

The Interdisciplinary Circulation of “Holism”

From the Interwar Era to the 1980s

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Abstract

Holism is a term charged with multiple meanings. Coined by statesman and botanist Jan Smuts in 1926, it was mainly used in academia until its public breakthrough around 1980. This article examines the interdisciplinary circulation of holism in science during its first sixty years of existence, focusing on ecology, psychology, medicine, social science, pedagogy, and philosophy. While primarily an epistemic term, holism has carried ideological and spiritual connotations that have shifted over time, from associations with totalitarianism in the interwar era to environmentalism and New Age spirituality since the 1970s. By tracing the interdisciplinary history of holism, this article maps its use in different scientific contexts, identifies its partner- and counter-terms, outlines what its appeal has consisted of and what its critics have rejected, and shows how it moved beyond the domain of academia to become part of the broader cultural vocabulary.

Keywords: Environmental History, History of Psychology, Holistic Medicine, Holistic Pedagogy, Interdisciplinary Intellectual History, Jan Smuts, Knowledge Ideals

Introduction

Is “the fundamental interconnectedness of all things” a reasonable assumption about the universe, and should this belief influence practice? According to Douglas Adams’ fictional character Dirk Gently, who runs a holistic detective agency, the answer is clearly “yes”.¹ Adams’ whimsical bestseller shows how *holism*—a term coined in a philosophical and scientific context in the 1920s—has become part of popular culture and everyday language. At present, holism is a common term in branding and marketing, often related to health or the environment, and it has recently been argued

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that holistic perspectives are indispensable in the era of the Anthropocene, which collapses the distinction between nature and culture and accentuates the interconnectedness of humans, other species, and the planet as a whole.²

Throughout its first century of existence, the term holism has circulated in various contexts. The present article investigates its use in academic literature, from its coinage in South African statesman and botanist Jan Smuts' *Holism and Evolution* (1926) until around 1980, when holism was no longer exclusively used in science but had become common in popular culture.³ Despite being a primarily epistemic term, I will show that holism has carried various political and spiritual meanings, which explains both its power of attraction and the criticism directed against it. Thus, the interdisciplinary history of holism provides an example of a contested term's circulation within and beyond academia.

The questions that have guided the present study are: In what scientific fields have the term holism/holistic been used most frequently? Which actors have used it, and to which actors and approaches has it been ascribed? What different meanings have been attributed to holism? What have been considered its partner- and counter-terms? What has its appeal consisted of, and for what reasons has holism been criticized?

Method, Material, Delimitations

Previous research has been correct in attributing holism to certain approaches in medicine, psychology, or ecology. It has also been correct in associating holism with the counterculture in both the interwar era and the 1970s.⁴

The present article differs from previous studies mainly in two ways. Firstly, it takes an interdisciplinary approach and focuses on holism's circulation in science. Secondly, while the common approach among historians—the exception being Peder Anker's *Imperial Ecology*—has been to use holism analytically, I have chosen to search for empirical appearances of *holism* and *holistic* in the scientific literature. This is, thus, not a conventional conceptual history. Rather than focusing on the concept of holism (which can be found in the absence of the word), I trace the term, whether used as concept, idea, or theory. I have not only included actors who use the term holism to describe their own scientific outlook, but also those who use it to describe others, disregarding whether these actors would or could use it to describe themselves. Therefore, while the choice to focus on the term's empirical appearance complements studies that use holism analytically, it also adds a distinct perspective by tracing its interdisciplinary circulation.

The motivation for the present study’s “history of terms-approach” is that it enriches historical research on holism by building bridges between studies such as Anker’s *Imperial Ecology*, which investigates the battle between South African holistic ecologists and British mechanists in the interwar era; Sargent Wood’s *A More Perfect Union*, which studies post-war notions of holism in the United States; and Harrington’s *Reenchanting Science*, which studies holism in the German language, mainly in the Weimar Era. By tracing the empirical appearance of the term holism in science, the present article is more transnational and transdisciplinary in scope than these studies. However, given the amount of source material and the limited space of an article, it cannot examine particular aspects of holism as thoroughly as they do.

To find out what scientific fields holism figures in, I first investigated the presence and status of holism in contemporary science by searching for the term in several *handbooks, companions, encyclopaedias, and dictionaries*. While most of these have not been used directly, they provided a basic understanding of the present meanings of holism and helped me select themes. I learned, for instance, that some regard ecology as “a holistic science”.⁵ In psychology and cognitive science, holism tends to be associated with Gestalt theory and specific forms of holism found in analytical philosophy, such as meaning holism.⁶ In social science, holism is juxtaposed with methodological individualism and linked to Auguste Comte, Émile Durkheim, and hermeneutics,⁷ while it is associated with, for example, Plato’s paideia ideal and John Dewey’s theory of education in the field of pedagogy.⁸ In medicine, holistic perspectives are linked to alternative approaches, New Age spirituality, and pseudoscience.⁹ The lack of historical and interdisciplinary awareness in these books strengthened my conviction that a historical investigation of holism was needed.

The article outline is based on an estimation of the scientific fields in which the terms holism and holistic have been used in most frequently. These are: medicine, psychology, ecology, social science, pedagogy, and philosophy. I made this estimation after searching for “holis*” in the Web of Science and the British Library Catalogue. Later, I made complementary searches in databases such as Scopus and PubMed, which led to a final decision on what material to include. Although the present study covers only a portion of all articles on holism and a selection of fields in which it has appeared, it offers an overview of holism’s meanings, main scientific contexts, partner- and counter-terms, and examples of what its proponents have found appealing, and what its critics have rejected. Because this is a study of science in the twentieth century, the material is, with a few exceptions, in English.

The Holistic Vision of J. C. Smuts

Jan Smuts served as a general in the Second Boer War and held various posts in the South African Government, including prime minister. After the Unionist Party lost power in 1924, Smuts decided to pursue his interest in science and philosophy. Two years later, *Holism and Evolution* was published, and a new term was brought into the world.¹⁰ The book set out to redefine “our primary concepts of matter, life, mind and personality”,¹¹ connecting scientific developments—such as Darwinism, new physics, colloid chemistry, and the discovery of radioactivity—with topics Smuts had explored since the 1890s, influenced by Walt Whitman’s ideas on personality.¹² *Holism and Evolution* gained attention thanks to Smuts’ fame as a politician. It received mostly positive reviews, with some criticizing Smuts’ vague definitions, though appreciating his attempt to go beyond vitalism and mechanism.¹³

Holism and Evolution is anti-dualistic, aiming to reconcile materialism, mechanism, and realism with spiritualism, organicism, and idealism. Smuts argued that, while Darwin showed that everything has emerged from inorganic matter, this does not imply that it is reducible to matter or that evolution can be explained mechanically.¹⁴ Smuts claimed that mechanistic explanations are appropriate for the earlier stages of evolution, but deficient in accounting for humans as spiritual beings. Spiritualism is more successful in that instance, but because spiritualists share the dichotomous view of mind and matter, they are forced to deny mechanical explanations and the theory of evolution altogether. Smuts’ solution was to view matter, life, and mind as continuous, which allows for a creative understanding of evolution that captures the “fluid plastic facts of nature”.¹⁵

Smuts’ rejection of mind-body dualism led him to dismiss both the idealistic view that space and time are “imposed by the mind” on the universe, and the realistic view that they are external and merely copied by the mind.¹⁶ Einstein’s general theory of relativity is said to prove that they are interdependent, belonging to subject and object equally. Smuts argued that his processual worldview is further strengthened by Darwinism, which proves that lifeforms are continuously changing, and by developments in chemistry, which prove that matter is fluent and creative.¹⁷ This erases the “contours” of matter and life and forces us to give up the idea that persons and objects consist of a fixed “luminous centre”. They also include “a surrounding sphere of meaning or influence” that Smuts called a “field”—a notion meant to highlight the temporal and dynamic nature of phenomena.¹⁸

Smuts’ holism covers everything from inorganic matter to life, mind, States, and “Absolute Values”.¹⁹ It is defined as the “fundamental factor

operative towards the making or creation of wholes in the universe”.²⁰ Holism “is not something additional to the parts” but “transcendent to” and “*more* than the sum of its parts”.²¹ Hence, a whole does not add anything external or material to its parts, but something internal or spiritual. Despite his idealistic language, Smuts distinguished holism from Absolutism and the “indestructible and unchangeable” whole of Plato.²² Although holism is an “immanent ideal” and the universe’s telos, there is no ultimate purpose or “Supreme Whole”.²³ Nature and history are open-ended, but the course of history is progressive and “assumes ever widening degrees of freedom, until finally, at the human stage, freedom becomes self-conscious, creating the free ethical world of the Spirit”.²⁴

According to Smuts, whole and part serve each other. A living organism cannot be reduced to its cells, for it “is fundamentally a society in which innumerable members co-operate [...] in a spirit of the most effective disinterested service and loyalty to each other”.²⁵ Whether the “society” is a plant or a community of ants, it “allows a substantial development to its individual members”.²⁶ Therefore, Smuts rejected individualism, claiming that an individual is a “social construct” shaped by “racial inheritance” that “becomes conscious of himself only in society”.²⁷ Nevertheless, we have the freedom to shape ourselves into “personalities”.

Smuts’ holism is a scientific principle and a post-Darwinian Christian worldview with political implications; he concluded by claiming that the League of Nations “is but the expression of the deeply-felt aspiration towards a more stable holistic human society”.²⁸ However, while Smuts was a social liberal who defended internationalism and human rights, he also supported racist repression of black South Africans.²⁹ Although the ideals of wholeness, and organicism have attracted intellectuals with different political and scientific orientations, historians have particularly noted their popularity among supporters of national socialism in Weimar Germany, which Smuts wholeheartedly rejected.³⁰

Holistic Medicine

Smuts’ claim that healing, holiness, and wholeness share semantic and experiential roots is an indication that he thought holistic perspectives could benefit medicine,³¹ a topic that is not covered in *Holism and Evolution*. Since the 1940s, medicine and psychology have been the major topics connected to holism in the Web of Science.³² In medicine, the meaning of holism was quickly detached from Smuts, even though it continued to stand for similar principles, such as a rejection of materialism, mechanism, and mind-body dualism, in favour of an organic view of the “person as a

whole” that takes social and environmental factors into account.³³ In 1954, a letter to the editor of the *Journal of Medical Education* remarked that holism was becoming popular in medical education, although sufficient knowledge of its philosophical background was lacking. The author, Philip Armstrong, argued that, although specialization might have gone too far, treatment of the “basic levels” of the patient had made medicinal practice better than at any previous time in history, when medicine was more “holistic”.³⁴ Armstrong recognized that holism had been coined recently, but argued that the practice of holistic medicine was old. This can be exemplified by the fact that the principles of *Ganzheitsmedizin*—the German equivalent of holistic medicine—were advocated in a journal named *Hippokrates* after the father of humoral pathology, who experienced a renaissance in the early twentieth century.³⁵ Holism has also been associated with Hildegard of Bingen and non-Western spiritual approaches, such as Haitian Voodoo.³⁶

In 1978, the *New York Times* reported from a conference on “Holistic Health” that introduced indigenous and alternative approaches to medicine, including yoga and acupressure. Some government officials were impressed by the emphasis on preventive medicine and self-care, but a nurse dismissed some features as “awful flower-childlike”.³⁷ This is the first mention of “holistic health” in the *New York Times*. It soon became common and has often been used interchangeably with “alternative medicine” and, sometimes, “healing”.

In 1976, a *British Medical Journal* reviewer noted that “holistic medicine now holds the floor”.³⁸ Others thought a “revolution in holistic medicine” that would fix an alleged crisis was soon to arrive.³⁹ Whether realized or anticipated, holistic medicine was being discussed in newspapers, popular books, and scientific journals by the late 1970s. It gained traction in Californian New Age circles and the counterculture. For example, New Age writer Fritjof Capra advocated holistic approaches to medicine based on quantum physics (sounding very much like Smuts): “Modern physics is showing us that the classical, mechanistic, reductionist view of the world has to be replaced by a holistic, organic and dynamic view; a view similar to that held by mystics of all ages and traditions”. According to Capra, doctors must abandon the Western mechanistic view of the body for an oriental view in which “the human body is seen in relationship to the whole cosmos”.⁴⁰

By 1980, “holistic health centres” and a “holistic health movement” had emerged.⁴¹ However, holistic approaches faced criticism for lacking scientific evidence. One of many books that appeared was *Wholistic Dimensions in Healing* (1978), which was criticized in the *New England Journal of Medicine* and the *Southern Medical Journal*. Holistic medicine,

exemplified by this book, was accused of irrationalism, mysticism, and spiritualism. The book’s message was said to be that “the individual must take more responsibility for his own health” by turning to “charlatans”.⁴² But some doctors defended holistic medicine, acknowledging that the public’s turn to it was understandable, because “the inextricable linkage of physical, psychologic and social factors tends to be given little priority” in science.⁴³ Defenders argued for testing holistic treatments before dismissal, while critics argued that they should be dismissed because they had not been tested. “I agree with those who say that today’s specialists often forget the sound principles of holism”, wrote the *New England Journal of Medicine*’s editor, adding that “in our zeal to put humanism back into the practice of medicine we must not abandon science or forget the public’s need for protection against quackery”.⁴⁴

Medical journals, like the *Journal of Holistic Medicine* and the *Journal of Holistic Nursing*, were established in the 1980s, and British and American Holistic Medical Associations emerged. Books on holistic health are abundant in this period.⁴⁵ The relation between holistic or alternative approaches and conventional scientific medicine has been debated ever since. While holistic and professional medicine have sometimes been in opposition, holism has also been promoted by doctors and nurses seeking to renew healthcare by rejecting mind-body dualism and emphasizing factors like lifestyle and spiritual health. However, the association with New Age and pseudoscience continues to give holistic medicine a bad reputation.

The Family of Holistic Psychologies

Like holism in medicine, discussions of holism in psychology have generally occurred without reference to Smuts. Although, Smuts did address—and dismiss—psychology, claiming it was guilty of regarding the mind as “a distinct phenomenon to be studied by itself”, separate from the body.⁴⁶ Instead, he advocated “personology”; a science for studying the minds of great artists and intellectuals, and thus uncovering the “laws of personal evolution” and the process of self-realization.⁴⁷ Since Smuts claimed that we only realize ourselves as part of society, he insisted that self-realization is not individualistic.⁴⁸ His vision for personology was never realized, and although Smuts had limited impact on psychology, ideas similar to his can be found among some holistic psychologists, most notably Abraham Maslow.

When holism is discussed in contemporary psychology, it is generally related to Gestalt theory, which originated around 1910, Max Wertheimer, Kurt Koffka, and Wolfgang Köhler being the key figures.⁴⁹ *Gestalt* means pattern, form, or structure, and was a central notion in Christian von

Ehrenfels' "On Gestalt Qualities" (1890), which asserted the irreducibility of wholes to their parts. Using music as an example, Ehrenfels argued that a melody is more than its notes and is perceived as a whole. Wertheimer, Köhler, and Koffka took this idea further, stressing that the whole was not merely *more* than the sum of its parts but "*different* from", "*prior to*", and, in fact, "determines the nature of the parts".⁵⁰

Gestalt theory gained influence in the Weimar Republic and later in the United States, where its leading proponents migrated, although their ideas had already gained attention after Koffka introduced them to an English-speaking audience in 1922. While Gestalt theory had emerged as a reaction against Wilhelm Wundt's psychology, it found a new opponent in the United States: behaviourism.⁵¹ American psychologists welcomed Gestalt theory, but its proponents were criticized for exaggerating the difference between their approach and that of others in psychology.⁵²

Although the term holism was not used in Wertheimer's, Koffka's, or Köhler's primary works, it came to be associated with them in the early 1930s. One of the first explicit references to holistic psychology is a 1932 article asserting that the Gestalt theorists were "either the first or the most important" critics of the mechanistic, empirical, and "elementaristic psychology" of associationism.⁵³ William James and John Dewey were listed among other examples of "Some Early Holistic Psychologists", who regarded the psyche as an organic and active whole in which individual impressions must be interpreted in the light of a person's total experience. James and Dewey are said to have departed from Gestalt theory mainly in their vocabulary.⁵⁴

Like the Gestalt theorists, neither James nor Dewey used the term holism.⁵⁵ However, in his Harvard lectures in 1938–1939, neurologist Kurt Goldstein credited Dewey and particularly James with being precursors to Gestalt theory by advocating a "holistic approach" to human nature and attempting to "free human existence from the strait-jacket of merely analyzing, anatomizing, and rationalizing".⁵⁶ Here and in the English translation of *Der Aufbau des Organismus* (1934), Goldstein made holism one of his central concepts. He rejected the mechanical and reductionist explanations that dominated nineteenth century neurology and physiology, arguing that body and mind are interdependent, that organisms must be understood as wholes consisting of more than their parts, and that "we can obtain insight in all living forms by one methodological principle—the holistic".⁵⁷ While the English subtitle to *The Organism* stated that it presented a "holistic approach to biology", the German edition did not use the words *Holismus* or *Holistische*, but *Ganzheit*.

In the 1940s, holism came to be associated with Gestalt therapy, which was loosely inspired by Gestalt theory and created by former Goldstein

assistant Fritz Perls and his wife, Laura. In 1933, the couple migrated to South Africa, where Fritz fell under the influence of Smuts.⁵⁸ Perls' first book, *Ego, Hunger and Aggression*, aimed at developing “an integrated theory which covers every physical and psychological phenomenon”.⁵⁹ Part one, “Holism and Psycho-analysis”, aimed to revise Freudian psychoanalysis in a more holistic direction, describing humans as social, biological, and temporal organisms striving for balance, though constantly disturbed by internal and external factors. In 1951, the Perls moved to New York, where Laura stayed when Fritz, in 1964, left for the Esalen Institute in California—a central place in American holistic culture.⁶⁰

Gestalt therapy drew inspiration from Alfred Adler's individual psychology, which Perls regarded as future-oriented, in contrast to Freud's historically oriented approach.⁶¹ Besides Perls, Adler was one of few psychologists who were inspired by Smuts' personology. He has been described as Smuts' “prime supporter” among German speakers. While he failed to have *Holism and Evolution* translated, it was through Adler's efforts that the term *Holismus* first appeared in German in 1932.⁶² His followers have continued to regard individual psychology as holistic, and it was perhaps through Adler that Abraham Maslow first came across the term, which was central in his 1954 bestseller *Motivation and Personality*.⁶³ Apart from the Gestalt theorists, Maslow is the person who has been most associated with holistic psychology. Like Perls, he brought holistic ideas to the Esalen Institute and the American counterculture.⁶⁴

Aside from Adler and the Gestalt theorists, Maslow also drew inspiration from Goldstein, James, and Dewey. These figures guided him away from behaviourism and psychoanalysis towards a “holistic-dynamic theory”.⁶⁵ While Maslow rejected reductionism, he accepted analysis, provided it connects part to whole following a “holistic-dynamic point of view”.⁶⁶ Holism, for Maslow, was not merely a scientific principle, but also a worldview: “Holism is obviously true—after all, the cosmos is one and interrelated; any society is one and interrelated; any person is one and interrelated”.⁶⁷

Maslow borrowed “self-actualization”—placed at the top of his hierarchy of needs—from Goldstein, but his ideas resembled Smuts. Like Smuts, Maslow insisted that psychology should study healthy and successful individuals. Both focused on human personality and believed that all humans have the potential to actualize themselves, although few do so. Like Smuts, Maslow saw self-actualization as serving the common good of society, believing it would lead to a psychological utopia—a “eupsychia”.⁶⁸

Maslow shared some views with the Neo-Freudian Karen Horney, whom he credited with teaching him psychoanalysis.⁶⁹ Although the term is absent from *The Collected Works of Karen Horney*, she came to be associated

with holism in the 1960s, when her follower Harold Kelman edited two volumes dedicated to her “holistic approach”.⁷⁰ These paid tribute to Goldstein as a forerunner and an inspiration for overcoming mind-body dualism. Kelman described Horney’s approach as an alternative to Freudian biologism and reductionism, crediting her with bringing feminine perspectives into psychoanalysis and with taking cultural factors, interpersonal relationships, and “all aspects of living” into account. According to Kelman, Horney’s analysis aims to solve the patient’s neurotic conflicts so that he or she can feel “wholehearted and undivided” and pursue self-realization.⁷¹

Though neither the Gestalt theorists, James, nor Dewey used the term holism, they came to be associated with a holistic approach soon after it was coined. While Goldstein, Maslow, Kelman, Adler, and Perls were self-defined as holists, only the latter two were directly inspired by Smuts. Although these diverse figures influenced each other in various ways, holistic psychology is not *one* thing. Some common traits can be found, however: The holists reject reductionism, materialism, atomism, specialization, and mechanism; and emphasize the unity of mind and body; insist on the irreducibility of experience; and regard humans as social and natural organisms who strive towards self-realization.

Holistic Knowledge Ideals

Holistic ideas like self-realization, the emphasis on the interdependence of body and mind, and individual and society, touch upon questions of meaning, knowledge, and understanding; issues that will be further addressed by turning to pedagogy, philosophy, and social science. Discussions on holism in these fields have tended to be isolated from one another, but I will point to some common traits and show that they benefit from being treated side by side.

Pedagogy was among the first fields in which holism figured. In 1928, it was proposed that Smuts’ philosophy could counter specialization and “the scrappy fragmentariness of the individual subjects which constitute the school curriculum”.⁷² Smuts’ ideas about personality and self-realization were said to provide new educational aims, with holism serving as an anti-dualistic remedy for conflicts between freedom and authority. Holistic education was contrasted to utilitarian ideals and approaches that overload students with knowledge.

Similar ideas were expressed in one of the ten lectures introduced by Smuts under the title “Our Changing World-View” at the University of the Witwatersrand in 1932. Classics Professor T.J. Haarhoff addressed “The Holistic Attitude in Education”, contrasting it with analysis,

materialism, mechanism, and the view of education as the “acquisition of a set of facts” or “professional skill that enables us to earn a living”.⁷³ He described holistic education as following “the great tradition of Humanism [...] that reaches from Plato to Cicero and Vergil and Quintilian; from Erasmus to Goethe and Rudolf Steiner, to J.S. Haldane and Gilbert Murray”—educators who emphasized history, culture, morals, international cooperation, and harmony “between man and nature”.⁷⁴ Haarhoff argued that holistic education aims at growth and regards students as active seekers of knowledge, opposing the separation of subjects from one another, and from the life of the student. He sought reconciliation between humanism and science, stating: “Humanism needs Science with her cold, clear methods of research; Science needs Humanism with her care for man as a whole”.⁷⁵

Besides these two texts, there are few pedagogical writings mentioning holism before the 1980s, when books on, for example, the “holistic curriculum” appeared.⁷⁶ Holistic pedagogy was advocated in the United States towards the decade’s end, with the founding of the *Holistic Education Review* in 1988. A 1990 conference on “Holistic Education” produced the statement *EDUCATION 2000: A Holistic Perspective* as well as the volume *Holistic Education: Principles, Perspectives and Practices* (1993), published by Holistic Education Press, which also published *New Directions in Education: Selections from the Holistic Education Review*.⁷⁷ In the latter volume, Ron Miller contrasted holistic education with a conventional materialistic, scientific, and reductionistic view. He claimed that unnamed conventionalists regard humans as “primarily economic beings” and “society as a competitive marketplace”. In contrast, holism seeks to develop emotional, social, and artistic potential, viewing the Earth as “sacred” and stressing the ecological “web of connections between all living and nonliving things”. It regards humans as “essentially spiritual beings” who should strive to develop communities, relationships, and critical “engagement with the world”.⁷⁸

In pedagogy, as in medicine, “holistic” tends to be synonymous with “alternative” and aligns with the counterculture and New Age spirituality. Advocates of holistic education have often referred to early twentieth century pedagogues like Montessori, Steiner, and Dewey.⁷⁹ Despite his effort to overcome the division between traditionalist and progressive pedagogy,⁸⁰ Dewey is usually regarded as belonging to the latter camp. Hence, it is not surprising that holistic approaches to education tend to be described as progressive, radical, critical, or “engaged”, as in the multicultural feminist pedagogy of bell hooks, who described her “holistic approach to learning” as liberatory, “striving not just for knowledge in books, but knowledge about how to live in the world”.⁸¹ Like other

educational holists, hooks stressed student activity, self-realization, and challenged dualisms like mind/body, school/society, public/private, and objective/subjective.⁸²

The holistic educators' emphasis on the interconnectedness of all kinds of knowledge, as well as of the human subject and the world, resembles how holism has been treated in philosophy, where issues of meaning, understanding, and the relation between language, experience, individual, and society are common in debates on holism. However, discussions of holism in philosophy tend to ignore how the term has been used historically and across disciplines. Philosophers also tend to use holism in a more specific sense than others.

Analytical philosophers consider W.V.O. Quine's "Two Dogmas of Empiricism" (1951) to be the key text on holism, even though Ludwig Wittgenstein and Pierre Duhem have been mentioned as precursors.⁸³ The latter two never used the term holism. Nor did Quine in the mentioned article, but he did not object to the description of his epistemological outlook as "holistic pragmatism".⁸⁴ This label makes sense, considering that the two dogmas Quine—who is often considered an empiricist himself—criticized were the notion of analytical statements that are supposedly true independent of matters of fact, and the reductionist theory of meaning, according to which the truth value of synthetic statements can be checked individually against their experiential counterparts. According to Quine, the linguistic and factual components of statements cannot be isolated, which is why all statements are synthetic. These can, however, not be treated individually, but only in connection with other statements.⁸⁵ Hence, meaning is holistic.

Critics of meaning holism (*"the metaphysically necessary conditions for something to have meaning or content"*), such as Jerry Fodor and Ernest Lepore, have described it as an absurd doctrine: "If holism is true, then I can't understand any of your language unless I can understand practically all of it".⁸⁶ This is not how holism has been understood by proponents such as Richard Rorty, Hubert Dreyfus, and Charles Taylor, who stand with one foot in the analytical tradition and the other in the hermeneutical.⁸⁷ Like Quine, Taylor challenged empiricism, but on other grounds. He rejected the positivist idea that the human and social sciences can be grounded on "brute data". Rather, they are hermeneutical in the sense that they are concerned with making sense of "experiential meaning"—that is, meaning *of* something, *for* a subject, which should not be mistaken for psychological intention. This is because meaning is social and only exists in a field related to the meanings of other things—a social reality constituted by intersubjective meanings inseparable from the language used to describe it.⁸⁸

Taylor's social concept of meaning leads us to the social sciences. Here, D.C. Phillips' *Holistic Thought in Social Science* made a painstaking attempt to examine holism, characterizing it as "an eminently unworkable doctrine"—unless holism means that concepts referring to wholes and their properties are necessary for science.⁸⁹ There are, however, two types of holism that, according to Phillips, must be rejected. The first is equivalent to organicism and the Hegelian doctrine of internal relations, which regards biological organisms, society, and reality to be more than and to determine the nature of their interrelated parts. This, said Phillips, makes knowledge impossible, as it means we must know all relations of an entity to fully understand it. He found this version of holism promoted by Lloyd Morgan, J.S. Haldane, Dewey, Gestalt theory, vitalists, and General Systems Theory. The second problematic holism equates to anti-reductionism, which asserts that properties of wholes, once they are discovered, cannot be understood solely in terms of their parts. Phillips attributes this idea to Durkheim's critique of methodological individualism.⁹⁰

Karl Popper would agree with Phillips. He regarded holism as intertwined with biological organicism, utopianism, and a deterministic view of history. Popper argued that "the totality of all the properties or aspects of a thing, and especially of all the relations holding between its constituent parts" are impossible objects of study, which makes holism an impossible method.⁹¹ Although not using the term here, Popper can be said to promote methodological individualism, which has been regarded as the opposite of holism, or methodological collectivism, and has been frequently debated under the label "the individualism–holism debate".⁹² Charles Taylor is among those who have challenged the very idea that holism and (methodological) collectivism must be opposed to atomism and (methodological) individualism. He calls his alternative "holist individualism" and claims that it is politically progressive (liberal and communitarian), rejecting both totalitarianism and atomistic individualism.⁹³

This section highlights that, like scholars in medicine and psychology, pedagogues have regarded holism as a humanistic alternative to scientism. A rather abstract and itself an oppositional term, holism in these fields is best described in terms of what it rejects: materialism, atomistic individualism, specialization, reductionism, and mind-body dualism. In philosophy and social science, debates on holism have tended to be internal, and the term has been more clearly defined. While holism has been and used without connections to the counterculture in these fields, it has still been ideologically loaded. Some proponents have described it as progressive, while critics, such as Popper, have regarded holism as totalitarian.⁹⁴

Holistic Ecology and Environmentalism

Ecology, next to medicine and psychology, is the science in which the terms holism and holistic have been used most frequently. In the 1930s, many of the discussions on holism took place in the multilingual journal *Acta Biotheoretica*, founded in 1935 by, among others, Adolf Meyer, one of the advocates of holistic biology (*Ganzheitsbiologie*). One key debate concerned whether Smuts' holism best accounted for a biology informed by quantum physics. Meyer supported Smuts, arguing that he had resolved the dualisms between vitalism and mechanism, monism and pluralism. Opponents disagreed, arguing that holism, despite what Smuts had said,⁹⁵ was synonymous with entelechy: an Aristotelian notion revived by neo-vitalist Hans Driesch to describe the idea that an internal principle causes organisms to strive towards self-actualization.⁹⁶

This is a rare example of a debate in which *Holismus* is used alongside the more common German word *Ganzheit*. The German debate was, however, short-lived. *Acta Biotheoretica* barely persisted during World War II,⁹⁷ and Smuts' ideas had far more influence on ecological thinking in the English-speaking world. He was the leader of one of the two competing ecological schools in the British Empire, his main followers being the South African holists John William Bews and John Phillips. Their chief rival was Oxford Professor George Tansley, who promoted a mechanistic ecosystems theory. While English ecologists were sceptical towards holism, the decreasing number of idealist philosophers considered Smuts an ally and invited him to lecture in Oxford in 1929. Previously that year, the mechanists and the holists had debated at a British Association for the Advancement of Science meeting in Cape Town. This, according to Anker, set the stage for "the most important ecological debate of the interwar period", between Tansley and Phillips.⁹⁸ The debate concerned how ecology could be expanded beyond botany to include humans.⁹⁹

Phillips' most important contribution to ecological holism was his three-part series in the *Journal of Ecology* (1934–1935), in which he discussed the emergence of new properties in the progressive development and formation of new wholes. Acknowledging parallels between holism, organicism, Gestalt theory, and emergentism, Phillips stressed that holism is an active, operative, and synthesizing cause, serving "both a starting point and a goal in the scientific study of communities".¹⁰⁰ While his primary focus was on "biotic communities", Phillips claimed that his principles extended to "groups, societies, nations and Nature".¹⁰¹ In a more popular text, he described the "ecological attitude towards facts and their meaning" as "holistic", linking it to a "more humane outlook on life" and "a feeling of a mighty reverence".¹⁰²

Phillips believed it was necessary to achieve balance between humans and the biotic community they belong to (but also disturb). He extended scientific views of holistic ecology into the realm of politics, hoping to address problems related to "biological principles in social groups" and racial relations.¹⁰³ Phillips advocated birth control, especially in "the lower classes", and held that "complete freedom of action" must not be granted too hastily to "Native races".¹⁰⁴

The supporters of mechanism, who often were socialists, criticized the holists for legitimating racial oppression. Another common critique was that a holistic approach to ecology lacked practical value.¹⁰⁵ However, there were also similarities. Tansley recognized that life's origin and the relation between inorganic and organic matter, the external world, and the human mind needed to be explained, but dismissed Smuts' idealistic concept of holism. Inspired by Freud, Tansley suggested that science aimed to become aware of the hidden systems of the human psyche, society, and the natural world.¹⁰⁶ He promoted the concept of ecosystem, which, unlike holism and "biotic community", was tied neither to a fixed image of the universe nor to racial politics. The scale was, however, equally ambitious, covering everything "from the universe as a whole down to the atom".¹⁰⁷

Fast-forward three decades and holism has become detached from Smuts, Bews, Phillips, and their racial politics. Since the 1960s, holism and ecosystems theory have been perceived as compatible, or ecosystems theory has been considered a potential mediator between holism and reductionism, which are, perhaps, united in a "new ecology" that, by operating on the ecosystem level, is more large-scale and integrative, linking social and natural science. It has also been suggested that holism and reductionism are "co-operating and mutually dependent".¹⁰⁸

Holism in ecology, as in other fields, has been most controversial when it intersects with ideological, existential, or spiritual matters. In the late 1960s, chemist James Lovelock, in collaboration with biologist Lynn Margulis, portrayed Earth as a single superorganism, an evolving "adaptive control system" that is "open but bounded".¹⁰⁹ Lovelock, seeking both to advance science and inspire awe for Earth, named the superorganism Gaia after the Greek Earth goddess. The Gaia hypothesis, labelled "holistic" by Lovelock and others, stirred controversy among scientists, who claimed it was teleological and incompatible with the theory of natural selection.¹¹⁰ Lovelock rejected both charges and attacked reductionists, who "in their dogmatic crusade have made holism a pejorative term, and now cybernetics, Gaia and systems analysis are categorized with 'new age' philosophy and organic food".¹¹¹ He insisted that both holism and reductionism were needed, but failed to convince most members of the scientific community of the need for the Gaia hypothesis. It has mainly

found resonance among the New Age community and environmentalists, where all kinds of holistic ideas flourish.¹¹²

Lovelock's Gaia hypothesis aligns with other holistic trends in ecology where spiritual, ideological, and epistemic concerns intersect. For example, Norwegian philosopher Arne Naess' deep ecology has often been regarded as holistic, although Naess himself used the term rarely and not uncritically. Naess stressed the importance of approaching Nature (always with capital N) as "an ultimate whole" and with a religious love inspired by Spinoza.¹¹³

Holism is also prevalent in ecofeminism, notably in Carolyn Merchant's investigation of conceptualizations of nature and their connection to gender in the early modern period. Her *The Death of Nature* (1980) was an attack on mechanism and the cultural construction of nature and women as passive and subordinate resources for exploitation. The book ends with a plea for a holism inspired by Smuts. Like him, Merchant argued that discoveries in quantum physics and thermodynamics have shown that the mechanistic worldview must be abandoned for an organic processual understanding of nature and the universe. This, Merchant hoped, would lead to "a new economic order [...] and the restoration of sustainable ecosystems that fulfill basic human physical and spiritual needs".¹¹⁴ Like pedagogical and medical holists, Merchant drew inspiration from the past:

Historically, holistic presuppositions about nature have been assumed by communities of people who have succeeded in living in equilibrium with their environments. The idea of cyclical processes, of the interconnectedness of all things, and the assumption that nature is active and alive are fundamental to the history of human thought. No element of an interlocking cycle can be removed without the collapse of the cycle. The parts themselves thus take their meaning from the whole.¹¹⁵

Like the holistic health movement, ecological holists have often sought to integrate ancient, pagan, indigenous, and Eastern approaches to spirituality with Western science.¹¹⁶ However, some ecofeminists have shown less interest in the spiritual aspects of holistic ecology and have rather stressed the ideological content. For example, Betty Jean Craige has argued that ecofeminism should be fused with multiculturalism and the progressive politics of social movements into an anti-hierarchical vision she called *cultural holism*.¹¹⁷ While Smuts also viewed holism as supporting progressive politics, his version of progressivism was racist and liberal, rather than anti-racist and radical, which has been the case since the counterculture appropriated holism in the 1970s.

Conclusion

This study provides an example of what the history of an epistemic term might look like, an approach that overlaps with and is complementary to conceptual history. The present article, with its interdisciplinary and transnational scope, builds bridges between narrower previous studies. However, because of the amount of empirical material covered, the study has not been able to examine particular cases and their contexts in depth.

Holism has often promised to infuse science with existential and social meaning. It concerns relations between mind and body, humans and their (social and natural) environment, parts and wholes. Holism’s partner-terms include interdependence, organicism, process, Gestalt, and synthesis. Among its counter-terms we find materialism, mechanism, reductionism, specialization, and analysis.

For Smuts, holism was a matter of reconciling science and religion, while the main concern of proponents of holistic medicine has been to broaden medical practice by drawing inspiration from history and non-Western cultures. Since holistic medicine became intertwined with the counterculture and New Age in the 1970s, it has typically been portrayed as pseudo-scientific. This has not been the case in other scientific disciplines, not even psychology, despite holistic psychologists Perls and Maslow being involved in the Californian counterculture through the Esalen Institute. While previous research on holism in psychology has focused on Gestalt theory, Goldstein, and Maslow, the present article shows that actors such as James, Dewey, Adler, Horney, and Kelman could be included in a longer history of holistic psychology, which remains to be written. The same applies to holistic ecology, where the first half of the twentieth century has been covered by Anker’s *Imperial Ecology*, but the history of ecological holism from the 1960s to twenty-first-century debates about the Anthropocene has yet to be told. The present study suggests that these are promising areas for further research.

An interesting feature of holism is its varying ideological associations. Smuts thought holism supported his racist social liberalism, while critics associated it with totalitarianism. Since the 1970s, it has frequently been connected to environmentalism. In pedagogy, holism has become synonymous with “progressive”, while, in philosophy, as in social science, the meaning of holism is often more specific and sometimes lack both ideological and spiritual connotations, such as in Quine’s “meaning holism.” However, there are also critics (like Karl Popper) and defenders of holism in these disciplines that regard its epistemic and ideological aspects to be interconnected. For example, Charles Taylor linked his holistic hermeneutical approach to communitarian politics while seeking

to overcome the dualism between methodological individualism and methodological collectivism (the latter often synonymous with “holism” in the social sciences). Thus, besides providing a historical investigation of a scientific term, this study exemplifies the importance of analysing the intersection between epistemology, ideology, and spirituality. In the case of holism, its various spiritual and ideological connotations are arguably important not only for understanding the criticism it has attracted but also for explaining its continuing appeal.¹¹⁸

Notes

1. Douglas Adams, *Dirk Gently's Holistic Detective Agency* (New York: Pocket Books, 1988[1987]), 144.

2. Dipesh Chakrabarty, *The Climate of History in a Planetary Age* (Chicago: The University of Chicago Press, 2021), 134–135, 146–147; Will Steffen et al., “The Trajectory of the Anthropocene: The Great Acceleration”, *Anthropocene Review* 2, no. 1 (2015): 82, DOI:10.1177/2053019614564785.

3. Google Books Ngram Viewer (Corpus: English 2019) shows that *holism* and *holistic* increase considerable in frequency during the late 1970s, <https://books.google.com/ngrams>. Searching for “holism OR holistic” in the Web of Science gives 40 records in 1975 and 246 in 1980. In the New York Times, a search for “Holism OR Holistic NOT Alcohol*” gives 22 records in 1975 and 117 in 1980. ProQuest Historical Newspapers: The New York Times with Index. All accessed 31 August 2023.

4. See Anne Harrington, *Reenchanting Science: Holism in German Culture from Wilhelm II to Hitler* (Princeton, N.J.: Princeton University Press, 1996); Christopher Lawrence and George Weisz, eds., *Greater than the Parts: Holism in Biomedicine, 1920–1950* (Oxford: Oxford University Press, 1998); Mitchell G. Ash, *Gestalt Psychology in German Culture: Holism and the Quest for Objectivity* (Cambridge: Cambridge University Press, 1996); Linda Sargent Wood, *A More Perfect Union: Holistic Worldviews and the Transformation of American Culture after World War II* (New York: Oxford University Press, 2010); Peder Anker, *Imperial Ecology: Environmental Order in the British Empire, 1895–1945* (Cambridge, Mass.: Harvard University Press, 2001).

5. Sven Erik Jørgensen and Brian D. Fath, “Preface”, in *Encyclopedia of Ecology* (Oxford: Elsevier, 2008), xxx, DOI:10.1016/B978-008045405-4.09005-4.

6. Joëlle Proust, “Holism”, in *Dictionary of Cognitive Science: Neuroscience, Psychology, Artificial Intelligence, Linguistics, and Philosophy*, eds., Olivier Houdé et al. (New York: Routledge. Psychology Press, 2004), EBSCO eBooks; Horst Gundlach, “Gestalt Psychology”, in *Oxford Research Encyclopedia of Psychology*, DOI:10.1093/acrefore/9780190236557.013.488.

7. This is curious, since Comte and Durkheim drew inspiration from the natural sciences, while hermeneuticians tend to be rooted in the humanities. For an overview of holism in social science, see Lee McIntyre and Alex Rosenberg, eds., *The Routledge Companion to Philosophy of Social Science* (New York: Routledge, 2016), DOI:10.4324/9781315410098.

8. James Scott Johnston, “John Dewey and Educational Pragmatism”, in *The SAGE Handbook of Philosophy of Education*, eds., Richard Bailey et al. (London: SAGE

Publications Ltd, 2010), DOI:10.4135/9781446200872; Andreas M. Kazamias, “Agamemnon contra Prometheus: Globalisation, Knowledge/Learning Societies and Paideia in the new Cosmopolis”, in *International Handbook of Comparative Education*, eds., Robert Cowen and Andreas M. Kazamias (Netherlands, Dordrecht: Springer, 2009), 1079–1111, DOI:10.1007/978-1-4020-6403-6.

9. T. Jock Murray, “Epistemology”, in *The Oxford Illustrated Companion to Medicine*, eds., Stephen Lock, John M. Last, and George Dunea (Oxford: Oxford University Press, 2001), DOI:10.1093/acref/9780192629500.001.000; “Holism”, “Holistic Health”, and “Holistic Medicine”, in *A Dictionary of Public Health*, ed., John M. Last (Oxford: Oxford University Press, 2007), DOI:10.1093/acref/9780195160901.001.0001; Jeff Levin, “Healers and Healthcare”, in *Religion and Medicine*, ed., Jeff Levin (Oxford: Oxford University Press), 18–44, DOI:10.1093/os0/9780190867355.003.0002.

10. See *Oxford English Dictionary*, “Holism, n.”, July 2023, DOI:10.1093/OED/7388632619.

11. Jan Smuts, *Holism and Evolution* (Stirling, WA: Left of Brain Books, 2021[1926]), 1.

12. For an overview of Smuts’ politics and holism’s philosophical background, see Anker, *Imperial Ecology*, 41–75; and W.K., Hancock, *Smuts: The Sanguine Years: 1870–1919* (Cambridge: Cambridge Univ. Press, 1962), 289–308

13. Examples include C.D. Burns, Review of *Holism and Evolution*, by J.C. Smuts, *The International Journal of Ethics* 37, no. 3 (1927): 314–314, DOI:10.1086/intejethi.37.3.2377803; and C. Lloyd Morgan, Review of *Holism and Evolution*, by J.C. Smuts, *Journal of Philosophical Studies* 2, no. 5 (1927): 93–97.

14. Smuts, *Holism and Evolution*, 9–11, 132.

15. *Ibid.*, 4.

16. *Ibid.*, 31. Smuts ascribed this idealistic view to Kant but dismissed Bergson’s notion of élan vital on similar grounds, claiming it leads to “subjective Idealism in its most dangerous form”. See *ibid.*, 84.

17. *Ibid.*, 30–31, 46–52.

18. *Ibid.*, 17–19.

19. *Ibid.*, 94.

20. *Ibid.*, 87.

21. *Ibid.*, 91–92, 290.

22. *Ibid.*, 90.

23. *Ibid.*, 154, 288.

24. *Ibid.*, 121.

25. *Ibid.*, 73.

26. *Ibid.*

27. *Ibid.*, 193–194, 210.

28. *Ibid.*, 292–293. The spiritual aspects are not very elaborate in *Holism and Evolution*, but Smuts’ teacher Frederick Kolbe (1928) sought to expand holism into the realm of religion in *A Catholic View of Holism: A Criticism of the Theory put forward by General Smuts in his Book, ‘Holism and Evolution’* (New York: MacMillan, 1928), to which Smuts provided a positive foreword.

29. Anker, *Imperial Ecology*, 48–51.

30. Cf. Harrington, *Reenchanted Science*; Fritz K. Ringer, *The Decline of the German Mandarins: The German Academic Community, 1890–1933* (Hanover: Univ. Press of New England, 1990); and Peter Gay, *Weimar Culture: The Outsider as Insider* (Harmondsworth: Penguin, 1988).

31. Smuts, *Holism and Evolution*, 293.

32. Accessed 28 September 2023. In the 1930s, the dominating topic was ecology and biology.

33. The earliest examples of texts on holism in medicine include Anonymous, “The ‘Holism’ of the Patient”, *British Medical Journal* 1, no. 3927 (11 April 1936): 757; Anonymous, “‘Holism’ in Medicine”, *British Medical Journal* 2, no. 4155 (24 August 1940): 258, DOI:10.1136/bmj.2.4155.258; Editorial, “Holistic Medicine”, *The Journal of the American Medical Association* 138, no. 16 (1948): 1158.

34. Philip B. Armstrong, “Holistic Medicine”, *Journal of Medical Education* 29, no. 1 (1954): 46–49.

35. H. Siegmund, “Auf dem Wege zur Ganzheitsmedizin”, *Hippokrates* 21, no. 19 (1950): 555–558; G. Siegmund, “Die Begründung der Ganzheits-Medizin”, *Hippokrates* 25, no. 13 (1954): 397–400. See also Lawrence and Weisz, eds., *Greater than the Parts*.

36. See Ari Kiev, “Brief Note: Primitive Holistic Medicine”, *International Journal of Social Psychiatry* 8, no. 1 (1961): 58–61, DOI:10.1177/002076406100800107; Suzanne M. Phillips and Monique D. Boivin, “Medieval Holism: Hildegard of Bingen on Mental Disorder”, *Philosophy, Psychiatry & Psychology* 14, no. 4 (2007): 359–368, DOI: 10.1353/ppp.0.0133.

37. Karen de Witt, “Health Officials Give Holism a Checkup”, *New York Times*, 25 April 1978, 43, ProQuest Historical Newspapers: The New York Times with Index.

38. Henry R. Rollin, Review of *Integrated Medicine: The Human Approach*, ed., H. Maxwell, *British Medical Journal* (4 December 1976): 1394.

39. Jack LaPatra, *Healing: The Coming Revolution in Holistic Medicine* (New York: McGraw-Hill, 1978).

40. Fritjof Capra, “The New Physics as a Model for a New Medicine”, *Journal of Social and Biological Structures* 1 (1978): 71, 76, DOI:10.1016/0140-1750(78)90019-2.

41. Barbara Dossey, “Holistic Nursing: What Is It?”, *Journal of Holistic Nursing* 1, no. 1 (March 1983): 37–38, DOI:10.1177/089801018300100109; J.S. Gordon, “Holistic Health Centers”, *Journal of Holistic Medicine* 3, no. 1 (1981): 72–85.

42. J.B. Thomison, “Holistic Healing”, *Southern Medical Journal* 72, no. 3 (1979): 247–248, DOI:10.1097/00007611-197903000-00001; A.S. Relman, “Editorial: Holistic Medicine”, *New England Journal of Medicine* 300, no. 6 (1979): 312–313.

43. John Goldenring, “Letter to the Editor”; Leslie J. Kaslof, “Letter to the Editor”; Howard S. Berliner and J. Warren Salmon, “Letter to the Editor”, all in *New England Journal of Medicine* 300, no. 21 (1979): 1221–1222.

44. A.S. Relman, “Note”, *New England Journal of Medicine* 300, no. 21 (1979): 1222.

45. See Douglas Stalker and Clark Glymour, eds., *Examining Holistic Medicine* (Buffalo, N.Y.: Prometheus Books, 1989).

46. Smuts, *Holism and Evolution*, 196.

47. *Ibid.*, 243, 253–254.

48. *Ibid.*, 209.

49. On the history of Gestalt theory, see Harrington, *Reenchanting Science*; Ash, *Gestalt Psychology in German Culture*; D. Brett King and Michael Wertheimer, *Max Wertheimer & Gestalt Theory* (New Brunswick, NJ: Transaction Publisher, 2004).

50. King and Wertheimer, *Max Wertheimer & Gestalt Theory*, 96–97.

51. Wayne Viney, *A History of Psychology: Ideas and Context* (Boston: Allyn and Bacon, 1993), 348.

52. Edwin G. Boring, “The ‘Gestalt’ Psychology and the ‘Gestalt’ Movement”, *The American Journal of Psychology* 42, no. 2 (1930): 310, DOI:10.2307/1415286.
53. W.D. Commins, “Some Early Holistic Psychologists”, *Journal of Philosophy* 29, no. 8 (1932): 208, DOI:10.2307/2016807.
54. *Ibid.*, 214.
55. James died before Smuts coined holism. In Dewey’s collected publications it only figures once, in a reply to Bertrand Russell, who claimed that Dewey’s theory of experience was Hegelian and therefore holistic. Dewey did not agree. Both essays are published in *The Philosophy of John Dewey*, Library of Living Philosophers, ed., Paul Arthur Schilpp (Evanston and Chicago: Northwestern University, 1939).
56. Kurt Goldstein, *Human Nature: In the Light of Psychopathology* (Cambridge, Mass.: Harvard University Press, 1940), 5, 128.
57. Kurt Goldstein, *The Organism: A Holistic Approach to Biology Derived from Pathological Data in Man* (Salt Lake City, UT: American Book Publishing, 1939), 476.
58. Fritz S. Perls, *Ego, Hunger and Aggression* (London: George Allen and Unwin, 1947), 28–29, 105.
59. *Ibid.*, 6.
60. Sargent Wood, *A More Perfect Union*, 175–176.
61. Perls, *Ego, Hunger and Aggression*, 72, 94.
62. Anker, *Imperial Ecology*. 180–181. Smuts’ book was published in German as *Die holistische Welt* in 1938, but was soon withdrawn by the authorities.
63. See the webpage of the North American Society of Adlerian Psychology, <https://www.alfredadler.org>; and Heinz L. Ansbacher, “On the Origin of Holism”, *Individual Psychology: The Journal of Adlerian Theory, Research & Practice* 50, no. 4 (1994): 486–492. On Adler’s influence on Maslow, see Sargent Wood, *A More Perfect Union*, 140–149.
64. Sargent Wood, *A More Perfect Union*, 193.
65. Abraham Maslow, *Motivation and Personality* (New York: Harper & Row, 1954), 80.
66. *Ibid.*, 27–31.
67. Abraham Maslow, *Motivation and Personality*, 2nd ed. (New York: Harper & Row, 1970), xi.
68. Maslow, *Motivation and Personality* (1954), 91–92, 350. See also, Sargent Wood, *A More Perfect Union*, 140–141, 159–163.
69. Maslow, *Motivation and Personality* (1954), x.
70. *Advances in Psychoanalysis: Contributions to Karen Horney’s Holistic Approach* (New York: Norton, 1964); *New perspectives in Psychoanalysis: Contributions to Karen Horney’s Holistic Approach* (New York: Norton, 1965). Both edited by Harold Kelman. See also Kelman, “The Holistic Approach (Horney)”, in *American Handbook of Psychiatry*, vol. 2, ed. Silvano Arieti (New York: Basic Books, 1959), 1434–1452.
71. Kelman, “Introduction”, in *Advances in Psychoanalysis*, 10, 12, 15–16; and “The Holistic Approach (Horney)”, 1434–1435.
72. J. Sachs, “Holism and Education”, *Forum of Education*, no. 6 (1928): 113.
73. T.J. Haarhoff, “The Holistic Attitude in Education”, in *Our Changing World-View: Ten Lectures on Recent Movements of Thought in Science, Economics, Education, Literature and Philosophy*, eds., J.C. Smuts et al. (Wits University Press, 2021[1932]), 147, DOI:10.18772/22021085553.
74. *Ibid.*, 148–149.
75. *Ibid.*, 163.

76. Cf. Joanne Hendrick, *Total Learning for the Whole Child: Holistic Curriculum for Children Ages 2 to 5* (St. Louis: Mosby, 1980).

77. See *Holistic Education Review*, “About the Journal”, <https://her.journals.publicknowledgeproject.org/index.php/her>; The Institute for Educational Studies, “History of Global Alliance for Transforming Education (G.A.T.E.)”, <https://ties-edu.org/gate/?> (both accessed 11 October 2023).

78. Ron Miller, “Introduction”, in *New Directions in Education: Selections from the Holistic Education Review*, ed., Ron Miller (Brandon, Vermont: Holistic Education Press, 1991), 1–3.

79. *New Directions in Education* contains several references to these figures, as well as common New Age references to Eastern philosophy, quantum physics, and Fritjof Capra.

80. John Dewey, *Experience and Education* (New York: The Macmillan Company, 1938).

81. bell hooks, *Teaching to Transgress: Education as the Practice of Freedom* (New York: Routledge, 1994), 14–15.

82. *Ibid.*, 16–17.

83. See Jerry A. Fodor and Ernest Lepore, *Holism: A Shopper’s Guide* (Oxford: Blackwell, 1992); Michael Esfeld, “Holism and Analytic Philosophy”, *Mind* 107, no. 426 (1998): 365–380, DOI:10.1093/mind/107.426.365. It was, however, Kurt Goldstein’s cousin Ernest Cassirer who first brought the term holism into philosophy, see Cassirer, “Structuralism in Modern Linguistics”, *Word: Journal of the Linguistic Circle of New York* 1, no. 2 (1945): 99–120, DOI:10.1080/00437956.1945.11659249.

84. Albert Hofstadter, “The Myth of the Whole: A Consideration of Quine’s View of Knowledge”, *Journal of Philosophy* 51, no. 14 (1954): 397–417, DOI:10.2307/2020616. This was brought to my attention by Anker, *Imperial Ecology*, 193, 312–313n173. Cf. W.V.O. Quine, *Word and object*, new ed. (Cambridge, Mass.: MIT Press, 2013[1960]), 11.

85. W.V.O. Quine, “Two Dogmas of Empiricism”, *The Philosophical Review* 60, no. 1 (1951): 20–43, DOI:10.2307/2181906.

86. Fodor and Lepore, *Holism: A Shopper’s Guide*, 1, 9.

87. See their exchange on holism in *The Review of Metaphysics* 34, no. 1 (1980).

88. Charles Taylor, “Interpretation and the Sciences of Man”, *The Review of Metaphysics* 25, no. 1 (1971): 9, 12.

89. D.C. Phillips, *Holistic Thought in Social Science* (Stanford, Cal.: Stanford University Press, 1976), 123.

90. *Ibid.*, 6, 29, 33–38.

91. Karl Popper, *The Poverty of Historicism* (London: Routledge, 2002[1944]), 70.

92. For an early discussion, see Alan Ryan, ed., *The Philosophy of Social Explanation* (London: Macmillan, 1970).

93. Charles Taylor, “Cross-Purposes: The Liberal–Communitarian Debate”, in *Liberalism and the Moral Life*, ed., Nancy L. Rosenblum (Cambridge, MA: Harvard University Press, 1989), 159–182.

94. Karl Popper, *The Open Society and Its Enemies*, vol. 2, 5th ed. (London: Routledge, 1966[1945]), 78–80; and *The Poverty of Historicism*, 70–85.

95. Smuts, *Holism and Evolution*, 148–149.

96. Hans Driesch, “Zur Kritik Des ‘Holismus’”, *Acta Biotheoretica* 1, no. 3 (1935): 185–202, DOI:10.1007/BF02147639. See also, Adolf Meyer, “Zwischen Scylla und

- Charybdis”, *Acta Biotheoretica* 2, no. 1 (1936): 203–218, DOI:10.1007/BF02147640; and K. Sapper, “Zur Kritik der Ganzheitsbiologie”, *Acta Biotheoretica* 4, no. 2 (1938): 111–118, DOI:10.1007/BF01557299.
97. Thomas A.C. Reydon, Piet Dullemeijer, and Lia Hemerik, “The History of Acta Biotheoretica and the Nature of Theoretical Biology”, in *Current Themes in Theoretical Biology*, eds., Reydon and Hemerik (2005), 1–8, <https://cddepot.wur.nl/172678>.
98. Anker, *Imperial Ecology*, 118.
99. *Ibid.*, 4, 41.
100. John Phillips, “Succession, Development, the Climax, and the Complex Organism: An Analysis of Concepts: Part III. The Complex Organism: Conclusions”, *Journal of Ecology* 23, no. 2 (1935): 492, DOI:10.2307/2256133.
101. *Ibid.*, 498; John Phillips, “The Biotic Community”, *Journal of Ecology* 19, no. 1 (1931): 1–2, DOI:10.2307/2255934.
102. John Phillips, “Man at the Crossroads”, in *Our Changing World-View*, 95.
103. *Ibid.*, 77
104. *Ibid.*, 75, 77.
105. Anker, *Imperial Ecology*, 127–128, 133.
106. For Arthur George Tansley’s main criticism of holism, see his “The Use and Abuse of Vegetational Concepts and Terms”, *Ecology* 16, no. 3 (1935): 284–307, DOI:10.2307/1930070. See also Anker, *Imperial Ecology*, 140–141.
107. *Ibid.*, 299.
108. G. Becht, “Systems Theory, The Key to Holism and Reductionism”, *BioScience* 24, no. 10 (1974): 569–579, DOI:10.2307/1296630; Rick C. Looijen, *Holism and Reductionism in Biology and Ecology - The Mutual Dependence of Higher and Lower Level Research Programmes* (Springer, 2000), xi, <https://10.1007/978-94-015-9560-5>; Eugene P. Odum, “The Emergence of Ecology as a New Integrative Discipline”, *Science* 195, no. 4284 (1977): 1289–1293; Edward S. Rogers and Harley B. Messinger, “Human Ecology - Toward a Holistic Method”, *The Milbank Memorial Fund Quarterly* 45, no. 1 (1967): 25–42, DOI:10.2307/3349046; R.G. Wiegert et al., “Holism and Reductionism in Ecology”, *Oikos* 53, no. 2 (1988): 267–278, DOI:10.2307/3566072.
109. James Lovelock, “Hands up for the Gaia Hypothesis”, *Nature* 344, no. 6262 (1990): 100–102, DOI:10.1038/344100a0. See also, Lovelock, *The Ages of Gaia: A Biography of our Living Earth* (Oxford: Oxford Univ. Press, 1988).
110. Cf. F. Baerlocher, “The Gaia Hypothesis: A Fruitful Fallacy?”, *Experientia* 46, no. 3 (1990): 232–238, DOI:10.1007/BF01951752.
111. Lovelock, “Hands up for the Gaia Hypothesis”, 102.
112. Lovelock, *The Ages of Gaia*, 216.
113. Arne Naess, “The Primacy of the Whole”, in *Holism and Ecology*, eds. Naess and Danilo Dolci (Tokyo: United Nations University, 1981), 10; Naess, *Ecology, Community, and Lifestyle* (Cambridge: Cambridge University Press, 1989), 79.
114. Carolyn Merchant, *The Death of Nature: Women, Ecology, and the Scientific Revolution* [New ed.] (San Francisco: Harper & Row, 1989), xvi–xviii, 292–293.
115. *Ibid.*, 293.
116. See Alaine M. Low and Soraya Tremayne, eds., *Sacred Custodians of the Earth?: Women, Spirituality and the Environment* (New York: Berghahn Books, 2001).
117. Betty Jean Craige, *Laying the Ladder Down: The Emergence of Cultural Holism* (Amherst: Univ. of Massachusetts Press, 1992).
118. I address the intertwinement of the scientific, ideological, and spiritual aspects

of holism and seek to develop an analytical framework for studying such overlaps more generally in Bruno Hamnell, “The Numinous, the Political, and the Epistemic: Analytical Categories for Exploring the Historical Intersections of Spirituality, Ideology, and Knowledge”, *History of Intellectual Culture* 4 (2025): 195–214, DOI: 10.1515/9783111636726-009.

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