Vol. XI, Number 1, Fall, 1983

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TOWARDS A POLANYI SOCIETY PERIODICAL

With this issue of our newsletter, we are experimenting with the possibility of developing a modest periodical that would provide space for longer communications and articles than at present. The inspiration for this approach comes from our counterpart in Great Britain, Convivium, which adopted this format several years ago. By using a format similar to Convivium, we will also be able to reproduce more conveniently copies of material in that publication. We made an agreement with Convivium earlier to exchange newsletters and to borrow freely from each other for the benefit of our members.

Several points of policy will need clarification for this periodical to progress. First, should we have a name for the periodical? If so, what should it be? Second, do we have among us enough willing persons to provide the short articles and reviews suitable for a periodical? The intent of the original Polanyi Society and its newsletter was to provide for news and exchange of ideas. Do the members want to participate at the level of producing the material for a periodical? Third, should and will the present co-ordinators serve as editorial and advisory group as well as leaders in developing the periodical? Other questions will arise but these are some basic ones.

Assuming a subscribing membership of 65 persons, I believe that we can manage a budget for two issues a year of about 40 pages each issue. This increased space could make possible a much more active publication and discussion of ideas. Please address your preferences and suggestions to me.

Richard Gelwick

POLANYI SOCIETY AT
AMERICAN ACADEMY OF RELIGION, DEC. 19

A three hour pre-meeting session has been scheduled for The Polanyi Society on December 19 (9 a.m. Loews Anatole Dallas in PLEN-BR-00-618 A), the first day of the AAR annual meeting. Persons arriving on December 19 will receive the annual meeting discount rate at the hotel.

Richard Gelwick, General Coordinator of The Polanyi Society, and I have conferred in planning the upcoming session. Below is a tentative agenda:

A. Report on the state of The Polanyi Society
   - Regional conferences: Kent State University, March 8-9, 1985,
     co-ordinator, Raymond Wilken
   - Discussion of plans for future AAR annual meeting functions
     - Data and bibliographical storage

B. Publication of materials by Polanyi's Society members. Plans for a periodical and book series by members.

C. Preview of AAR papers: A number of persons involved in the AAR Polanyi Studies Group are making presentations at the Dallas AAR meeting. This will be an opportunity for a brief review of these papers. Presenters should provide a copy of a brief abstract by Dec. 1. Oral presentations will be limited to 10 minutes in order to accommodate as many persons as possible. Copies of papers may be distributed.

D. Abstracts of work in progress or other papers. Presenters should provide me a summary or abstract by Dec. 1. Oral presentations will be limited to 10 minutes in order to accommodate as many persons as possible. Copies of papers may be distributed.

Until recently the American Academy of Religion regularly granted several members of the AAR with interests in Polanyi's work a program section at the AAR annual meeting. Due to space limitations, this policy ended in 1982. Since that time the structure of the AAR meeting has been somewhat re-organized. I was advised, as coordinator of the former Polanyi Studies Group, to apply in 1983 for meeting space under the rubric of The Polanyi Society as an independent scholarly association. Although this is an early time for a meeting, it is an opportunity to gather for those who are interested in Polanyi and are planning to attend the AAR.

I look forward to seeing you in Dallas.

Phil Hollins
Dept. of Speech, Theater, Humanities
NO Western State College
St. Joseph, MO 64507
Sound tapes of Michael Polanyi's Mc Henry lectures, University of California, Berkeley, 1962 are available from the Pacifica Tape Library. The titles of the four lectures are: "Invention of Reality," "Invention of the Unspoken," "A Society of Explorers," and "Indication of Realities."

Harry S. Brody, Professor of Education in Teachers College, Record discusses "Tacit Knowledge as a Rationale for Liberal Education." Brody observes that two criteria used for evaluating schooling are ability to recall the contents of instruction and the ability to apply specific knowledge to a problem, such as physics to the remediation of an automobile function. These criteria miss one of the major contributions of liberal arts education, namely the latent creativity brought to effect as we solve unforeseen problems. Brody discusses "Tacit knowledge" in this context. Brody as indicated above will be a keynote speaker at the Kent State conference.


(please help us, Ron.) This news came through Phil Hulitt. Ron is at the Philosophy Department, Fau11 Nottingham College, Florence, SC.

Edward Echeverria is now teaching as Senior Lecturer in Philosophy at Rhodes University in South Africa. His address is described in our Biological Library in the winter, 1963 issue of the Newsletter, though reported earlier, because that bibliography was done by a computer search for titles using Polanyi's name.

John Moorman, M.D.A., 1239 Borahland Street, #2, San Diego, CA 92109 has privately published a booklet, Polanyian Meditations. The booklet is the outgrowth of a Polanyi study group led by a well known Rogerian psychologist Bill Couleen. In humorous manner, the booklet expresses many of the insights of Polanyi in aphorisms and cartoons. Below is a selection from the cover page.

From: Moorman,
Polanyian Meditations
POLANYI CONFERENCE AT KENT STATE
March 8 - 9, 1984

Theme: "Knowing In Action: Michael Polanyi and the Educational Process"

The College of Education at Kent State University in cooperation with The Polanyi Society will hold a conference Thursday and Friday, March 8-9, 1984, to celebrate the works of Michael Polanyi, to share recent developments and research related to Polanyi, and to extend the implications of his philosophy to the field of education.

The conference will begin Thursday evening with a dinner and meeting honoring the Polanyi Society members. Afterwards, Professor Larry Brandy, Philosophy of Education Emiritus, University of Illinois, will address Polanyi Society members and a KSU audience on "Uses of Knowledge." Professor Brandy is widely recognized as an eminent educator. His work parallels that of Polanyi, and he has been eloquent in developing and extending Polanyi's concepts to the educational community. An example of this can be seen in his article "Tact: Knowing as a Rational for Liberal Education," Teachers College Record, February, 1979, Vol. 80, No. 3, pp. 466-467, and in his recently published book, "The Citizen's Dilemma" (Longman, 1981). This book was reviewed by Robert Dock in Educational Theory, Spring, 1981, Vol. 31, No. 2.

On early Friday morning there will be an "abstract session" where Polanyi scholars will offer a report of their current work and distribute papers. In the afternoon, from 3:30 - 4:30 there will be an opportunity to meet with these scholars to discuss their work. There will also be a roster of Polanyi scholars present and a resource center for making appointments to talk with them.

On Friday, March 9, presentations will be made by Professors Richard Gelwick, Maxine Green, Donald Campbell, and Avery Bulles. Professor Gelwick is one of the more prominent and informed interpreters of Polanyi's work and certainly is no stranger to the Polanyi Society. His theme will be "The Polanyi Discovery." Maxine Green, Professor of Educational Foundations, Teachers College, Columbia University, is one of the most sought after speakers in Education. She is remarkable in her grasp of many disciplines—especially philosophy and literature. She will speak on "The Humanities in Education."

Even with an already crowded schedule, Donald Campbell, Professor of Social Relations, Lehigh University, is eager to address this conference, in order, as he stated it, "to meet other Polanyi enthusiasts." Professor Campbell has unique credentials. He has spent extended periods of time with Polanyi both at the University of Chicago and at Oxford University. He is also a former president of the American Psychological Association. His topic will be "Michael Polanyi's Epistemological Sociology of Science and its Implications for Educational Research."

The Rev. Avery Bulles, S.J., theologian at Catholic University in Washington, D.C., will contribute to the religious implications for education by speaking on "What Polanyi Has Meant To Me As A Theologian." Professor Bulles is one of the most respected Catholic theologians in North America today.

After these presentations, the group will adjourn to lunch, following which the guest speakers will interact with each other in a panel and entertain questions and comments from the audience. Following the afternoon sessions with the individual papers, the conference will end at about 4:30 P.M. Friday.

The conference will be held at Kent State University campus in Kent, Ohio. Kent is approximately 40 miles Southeast of Cleveland and 12 miles Northeast of Akron. Both Cleveland and Akron have commercial airports. Where necessary KSU will provide transportation to and from the airports.

The University and the City of Kent have ample housing available for guests. It is hoped that most of the conference expenses for Polanyi Society members can be met by Kent State University.

Brochures of the conference will be mailed to Polanyi Society members and others early in January. Plan now to honor the work of Michael Polanyi and to share in what will be an exciting and informative conference.

Raymond Wilken
Conference Coordinator
Educational Foundations Department
Kent State University

From: Noorman, Polanyi Meditations
though he preached we should engage in debate only with fellow anti-strawman thinkers, debated with heretic Popper. For, I was thus able to enjoy the benefit and the pleasure of the company of both of them. The specific question is there a limit to toleration and is toleration necessary or a sufficient condition for critical debate? Or, can we switch words and ask, is there a limit to critical debate and is it a necessary or sufficient condition for toleration? And are these two qualities similarly related to scientific progress? If we cannot have all three, which should we give up? Any one who both appreciates and disdains from both Polanyi and Popper is bound to ask, what is the order or priority of toleration, criticism and scientific progress? And priority here may be regarded both morally and socially. I hope the present selection of essays will help port my plea for putting this concern high on the agenda, perhaps also for clarifying its background somewhat and pointing to some possible corollaries. Let this be my homage to a great thinker. I hope my harsh criticism is relevant and in tune conducive to the noble concerns he showed in all his writings.

Tel-Aviv. Winter 1960

Joseph Agassi

P.S. "Paul Feyerabend has recently ( Inquiry, 1980) branded Michael Polanyi an elitist and a Stalinist on the authority of Ira Lakatos, who had used the labels 'elitist' and 'Stalinist' interchangeably. And perhaps Lakatos was an authority: not only do Feyerabend and I agree he was both an elitist and a Stalinist; I am backing too, in his extensive review of Lakatos' Autobiographical pieces (British Journal for the Philosophy of Science, 1980), expressed pretty much the same view. Yet there is a paradox here: should we trust an expert Stalinist as an expert, or should we distrust him as a Stalinist? Following Lakatos and Feyerabend I consider here Zabdov's analysis of as part and parcel of Stalinism; rather he worked independently to clarify the scientific tradition which he disrupted. This question may be dismissed by Popper, who said, rather naively, never trust an expert anyway. It was central to Polanyi, who said, the expert is an indispensable ingredient: he is the consensus whose taste in so very much superior to that of the layman, that we will lose much if we fail to utilize his good offices. Nor was Polanyi insensitive to the possibility of the expert abusing his power. He declared the abuse regrettable unavoidable, but recommended it should be controlled lest the scientific tradition be disrupted. This is why, when Stalinism was rampant and its program of planned science popular in the community of science, Polanyi was far from ceding on expert judgments on planned science to organize the Congress of the Freedom and the Committee on Science and Freedom. These organizations were formed to bring about a significant if quiet the immediate postwar years and the World War II, especially in Central Europe before the formation and consolidation there of political parties proper. Whatever history will pronounce as a judge of these organizations and their political activities, it should be noted that Polanyi was dedicated to a cause or intellectual freedom. This made him abandon his prestigious chair in physical chemistry for a chair in sociology. It might also be noted that his judgment of his colleagues was benign to the end: in 1956, soon after the revolution, in the 20th Congress of the Polish Party, of the Stalinist atrocities, Polanyi still viewed the acceptance of Stalin as based on the nationalization of industry and his attraction as rooted in "the messianic claims attached to this measure by Stalin's followers". (The emphasis is in the original.) This judgment contrasts rather sharply with George Orwell's view of the importance of Stalin among intellectuals as power-ahorro: poor.
"Despite Polanyi's great sensitivity to human suffering, he declared the authority of the expert binding without fooling himself or his audience: he was clear about the fact that authority yields power and can abuse it. He clearly distinguished between the external authority of the politician, which he sharply opposed, and the internal authority of the scientific leadership which he endorsed. Yet he was clear about the fact that the internal authority yields power and can abuse it too. He demanded the control of power and devoted much of his career to this task. Yet, this control has no room in his philosophy. The reason is simple: the desired control of power is democratic. But there is a discussion of democratic control in other writings on the philosophy of science that I know of, except for a remark here and an admission there. The critical philosophy of the Popper brand is conductive to it, yet Popper's own philosophy still includes the myth of the unalloyed science and brands as pseudo-scientific all scientific disciplines which controversy is afield. The very preoccupation of Popper with pseudo-science is elitist. This elitism did not mix well with the democratic social philosophy of Popper. Indeed, it goes better with the democratic social philosophy of Polanyi. It is therefore not surprising that Polanyi grudgingly endorsed Popper's ideal of pseudo-science, though with his usual reservation that the scientific elite can overlook any of its acquired habits. It is therefore even less surprising that the Scientia Lakatos tried to offer an explicit elitist criterion of demarcation of science from pseudo-science (see the note by myself and Charles N. Sawyer 'Das Laktos an Elitist?' Politik, 1980) plus the desire to suppress pseudo-science, which demand will be discussed in later chapters in this volume.

"The message of the present volume is this. Science will do better and be more humane if the (inner and outer) democratic controls of the community of learning improve, become more effective, and apply to wider areas. In discussing this I find it necessary to criticize both Popper and Polanyi. Unlike Feynman, however, I try to take note of their devotion to the cause of freedom and democracy. Their advocacy of self-censorship of the commonwealth of learning is understandable, but dangerous and contrary to the very spirit of democracy that obviously does permeate all their writings. It is more important to criticize the unjustifiable tendencies present in the writings of these great democrats like Popper and Polanyi than the very sound tendencies present in the writings of advocates of suppression and violence like Lakatos and Feynman.

"In this, I think, I am a follower more of Popper than of Polanyi, since Polanyi viewed all history as strife and Popper deemed critique as homage. Let my respectful dissent from and critique of both Popper and Polanyi count as my homage to these great philosophers and as an expression of admiration to the spirity of democracy which permeates their writings. On this ground I do not criticise their writings internal criticisms."

The length of this work and the stature of Agassiz merits a critical review. We would welcome a 2000 word review. Any volunteers? 

PB
chasm which yawns between us and - his chosen marker - Jane Austen, between our epoch when thinking and feeling have been dominated by the metaphor of the machine which runs down, and the rest of history.\(^1\) One can view the chasm through many eyes: early on through the eyes of Blake, Coleridge or Goethe or, helped by recent critics, one can see it as George MacDonald or Newman did a century ago;\(^2\) or as T.S. Eliot did in the nineteen twenties,\(^3\) Fergus Kerr recently took readers of New Blackfriars on a lightning tour of some of the twentieth century thinkers who had been aware of the great divide, and of some who weren't.\(^4\) He describes, for example, the rupture which took place between Bertrand Russell, a typical 'logical atomist', on the one hand, and B.N. Lawrence and Ludwig Wittgenstein on the other. Kerr suggests that Wittgenstein should be regarded as the bridge builder par excellence, for he made all his 'upward' moves in the very centre of the philosophical scene, where the issues were sharpest, the ground steepest. The later Wittgenstein, of the Philosophical Investigations, certainly rounds on his own past thinking and on that of other reducible philosophers whose habitual search was for little atoms of clear meaning. Wittgenstein does not revoke his past thought entirely but fits it into a larger, less secure framework, thus:

"We feel as if we had to repair a torn spider's web with our fingers... [The crystalline purity of logic was, of course, not a result of investigation; it was a requirement... We have got on to slippery ice where there is no friction and no in a certain sense the conditions are ideal, but also, just because of that, it is not easy to walk... So we need friction. Back to the rough ground!"

Kerr paints a nice picture of another Cambridge maverick, painting up the slope, F.R. Leavis, who had spent thirty years ignoring Wittgenstein's teaching. Then, browsing one day in Heffer's, he stumbles on a Cambridge, non-reductive philosophy like Marjorie Grene's The Knowing and the Known and this leads him to Michael Polanyi.\(^5\) In my opinion Kerr is too dismissive of both of them and he is wrong to treat Polanyi as peripheral. As, however, we do not have to cast votes in a top guru competition, we may, perhaps, acknowledge indebtedness to all those bridge builders. One of the reasons why Marjorie Grene and Polanyi are still important is their interest in biology and in the growing origins of life, of consciousness and of language. I must say that, as a schoolmaster, searching for friction and rough ground in the nineteenth sixties, it was immensely grateful to both for their friendship and their marvellous books.

Polanyi opened up an approach to a new and liberating way of thinking about education - about knowing and helping others to know. The difficulty was, and still is, that he requires teachers and others interested in education to think in a new and complex way - to think about processes and living systems, about fields and boundaries within which people (ourselves included) form active constituent parts. Not only do we need multi-causal models for such processes but we need also to cultivate a rationality of involvement as well as a rationality of detachment.

Polanyi's thinking about the learning process was in step with many of Piaget's findings about early cognitive development and it often echoes one's own memories of childhood exploring; but it does not conform to the conventional thought models which derive from mechanistic psychology - what Popper calls 'the bucket theory of learning'. Nor is Polanyi in step with the prevailing and predominantly analytic philosophy of education. He reminds us that we can be agents of our own learning and that people can act with a measure of freedom and can change their inanimate environment, and, more important, they can transform their total perception of the cultural field which constrains them.

I propose - following several good precedents - that we take the concept of a field and develop it. The concept started its scientific life in physics and was then pushed up into biology. We shall push it further 'up' into developmental psychology and education. We can start the move with Polanyi where at the end of Personal Knowledge, he speaks of 'a gradient of discovery'. It is as though we, the scientist or the young explorer, are committed to 'the slope' and to the values implicit in it before we can make any discoveries. Notice, too, that such upward model-pushing is in itself inductive; a rational man must be free to borrow concepts from, say, physics or chemistry or cooking and to exploit them at other levels without saying 'nothing but'.

Polanyi's Concept of a Heuristic Field

What kind of things happen when you or I move into a field of discovery and begin to find or make our way there? What is the shifting nature of our perspective when we are thus involved, or of others when they watch us? What about the things we see in an act of discovery or which we construct to help us - prove, say, or hypothesize? And how does it come about that toys sometimes become tools or - to turn in a more Coleridgean direction - that our toys or 'play withs' become 'play withs'? Words are notorious for this protein quality. A metaphor starts life as a play thing, glitters for a while with poetic freshness and later becomes a convenient routine or a cliché. As children we learn all this by experience: that many of our cultural things and projects pass through stages of being fun, of being dangerous, of being boring. Yet as adults and as teachers, we are often虎king to understand the dynamics of such transistions.

Even though much of Personal knowledge had been leading up to the idea of a heuristic field, Polanyi seems a little uncomfortable about it. For forty years, first as a doctor then as a physical chemist he had experienced fields of enquiry but he is well aware that the theoretical ground is treacherous, that terms such as 'lines of force', 'fields of influence', and telic phenomena in general, need careful handling. This is how he introduces the concept:

The lines of force in a heuristic field should stand for an access of opportunity, and for the obligation and the resolve to make good this opportunity. In spite of its inherent difficulties. The idea of such a field suggests... that our expectation to discover truth is justified by our nature as living beings. It asserts the fact that knowing belongs to the class of achievements that is comprised by all forms of living...
Some might say that there were problems about Polanyi's suggestion that all living organisms are 'exploratory' in tendency. We should be in no doubt, however, that human beings are so characterised, and that personal knowledge needs to be understood as a continuously renewed, integrative and creative process. That is the insistent thrust of much of Polanyi's teaching. He returns, again and again, to the question of what constitutes a creative act of enquiry and he illustrates his answer with examples from scientific discovery, from the work of connoisseurs, artists and explorers.

Karl Popper, in contrast to Polanyi, tends to take the early, intuitive processes of discovery for granted and is mainly concerned with how new ideas and new hypotheses, once they have emerged, can be shared, developed and exposed to refutation. Polanyi knew only too well the false starts, the long periods of groping and gestation during which problems are identified and models and hypotheses are generated. In the Tacit Dimension he identifies four more or less distinct stages in the 'getting to know' process and what follows is, in summary, his analysis of what goes on in one person's heuristic field.

Firstly, we bring our skills, our experience and attitudes to bear on an oddity or anomaly in the patterns which especially interests us. We then seek to be on the edge of a field of doubt and possible discovery. We recognise the empirical stage. We then start to work on it. Polanyi calls this the functional stage for it is here that we use the tools of our craft to contort and deform the data. The work of discovery is the discovery of voice and the search for the voice of the scientist.

Secondly, over a period of time we work at the task, with the materials and equipment at our disposal. As we explore the reality, we discover and describe new phenomena. We deform the data again. Polanyi does this both expected and unexpected forms appear. This is what Polanyi calls the 'ontological stage'. He points out that we can only know the state of the world that we can describe, that we can only know the world as it is perceived and understood by us.

Thirdly, there comes a stage when, with much good work, some overall pattern is perceived and a coherent whole begins to emerge. This is the 'a-ha' moment when things fall into place, when the whole is seen and the parts are seen as parts of a whole. Polanyi calls this the semantic stage, the stage when the system is 'true'. For the first time, the Tacit Dimension is verified. The system is valid. The work of discovery is the discovery of knowledge and the construction of the knowledge of the universe.

Finally, there is a stage which may last beyond the life of any single explorer or artist. It is in this stage that the meanings and values of our discoveries are confirmed. It is in this stage that the knowledge of the universe is constructed.

Briefly, then, we bring our functioning competence to bear on a task; unexpected and unexpected phenomena appear; after a time some overall, integrating pattern is perceived and, subsequently, we and others fill out, falsify or stretch to breaking point, that pattern which we once had a hand in discovering.

Polanyi's way of thinking about an explorer's passage through the stages of discovery generalises the experience of many creative craftsmen, poets and scientists. However, for the purpose of thinking about discovery in education, his analysis is insufficient. It omits, or only hints at, several elements which are essential for an adequate conceptual model of what actually goes on. The missing elements are:

Firstly, the teacher who has already travelled part of the way. In research (properly understood), as in education, there will be an enquiring learner and he may have colleagues; but there is no one who already knows the hidden structure.

Secondly, play. Polanyi hints at it, but does little to extend our understanding of this crucial concept.

Thirdly, frontiers. These too are implied by Polanyi but the existential reality of the learner's own perceived limits is not discussed by him and his symbols. If we are to understand the power - both repellant and attractive - of symbols we need to turn to authorities other than Polanyi. Even in his last book, Meaning, which has much to say about metaphor, he does not assign to either verbal or non-verbal symbols their powerful heuristic function.

As far as education goes, we are still tied down, with a rather mean view of what most young humans can achieve. We are also tied down with a very limited and limiting philosophy about what education is. "Education," says Richard Rorty, "is supposed to be abnormal, to take us out of our old selves by the power of strangeness". But, I think we are making a little progress towards the deeper, complex ground.

R. A. Hugill

Notes

2. Sutcliffe, M.J. The idea of a symbol (1900) Ch. 2.
6. F.R. Lewis. The living Principle (1975) pp. 16-69. He discusses Gove's The Knower and the Known (1965) and Polanyi's Knowing and Believing (1969), especially the last's "Invisible Glimpse and Sense Adding". This paper of Polanyi's has especial relevance as, in it, he discusses Chomsky's ideas about linguistic competence and the relationship between the two. I.e. play in the processes which precede linguistic utterance.
7. "The first man of Science was he who looked into a thing, not to learn whether it could furnish him with food or shelter, or weapons, or tools, or ornaments, or play with them, but who sought to know it for the gratification of knowing; while he that thought to know in order to be was the first philosopher: rhine poetan 1114.
9. For a recent statement, see his Objective Knowledge (1972), Chs. 1 and 2.
10. Both Popper and Polanyi accept that a person's knowledge includes vast genetic and other deeply buried layers of information. Polanyi's concept of tacit knowledge includes the consciousness as well as the knowledge and he attributes to the whole a guiding influence which Popper does not. In a paper of mine, 'Making sense and meaning for doing to' (PrefEx, 1981), I defined competence as a relatively accessible, educable part of tacit knowledge. It was not possible to repeat this in the present paper.
11. (1966) Ch. 1, 'Tacit Knowledge'. Polanyi generally preferred the present participle: 'knowing' to 'knowledge' because it stresses the process aspect of 'getting to know'.
FROM *Convivium*, No. 17, Oct., 1983

MICHAEL POLANYI ON REDUCTIONISM

In 1967, the World Council of Churches and the World Council of Christian Education published a report entitled *Education and the Nature of Man*. Amongst the appendices to the main report is one which was written by Michael Polanyi personally. Prof. W.R. Mibelli has kindly allowed this to be reproduced in *Convivium*, pointing out that these six short paragraphs under the heading of Reductionism provide an excellent summary of his general position.

1. Our educational task is set in a culture which tends to accept as real an image of the universe reduced to its tangible parts. We believe this to be misleading. An understanding of a comprehensive entity rests on our integration of its parts. Hence the isolation of the particulars blinds us to the whole; the image of man and human affairs is denatured by such a destructive act. The alternation of detailing and integrating is an essential method of elucidation in many fields; but our education must remember the fact that the essence of man lies in his highest faculties and responsibilities of integration and response.

2. The urge to represent the world in terms of its ultimate particulars springs from the idea of a strict scientific detachment. But to comprehend a coherent entity is to internalize its parts, while attending locally to the whole; hence to avoid such internalization is to destroy comprehension and be left with the isolated parts. Thus the pursuit of strict detachment produces exactitude at the expense of meaning.

3. Various modern systems of thought are open to this criticism. A sociology which would insist that the recent struggle of the American Negro must be explained without acknowledging the moral issue involved in it, is manifestly absurd. And again, when some Western universities and along with them the Western press exploits the revolutionary demand for truth, for the rule of law and for the freedom of conscience, in the lands of Eastern Europe, as the normal outcome of progressive industrialization, this attempt at scientific detachment blinds one to a decisive event of history.

4. A human being, making a responsible decision and dedicating himself to action, can be understood only by responding to his situation as if it were one's own. Systems of explanation which would avoid such involvement, must fail, and fail miserably.

5. This process of indwelling applies to all levels of knowledge. Indwelling recognizes a hierarchy of levels in the universe. Each higher level operates by controlling the boundaries left indeterminate by the principles of the level below it, the lowest level being that of the ultimate particles of matter ruled by the laws of physics. Rising levels add a deeper meaning to the whole and demand a deeper participation for understanding them.

6. This affords hopes of a cosmic perspective in which we can once more place first things first: the living above the inanimate, man above the animal, and the duties of man above man.

THE HIGHER EDUCATION GROUP AND REDUCTIONISM

Here is a condensed account of a considerable series of papers and discussions on 'Polanyi related' themes by a very diverse group of academics. Most of the papers have been published or will become available in duplicated form.

During 1982-83 the HEG planned a series of three meetings on this theme - one at Exeter and two at St. Anne's College, Oxford. Special attention was paid to the influence of reductionism in biology, medicine and psychology. From the first there was little disagreement that reductionist thought can be of great value to scientists when it is a consciously adopted strategy. This is what Arthur Peacocke termed 'methodological reductionism'. Problems occur when its claims are extended - when one moves to 'epistemological reductionism'. For example, in what sense is knowing physics more fundamental than knowing chemistry? A third, more imperial type of reductionism was also identified - the 'ontological' brand. This would involve the idea, explicitly held by a few scientists but implicitly held by many, that there really are no basic truths about the universe, other than those which are arrived at by going along the analytical, 'nothing but' line of enquiry. A good deal of time in the first two meetings was spent in exploring these ideas.

The Preliminary Conferences. Anyone familiar with Polanyi's approach would have been in sympathy with Donald Macray's insistence that 'the s1' story must play an important part in our understanding of any scientific enquiry or of any other 'free' or creative act. Richard Gregory, while accepting a multi-level hierarchy of dependent systems - the chemical being dependent on, and integrated from, the physical etc. - warned us against intellectual short cuts: against, for example, introducing the notion of mystery when we should be confronting puzzles, or against the ready use of such concepts as emergent.

At the September (1983) Seminar at St. Anne's further papers were given or earlier ones were developed. Hilary Burkh gave a fascinating account of her work on 'conversion' with special reference to the Mormons. She demonstrated not only the extreme complexity and strength of such conversions but also the tendency which 'society' displays for reducing the reality of such experiences to 'mere' sickness or even to crime: hence the frequent and often psychologically violent efforts of some parents and other authorities at deprogramming young converts.

Steven Rose focussed attention on the several different, legitimate ways of explaining a simple biological event, such as the sudden movement of a frog's leg.
It can be seen as: 1) a mere mechanical event; 2) as the result of some 'top-down' causation - starting with an act of the frog, seen as a whole; 3) as part of some developmental process; or 4) as part of some ontogenetic change in the species. We then developed a critique of the undue influence of reductionism in biology and psychology and offered a 'dialectical alternative'. This view emphasized both the active penetration of the environment by the organism and the importance to be attached to the fact that all the organisms which we observe have long and complex histories. Mary Higley followed this with a stimulating paper called 'Reduction and the Manufacture of Dragons'. She demonstrated the extent of causal complexity of human act and human dilemmas and - with critical glances at Hawkins and E.O. Wilson - attacked the common, illicit forms of reductionism which make people feel that they are under the control of fatalistic, determinist forces - 'the iron (i.e. demonic) grip of biology'.

Other papers were given by Arthur Peacocke, Donald Mackey, Adam Horton, Cicely Saunders, Gordon Knight and Mary Higley.

The Main Conference

Here again I must apologise for a brief sketch. Perhaps the problem of the conference was that at least four different things were going on. There was some important soul-searching by the Higher Education Foundation about its role. Secondly there was some strenuous development of ideas already touched on: Arthur Peacocke and Eileen Barker probed the philosophical implications of their earlier papers. Peter Hodgson - in a vein consistent with Peacocke's approach, though perhaps more dualistic - presented us with a physicist's view of the ultram micro - all the way down to quarks. Then, thirdly, there were two literary contributions. Anthony Nightingale stretched, and even inverted, the concept of reduction so that many of those who listened must have wondered whether it is possible to 'reduce upwards', e.g. 'Jesus reduced the complexities of the law to the simple commands, ...' In contrast to such simplifying we were invited to contemplate the incredible richness of Shakespeare who created a vast cosmos of complexity and human 'nature'. Whatever our mastery of Peacocke's approach, though perhaps more dualistic - presented us with a physicist's view of the ultra small - all the way down to quarks.

FROM Convivium, No. 17, Oct., 1983


This book was kindly lent to me by Dr. Magda Polanyi. It is an interesting and scholarly collection of essays ranging from Galileo to Einstein, Polanyi and von Neumann. The twenty-eight page article by William I. Scott is entitled Michael Polanyi's Creativity in Chemistry. It recapitulates the exceptionally detailed knowledge of Polanyi's early life, as well as of his expertise as a scientist, who enables Scott to write with precision and understanding of the whole range of Polanyi's scientific work. For the non-scientist, like myself, who unfortunately cannot enter intelligently into Scott's description Polanyi's research into thermodynamics, adsorption of gases, X-rays, crystals and so on, nor follow the diagrams and formulae, there is the compensation of interesting references to Polanyi's correspondence and dealings with such eminent scientists as Einstein and, at the end, a quite excellent section where Scott sums up the significance of the work Polanyi did after exchanging his chair of physical chemistry for one in the Manchester Faculty of Economic and Social Studies. The
essay as a whole skillfully relates the scientific problems which Polanyi studied and the ideas and criteria he developed out of this experience of creative research for thinking about the nature of the world and our position in it. Polanyi's thirteen years at the Kaiser Wilhelm Institute in Berlin were tremendously productive and covered metalurgy, crystal physics, calorimetry, structural chemistry, ionoscopy, reaction kinetics and catalysis. In 1932, Polanyi moved to England. Scott describes how he came to be offered the Chair in Physical Chemistry at Manchester after an interview in which he "brilliantly discussed crystal structure, physical metalurgy, cellulose, contemporary French literature and detective stories". The variety of his research areas in Manchester was also amazingly rich, but I will not dazzle the non-scientist with another long list. Suffice it to say that the essay serves to give this profound and sensitive genius the reputation as a scientist he deserves. In the last few pages, Scott shows that Polanyi offers us a new theory of society drawn from his participation in the community of science and a new way of looking at the personal and social process of acquiring knowledge. His insights have significance both for education and for the organisation of industry. As early as 1935, Polanyi was writing about the failure of the Soviets to control their economic system by central planning and he fought to prevent the move towards central control of science in Britain, which was headed by J.B. Sarnel and J.G. Crowther. "The Marxist delusion of truth as a value, and power in itself was the philosophical fallacy in addition to the practical one that Polanyi saw as the grounds for rejecting the so-called Bernalism." (202)

I cannot resist ending with a lengthy quotation from the end of the essay for the benefit of those.Convictus readers who may find it difficult to obtain the book for themselves. Scott writes of how Polanyi found the Laplacian view of the world useless as a model for science, since every organised system has its own laws of organisation or order of operation, which control the boundary conditions for the underlying laws of physics, and so are not derivable from these laws.

Hence, the world, for Polanyi, is a hierarchy of many levels of complexity and organisation, from elementary particles up to persons and to culture, each higher level being logically independent of the lower. Among the laws of complex organisation, one should be singled out for its special interest to Polanyi. That is the law of spontaneous ordering such as I have described for the community of scientists for coordinating with each other. Another example is a community of buyers and sellers in a free market coordinating to develop a price structure. And in the evolutionary span, survival efforts, curiosity in the exploration of new ecological niches, and chance mutations all coordinate into the release of the hidden potentialsities of the ever-widening family tree of new species.

Within an individual life, new ideas make creative changes, and in fact all of our conscious existence has an irreversible, growing character. Even the premises and methods of science undergo irreversible, creative changes with every act of discovery. We face an indefinite future, as the consequences of our efforts and perceptions of the events around us will unfold in unforeseeable ways. Our security is not to be found in certainty but in faith, faith that we can make even more contact with reality and that we can together face problems, not only the scientific but the technical and especially the human, if we can utilise in community our powers of mind and perception.

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