

Tacit Dimension Michael Polanyi

Much of what humans know we cannot say. And much of what we do we cannot describe. For example, how do we know how to ride a bike when we can't explain how we do it? Abilities like this were called "tacit knowledge" by physical chemist and philosopher Michael Polanyi, but here Harry Collins analyzes the term, and the behavior, in much greater detail, often departing from Polanyi's treatment. In *Tacit and Explicit Knowledge*, Collins develops a common conceptual language to bridge the concept's disparate domains by explaining explicit knowledge and classifying tacit knowledge. Collins then teases apart the three very different meanings, which, until now, all fell under the umbrella of Polanyi's term: relational tacit knowledge (things we could describe in principle if someone put effort into describing them), somatic tacit knowledge (things our bodies can do but we cannot describe how, like balancing on a bike), and collective tacit knowledge (knowledge we draw that is the property of society, such as the rules for language). Thus, bicycle riding consists of some somatic tacit knowledge and some collective tacit knowledge, such as the knowledge that allows us to navigate in traffic. The intermixing of the three kinds of tacit knowledge has led to confusion in the past; Collins's book will at last unravel the complexities of the idea. Tacit knowledge drives everything from language, science, education, and management to sport, bicycle riding, art, and our interaction with technology. In Collins's able hands, it also functions at last as a framework for understanding human behavior in a range of disciplines.

"The Tacit Dimension" argues that tacit knowledge -tradition, inherited practices, implied values, and prejudices- is a crucial part of scientific knowledge. This volume challenges the assumption that skepticism, rather than established belief, lies at the heart of scientific discovery.

How have Japanese companies become world leaders in the automotive and electronics industries, among others? What is the secret of their success? Two leading Japanese business experts, Ikujiro Nonaka and Hirotaka Takeuchi, are the first to tie the success of Japanese companies to their ability to create new knowledge and use it to produce successful products and technologies. In *The Knowledge-Creating Company*, Nonaka and Takeuchi provide an inside look at how Japanese companies go about creating this new knowledge organizationally. The authors point out that there are two types of knowledge: explicit knowledge, contained in manuals and procedures, and tacit knowledge, learned only by experience, and communicated only indirectly, through metaphor and analogy. U.S. managers focus on explicit knowledge. The Japanese, on the other hand, focus on tacit knowledge. And this, the authors argue, is the key to their success--the Japanese have learned how to transform tacit into explicit knowledge. To explain how this is done--and illuminate Japanese business practices as they do so--the authors range from Greek philosophy to Zen Buddhism, from classical economists to modern management gurus, illustrating the theory of organizational knowledge creation with case studies drawn from such firms as Honda, Canon, Matsushita, NEC, Nissan, 3M, GE, and even the U.S. Marines. For instance, using Matsushita's development of the Home Bakery (the world's first fully automated bread-baking machine for home use), they show how tacit knowledge can be converted to explicit knowledge: when the designers couldn't perfect the dough kneading mechanism, a software programmer apprenticed herself with the master baker at Osaka International Hotel, gained a tacit understanding of kneading, and then conveyed this information to the engineers. In addition, the authors show that, to create knowledge, the best management style is neither top-down nor bottom-up, but rather what they call "middle-up-down," in which the middle managers form a bridge between the ideals of top management and the chaotic realities of the frontline. As we make the turn into the 21st century, a new society is emerging. Peter Drucker calls it the "knowledge society," one that is drastically different from the "industrial society," and one in which acquiring and applying knowledge will become key competitive factors. Nonaka and Takeuchi go a step further, arguing that creating knowledge will become the key to sustaining a competitive advantage in the future. Because the competitive environment and customer preferences changes constantly, knowledge perishes quickly. With *The Knowledge-Creating Company*, managers have at their fingertips years of insight from Japanese firms that reveal how to create knowledge continuously, and how to exploit it to make successful new products, services, and systems.

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Michael Polanyi (1891-1976) was an eminent theorist across the fields of philosophy, physical chemistry and economics. Elected to the Royal Society and the American Academy of Arts and Sciences, his contributions to research in the social sciences, and his theories on positivism and knowledge, are of critical academic importance. The three lectures included in this comprehensive volume, first published in 1959, argue for Polanyi's principle of 'tacit knowing' as a fundamental component of knowledge. They were intended to accompany Polanyi's earlier work, *Personal Knowledge*, and as a tribute to the philosophical and educational work of Lord A. D. Lindsay.

The Second Edition provides a comprehensive introduction to interdisciplinary studies with an approach that is succinct, conceptual, and practical. Completely updated to reflect advances in the literature on research, learning, and assessment, the book describes the role of both disciplines and interdisciplinarity within the academy, and how these have evolved. Authors Allen F. Repko, Rick Szostak, and Michelle Phillips Buchberger effectively show students how to think like interdisciplinarians in order to facilitate their working with topics, complex problems, or themes that span multiple disciplines.

Is knowledge discovered, or just invented? Can we ever get outside ourselves to know how reality is in itself, independent of us?

Philosophical realism raises the question whether in our knowing we connect with an independent reality--or only connect with our own mental constructs. Far from being a silly parlor game, the question impacts our lives concretely and deeply. Modern Western culture has been infected with antirealism and the doubt, skepticism, subjectivism, relativism, and atheism that attends it--not to mention distrust and arbitrary (mis)use of reality. Premier scientist-turned-philosopher Michael Polanyi stepped aside from research to offer an innovative account of knowing that takes its cue from how discovery actually happens. Polanyi defied the antirealism of the twentieth century, sounding a ringing note of hope in his repeated claim that in discovery, we know we have made contact with reality because "we have a sense of the possibility of indeterminate future manifestations." And that sense marks contact with reality, because it is the way reality is: abundant, generous, and fraught with as-yet-unnamed possibilities. This book examines that distinctive claim, contrasting it to the wider philosophical discussions regarding realism and antirealism in the recent decades. It shows why Polanyi's outlook is superior, and why that matters, not just to scientific discoverers, but to us all.

This book offers the first full exploration of the religious, ethical, and social dimensions of Michael Polanyi's philosophy, and its implications for the crisis of modern culture. Michael Polanyi developed a new way of understanding the process of discovering scientific knowledge - a theory which can alter our notions of ourselves and of existence. In 'The Way of Discovery', Richard Gelwick, a former student of the renowned scientist-turned-philosopher, presents us with a comprehensive and documented introduction to Polanyi's theory of knowledge. Michael Polanyi was born in Budapest in 1891. After a distinguished career as a physical chemist, he turned to philosophy, religion, and social sciences, becoming, by the time of his death in 1976, one of the greatest scientist-philosophers of our century. Polanyi maintained that three centuries of belief in scientific detachment had produced a crisis of culture. Working from his own experience as a scientist, and with an insight from Gestalt psychology, Polanyi asserted that objective scientific knowledge is at bottom personal knowledge - that scientists and artists establish meaning in basically the same way. His ideas call for a new way of thinking and pose a new frontier of thought, a new image of humanity

This book offers a careful re-reading of Popper's classic falsificationist demarcation of science, stressing its institutional aspects. Popper's social thinking about science, individuals, institutions, and rationality is tracked through *The Poverty of Historicism* and *The Open Society and*

Its Enemies as he criticises and improves his earlier work. New links are established between the works of the 1935-1945 period, revealing them as a source for criticism of the institutions and governance of science.

Describes Michael Polanyi's role in the way the philosophy of science was seen as a social enterprise, not relying entirely on empiricism and reason alone.

After the Editor's General Introduction, the extracts include central elements of Blaga's metaphysics, general epistemology, philosophies of science, history, religion, language and especially metaphor, the experience of space and time, art, and finally culture which includes all of them, especially the presence in all of 'style' and distinctive ways of practising them. All these extracts are linked by his general epistemology, especially his distinction between two types of knowledge: 'paradisiac' or Type 1, which is that of everyday awareness and the current methods, concepts and presuppositions of the sciences of nature and humanity, plus mathematics and philosophy, and accumulates in 'plus knowledge' and resolves problems in standard ways; and 'Luciferican' or Type 2, which opens up the 'mysteries' of new realms of reality which do not fit the current methods, concepts and presuppositions, and so results in 'minus' knowledge, the awareness that there are things which at the moment we cannot understand. For these 'mysteries' new methods, concepts and presuppositions are required, which 'abyssal' categories can supply, ones below those we normally employ and may be aware of. It is part of man's role in the cosmos to reveal such mysteries. They are also linked by Blaga's awareness of historical changes, especially 'dogmatic aeons' in which a prevailing framework of categories, etc., guides knowledge and research, and ones in which Type 2 knowledge dominates and new frameworks are eventually created. Each extract has its own Introduction which places it in the context of the rest of his interlinked philosophy. They show how Blaga, with both general themes and concepts and also with particular examples, combines much of the concerns and methods of Analytic and Continental philosophy, and how his historical perspective applied especially to modern times long before anyone spoke of 'postmodernism', and thus as in his lifetime.

Action research is a term used to describe a family of related approaches that integrate theory and action with a goal of addressing important organizational, community, and social issues together with those who experience them. It focuses on the creation of areas for collaborative learning and the design, enactment and evaluation of liberating actions through combining action and research, reflection and action in an ongoing cycle of cogenerative knowledge. While the roots of these methodologies go back to the 1940s, there has been a dramatic increase in research output and adoption in university curricula over the past decade. This is now an area of high popularity among academics and researchers from various fields—especially business and organization studies, education, health care, nursing, development studies, and social and community work. The SAGE Encyclopedia of Action Research brings together the many strands of action research and addresses the interplay between these disciplines by presenting a state-of-the-art overview and comprehensive breakdown of the key tenets and methods of action research as well as detailing the work of key theorists and contributors to action research. To watch a video of editor David Coghlan discuss the importance of this major reference work as well as the implications, challenges and successes of editing The SAGE Encyclopedia of Action Research, click here: <http://youtu.be/P6YqCdZCZCs>

In Words, Deeds, Bodies, Jerry H. Gill seeks to connect the thought of L. Wittgenstein, J. L. Austin, M. Merleau-Ponty, and M. Polanyi in relation to the intersection between language and embodiment.

How does tacit knowledge inscribe itself into cultural and social practices? As the established distinction between tacit and explicit or discursive forms of knowledge does not explain this question, the contributions in this volume reconstruct, describe, and analyze the manifold processes by which the tacit reveals itself: They focus, for example, on metaphors, feelings, and visualizations as explications of the tacit as well as on processes of embodiment. Taken together, they demonstrate that the tacit does not constitute a single or unified knowledge complex, but has to be understood in its differentiated and fragmented forms. In addition to scholarly essays, the volume features interviews with Mark Johnson, Theodore Schatzki, and Loïc Wacquant.

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In architecture, tacit knowledge plays a substantial role in both the design process and its reception. The essays in this book explore the tacit dimension of architecture in its aesthetic, material, cultural, design-based, and reflexive understanding of what we build. Tacit knowledge, described in 1966 by Michael Polanyi as what we 'can know but cannot tell', often denotes knowledge that escapes quantifiable dimensions of research. Much of architecture's knowledge resides beneath the surface, in nonverbal instruments such as drawings and models that articulate the spatial imagination of the design process. Awareness of the tacit dimension helps to understand the many facets of the spaces we inhabit, from the ideas of the architect to the more hidden assumptions of our cultures. Beginning in the studio, where students are guided into becoming architects, the book follows a path through the tacit knowledge present in materials, conceptual structures, and the design process, revealing how the tacit dimension leads to craftsmanship and the situated knowledge of architecture-in-the-world. Contributors: Tom Avermaete (ETH Zürich), Margitta Buchert (Leibniz-Universität Hannover), Christoph Grafe (Bergische Universität Wuppertal), Mari Lending (The Oslo School of Architecture and Design), Angelika Schnell (Academy of Fine Arts Vienna), Eireen Schreurs (Delft University of Technology), Lara Schrijver (University of Antwerp)

This is a much-needed new introduction to a field that has been transformed in recent years by exciting new subjects, ideas, and methods. It is designed both for students with central interests in philosophy and those planning to concentrate on the social sciences, and it presupposes no particular background in either domain. From the wide range of topics at the forefront of debate in philosophy of social science, the editors have chosen those which are representative of the most important and interesting contemporary work. A team of distinguished experts explore key aspects of the field such as social ontology (what are the things that social science studies?), objectivity, formal methods, measurement, and causal inference. Also included are chapters focused on notable subjects of social science research, such as well-being and climate change. Philosophy of Social Science provides a clear, accessible, and up-to-date guide to this fascinating field.

In its concern with science as an essentially human enterprise, Science, Faith and Society makes an original and challenging contribution to the philosophy of science. On its appearance in 1946 the book quickly became the focus of controversy. Polanyi aims to show that science must be understood as a community of inquirers held together by a common faith; science, he argues, is not the use of "scientific method" but rather consists in a discipline imposed by scientists on themselves in the interests of discovering an objective, impersonal truth. That such truth exists and can be found is part of the scientists' faith. Polanyi maintains that both authoritarianism and scepticism, attacking this faith, are attacking science itself.

2014 Reprint of 1959 Edition. Full facsimile of the original edition, not reproduced with Optical Recognition Software. Michael Polanyi (1891-1976) was an eminent theorist across the fields of philosophy, physical chemistry and economics. Elected to the Royal Society and the American Academy of Arts and Sciences, his contributions to research in the social sciences, and his theories on positivism and knowledge, are of critical academic importance. The three lectures included in this comprehensive volume, first published in 1959, argue for Polanyi's principle of 'tacit knowing' as a fundamental component of knowledge. They

were intended to accompany Polanyi's earlier work, "Personal Knowledge," and as a tribute to the philosophical and educational work of Lord A. D. Lindsay.

The question of hermeneutics now dominates all disciplines of human knowledge and its construction. It has moved from a concentration on how to apply the results of research knowledge to considerations of the frameworks by which we conduct research as a meaningful exercise. The study of the Bible is not exempt from these developments. The essays in this collection amply testify to the breadth of frameworks that are now being applied to the Bible and the development of ethical awareness in the construction of knowledge. The reader will find engagements with the Bible informed by developments in.

In recent years, social scientists have engaged in a deep debate over the methods appropriate to their research. Their long reliance on passive observational collection of information has been challenged by proponents of experimental methods designed to precisely infer causal effects through active intervention in the social world. Some scholars claim that field experiments represent a new gold standard and the best way forward, while others insist that these methods carry inherent inconsistencies, limitations, or ethical dilemmas that observational approaches do not. This unique collection of essays by the most influential figures on every side of this debate reveals its most important stakes and will provide useful guidance to students and scholars in many disciplines.

The polymath Michael Polanyi first made his mark as a physical chemist, but his interests gradually shifted to economics, politics, and philosophy, in which field he would ultimately propose a revolutionary theory of knowledge that grew out of his firsthand experience with both the scientific method and political totalitarianism. In this sixth entry in ISI Books' Library of Modern Thinkers' series, Mark T. Mitchell reveals how Polanyi came to recognize that the roots of the modern political and spiritual crisis lay in an errant conception of knowledge that served to foreclose any possibility of making meaningful statements about truth, goodness, or beauty. Polanyi's theory of knowledge as ineluctably personal but also grounded in reality is not merely of historical interest, writes Mitchell, for it proposes an attractive alternative for anyone who would reject both the hubris of modern rationalism and the ultimately nihilistic implications of academic postmodernism.

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The Tacit Dimension University of Chicago Press

Advances in Mathematics Education is a new and innovative book series published by Springer that builds on the success and the rich history of ZDM—The International Journal on Mathematics Education (formerly known as Zentralblatt für - daktik der Mathematik). One characteristic of ZDM since its inception in 1969 has been the publication of themed issues that aim to bring the state-of-the-art on central sub-domains within mathematics education. The published issues include a rich variety of topics and contributions that continue to be of relevance today. The newly established monograph series aims to integrate, synthesize and extend papers from previously published themed issues of importance today, by orienting these issues towards the future state of the art. The main idea is to move the field forward with a book series that looks to the future by building on the past by carefully choosing viable ideas that can fruitfully mutate and inspire the next generations. Taking inspiration from Henri Poincaré (1854–1912), who said "To create consists precisely in not making useless combinations and in making those which are useful and which are only a small minority.

This book provides a timely, compelling, multidisciplinary critique of the largely tacit set of assumptions funding Modernity in the West. A partnership between Michael Polanyi and Charles Taylor's thought promises to cast the errors of the past in a new light, to graciously show how these errors can be amended, and to provide a specific cartography of how we can responsibly and meaningfully explore new possibilities for ethics, political society, and religion in a post-modern modernity.

Because of the difficulty posed by the contrast between the search for truth and truth itself, Michael Polanyi believes that we must alter the foundation of epistemology to include as essential to the very nature of mind, the kind of groping that constitutes the recognition of a problem. This collection of essays, assembled by Marjorie Grene, exemplifies the development of Polanyi's theory of knowledge which was first presented in *Science, Faith, and Society* and later systematized in *Personal Knowledge*. Polanyi believes that the dilemma of the modern mind arises from the peculiar relation between the positivist claim for total objectivity in scientific knowledge and the unprecedented moral dynamism characterizing the social and political aspirations of the last century. The first part of *Knowing and Being* deals with this theme. Part two develops Polanyi's idea that centralization is incompatible with the life of science as well as his views on the role of tradition and authority in science. The essays on tacit knowing in Part Three proceed directly from his preoccupation with the nature of scientific discovery and reveal a pervasive substructure of all intelligent behavior. Polanyi believes that all knowing involves movement from internal clues to external evidence. Therefore, to explain the process of knowing, we must develop a theory of the nature of living things in general, including an account of that aspect of living things we call "mind." Part Four elaborates upon this theme.

The chemist and philosopher Michael Polanyi (1891–1976) was one of the first twentieth-century scientists to propose a program to resolve the internal conflict of the modern Enlightenment: scientific detachment and moral nihilism with humanist values. Stefania Jha's intellectual biography places Polanyi in the context of his time and culture, analyzes his key philosophical ideas, and explicates the application—and at times misappropriation—of his work. Polanyi's method was not laid out in his published works, and his vocabulary tends to make his writings difficult to understand. By exposing the structure of his theory of tacit knowing, and by tracing the growth of his thinking, Jha shows how the various elements of his thought are integrated. Through examination of his philosophical roots in Kant and the complexity of his evolving thought, she counteracts the popular notion that Polanyi's philosophy stands apart from the western philosophic tradition. Jha's deep analysis makes Polanyi's shift of focus from science to philosophy more intelligible, his philosophy more approachable, and the causes he championed—such as the freedom of science and cultural freedom—more understandable. Applying his notion of tacit knowing in practical directions, Jha seeks to bring the study of Polanyi's

philosophy out of the specialists' enclave and into such fields as ethics and clinical medicine.

This book, edited by Thomas F. Torrance, is the result of a conference of theologians and scientists who met to discuss the influence of philosopher-scientist Michael Polanyi on Christian convictions in the context of the scientific revolution.

In succinct and engaging fashion Michael Walzer demystifies the activity of the social critic, providing a philosophical framework for understanding social criticism as social practice.

PRAISE FOR PREVIOUS EDITIONS "This is a brilliantly clear introduction (and indeed reframing) of the history and philosophy of science in terms of worldviews and their elements.... In addition, the book is incredibly well-informed from both a scientific and philosophical angle. Highly recommended." Scientific and Medical Network "Unlike many other introductions to philosophy of science, DeWitt's book is at once historically informative and philosophically thorough and rigorous. Chapter notes, suggested readings, and references enhance its value."

Choice "Written in clear and comprehensible prose and supplemented by effective diagrams and examples, Worldviews is an ideal text for anyone new to the history and philosophy of science. As the reader will come to find out, DeWitt is a gifted writer with the unique ability to break down complex and technical concepts into digestible parts, making Worldviews a welcoming and not overwhelming book for the introductory reader." History and Philosophy of the Life Sciences, vol. 28(2) Now in its third edition, Worldviews: An Introduction to the History and Philosophy of Science strengthens its reputation as the most accessible and teachable introduction to the history and philosophy of science on the market. Geared toward engaging undergraduates and those approaching the history and philosophy of science for the first time, this intellectually-provocative volume takes advantage of its author's extensive teaching experience, parsing complex ideas using straightforward and sensible examples drawn from the physical sciences. Building on the foundations which earned the book its critical acclaim, author Richard DeWitt considers fundamental issues in the philosophy of science through the historical worldviews that influenced them, charting the evolution of Western science through the rise and fall of dominant systems of thought. Chapters have been updated to include discussion of recent findings in quantum theory, general relativity, and evolutionary theory, and two new chapters exclusive to the third edition enrich its engagement with radical developments in contemporary science. At a time in modern history when the nature of truth, fact, and reality seem increasingly controversial, the third edition of Worldviews presents complex concepts with clarity and verve, and prepares inquisitive minds to engage critically with some of the most exciting questions in the philosophy of science.

Part of a series which provides contemporary studies on applied behavioural science, this volume focuses on the tacit organization. Topics include metapattern in the culture of organizations; the managerial metamyth in children's literature; and the symbolic approach to the study of organizations.

Published very shortly before his death in February 1976, Meaning is the culmination of Michael Polanyi's philosophic endeavors. With the assistance of Harry Prosch, Polanyi goes beyond his earlier critique of scientific "objectivity" to investigate meaning as founded upon the imaginative and creative faculties. Establishing that science is an inherently normative form of knowledge and that society gives meaning to science instead of being given the "truth" by science, Polanyi contends here that the foundation of meaning is the creative imagination. Largely through metaphorical expression in poetry, art, myth, and religion, the imagination is used to synthesize the otherwise chaotic and disparate elements of life. To Polanyi these integrations stand with those of science as equally valid modes of knowledge. He hopes this view of the foundation of meaning will restore validity to the traditional ideas that were undercut by modern science. Polanyi also outlines the general conditions of a free society that encourage varied approaches to truth, and includes an illuminating discussion of how to restore, to modern minds, the possibility for the acceptance of religion.

Michael Polanyi is one of the most inspiring and original thinkers in the 20th century. He launched a new and independent philosophical tradition and fertilized many intellectual areas from cognitive psychology to management sciences. Polanyi's systematic thoughts span over many areas of philosophy, yet his most fruitful ideas, the fundamentals of his system are contributions to epistemology and ontology. His theory of tacit knowledge, his critique of both the objectivist and the subjectivist views of knowledge, his concept of emergence, and his theory of spontaneous order and coordination—just to mention a few—are probably the most important and most well-known. Polanyi also gave us a new picture about science in which scientist's personal participation guided by his cognitive and moral commitment, passions and trust, is an essential part of knowledge itself, in both its discovery and its validation. This volume focuses on these epistemological and ontological issues. Thirteen critical essays analyze, interpret and develop further Polanyi's ideas in the two parts of the book: Knowing and Being. Most of these papers address Polanyian themes in a comparative way, in dialogue with other major traditions illuminating both sides and helping to re-evaluate Polanyi in broader philosophical context. The title of this book also refers to a seminal collection of papers of Michael Polanyi (edited by Marjori Grene in 1969), Knowing and Being.

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