

Knowing and Being

Knowing and Being:
Perspectives on the Philosophy
of Michael Polanyi

Edited by

Tihamér Margitay

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P U B L I S H I N G

Knowing and Being: Perspectives on the Philosophy of Michael Polanyi,
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*To the memory of Michael Polanyi,
the philosopher of inspiring thoughts*

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INTRODUCTION

“We know more than we can tell”¹—this famous citation from Polanyi is the motto of the first half of a book that is not on Polanyi, and which is not even on philosophy; rather, it is a cognitive psychology book on judgment and decision making and other human cognitive capacities. Gigerenzer’s *Gut Feelings: The Intelligence of the Unconscious* (Gigerenzer 2007) summarizes the results of one of the most distinguished scholars in cognitive psychology who has given a new twist to the formerly dominant heuristics-biases view of human judgment and decision making. Cognitive unconscious (being strictly distinguished from the Freudian unconscious) is a cutting edge research area within cognitive psychology, and somewhat surprisingly Polanyi is often a point of reference here.² The surprise is due not only to the fact that an empirical scientist mentions a philosopher, but also to that Polanyi himself proceeded from a psychological theory, from Gestalt Psychology and then resolutely turned it into a *philosophical* theory of knowledge;³ and, now, his revolutionary theory of tacit knowing returns to psychology and fertilizes it. Another example of unpredicted ramifications coming from Polanyi’s philosophy is given via the recent developments in management sciences and organizational practices. His theory of tacit knowing and his considerations on types of social cooperation or his thoughts concerning the division of cognitive labour are relied upon in knowledge⁴ and project⁵ management. The importance of implicit knowing, its essentially collective features, and the role of spontaneous order is realized in these areas of management theory and practice, going so far in that Polanyi’s trademark, the term “tacit knowledge”, appears even as a business dictionary entry nowadays.⁶

¹ Polanyi(1969, 172) Cf. also Polanyi (1966, 4).

² See, for example, Eysenck and Keane (1990), Myers (2002), Klein (2004), Holyoak and Morrison (2005), Koehler and Harvey (2007).

³ Mullins elaborates this theme in his paper in this volume.

⁴ For example, Nonaka and Takeuchi (1995), Krogh et al (2000), Nonaka et al (2008).

⁵ For example, Koskinen 2000, Koskinen et al 2003, Rang and Targama 2008.

⁶ E.g.: *BusinessDictionary.com* 2009 The “Tacit knowledge” entry in *Wikipedia* (2009) also discusses this concept as, basically, a concept of knowledge management.

Polanyi has no less a lively presence in contemporary philosophy. Monographs are published on his life⁷, and his philosophy is widely discussed in books as well as being approached from various perspectives by articles in scholarly journals.⁸ This volume is just another documentation of his presence in international intellectual life.

The originality of his thoughts and the uniqueness of his synthetic views on many fundamental philosophical issues always made him hard to classify inside the main currents of philosophy; indeed, his philosophy initiated a new and independent philosophical tradition in the second half of the 20th century. The papers in this volume analyze Polanyi's ideas concerning *knowing* and *being* (i.e. epistemology and ontology), and most of them do it in a comparative way, in dialogue with other major traditions. In the title of our volume we are also making a respectful reference to a collection of papers of Michael Polanyi (1969), *Knowing and Being*.

The first part of this book is devoted to different aspects of Polanyi's theory of knowing; Mullin's essay explores the historical origins of its basic notions, while Zmyslony's makes a conceptual analysis of them; and the rest of the papers in this part investigate Polanyi's theory within the contexts of different major contemporary traditions and notes important connections.

Gestalt psychology is one of the most important and seminal sources for Polanyi's philosophy. Mullins' essay, *Michael Polanyi's Use of Gestalt Psychology*, traces Polanyi's adaptation of ideas found in Gestalt psychology, beginning with Polanyi's early writing, which articulates a vision of liberal society and ends with his late "Meaning" lectures (Polanyi 2006). Following Polanyi's progressive transformation of Gestalt ideas, Mullins charts the overall development of Polanyi's philosophical ideas in the course of his career. He points out the historical and conceptual connections between Gestalt thoughts and Polanyi's key ideas, including not only his theory of tacit and personal knowledge but also his social views on planned and dynamic order as well as his conception of meaning.

The theory of tacit knowledge is Polanyi's most revolutionary and most influential contribution to philosophy. Zmyslony's paper, *Various Ideas of Tacit Knowledge*, offers a conceptual analysis and an analytical typology of various notions of tacit knowledge occurring in the texts of Polanyi and in the writings of some of his major interpreters. The author concludes that although the idea of tacit knowledge varies according to

⁷ Scott and Moleski (2005)

⁸ It is remarkable that there are three philosophical journals inspired by and partly devoted to Polanyi's philosophy, namely, *Appraisal*, *Polanyiana* and *Tradition and Discovery*.

particular contexts one can distinguish its two basic concepts. The first refers to the knowledge that one seems to have about the subsidiary particulars (the clues) of an experience; while the second refers to knowledge of how to integrate these particulars into a meaningful whole. Both of these ideas of tacit knowledge undermine the traditional analysis of knowledge as justified, true belief, as totally explicit propositional knowledge.

By claiming that “Indwelling is Heidegger’s being-in-the-world”, Polanyi (1964) reveals the interconnectedness between his theory of tacit knowing and the phenomenological tradition. Keeping in this direction, Yu’s essay, *Being-in-the-World in a Polanyian Perspective*, explores the epistemological implications of Heidegger’s notion of “Being-in-the-world” from the perspective of the theory of tacit knowing. He points out various intriguing and instructive analogies between Heidegger’s existential understanding and Polanyi’s tacit knowing—and claims that Heidegger’s analysis of being-in-the-world lends strong support to the theory of tacit knowing in its effort to challenge the representational conception of knowledge of modern epistemology. By creating a dialogue between the Polanyian and the phenomenological tradition, Yu discloses intellectual resources and inspirations for the development of the theory of tacit knowing.

Pursuing further the relationships between Polanyi’s philosophy and the philosophical hermeneutics, Mulherin’s paper, *A Rose by another Name? Personal Knowledge and Hermeneutics*, explores some parallels between Polanyi’s personal knowledge and Gadamerian hermeneutics. It is motivated by three questions: 1. To what extent are Gadamer’s theory of understanding and Polanyi’s work on personal knowledge saying similar things albeit in different languages? 2. How can philosophical hermeneutics and Polanyi’s personal knowledge mutually inform one another? 3. Can we move towards a fusion of Gadamerian universal hermeneutics and Polanyian personal knowledge? Although, apparently, neither author was significantly influenced by the other, Mulherin claims that Polanyi and Gadamer draw a strikingly similar picture of human knowledge.

Moral knowledge is the central problem of Lewis’ essay, *Teaching to Form Character: A Polanyian Analysis of Practical Reasoning*. Since the 1970s, philosophical and theological ethics has rediscovered the importance of character. While this renewed emphasis has served as a valuable correction to earlier trends in these disciplines, it has made little progress in determining how good character can be formed. Taking its bearings from Aristotle’s claim that skillfulness in practical reasoning represents the epitome of good character, this paper explores the ways in which Polanyi’s account of personal knowing is able to enrich Aristotle’s account of

practical reasoning and its formation. In many ways, an account of practical reasoning as informed by Polanyi extends the classical account in some potentially fruitful ways. Polanyi's treatment of perception as the tacit integration of subsidiary clues into a focal entity in the from-to structure of knowing, and his uncovering the phenomenon of indwelling as empathy add new layers to what is involved in moral deliberation.

Rutledge's essay, *Individual and Community in a Convivial Order, or Polanyian Optimism*, analyzes the roles of the individual and the community in what we call knowledge, and in how we come to know. The paper sketches the critical view of knowledge, then articulates the features of Michael Polanyi's post-critical philosophy that preserve the freedom of individual thought while also embedding that individual within a community whose shared values make common life possible. Thus neither individual nor society need be left out of our epistemology, but their relationship must be redefined. Polanyi's affirmation of the universal intent of all our knowledge claims grounds knowing in individual commitments that exist within the matrix of traditions and authorities that give those commitments both logical force and intellectual reach. This strongly embedded personal knowledge is in the service of human life, making it "human"—and, as Rutledge points out, this is, indeed, an optimistic stance on knowledge, individual and community.

Fehér investigates the contemporary changes of the social role of science in her paper, *Polanyi on the Moral Dimension of Science*. In Polanyi's view, science is essentially a moral venture for mankind and, thus, scientific research is not merely a cognitive but also a *moral* task for scientists. Knowledge claims need not only justification by means of methodological rules—it also requires a guaranty by the moral rules accepted by and embodied in the moral integrity of scientists. Truth seeking needs not only cognitive capacities but a moral stance as well. Today, however, science has entered into the *post-academic phase* (in Ziman's terms), in which science is in the service of economics and industry. The moral dimension and the personal element of scientific research work within R+D are fading away. Instead, its instrumental value and profitability is strengthening. And the guaranty of truth of knowledge claims is, rather, that they in actual fact work within the context of technology. Yet when knowledge is no longer personal but is a result of a service delivered for a big corporation on a project-financed basis, then something very important is being lost—namely, trust in science and scientists. Bureaucracy and economic constraints have come to take its place.

The second part of the volume explores Polanyi's theory of being in various contexts. Margitay's contribution, *From Epistemology to Ontology*,

analyzes the hierarchical structure of ontology and the arguments for it. Polanyi fervently proposes a layered ontology with emergent structures at each level of it; and he has two kinds of argument to render this hierarchical picture of the world plausible. On the one hand, he seems to argue from the structure of knowing for the emergent ontological structures, while, on the other, he brings up a purely ontological argument. Margitay analyzes how Polanyi's theory of knowing bears on his own ontology and offers two possible reconstructions concerning how the first could logically support the second. He claims that neither of them is satisfactory—nor is Polanyi's purely ontological argument from identification. Though Polanyi's arguments are insufficient to support his multilayered ontology, but—Margitay concludes—the personal level remains fundamentally novel to and emergent upon the physical provided that one accepts Polanyi's account of knowing.

One of the most powerful theories of contemporary analytical philosophy of mind is the non-reductive physicalism. It is substance-monist while claiming that mental or psychological properties are real, substantive, and non-reducible elements of the world. Dinnyei's paper, *Downward Causation*, first sketches Jaegwon Kim's argumentation, pointing out that downward causation is a consequence of an ambivalent non-reductive physicalism. For this problem, Kim suggests a strategy of a moderate reductionism. Dinnyei offers an alternative solution, one based on Michael Polanyi's theory about the ontological consequences of tacit knowledge. The author argues that if one accepts the Polanyian ontology, then one will obtain a non-reductive version of physicalism that is, firstly, coherent and, secondly, free from a problematic downward causation.

In his paper, *Polanyi and Evolution*, Paksi discusses Polanyi's views on life that have been much disputed and mostly misunderstood. He provides a comprehensive picture of Polanyi's far-sighted idea of evolution. In contrast to neo-Darwinian theories, Polanyi does not accept that the mechanism of natural selection is the principle of evolutionary development. Paksi reconstructs Polanyi's criticism concerning the neo-Darwinian theory, namely, that it is not able to explain complex forms of life. Variation and selection via the restricted resources of the environment can explain only *change* but not the *evolution* of the ever more complex biological structures that it should. Paksi reconstructs the Polanyian principles of life and evolution on the basis of Polanyi's ideas of boundary conditions and emergence. He argues that Polanyi's theory is an improvement compared to the neo-Darwinian ones, and it provides a more plausible account of evolution and life than do rival explanations.

In *The Immortality of the Intellect Revived*, Blum contrasts Polanyi's thoughts on the possibility of the thinking machine with Turing's, and then interprets their debate on the functionalist approach to the mind in the light of ancient and medieval discussions of the immortality of the soul. He shows that the debate between Turing and his opponents repeats a problem that was important in the history of the philosophy of mind. Polanyi—responding to Turing's challenge—exposes to the reader the mixture of metaphysical and epistemological claims included in the seemingly technical question: "Can computers think?"; and he brings the traditional solution (operationalist vs. essentialist) further by showing that operation insofar as it is intellectual originates from *beyond* the area and objects of operation (brain or computer). Polanyi thus helps interpret the immortality debate of early modernity as a fallacy, as it identified the thinking subject with its means of thought, although a brain is a brain only for a mind that thinks with it.

The modern notion of radical autonomy represented, for example, by Sartre is that, when faced with a meaningless and determinist world, each of us has to choose all his beliefs and commitments for himself. Emotion is therefore suspect because it arises from and engenders desires, attachments and commitments that we have not chosen for ourselves. However, as Allen argues in his study, *Emotion, Autonomy and Commitment*, this notion of autonomy is incoherent. For to choose is to choose by principles of preference which, in the act of choice, are themselves unchosen. Polanyi's philosophy recognises the necessarily *acritically* unchosen fundamental beliefs and commitments by which we must think and act. Belief, trust and faith are prior to and presupposed by knowledge, suspicion and doubt. Our autonomy can therefore be only a limited one.

Gulick illuminates Michael Polanyi's theories of social being in a comparative historical study, *The Social Thought of Karl and Michael Polanyi*. The relationship between Michael and Karl Polanyi was strained in part because their world-views were at odds. The typical description of Michael as a market liberal and Karl as a socialist, however, does not adequately capture the subtleties of their social thought, nor does it suggest the many values and ideas they shared. Gulick traces the differences in their world-views back to the time of the early maturity of the brothers, highlights factors that sustained their differences, but then suggests that the differences were somewhat mitigated in their later years. He argues that ideas from both brothers can contribute to the formulation of policies, ones especially needed now, which might support global justice, peace and sustainability.

This book has grown out of a conference held in Budapest in 2008 at the fiftieth anniversary of the publication of Polanyi's seminal opus magnum, *Personal Knowledge*. The presentations given at the conference and the papers in this volume attest that his abiding thoughts inspire many thinkers today, too, and demonstrate the long-standing effects of his works on the history of ideas.

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PART I

KNOWING

CHAPTER ONE

MICHAEL POLANYI'S USE OF GESTALT PSYCHOLOGY

PHIL MULLINS

Introduction

Anyone who has carefully studied Polanyi's writings notices that Polanyi frequently makes brief comments about Gestalt psychology and its connection with his own epistemologically-oriented philosophical perspective. Some scholarly discussions of Polanyi's perspectives do indeed comment on the connections with Gestalt ideas. In a 1962 review of *Personal Knowledge*, biographer Bill Scott noted that Polanyi was working out a "Gestalt philosophy." Scott suggested that Gestalt psychology provided "the chief philosophic background that allowed Polanyi to draw attention to the tacit elements in the scientific process that he stresses" (Scott 1962, 366). Several of the introductions to Polanyi's thought also briefly note that Polanyi was influenced by Gestalt ideas.¹ Richard Gelwick's short discussion intriguingly suggests that both the early and late Polanyi recast some of the basic Gestalt ideas (Gelwick [1977] 2004, 61-62). This essay explores in some detail the line of thought hinted at in Gelwick's suggestions. I analyze how Polanyi at different stages of his career progressively transforms Gestalt ideas. I argue that noting the path of this transformation is a reasonably good way to chart the overall development of Polanyi's philosophical ideas during the course of thirty-five years.

¹ Mitchell (2007, 70-71), Scott ([1985] 1995, 55-58), Prosch (1986, 52-53).

1. Two Kinds of Order

Polanyi left Berlin for Manchester in 1933, and the years before the end of World War II were particularly important for the development of his future philosophical ideas. Until 1948, Polanyi had a university appointment as a physical chemist, but after his move to Manchester his interests seem to have become progressively broader. Polanyi's interests were never very circumscribed, but it is certainly clear that in the period before and during the war Polanyi was drawn deeply into the public discussion about social organization and, particularly, about the relationship between the scientific community and society.² Marxist-influenced views of science were popular in England before Polanyi arrived and they were also very likely to have been of interest to Polanyi before 1933. His first trip to the Soviet Union was in 1928, and Scott and Moleski suggest he was, by this time, already deeply interested in political and economic issues (Scott and Moleski 2005, 108-109). As Polanyi's *The Contempt of Freedom*,³ his comments in the 1963 introduction to the reprint of *Science, Faith and Society* (Polanyi [1946] 1964, 7-9) and the Polanyi biography (Scott and Moleski 2005, 154-192) make clear, Polanyi, in the late thirties and early forties, became an important voice in the discussions about "planned" science. I regard Polanyi's 1941 essay "The Growth of Thought in Society" as one of his most important early comments on science and society and it is also an early essay in which Polanyi's ideas are linked to

² Gelwick is likely correct when he says of Polanyi "the whole world is his only genuine interest." He also notes, as I shall discuss below, that Polanyi's involvement in the freedom of science controversy required Polanyi to synthesize his emerging philosophical ideas, which thus led "him deeper into the problem of knowledge" (Gelwick [1977] 2004, 39).

³ As Polanyi's June 3, 1940 Preface to *The Contempt of Freedom* notes, this material comes from 1935-1940. It includes the 1939 essay "Rights and Duties of Science" as well as the 1940 essay "Collectivist Planning." The latter includes discussion about liberal society and "supervision" as "the method by which the cultivation of things of the mind is regulated" (Polanyi 1940a, 37). There is thus thematic overlap with the 1941 essay "The Growth of Thought in Society" (Polanyi 1941a—see the extended discussion below), although there is no reference to Gestalt ideas in "Collectivist Planning." Some of the heavily redacted, unpublished archival manuscript—written in Wales in Sept. 1940, and entitled "Foundations of Freedom in Science" (Polanyi 1940b)—apparently became part of the published 1941 essay "The Growth of Thought in Society", although there is no mention of Wolfgang Kohler here, as there is in the published article.

Gestalt theory.⁴ This essay is a review article focusing on J. G. Crowther's 1941 *Social Relations of Science*. Polanyi intended to rebut Crowther's Marxist-oriented views, but he does this by articulating his own vision of a

⁴ There is at least one other Polanyi document before 1941 that makes reference to Gestalt, a two-page 1939 unpublished archival piece simply entitled "Notes on Prejudice": "Faith is in many cases a condition for understanding. Indeed, Gestalt psychology shows that the very contents of our sensation depend on recognising their meaning. Perception is interpretative" (Polanyi 1939a). This early statement is interestingly akin to the account of perception outlined in *Science, Faith and Society* (which was originally published a few years later in 1946), and more carefully worked out in *Personal Knowledge* (which was originally published in 1958, almost twenty years after "Notes on Prejudice" was written). It also resembles Polanyi's later discussions of Augustine's faith seeking understanding, and, more generally, what Polanyi calls the "fiduciary program" (Polanyi [1958] 1964, ix) in the period of *Personal Knowledge* (see discussion below). However, this 1939 reference does not hint at the use of Gestalt ideas to describe dynamic orders and produce a vision of a liberal society (matters that are focal interests in Polanyi's 1941 essay "The Growth of Thought in Society"). Endre Nagy suggests that in the earliest phase of Polanyi's efforts to conceive the organization and dynamics of the social order, he focused on "growth", "construction", and "sectionalism" (Nagy 1992/1993, 152-157). The unpublished manuscript "The Struggle of Man is Society"—written in late 1939 and 1940—does use these terms; Polanyi clearly does not have his conceptual scheme well worked out. Polanyi's "growth" is a method of social cooperation in which there is "adding elements, one at a time, at the points where growth is indicated, and when the points at which growth is indicated can become known to all of the individuals which are capable of making the contribution in question..." (Polanyi, 1939-40). "Construction" is a rather vague category but seems for Polanyi to be linked to non-organic social change. "Sectionalism" describes the somewhat distinct "spheres" in which authority is located: "Doctors, qua doctors, are not to be judged by artists, and vice-versa" (Polanyi 1939-40). Between June and early October, 1941, Nagy suggests that Polanyi discovered Kohler's Gestalt ideas about self-organization, and this led him to a more careful and rich way to reformulate his social ideas in terms of his thesis about "two kinds of order" (discussed below)—which is a theme he carries forward at least through *The Logic of Liberty*. Because Polanyi uses the term "dynamic order", Nagy believes that the discussion in Polanyi's unpublished October 7, 1941 lecture "The Liberal Conception of Freedom" (Polanyi 1941b) shows that Polanyi had by early October read Kohler; so far as his social philosophy goes, "this is a turning point in Polanyi's intellectual development" (Nagy 1992, 110). There is, however, no direct reference to Kohler that I can find. Nagy does offer a plausible account that explains when Kohler is discovered by Polanyi, although Polanyi's "Notes on Prejudice" imply that he probably knew at least something about Gestalt ideas before 1941. See also the related discussion in footnote 5 of Polanyi's 1940 discussion of "planning" and "supervision", which apparently also predates his discovery of Kohler.

liberal society, in which science is an important community of persons pursuing truth:

this essay is to analyse the part played in society by the ideal of Science, and by the ideals of other aspects of truth: We shall trace the principles of organisation which are appropriate for the service of these ideas, and through which the intellectual and moral order of society is established and developed further. We shall demonstrate that the abandonment of the ideals of truth logically entail the replacement of these ideas by fanaticism coupled with cynicism—and that the establishment of a totalitarian rule of unscrupulous fanatics must follow. (Polanyi 1941a, 419)

The key to the view of science and society that Polanyi sketches as an alternative to Crowther and others more interested in centralization is what Polanyi dubs his thesis about “two kinds of order.”⁵ This thesis is quite general insofar as Polanyi applies it to both natural and social phenomena. One kind of order “consists in limiting the freedom of things and men to stay or move about at their pleasure, by assigning to each a specific position in a pre-arranged plan” (Polanyi 1941a, 431). However, there is an opposite principle underlying other kinds of order in both natural and human settings:

In this type of order no constraint is applied specifically to individual particles; the forces from outside, like the resistance of the vessels [holding a liquid] and the forces of gravitation, take effect in an entirely indiscriminate fashion. The particles are thus free to obey the internal forces acting between them, and the resultant order represents the equilibrium between all the internal and external forces. (Polanyi 1941a, 431)

⁵ As noted in footnote three, Polanyi's 1940 essay “Collectivist Planning” has distinctions similar to those discussed in terms of “two kinds of order” in “The Growth of Thought in Society”. R. T. Allen includes the essay in the collection of Polanyi essays entitled *Society, Economics and Philosophy, Selected Papers of Michael Polanyi*, which he edited (Polanyi 1997, 121-143). Allen identifies the essay as based on an April, 1940 talk: he says it was Polanyi's “first published statement of the impossibility of central planning and his explanation of what in fact passes under that name” (Polanyi 1997, 121). In the essay, Polanyi identifies “two alternate methods of ordering human affairs” (Polanyi 1997, 129) and he describes “planning” or “comprehensive planning,” and “supervision” or supervisory authority” (Polanyi 1997, 129). He says “supervision is in the first place the method by which the cultivation of things of the mind is regulated” (Polanyi 1997, 127). See my discussion of this essay in connection with Polanyi's early discussions about how science fits into larger society (Mullins 2003).

In his article, Polanyi cites Wolfgang Kohler's 1929 edition of *Gestalt Psychology* as offering the view that "the perception of a Gestalt is due to the mutual interaction of the elements in the sensory field" (Polanyi 1941a, 432) as an example of the complexity of some spontaneously arising orders and he later credits Kohler with using the term "dynamic order" to identify orders that are the result of a spontaneous, mutual adjustment of elements (Polanyi 1941a, 435). Like Endre Nagy, I suspect it was Kohler's larger discussion that helped Polanyi formulate his already incubating "two kinds of order" thesis. Polanyi's writing in the years immediately preceding publication of this 1941 article was already moving in the direction suggested by the "two kinds of order" formula.⁶ Kohler's broader discussion in *Gestalt Psychology* lays out the shortcomings in the approaches of those he termed "introspectionists and behaviorists" (Kohler, 1929, 106), psychologists who did not appreciate "dynamical order and regulation," which Kohler contends is "well established by physical theory" (Kohler, 1929, 194). Kohler contrasts processes involving forces operating under external "limiting topographical conditions" (Kohler, 1929, 112)—as you might find in a machine—with forces whose interplay is not so constrained. He contends that "dynamical interaction, undisturbed by accidental impacts from without, leads to orderly distribution, though there are not special regulative arrangements" (Kohler, 1929, 139)⁷

⁶ Nagy (1992/1993, 152-157) See the discussion in footnotes 3 and 4 above.

⁷ Wolfgang Kohler came to Berlin not long after Polanyi came to the Kaiser Wilhelm Institutes. Kohler was appointed head of Berlin's Psychological Institute in February 1922, and he remained in the position until 1935, two years after Polanyi left Berlin. I have here quoted material from Kohler's 1929 *Gestalt Psychology* because this is the book Polanyi cites in his 1941 article "The Growth of Thought in Society." Certainly, Kohler was not the only figure involved in the discussions that came to be called Gestalt theory or Gestalt psychology. It is not clear how much Polanyi may have known about some of these Gestalt discussions stretching back to the late nineteenth century and including figures like Dilthey, Lipps, Kurt Lewin, Max Wertheimer, and Kurt Kofka. There are references to all of these figures in Polanyi's later writings, and the latter three were contemporaries of Kohler and their work often seems to have been closely connected. In *Personal Knowledge* ([1958] 1964, 418), there are over a dozen references to Kohler, as well as a few references to Lewin, Wertheimer, and Kofka. A number of the references to Kohler are references to his studies of animal problem solving. Mitchel Ash's *Gestalt Psychology in German Culture, 1890-1967* discusses the development of Gestalt psychological theory in terms of four stages: Wertheimer's work on motion perception; Kohler and Kofka's expansion of Wertheimer's theoretical perspective and its application to perception and human behavior and animal problem solving; Kohler's extension of the "Gestalt principle to the external world and the psychophysical problem" (Ash 1995, 118); and Wertheimer's studies of productive think-

Some of Polanyi's examples of dynamical order are interesting since they seem to be drawn straight from the world of a chemist who has spent some years studying crystals.⁸ It seems that there is a natural complementary between some of Polanyi's developing social philosophy and Kohler's discussions.⁹ Polanyi notes that when external forces are

absent or negligible, and the internal forces operate alone, the resulting equilibria present even more striking regularities. Fluids, gases and liquids take on spherical shapes; and at lower temperatures substances solidify into crystals, in which the atoms are arrayed at faultlessly even intervals in the three dimensions of space. (Polanyi 1941a, 431)

He emphasizes that by cooling a solution, millions of molecules can be very quickly and cheaply sorted out and stacked in a regular formation. Polanyi draws this general conclusion: ". . . when very large numbers are to be arranged carefully, this can be achieved only by the spontaneous, mutual adjustment of the units; not by specific assignment of the several units to positions in a pre-arranged plan" (Polanyi 1941a, 432). Not all of Polanyi's examples of complex self-ordering systems are drawn from chemistry. In a way that somewhat resembles later discussions in Part IV of *Personal Knowledge*, Polanyi notes that "the evolution of the embryo from the fertilised cell may also be regarded as arising from the continuous tendency of its particles, interacting with the nurturing medium, to come to an internal equilibrium" (Polanyi 1941a, 432).¹⁰ He also briefly sketches

ing and his interest in a new logic. I am indebted to Ash's rich book for background as well as some details about figures like Kohler and other Gestalt thinkers. In sum, by 1941, Polanyi seems to know something about the Gestalt literature of Ash's second stage; by 1958, in *Personal Knowledge* ([1958] 1964, 340-343, discussed below), Polanyi has developed a detailed criticism of Kohler's "isomorphism" (stage three) and he has, additionally, carefully studied Gestalt treatment of animal problem solving and makes much use of it.

⁸ Polanyi actually uses the term "crystallizing forces" (Polanyi 1941a, 432) at one point to identify mutual adjustment or interaction among units controlled by internal forces seeking equilibrium.

⁹ Ash points out that Kohler was very broadly trained in the sciences and philosophy and almost pursued work in physics, so perhaps it is not a surprise Polanyi came to appreciate his interdisciplinary discussions. For Kohler's historical background, see Ash (1995, 111-113).

¹⁰ This is what Polanyi calls "morphogenesis" in discussions in Part IV of *Personal Knowledge*; Polanyi contends that Kohler's isomorphism, an automatic process bringing forces into equilibrium, is not an adequate explanation of intelligent behavior since intelligent behavior must be recognized as an *achievement* by a living creature. Similarly, morphogenesis is not adequately understood when con-

an account of evolution in terms of internal forces seeking equilibrium: “The entire evolution of species is commonly thought to have resulted from a continued process of internal equilibration in living matter, under varying outside circumstances” (Polanyi 1941a, 432-433).

The primary thing that Polanyi does with his account of “two kinds of order” is, of course, use it to articulate his vision of a liberal society, a vision in which science is one important, self-governing sub-community. He acknowledges that planned or corporate orders are appropriate for some uses in social life, but he suggests that to be effective such orders must have a carefully coordinated pyramid of authority; they are not, for the most part, well suited for solving problems that are complex (i.e., ones that have many agents involved)¹¹ and administrative chaos follows when one attempts to replace an order achieved by mutual adjustment with a corporate order. Polanyi suggests that the best known dynamic order in society is the economy, with its competitive production and consumption, which are the internal forces working towards equilibrium. However, it is really not the economy that interests Polanyi but what he calls the “most varied types of dynamic order ... found in the intellectual and moral heritage of man.” (Polanyi 1941a, 436).¹² First, he briefly sketches the system by which the law is reinterpreted using precedents; this is “a process of direct adjustments between succeeding judges” (Polanyi 1941a, 436). Next, he turns to science, the dynamic order of most interest in this essay, where his purpose is to counter the vision of science put forth by Crowther. Science is a community of inquiry in which “discovery in the end will be largely based on thousands of previous discoveries; and though the new addition will always modify the previously prevailing ideas to some extent, and sometimes may cause revolutionary changes in outlook, the essential unity of science will be maintained” (Polanyi 1941a, 437). In

ceived merely as a physical-chemical process paralleling isomorphism, according to Polanyi, since morphogenesis is a process that may succeed or fail.

¹¹ Somewhat later in *The Logic of Liberty* (1951, 176), Polanyi speaks of the “polycentric task” that involves “balancing a large number of elements.”

¹² In an unpublished archival manuscript—“Remarks sent to Prof. Roupize,” dated February 2, 1939 (1939b)—Polanyi ruminates on the “spiritual weakness” of capitalism, insofar as the individual sees himself or herself as “starkly acquisitive” and “does not even feel that what he or she does is useful to anybody.” Polanyi seems to see central planning as a reaction against this “spiritual weakness,” but he thought that education in economics might help remedy the weakness. As late as 1962, in “The Republic of Science: Its Political and Economic Theory,” Polanyi comments on the economy as a “special case of co-ordination by mutual adjustment” (1969, 52), which he compares to the kind of adjustment in the intellectual, dynamic order of science.

sum, what Polanyi does in his essay is sketch the operations of three different dynamic orders in society—the economy, the law and science—arguing that they are analogs. He briefly compares these different dynamic orders, noting, for example, that science is a more cognitive order and that law is a more normative order. The most important point, however, is that, for Polanyi, society is a fabric chiefly constituted by many dynamic orders. Here, he puts this matter clearly:

There exist many other systems in the intellectual and moral sphere. . . . The social legacies of language, writing, literature and of the various arts; of practical crafts, including medicine, agriculture, manufacture and the techniques of communications; of sets of conventional units and measures, and of customs of intercourse; of religious, social and political thought; all these are systems of dynamic order which were developed by the method of direct individual adjustment, as described for Science and the Law. (Polanyi 1941a, 438)

This 1941 article goes on to discuss the ways in which the work of the many dynamic orders in liberal society can be preserved and fostered. As part of this discussion, Polanyi articulates his claims for “public liberty” which, unlike private freedom, “is not for the sake of the individual at all, but for the benefit of the community in which dynamic systems of order are maintained” (Polanyi 1941a, 438). Public liberty is concerned with the freedom of the individual to be responsible, within the context of conscience, to respond to the achievements of others in a dynamic order and thus to be faithful to the transcendent ideals of the dynamic order. Public liberty helps resolve disputes and reform tradition. In addition, Polanyi works out his interesting understanding of the “Totalitarian State, which claims that it completely represents all the collective interests of the community, (and) must reject the rival claims of individuals to act independently for the benefit of society” (Polanyi 1941a, 438). In other words, the totalitarian state does not allow public liberty since it sees itself as the only competent instrument for deciding what the social good is and how it should be pursued. For Polanyi, communists and fascists alike fundamentally misunderstand dynamic orders and their role as the foundations of social life: “The hope of progress through the pursuit of various forms and aspects of truth—artistic, scientific, religious, legal, etc.—by a number of autonomous circles, each devoted to one of them, is the essential idea of a Liberal Society, as contrasted to a Totalitarian State” (Polanyi 1941a, 448). In sum, Polanyi's attack on Crowther presents a vision of liberal society which is a creative social application of his thesis about “two kinds of order,” a thesis that he develops from some of the ideas that Gestalt

theory popularized about the dynamics of forces. More broadly stated, much of Polanyi's philosophizing in the forties and early fifties is concerned with what Scott and Moleski call articulating "the philosophy of freedom."¹³ And this philosophy was enriched by what he found in Gestalt discussions.

2. Two Kinds of Awareness

Polanyi's developing ideas in the forties reflect that his interests eventually shift somewhat from the project of articulating a vision of liberal society. This shift is not truly a change in direction so much as it is a looking for deeper roots that underlie his socially-oriented constructive philosophical ideas emphasizing dynamic orders, public liberty and mutual adjustment. His writing in the mid-forties also stresses tradition and authority and the continuity between perception and the specialized perception (or skills) in science. Certainly, these themes might be construed as being "on the road" to a broader epistemologically-grounded philosophical vision akin to the kind of reflections found in the Gifford Lectures in the early fifties and *Personal Knowledge*, published in 1958. Scott and Moleski (2005, 202) suggest that in the Riddell Lectures (March, 1946) Polanyi ends on a note emphasizing the role of belief and conscience in science. Marjorie Grene reports that when she met and began working with Polanyi in 1950, Polanyi was already interested in "the strange way in which, in all knowledge, the inarticulate outruns and outweighs its articulate aspect" (Grene 1977, 168).¹⁴ In the forties and fifties, Polanyi is not only increasingly uncomfortable with materialist, Marxist-oriented accounts of science and society, but also with non-Marxist accounts of science and society, called, variously, positivist, empiricist, formalist and objectivist.

In May of 1947, Polanyi was invited to give the Gifford Lectures. He postponed the dates for his lectures a couple of times as he struggled to formulate his ideas, finally giving the First Series in May and June of

¹³ This is the title of Scott and Moleski's seventh chapter (2005, 171ff.), covering the period in Polanyi's life from Hitler's march into Austria (March, 1938) to the point at which Polanyi formally leaves the Manchester Department of Chemistry and joins the Faculty of Economics and Social Studies (March, 1948). They describe Polanyi's interests in this period in terms of denouncing "Bernalism" and working out "the philosophy by which a free society operates" (2005, 176) as well as writing a "physiology of a liberal society" (2005, 177).

¹⁴ Marjorie Grene's 1977 essay, "Tacit Knowing: Grounds for a Revolution in Philosophy" is, in my view, the best short review of Polanyi's philosophical development and achievements. My debts to her in this account are many.

1951, with the Second Series following in November 1952. The title for Polanyi's Gifford Lectures was "Commitment: In Quest of a Post-Critical Philosophy." The title of the fourth lecture in Series I was "The Fiduciary Mode" and Polanyi in his lectures speaks of articulating a "fiduciary philosophy."¹⁵ In Chapter 7 of *The Logic of Liberty* (entitled "Perils of Inconsistency"), which is written and published in the period that the Gifford Lectures are delivered, Polanyi provides a brief account of Western intellectual history that helps clarify his emerging ideas:

The critical enterprise which gave rise to the Renaissance and Reformation, and started the rise of our science, philosophy, and art, had matured to its conclusion and had reached its final limits. We have thus begun to live in a new intellectual period, which I would call the post-critical age of Western civilization. Liberalism to-day (sic) is becoming conscious of its own fiduciary foundations and is forming an alliance with other beliefs, kindred to its own. (Polanyi 1951a, 109)¹⁶

Perhaps Marjorie Grene, Polanyi's able associate who helped with the Gifford Lectures and also with what grew out of these lectures, namely

¹⁵ The only manuscript of Polanyi's Gifford Lectures comes from about 1954; the text, in some sections, has apparently been somewhat revised. Polanyi gave this manuscript to Marjorie Grene in May, 1957, and she gave it to Duke University in the late sixties. Gerald L. Smith's 1969 "Introduction" to the Duke microfilm (of the typescript) provides a good discussion of this material. The sometimes ambiguous penciled notes on this typescript most likely imply that this material is a very early (some of it perhaps as late as 1954) step toward *Personal Knowledge*. Polanyi probably had some of the lectures carefully typed up for the original delivery, though for some lectures he may have had only handwritten texts. There is a "Syllabus" for the 1951 First Series of Polanyi's Gifford Lectures in the Polanyi archival collection at the University of Chicago (Polanyi 1951b). The "Syllabus" includes an interesting précis of each lecture. I have used the "Syllabus" for the references to titles. "Fiduciary philosophy" is a term used in the sixth Second Series Lecture, entitled "Skill and Connoisseurship" (Polanyi 1954, 314). I have been unable to locate a "Syllabus" for the Second Series, although Polanyi's letter to J. H. Oldham of 13 July, 1953 (Polanyi 1953) implies that there probably was one.

¹⁶ The chapter "Perils of Inconsistency," which Polanyi says is about "intellectual freedom" (Polanyi 1951a, 93), is apparently the first published occasion in which Polanyi used the term "post-critical" to characterize what he took to be the emerging intellectual era. It seems likely that, by this time, Polanyi has also begun to see more clearly his own role as that of a figure setting forth a critique of modernity and an alternative philosophical vision, one incorporating a *Lebensphilosophie* appropriate to this new era.

Personal Knowledge, has most succinctly summarized the course of Polanyi's philosophical development. She describes Polanyi's deepening interest in belief, commitment, the fiduciary mode and post-critical philosophy as a shift from a focus upon the problems of "the structure of a 'society of explorers'" to "the question of the justification of dubitable beliefs" (Grene 1977, 165).¹⁷ Particularly in the forties, Polanyi's first philosophizing was motivated by the "problem of the administration of science" (Grene 1977, 165), but by the time Polanyi puts together the Gifford Lectures this problem is situated in the context of a larger problem and statement about why belief is the foundation of knowledge and social life. What Grene calls "the problem of the administration of science" (Grene 1977, 165) is first addressed by setting forth a vision of a liberal society; but the dynamic orders (such as science) in a liberal society Polanyi recognized could prosper only because members of such orders trustingly relied upon certain beliefs that conceivably could be doubted and which are not exhaustively specifiable. In an unpublished 1940 manuscript "Further Notes on Relativism," Polanyi notes that in contemporary society the persistent and dangerous "urge toward the abandonment of a system of Liberalism" is rooted in "its essential lack of definiteness" (Polanyi 1940c, 52).¹⁸ Thus, Polanyi is led to address the problem of justifying dubitable beliefs and his response is what (in the Gifford Lectures) is called a "fiduciary mode" or a "fiduciary philosophy" or what Grene and Polanyi by the time of *Personal Knowledge* refer to as the "fiduciary program," which is Polanyi's earliest account of personal knowledge.¹⁹ Recently, Grene has succinctly characterized fiduciary philosophy as "a kind of lay Augustinianism, in which we recognize that our reasoning always rests on the attempt to clarify, and to improve, something we already believe, but be-

¹⁷ Grene makes it clear that Polanyi's interest (as well as her own) in "dubitable belief" is quite different from what occurs in standard discussions in philosophy of justified true belief. She suggests that Polanyi is generally not attuned to philosophers' discussions about justification, but he wrestles with the problem coming from a background in science (Grene 1977, 166-167).

¹⁸ An even earlier similar statement—"The Value of the Inexact"—was published in 1936 in *Philosophy of Science* (Polanyi 1936).

¹⁹ Polanyi notes in the 1964 Torchbook edition Preface of *Personal Knowledge* that there are forty declarations of belief listed under "fiduciary program" in the index (Polanyi [1958] 1964, ix). Grene notes that she and her children did the index, so she is certainly mindful of the importance of this key term (Grene 1977, 167). Polanyi was already discussing "the fiduciary mode" in 1948, before he met Grene. See my discussion of J. H. Oldham's agenda advertising Polanyi's paper "Forms of Atheism", prepared for a December, 1948, Oldham gathering (Mullins 1997, 184).