretation. In developing skills in communal interaction, the individual comes to set standards of rightness which then guide independent judgment. Being a person, being an agent seeking to understand the environment, includes, therefore, having self-set standards of judgment which are applied in all acts of understanding.

After the period of Personal Knowledge, Polanyi's emphasis on overt commitments as expressions of responsible conscience diminishes. Conscience, however, as the knower's willingness to accept the validity of self-set standards, remains an important element in Polanyi's conception of personal knowledge. As we have suggested in the earlier discussion of the skillful, tacit substructure of explicit knowledge, Polanyi emphasizes such tacit components more in his late thought. He seems to see more clearly the implications of the epistemological model which first took shape in Personal Knowledge. He acknowledges in the "Introduction" to The Tacit Dimension (Garden City: Doubleday, 1967. p. x) that his reliance on commitment has been reduced in this later volume since he has worked out more fully the structure of tacit knowing.

The quotation from Meaning with which this essay began amply illustrates the shift in Polanyi's late thought toward a conception of conscience and judgment grounded in the tacit dimensions of human action.

> Whenever we are faced with the necessity of deciding on a judgment, we cannot avoid relying on ultimate criteria. Even a failure to judge demands that we rely on some ultimate criteria for our refusal to judge. The point is, however, that we are often unaware of what these criteria are until after we have relied on them as subsidiary clues in a focal integration. (Meaning. Chicago University Press, 1975. p.104)

As in his earlier thought, Polanyi emphasizes the importance and pervasiveness of judgment in human affairs. The criteria of judgment, active or passive, give shape to human valuing. At the end of his career, however, Polanyi emphasizes that such criteria are by and large known tacitly. Personal judgment thus has a certain deep structure which remains largely subsidiary. The self-set standards of rightness which we hold are tacitly applied in our actions. Our standards or our consciences are thus embodied; we live in them and use them to apprehend the world around us. Those things which we come to know subsidiarily are, we may say, always already valued - as we skillfully coordinate a particular set of elements in which we dwell, human action emerges, and such action is always a personal endeavor affirming particular values. As the nexus of elements in which we customarily dwell in negotiating the world around us takes shape (i.e., as we mature and become a part of one particular social location), our action

assumes a certain normative form which we call character.

There is, in summary, in Polanyi's thought a strong affirmation of the validity of conscience and personal judgment coupled with a novel understanding of the dynamics of judgment. Polanyi argues forcefully that personal judgment is the ground of all knowledge; the role of judgment cannot be minimized by appeal to a wholly objective standard of knowledge. By setting and appreciating standards of excellence, conscience is the valid guide to judgment. The application of such standards, however, Polanyi suggests late in his life, is chiefly a tacit affair. Our discriminatory powers or faculties of judgment are operative in the process of tacit integration that composes our explicit judgment. The skillful, nonexplicit factors in which we dwell, and which make of us particular persons and actors with certain definite characters, are the actualities that shape and inform our explicit judgment.

The particular affirmative interpretation of judgment found in Polanyi's thought is a perspective, we suggest, that mediates among approaches found in some different camps of professional ethicists. General but illuminating distinctions among ethicists emerge if we examine the different things they emphasize in their analyses of human judgment. It is useful to pose the question, what aspects of judgment strike an ethicist as interesting or problematic? Many Anglo-American philosophical ethicists have tended to emphasize the primacy of the personal. Like Polanyi, they wish to resist the temptation to dissolve the person, as a center of intelligent action, into a mere concatenation of social forces and moods. But, because their orientation emphasizes intelligent personal decision-making as a mental activity, they tend to treat ethics as an exercise in rational argumentation. They address great moral dilemmas from an individual and abstract perspective. Outside the Anglo-American tradition, there are other groups of ethicists whose approach to judgment we might generically term "social." Such ethicists are often strongly influenced by continental philosophy and theology. In a way paralleling Polanyi's emphasis on the tacit factors of judgment, they view the moral agent within the historical context creating and shaping agency. From this perspective, many contemporary matters of moral judgment can be recognized as "systemic" issues, as questions whose institutional dimensions are critical. While such a social perspective is insightful, it is often paralyzed by its level of generality; the person as an agent of judgment is lost sight of in the evaluation of systemic dynamics.

Polanyi's novel interpretation of conscience offers a corrective for some of the perspectival limitations of both of these approaches. The way in which Polanyi views conscience as operative within the dynamic structure of tacit knowing suggests a way to concretize and personalize systemic issues. The social climate of a particular historical community is the location within which the habits, skill, and loyalties that tacitly inform

personal lives are shaped. Similarly, for the ethicist influenced by Anglo-American thought, Polanyi's discussion of tacit knowledge offers a way to include attention to social dynamics within a person-centered frame of reference. Polanyi's perspective suggests that judgment is an art rather than a science, as is implied in abstract, rationalized ethical reflection. We turn, in the next section, to a fuller exploration of this claim.

Section D. The Art of Judgment - The sense in which human judgment is an art can be recognized by closely examining the dynamics of judgment. A judgment, as we ordinarily use this term, is a conceptual act or the conclusion of such an act. The structure of conceptual acts, according to Polanyi's logical and functional analysis, includes two distinctly different elements, tacit elements and explicit elements. Explicit elements are those things before the mind's eye; they are the focus of attention. If we are considering the process of judging, the explicit focus of the process is its conclusion or decision. We may use Gestalt terms to describe the explicit elements in any act of human knowing: explicit elements of judgment are the figural elements, those which stand out against the ground. The tacit elements in conceptual acts are as important as the explicit elements. Tacit elements are not before the mind's eye but are those subsidiary elements we attend from in order to attend to what is of interest. In the process of judging, tacit elements are the whole range of orienting knowledge which the person judging depends upon to understand the issue and come to an intelligent, fitting conclusion. Tacit elements are the ground in the figure-ground relationship; we rely on factors which we are not attending to in order explicitly to understand the conjoint, comprehensive meaning of that to which we are attending. We dwell in elements we tacitly know and skillfully integrate them in making a judgment. Such an act of tacit integration is an act of coordination which brings together component skills (or other factors) included in the presuppositional nexus.

The presuppositional nexus is not limited simply to those particularly important elements which can be factored out and listed in syllogistic fashion as preliminary assumptions; it includes these elements but its range extends beyond this since it is a reflection of the whole lived experience of the agent. The tacit dimensions of a given human act contain in the broadest sense the rich, diverse background domain of emerging individual character which bears in largely unspecifiable ways on what is attended to by the judging person. It is thus impossible to specify exhaustively those tacit components which contribute to any given act of judgment.

This claim is not intended in any way to render the nature of judgment mysterious, but merely to offset the overly rational disposition toward human decision-making which is often advanced. Neither is it, from a Polanyian perspective, a defect of human judgment that it is influenced by

a very broad range of tacit factors some of which may be forever unspecifiable. Understanding human judgment as somewhat ineffably grounded restores to judgment the everyday sense that the term has when someone is described as having "good judgment." In this case we mean that such a person is likely to respond intelligently to whatever situation arises; he or she is capable of sound decisions. We might say that such a person is skilled as a respondent or as a judge. Good judgment perhaps can most aptly be imaged as an affair of connoisseurship.

The skilled judgment of a connoisseur cannot be mechanically reproduced. The elements informing the connoisseur's judgment are beyond a point ineffable. They are learned through practice and are recognized as cultivated talents or skills. The connoisseur can bring such talents together in good judgment; in Polanyi's language, the connoisseur tacitly integrates those elements he or she has known by dwelling in them (i.e., known subsidiarily) as they bear on the matter to be judged. Every human judgment, according to Polanyian logic, is in some sense a skilled act, an affair of connoisseurship. Of course it is obvious that human beings do not necessarily come to similar conclusions about similar situations; they bring different tacitly accepted horizons to the act of responding to the situation. Such a difference in conclusion should not, however, obscure the fact that to judge is to be a connoisseur. Some connoisseurs are more skilled than others. Connoisseurs often have different tacitly known resources which they bring to bear in acts of judgment; but all are practitioners of an art.

If human judgment is an art, the ambience within which we conceive the problems of improving judgment needs to be reexamined. It seems to be taken for granted that improving judgment chiefly requires developing greater rationality. Ethicists therefore devote much attention to the articulation of criteria or reasons for justifying particular conclusions about the great moral dilemmas of our time. By reasoning clearly and carefully the quality of judgment can undoubtedly be enhanced. Polanyi's work, however, suggests that the nature and role of articulated rational criteria in judgment are somewhat different than we might suppose. While an attempt to discover compelling, articulable, rational grounds on which a decision might be made cannot be passed over, it is instructive to consider the stage at which reasons emerge in the process of judgment.

According to Polanyi's theory of tacit knowing, a person making a judgment is skillfully bringing a broad range of subsidiarily known factors, rooted ultimately in his or her way of life, to bear on an issue; the person is tacitly integrating such factors in order to achieve the comprehensive meaning or focal conclusion of the judgment. Rational criteria, articulated as such, emerge in this process of judgment only after a preliminary imaginative tacit integration of factors. Tacit integrative action is primary in the process of judging; but it then may become the basis for

explicit attention to rational criteria. In other words, it is possible to articulate a set of criteria which can be said to point to a certain conclusion; but such an articulation presupposes an earlier attempt to integrate tacitly factors considered relevant to the judgment and also a tentative drawing of certain preliminary conclusions.

By presupposing these tentative conclusions, a person can then attend to what will appear as the grounds for a conscious, rational conclusion. In attending to these grounds, the person shifts the focus of attention and now focuses upon what were tacit factors informing the preliminary conclusions; the person now makes such formerly tacit dimensions explicit by isolating the more articulable elements of the former tacit horizon. We regard such articulations as "reasons" for judgment. In sum, because we can alter the focus of our attention, we can discover what we call "reasons" for a given judgment or conclusion. Some of the tacit grounds informing human judgment can be transformed, by a reorientation of attention, into focal entities, which become thereby rationally articulable criteria pointing toward a certain conclusion. By imaginatively making integrations which give us a certain hypothetical conclusion, we are able to initiate succeeding integrations with another focus through which we can sort out and carefully craft rational arguments for one conclusion rather than another.

Although "reasons" can be discovered by changing the focus of our attention, we can never explicitly know the tacit elements shaping a given judgment in the act of judgment. To know formerly tacit elements focally (to know them by focusing on them - i.e., as "reasons") is to know them differently than we knew them when they functioned tacitly in the act of judgment. When we know elements tacitly we have a subsidiary awareness of them. We rely on them as we might rely on a probe. Our relation to a probe when used as a probe does not involve direct awareness of the probe as a thing in itself; instead, we have no interest in the probe as anything other than a means to extend our overt knowledge of what is beyond its tip. The probe is a tool skillfully absorbed by the agent in order to accomplish intentions at the point of attention. "Reasons," like probes, cannot serve judgment unless they function as do those tools which extend the body.

Human beings are imaginative, broadly interested creatures with rather remarkable powers of tacit integration; since we can shift the focus of our attention we are capable of framing impressive reasonable arguments for a given judgment or conclusion. The process of understanding reasons as they bear on a given conclusion is, however, similar to the process of discovering and articulating reasons in the first place. Enumerated rational criteria do not "add up" in an arithmetic sense to a certain judgment or conclusion. Rather, in trying to make a decision, we take account of criteria which we entertain as potentially valid by dwelling in them. We attempt to try them on, in judging, as we would a jacket. In dwelling in

criteria we come to see through them; we become comprehensively or understandingly aware of criteria (ones newly tried on and ones more embedded in our way of life) in the conjoint meaning or conclusion which is projected in integration. Reasons thus have to be dwelled in and reabsorbed in the skillful integrative action by which a conclusion is reached in order to have bearing on judgment. They must be transformed from explicit elements once again to tacit particulars bearing on a more comprehensive focus. Reasons or rational criteria are rather like the moments in which a pianist focuses on the fingering for a difficult section of a piece rather than on the overall effort of playing. Attention to the fingering is ultimately helpful to the pianist who hopes to achieve a polished execution of the piece; but the attention to fingering helps only after the pianist shifts attention back to the whole. In fact, if the pianist loses concentration and allows the mind to focus on fingering rather than on the whole when playing the difficult section, the performance will likely be flawed.

The example makes clear that what we call the reasons for a judgment (which can be articulated only by changing the focus of attention) are somewhat different entities than "reasons" reabsorbed as the tacit elements which actually inform the judgment. Reasons by themselves do not shape judgment; reasons become compelling only when they are in-dwelled, when they become skillful subsidiary elements which contribute with all other tacit factors in projecting a certain focal conclusion. Reasons are thus rather like rules of art or maxims in matters of judgment. Reasons, like maxims, cannot really be appreciated or found to be compelling except by those able to transpose them from isolated things to tacit particulars bearing on a given conclusion. Like maxims, they must be applied; but they cannot be applied except by those who already have mastered the art of judgment - those who already have integrative capabilities and a tacit horizon which complements or is congruent with that presupposed by the reasons.

POLANYI AND THE CYBERNETIC DREAM

Recently, the transcript of an article came into my hands entitled The Cybernetic Dream of the 21st Century. Its author, Prof. Morris Berman of the University of Victoria, Canada, has also written a book called The Reenchantment of the World, (Cornell U.P. 1981), which I have not read but which pursues the same argument: that the philosophical agenda of today's world should include "the revival of the magical tradition in a way that is scientifically credible." (p. 28) I hope that having read this summary, you will understand why I have thought it worthwhile to outline his argument.

By 'magic', Berman means, not sticking pins into dolls, but affective, concrete and sensual experience of life and he is particularly concerned that holistic thinking of the cybernetic variety is in danger of losing touch with this kind of 'enchantment', though it is precisely the impulse to revive it that underlies the research of people like Gregory Bateson, David Bohm and Rupert Sheldrake. Berman is not opposed to holistic thinking, but he points out that a certain type of such thinking threatens to replace the mechanistic science of the last 300 years with a disembodied world of pure metaphor, of programming and of patterned activity, a world that has been called "mysticism without a soul" and which Berman suggests might more accurately be called "mysticism without flesh". His article provides a perceptive critique of the paradigm offered to us by such writers as David Bohm, Rupert Sheldrake and Ken Wilbur and a warning to those who reject the mechanistic science of Enlightenment thought to be careful what they put in its place.

During the Sixties, an important critique of the scientific world view came to fruition, a critique with a long tradition behind it associated with thinkers like Husserl, Heidegger and Wittgenstein. Theodore Roszac argued that the scientific mode of perception, with its mechanical conceptions of reality, was neither morally neutral nor value-free, but was rather a mythology, a type of cultural construct in which society had invested its sense of meaningfulness and value. (See The Making of a Counter Culture, N.Y. Doubleday, 1969) Marcuse also argued that science possessed no real neutrality, but had a bias, which he termed "the logic of domination". (See One Dimensional Man, Sphere Books, 1972). Marcuse argued that technological society encourages a materialistic mode of life, preoccupied with technology, the consumption of goods and the standard of living. There is nothing neutral about a methodology that confines ideas and actions to a system that denies transcendence. One result of this materialistic type of thinking has been a growing disenchantment with science and an increasing interest in various cults, including the occult - astrology, witchcraft, magic, E.S.P. etc. Those involved in such practices discover with surprise something that magical practitioners have known for centuries - that magic works - or, at least, that mental attitudes make a difference to physical effects. Even science has made the discovery that reality is influenced by perception and has, says Berman, some claim to be called "the magic of the modern era." (p. 6)

This reaction led to the development of a large "new paradigm" literature. Scientists, using the language of cybernetics or systems theory, began to write books that made them sound like alchemists. An alternative reality to mechanism began to emerge, a 'process' reality, having "a clear resonance with Taoism, with quantum mechanics, with the work of Carl Jung and Wilhelm Reich" (p. 8). Unfortunately, the holistic approach has not sustained its early promise of holding mind and nature together. For ex-

ample, in Gregory Bateson's revision of Darwin, evolution becomes an almost entirely mental process, and before his death in 1980, Bateson had solved the mind-body problem by doing away with the body altogether. Berman comments, "The holistic or cybernetic thinking of the 1980's simplifies the problem of holding mind and matter together by dispensing with matter before the game even begins." (p. 9)

Berman accuses the new mythological vision of reality of being purely abstract and formal. He finds this not only in the sphere of philosophy but also at the professional level and in the daily life of the ordinary citizen, which is increasingly filled with video games and home computers. Teenagers are becoming video addicts, happy to escape, "at least momentarily, from boredom, anxiety and other emotional difficulties, all of which are felt in the body." (p. 12). Even home computers encourage disembodied activity and help to diffuse the same mode of perception which once inspired the Gnostics, "in this way our culture is starting...to acquire a kind of 'computer consciousness'" (p. 12). Video games and home computers create for millions of people a notion that reality is a function of programming and in so doing they are creating "a vast subculture that lives entirely in its head" and sees reality as a form of pure mental process, essentially neutral, value-free and disembodied.

At the professional level, Berman notes that the impact of cybernetic technology on our modes of perception and on our relationships is becoming more noticeable every day, even though the method of computer analysis and systems theory cannot capture the subjective dimension of human life or take account of attitudes, perceptions, modes of cognition, emotions or ideologies. Data that is not amenable to quantitative analysis tends to get dropped from the research agenda though it is largely in these omitted areas that the real life of human beings is to be found. As Berman says, "The more the humanities, history and the social and behavioural sciences succumb to the glamour and professional pull of computer analysis, the more precise they will be and....the less they will have to say." (p. 17). The result is exactly what Orwell predicted for 1984: that the goal of the State would be the creation of a system of thought that can embrace everything. The popular mind thrives on the belief that more and more information means an increase in knowledge of the real world and a consequent increase in efficiency in managing it. But in fact, our range of thought is being narrowed by cybernetization, because all the information is of one kind, "bits" of information abstracted from an organic context and reassembled in generalized cybernetic patterns. This systems theory approach is being applied, not only to history and the social sciences, but to ecology, biology and clinical psychology.

The result for ecology is not a holistic vision of man and nature in a biotic community. Cybernetics is unable to show the world as an organic web of life, but sees it "as an abstract globe whose resources can and

should be moved around according to ecosystem trends formulated by simulated cybernetic models". (p. 19). The result is no less a disenchantment of the world, no less a logic of domination, than science and technology has already produced without the aid of the computer. In biology, living organisms are being described as 'systems of information' and the survival of the fittest as 'the survival of the best informed'. It is a disturbing fact that, whereas holistic thinking held out the promise of abolishing the fact-value distinction and of restoring the sense of nature as alive and sacred, the very opposite is happening. We seem rather to be moving into the age of biotechnology. Life, writes Jeremy Rilkin, is regarded as 'self-programmed activity' and as 'information flow', - "surely the final desacralization of nature!" (Algeny, Viking Press, N.Y. 1983). The last example Berman gives of cybernetics used in the professions is its application to clinical psychology. Self-help books abound, designed to make the reader think of himself as a cybernetic system. But the high point of New Age Science in America is a new therapy called Neuro-Linguistic Programming, (N.L.P.). Its bible, entitled, significantly, The Structure of Magic, (Science and Behaviour Books, 1975), was put together by Richard Randler and John Grinder after observing three great therapists at work and then generating a cybernetic model of what they were doing by breaking down their therapeutic interactions and reassembling these 'bits' of information into a generalized pattern. The authors claim to have distilled and 'scientized' the 'structure of magic', but they forget that the structure of magic is not the same thing as magic itself. All three therapists were, or are, "intuitive geniuses akin to Zen masters and their talent is legendary." (p. 22) But their skill derived, not from following some cybernetic formula or technique, but from an ineffable personal power and talent. Once again, Berman points out, we have mechanism in updated clothing.

Finally, Berman looks at the holistic and cybernetic thinking of philosophical spokesmen of the New Age, with their evident concern to escape from the world of Newton and Descartes and their desire to revive the 'magical tradition' of a living and embodied world. But he does not find their cybernetic mechanisms so very different from the clockwork models of the 17th century. On the contrary, cybernetics and general systems theory turn out to be "the last outpost of the mechanical world view, a continuation of the scientific project of the 17th century rather than the birth of a truly new way of thinking." "To combat the mechanical philosophy", he writes,

> we now have 'implicate orders', 'morphogenetic fields' and 'holographic paradigms' amongst other things. All of these notions are ingenious, and some of them may even be 'true',...but for the most part, they are disembodied, value-free and content-neutral, (p. 24)

David Bohm's concept of the 'implicate order', "an enfolding and unfolding process" he calls "holomovement" is criticised as being purely formal.[1]

Sheldrake's notion of 'formative causation' by means of 'morphogenetic fields' is also a formal system.[2] In the case of both these thinkers, and that of many others, human beings tend to disappear from the picture. Another prominent thinker, Douglas Hofstadter, author of Godel, Escher and Bach, (Basic Books, N.Y. 1979) is likened to a computer jockey who extends cybernetic operations to the whole world, but whose brand of holism is so out of touch with reality that the world we know disappears from the pages of his book, leaving a universe of symbolic patterned activity, the creation of artificial intelligence. Hofstadter is regarded in America as "a leading spokesman of the cybernetic age...a mind truly to be reckoned with", (p. 27), yet when asked by a student after a lecture given before a vast audience in an East Coast university to say what he thought dreams might be, he replied that they were "confused brain programmes"! Berman comments that we really have to ponder what it means in the history of a civilisation when a thinker of this sort comes to be regarded as a man of penetrating insight.

In conclusion, Berman identifies the real issue for today as "not mechanism versus holism, but whether any philosophical system contains an intrinsic ethic - (not a value-free one) - and whether it is a truly embodied approach to the world." (p. 28) He rejects the holistic paradigm as constructed by such thinkers as Bohm and Sheldrake because, in the process, "the 'magic' gets left behind." The paradigm that Berman is looking for needs to be "grounded in the real behaviour of man in the environment. It would incorporate the sort of information that arises from our dream life, our bodies, and our relationship to plants, animals and natural cycles. And I am absolutely convinced that it would usher in a profoundly creative and liberated period in the history of the West." (p. 28, 29) Most holistic thinkers are moving in a very different direction. In the name of enlightenment, we drift into a hall of mirrors; we are offered reification, 'circuits', 'feedback loops' and the like. "To think such things exist apart from real situations is a Neo-Platonic dream; it is to fall into what Whitehead called the 'fallacy of misplaced concreteness!" (p. 30). Merleau-Ponty recognized this tendency as early as 1960 and wrote in an essay, "Scientific thinking must return to...the soil of the sensible and opened world such as it is in our life and for our body - not that possible body which we may legitimately think of as an information machine, but that actual body I call mine..." (Eye and Mind in The Primacy of Perception, Evanston, 1964, p. 61). So Berman asks of any new philosophical statement, whether it takes us into the real world, or whether it makes it easy for us to run away from reality.

> Does it enable me to shut out the environment, ignore politics, remain unaware of my dream life, my sexuality and my relations with other people, or does it shove these in my face and teach me how to live with them and through them? (p. 31)

I was both saddened and challenged by this very excellent article; saddened, because nearly thirty years after Personal Knowledge was first published, so few thinkers seem to have benefitted from the insights which Polanyi offered to the world, insights which would undoubtedly have saved holistic philosophy from losing touch with the 'magic' of embodiment, or from entertaining a vision of reality that looks and sounds for all the world like a Laplacian topography transposed into a mental key; challenged, to continue the urgent task of making Polanyi's thought and his epistemological paradigm better known and more easily understood by those engaged in the ongoing quest for post-critical understanding. This, as I see it, is the task of Convivium and the sole rationale for its continued existence.

J. Crewdson

Notes

1 David Bohm, Wholeness and the Implicate Order, R.K.P. 1980.
2 Rupert Sheldrake, A New Science of Life, Paladin, Granada, 1983.

COMPETENCE AND TACIT KNOWLEDGE

The following notes on competence are from Robin Hodgkin's forthcoming book Exploring Education which will be published in 1985 by Methuen. Using a Polanyian approach the author outlines an educational theory which sees the learner essentially as an explorer and maker. This leads up to a discussion of new ways of thinking about integrating visual and verbal learning. The passage below follows a discussion of the idea of 'competence motivation' - the general idea that what one can do competently one will want to do.

We need to sharpen our understanding of what should be the educationally central concept of competence, especially in its relation to Polanyi's somewhat similar concept of tacit knowledge. Both are to do with consciously known ingredients of knowledge as well as with unconscious ones. Both are dynamic and constitute those energising and directional processes which are sometimes spoken of in terms of motivation. Yet the two concepts need to be distinguished from each other.

Polanyi certainly gave tacit knowledge a very wide connotation but he was at pains to protect it from becoming a portmanteau term for all sorts of mysterious and inexplicable powers. One may think of the phrase as denoting all that inherited and acquired information in an individual organism which can be brought to bear on an act. Both Piaget and Popper use a similarly extended and biologically rooted concept of knowledge. Polanyi's 'tacit knowing', however, is distinguished from Popper's 'knowledge'

by the way in which he insists on the personal knower as the agent who brings the process to a focus and, as we have just seen, Polanyi is also intensely interested in the groping and intuitive stages of discovery. Popper is more interested in that 'objective' knowledge which a group or community may share and he pays less regard to the actual process of discovery. How, then, does the concept of a person's tacit knowledge differ from his competence, for both seem to be made up of a flexible bundle of skills and inherited and acquired information?

The most satisfactory answer is to regard competence as a recognisable, educationally accessible part of tacit knowing. We may conceive of the latter as resembling the total root system of an ancient but living tree, a tree which constitutes the information patterns comprising you or me or a learning child and which includes our genetic inheritance. Most of the 'root system' is deeply hidden but it is not, in principle, inaccessible to scientific enquiry. Like the roots, tacit knowledge was laid down in the past and yet it has a bearing on the future shape and health of an information rich organism. A similar picture is given by Douglas Hofstadter in his book Godel, Escher, Bach when he discusses the hidden springs of action in the deep strata of our brains.

> It seems that a large amount of knowledge has to be taken into account in a highly integrated way for 'understanding' to take place. We can liken the...thought processes to a tree whose visible part stands sturdily above ground but depends vitally on its invisible roots which extend way below ground giving it stability and nourishment. In this case the roots signify complex processes which take place below the level of the [conscious] mind - processes whose effects permeate the way we think but of which we are unaware. These are the 'triggering patterns of symbols'[1]

When he speaks of the 'triggering patterns of symbols' he is referring to assumed neurological patterns which correspond to some of those powerful transforming experiences in the world of culture which are of such interest to poets, analytical psychologists and theologians, as well as to teachers.

If, moving to the surface of the soil, you call to mind the base of our imagined tree model - an old gnarled tree - you will be able to envisage just a few main roots coming together at the trunk. It is these main roots which are analogous to the principal, identifiable clusters of skills which I am designating 'competences'. They are certainly nourished by tacit knowledge and yet they are now united in large recognisable bundles and they are more open to instruction by parents and teachers than are the deeper layers of knowledge.

It is interesting to notice how these concepts, both tacit knowledge and competence, have gained currency amongst scholars in a number of different fields, all of which converge on the central idea of creative flexibility. For example, Polanyi in his essay 'sense-giving and sense-

reading'[2] shares the problem of competence-for-language with Chomsky but he answers it differently. He speaks of language as an instance, a very sophisticated one, of the intelligent use of 'the power exercised by higher animals of tacitly integrating hitherto meaningless acts into a bearing on a focus that thereby becomes their meaning.' He should perhaps have added 'or acts hitherto meaning something else' for in language, above all, we often integrate old words into new meanings. Then, in phrases which foreshadow more recent biological theory Polanyi adds 'I would try to trace back the roots of this faculty to the primordial achievements of all living things'.[3]

In the example of the dancers I sketched the general idea that five main competences for culture may be identified - the interpersonal, enactive, iconic, musical and language-like levels or 'highways' into culture. One can cut a cake in many ways and it will be obvious that within these overlapping competences lie many subsidiary competences or skill clusters. To understand any of these - rock climbing or singing or teaching for example - we need to bear in mind not only the way in which skills from different levels all grow in the play-practice-exploration cycle and that they support each other but also that all of them have an ancient history in our individual and biological development.

Margaret Boden in her book on Piaget also steps firmly across the biological/anthropological divide when she stresses the common ground between Piaget's discussions of language development in children and the way in which living cells can grow along different morphogenetic pathways in organisms which are developing, or regenerating damaged tissue. Speaking of the fruitful comparisons which can be made between higher cognitive activities and biological processes, she uses words which bring together important trains of thought:

> The word 'competence' is deliberately reminiscent of Chomsky's postulation of the adult's tacit knowledge of grammatical rules and the baby's innate language-specific learning system, and highlights and the structured and creatively generative potential of...'knowledge'.

Boden is here construing 'knowledge' in the wide, biological and cybernetic sense of information systems which bear on anticipated future achievements and which are also open to constant modification and feedback. Such overlap with the study of cybernetics and artificial intelligence cannot be avoided because it is an important focus of the current discussion of competence. (Boden. 1979, p. 124).

What then of teachers whose task it is to be both crucible and alchemist, to sustain the space for learners to be active in and to speed up the metamorphoses which such learners must be competent to endure? It should scarcely surprise us to find that if the process of discovery does, as a rule, pass through recognisable stages,[4] then those whose task it is to enter that process and to monitor it, to protect and to stimulate it -

that such teachers cannot remain in only one stage of the teaching-learning process with one unyielding persona. They too have to show creative flexibility, to draw on ancient patterns, to play for time and to be open to someone else's future.

R. Hodgkin

Notes

1 P.569. In this passage Hofstadter uses the word 'symbolise' where 'signify' would suffice. His reference to 'the triggering pattern of symbols' shows that he is aware of the essentially dynamic quality of symbols.

2 In Knowing and Being. RKP, 1969, pp181-207. To trace back the causal roots into the biological past or to draw on biology for models to help our understanding of the present is not to say, as do some sociologists, that all behaviour can be explained in biological terms.

3 Op. cit., p196.

4 These stages were outlined in my Getting to Know in Convivium No. 17.

COMMENTS ON: WHAT IS A PAINTING? BY M. POLANYI

In this article (British Journal of Aesthetics vol X No 3) Polanyi quoted M.H. Pirenne's argument about the paintings on the vault of the church of St. Ignazio in Rome. I was in Rome recently and I went to see St. Ignazio. There are painted columns on the vault and the dome which appear to be continuations of the real architecture of the church, but the illusion is only valid for a spectator standing on a marked spot in the middle of the nave, or another under the dome for the dome paintings. If the spectator moves away, he sees that the painted columns lie at an angle to the rest of the building.

Why are not all perspective paintings distorted in the same way as a spectator moves past them? Pirenne asks, and he replies - because our subsidiary awareness of the flat canvas protects the painting from this kind of distortion. This he says is the factor which is missing in the painted vault of the church.

But there is a much more obvious reason for the distortion in the church, namely that the perspective experienced here is partly that of a three dimensional real structure and partly that of a painting. When the spectator moves, he sees the real structure from different angles, and takes his standard of the vertical from these real features. Of course it would be impossible to paint the pillars on the vault in such a way that they would be seen from all points of view as correct continuations of the actual architecture of the church.

The fact that the surface of the vault is not recognised subsidiarily does not affect the issue. It would be quite possible to paint the vault in such a way that the surface was noticeable, but there would still be an appearance of continuity between the painted pillars and the rest, which would still distort when the spectator moved.

In ordinary paintings, Pirenne says, our awareness of the flat canvas as well as our awareness of the perspective appearance of depth prevents a fully three dimensional impression, and prevents the perspective being distorted as we move past it. If this were so, a trompe l'oeil painting in which we have no awareness of the flat canvas but can really imagine that we are seeing, say, a bowl of fruit in a niche, should distort as we walk past it. But it does not. Only if, like the vault painting, it is continuous with a real structure whose lines it apparently carries on, does it distort at the point of junction of the two. There is an interesting example in the theatre built by Palladio in Vicenzza in the 16th century. Here the back of the stage is a classical facade with a central arch through which is seen a city street stretching away from the spectators. This street is not a flat painting, neither is it a 'real' street; it is a wooden construction in which the perspective of the street is very much shortened, so that while perhaps only ten yards long it appears to be fifty to a hundred yards long. An actor could not walk away down the street because he would rapidly come to appear absurdly large, besides having to walk steeply up hill as the lines of perspective converge. This strange construction has of course no flat surface like a painting, awareness of which could save it from distortion. Yet it is seen undistorted from any point in the auditorium. What would happen if the constructed street was continuous with a normal street leading back across the stage? I believe it would distort.

Another interesting example is the interior dome of the Baroque church of Die Wies. This is an extraordinary piece of perspective painting. What is in fact a very shallow dome, like an inverted saucer, is so painted that it appears to be a very much higher dome. The spectator is given a double illusion, first that the whole area above him is open sky with groups of people and objects floating about it (this is not really an illusion but a 'willing suspension of disbelief', since a real sky is never full of floating people and gates and thrones), second, that all this is painted on a high dome of which the spectator is subsidiarily aware. In fact the high dome does not exist, and the spectator is not aware of the low dome which does exist, unless he climbs up to a point from which he can look into the space above it. So this is a very peculiar illusion. But there is no distortion, wherever the spectator stands, although some very definite and complex objects are represented. This freedom from distortion must come here too from the fact that the perspective in the painting does not connect with the actual structure of the church.

In a two dimensional representation, whether on a flat or curved surface, the point of view from which everything is seen is fixed. If you watch tennis on television, you are usually looking straight down the centre line of the court; move to the right or left as far as you can, you are still looking straight down the centre line. And we all know about portraits whose eyes follow us round the room; if the portrait is painted with the eyes looking straight at the painter, they will look straight at any spectator who looks from any angle as long as he can see the face. If you were looking at a real tennis court you would be able by moving to get a different view, say from the corner of the court; and if you were looking at a real person instead of a portrait, you would be able to get out of range of his eyes, unless he turned completely round. I believe that this fixed viewpoint, rather than awareness of the canvas, is the important clue which makes us tacitly aware that we are looking at a picture and not a real scene. The trouble at St. Ignacio's is that part of the architectural scene is real, so by moving we get a different view of it, while the other part is a painting, so we don't.

I believe that St. Ignacio is a red herring for Polanyi's argument. He was excited by Pirenne's work because it confirmed his ideas about the fusing of contradictory clues in a work of art; the stage and the action of the play, the frame and the painting. The fact that Pirenne may have been wrong about what the contradictory clues were in this case does not affect the validity of Polanyi's argument.

I once told my doubts about St. Ignazio to Polanyi and he wrote in reply that these doubts had given him some guidance. In the later version of his argument reproduced in 'Meaning', p. 91, he acknowledged his debt to Pirenne, but added "His argument is not reproduced here, however, since I would prefer not to rely altogether on the particular evidence he uses." I regret I did not have opportunity to hear him say more about this. My object in following it up is to separate Polanyi's argument from the red herring of Pozzo's pillars in the church of St. Ignazio, which might throw suspicion on it.

D. Scott

BELIEF IN MIRACLES

What is a Christian, or a scientist, to think about miracles? Here is a subject of recurring, sometimes bitter controversy, which surfaced again recently in arguments about the fire at York Minister. A number of people were deeply disturbed by the reported views of a Bishop elect, views which seemed to cast doubt on miracles which they thought central to the

Christian faith. Some suggested that the fire itself was a miracle expressing God's anger at the consecration of a man who held these views.

One may wonder how they could be sure that God's anger, if indeed it was shown, was directed against the Bishop rather than against his critics! But at least their protests made us think again about belief in miracles. A number of scientists wrote a joint letter to the Times to say that they all gladly accepted the Christian miracles. "Miracles" they said, "are unprecedented events... Science, based as it is on the observation of precedents, can have nothing to say on the subject. Its laws are only generalisations of our experience."

This makes miracles altogether too easy! I believe in miracles, but they have to be astonishing, disturbing, hard to believe, or they are not miracles. I tried to imagine these scientists watching a pig with wings flying round the garden, and saying to each other, quite calm and unastonished, "that's interesting, we have not observed that before." Of course this is not what they would say; they would either think a clever trick was being played, or that they were hallucinating. For the pig would not simply be unprecedented but incredible.

These scientists hold one common view of science. But there is another view, which would say that science is not just generalisation from known instances, but an imaginative penetration of the rationality of the universe, involving faith in that rationality. The "law" that all swans are white is indeed simply a superficial generalisation from experience, and so is destroyed by the first black swan one sees. But the laws discovered by a Newton, an Einstein or a Planck are profound insights. After the discovery of such a basic law, instances are often found which seem to disprove it; but if the law is deeply revealing of a newly understood rationality in the universe, scientists often tolerate the contrary evidence in the belief that it will be explained later. The law may have to be modified but will not be abandoned.

The basic framework of physical law which science upholds is the essential matrix for miracles. If anything can happen, nothing is miraculous. And on the other hand, if scientists were prepared to believe anything they saw, science could never have made any progress. For many, many centuries men saw the sun going round the earth; generalising from that daily experience would never have got us through the Copernican revolution.

Science has something to say about miracles, for science lives in a necessary tension of faith, holding fast to laws and regularities already discovered, while remaining alert to recognise anomalies and to judge whether they are errors or fakes, or whether they are clues to a deeper coherence, a more profound law, which will change the whole outlook of science.

What makes a miracle, even the greatest miracle, the Resurrection, so challenging is that such an event is deeply incompatible with our best understanding of how the universe works. It is hard to accept: it ought to

be hard. What can make the miracle nevertheless believable has to be that we see it as a pointer, a clue, to an even deeper understanding of the way the universe works, so convincing that we are compelled to have faith that the difficulties and contradictions will one day be resolved. A miracle points to a hidden meaning, and the profundity of the meaning can make us accept that in some way we cannot yet understand it must be true.

Thus miracles in turn may have something to say about science; they may challenge its understanding of natural laws in the name of a deeper understanding.

Many happenings which apparently break the laws of nature, such as a flying pig, are not miracles, for they reveal nothing; there is therefore no reason to believe them, every reason to look for a mundane explanation. It is only a glimpse of great and compelling meaning which can make us venture out of our known laws, like Peter out of the boat.

This is in fact just what happens with great discoveries in science. They are often rejected for a time because they upset the firmest beliefs so far held by scientists. The new view, the new law, is accepted only when it is felt to be so much more deeply satisfying to reason that a sort of conversion takes place.

Something like this may be the way we have to look at miracles. The scientist-philosopher Michael Polanyi offers us a view of evolution as a long progress towards meaning, a progress in which we may in a sense see each step as miraculous - life evolving from lifeless matter, then on to intelligence, then to spiritual understanding and moral responsibility. At each step new laws come into operation which, without transgressing the laws of the lower level, reveal new possibilities in their working. A true miracle could thus be a clue to a yet higher level of reality whose laws we only yet glimpse in such flashes of revelation. Such glimpses are perhaps more likely to upset than to confirm any belief that we know exactly what God intends - without however removing our belief that God does have intentions.

D. Scott

BOOK REVIEWS

Francis Dunlop: The Education of Feeling and Emotion George Allen and Unwin, London: 1984.

In this extremely interesting book Francis Dunlop is reasonably polite about the Hirst-Peters school of educational philosophy though he strongly criticizes them. Their analytic rationalism has dominated the British

educational scene for twenty years. Few voices have been raised in protest and the resulting one-sidedness has certainly impoverished educational thinking and practice. For this reason alone the book is welcome.

The second chapter is the best. It brings John MacMurray's and R.S. Peters' views on reason and emotion into fruitful opposition. Dunlop starts with some pointed criticism of Peters' attempt to isolate rational action and clear thought from feeling. Feelings, according to this view, get in the way and have to be suitably 'canalised' and expressed. The key question here is whether a person's feelings are an essential basis for rational action, or are they an extra? Peters answers in the latter vein and claims that 'One cannot act in an appropriate way out of wonder or grief; one is overwhelmed by them.' To which Dunlop replies that such a claim is 'simply false' and he goes on, in words which will have a surprising, and to some ears a refreshing, note:

> I step out of my country cottage at night and look up at the clear starry sky. Deeply stirred by the wonder of it all, I am moved to utter a prayer of thanks to God for the glories of creation. Or again, I hear the news that a very dear friend has died. Full of grief, I decide to cancel my evening engagement. These seem to be to be completely appropriate actions that one may perform out of wonder and grief respectively.... Peters rejects [such arguments] because ritual is expressive; to count as action proper, and hence to be the sort of thing one would have a 'motive' to perform, action must involve taking a means to an end.

This kind of means-end instrumentalism has had a stultifying effect on educational thought and practice and it is a relief to turn to some of MacMurray's writings on the subject. MacMurray and the German writers whom Dunlop quotes accept that feeling (or passion, in Polanyi's sense) is always an energising aspect - part of the living root system - of rational thought or of authentic, skilled action. Dunlop's main criticism of MacMurray is that he swung rather too far, probably in reaction against the positivism of the nineteen thirties and placed 'too much emphasis on preconceptual knowing'. Examples of this (not cited) would be the tendency which developed among some teachers to overcompensate and elevate art education <u>above</u> more hardheaded disciplines; instead of bringing them together. Or else, as modern Quakers have done, some people elevated 'good relationships' and situation ethics above the guide lines of a more far-seeing morality. What was needed and what is still especially needed in education is an adequate synthesis which holds heart and head and an organic community in proper balance.

After the splendid second chapter, I do not find in the rest of the book, the same quality. Dunlop surveys a wide range of issues and draws important authorities into his discussion of feeling - Bantock, Langer, Polanyi and Scheler, for example. There is a pleasing knock-about session

in which Mary Midgley deals firmly with John Wilson -- Man does have a nature and teachers can't just recreate it. We are then introduced to an elaborate taxonomy of emotions from P. Lersch's writings. This may be interesting as a check list but it left me wishing that it had been adequately explained in the text.

I found the penultimate chapter on 'Educating the Emotions' fairly thin. It contained many useful precepts but it lacked a coherent theoretical thread. Dunlop's diffuse paragraphs on the teaching of English are an example. There has been much discussion of theoretical ideas in this area recently and I would have expected to see more of it in evidence. Then there was scarcely a mention of school drama. Yet this is a field, more than any other, in which movement and feeling and thought can all be experienced and shared by teachers and learners.

Francis Dunlop's book has many of the qualities and some of the limitations one associates with the thin end of a wedge; or of an ice breaker in a frozen sea - opening up space, where others may follow.

R. Hodgkin

Heinz Westman: The Structure of Biblical Myths: the Ontogenesis of the Psyche Spring Publications, Dallas: 1983. No price marked.

Heinz Westman's book may be of interest to readers of Convivium, even though, to judge from the photograph on the back cover, the publishers wish to link it more with the work of Jung than of Polanyi.

It is an exuberant, vigorous, repetitive rendering of specific Biblical stories as analogies that fit our contemporary world. The connecting link is the Ontogenesis of the Psyche, which Westman also calls "the history of becoming". Twentieth century history and politics, new work in physics and biology, are all drawn on in a confident extension of analogical thinking to illumine, and in their turn to be illumined by, the Jewish and Christian Bible. The horizon of reference is extensive. Nietszche helps to expound the story of Balaam's ass, Chomsky and the law of entropy the story of the burning bush. The juxtapositioning is convincing, as long as we are able to accept the heuristic passion that burns on every page. If we allow ourselves to be carried by the poetry of the writing our trust in the fiduciary integration of our western story is strengthened. But some may find the wide range of reference dissipates interest, so that conviction falters as attention wanders. References to Polanyi, for instance, occur in company with Breasted, van der Post, Hans Küng, The Apocrypha, Bonhoeffer, Don Cupitt, Medawar, St. John's Gospel, The Talmud, Russell, Irenaeus, Exodus, Hans Jonas, Hoyle, Isaiah, Spinoza, St. Paul, David Bohm, Planck, Heisenberg, The Gospel of Truth (from one page of the Notes.)

There is no index, and no bibliography, omissions which make the notes frustrating to consult.

Perhaps the most accurate comment on the book is given by the publishers' reference to Pope John XXIII's saying: "If we could find a way of getting mankind to sit down and read the Bible as a newly published book, as a narrative of man searching for himself, it would become very popular in places where people have forgotten it". Westman's book could persuade many who have given up reading the Bible, or never done so, to return to it as one source for that Analogy of Being which, Polanyi tells us, has been burned up in the oxygen of Greek rationalism to give us the critical movement of the past four of five centuries.

D. Holt

T.F. Torrance: Transformation and Convergence in the Frame of Knowledge Eerdman's, pp 352 + xiv, no price quoted.

The essays and lectures which make up this collection were written or presented between 1970 and 1982, and as such represent Torrance's mature reflections on, amongst other things, the inter-connections between science and theology. Most have been published before, and anyone who was a student at Edinburgh during those years will have used many of them during their degree. Nevertheless, their publication in one volume is a welcome event making available to a wider audience lines of argument which might otherwise gather dust in obscure journals.

Of the science-theology papers, only one, "Christian Faith and Physical Science in the Thought of James Clerk Maxwell" was completely new to me, but as such it provides a testing-ground for how the essays will appear to a new reader.

Torrance's recent interest in Maxwell, which is a natural extension of his interest in Einstein and Quantum Theory, has already born fruit in the publication of a new edition of Maxwell's A Dynamical Theory of the Electro-magnetic Field under his editorship.

Whereas many writers on science and religion over-play the significance of scientists' religious faith in the genesis of their ideas, Torrance conveys very impressively in his essay on Maxwell that perhaps the most important single quality that faith can confer is the very sense of faithfulness to that which the scientist explores. As is reiterated many times in these essays, it is the willingness and determination of scientists not to impose their arbitrary systems of thought on nature, but to permit their enquires and the nature they explore to be mutually corrective within a framework which takes as axiomatic the fundamental intelligibility of all that is, that is the most desirable attitude of the scientist, and

that has been so fruitful since the Reformation.

Convivium readers will be particularly grateful that Torrance's important essay on Michael Polanyi, "The Place of Michael Polanyi in the Modern Philosophy of Science" has been reprinted at last. In a world where at all levels we increasingly encounter reductionist modes of thought and positivist attitudes of mind, the need for Polanyi's reintegration of human knowing and that which is to be known has never been greater. Torrance stresses the way in which Polanyi, like Einstein before him, draws out attention to the human pole of knowing in terms of the free creative thoughts which arise in our minds under the impact of the inherent intelligibility of the universe. In other words, the universe does not "disclose itself", and it is not our place to impose our orderings and constructed intelligibility upon it, but rather in an attitude of faithful enquiry it is our task to allow the free creativity of our minds to be moulded by reality, and hence to formulate new, more penetrating questions to put back to reality in order that we might understand it still better. Here, self-evidently, the notion of indwelling is central and crucial, the notion of that immersion of the self in the world which will permit the mind to be configured by the true nature of the reality we there encounter. And that, equally self-evidently, is the true nature of worship and of the knowledge of God.

J.C. Puddefoot

FOR SALE

Pamphlets, Lectures and Articles by Michael Polanyi available for purchase to Convivium readers, by permission of Dr. Magda Polanyi. Prices are quoted with the addition of 20p for envelope and postage (within the U.K.). Anyone wanting one of these, please write to Lady Scott, Ash House, Alde Lane, Aldeburgh, Suffolk. (Note. Some of these were later incorporated in published books.)

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2. Cooling the Modern Mind by Prof. Harry Prosch, 1971. 39 pp. 40p + 20p

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Prof. N. Sheppard, 5, Horner Close, Norwich NR2 2LY.
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Ms. Shirley Thomas, Route 1, Box 521-7 Warrenton, Oregon 97146 USA.
Mr. C. Thorman, 115, Pickford Hill, Harpenden, Herts. AL5 5HJ.
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