



Jochen Fahrenberg

Wilhelm Wundt (1832–1920)

Introduction, Quotations, Reception,
Commentaries, Attempts at Reconstruction

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*Sensory Physiology, Neuropsychology, Animal Psychology,
General Psychology, Cultural Psychology, Ethics,
Epistemology and Methodology, Philosophy (Metaphysics)*



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Wilhelm Wundt about 1875–1880

This photograph was taken by Brokesch during Wundt's early years in Leipzig about 1875-1880 (see Bringmann, Ungerer and Ganzer, 1980.)

Foreword to the English Edition¹

“American textbook accounts of Wundt now present highly inaccurate and mythological caricatures of the man and his work” (Blumenthal, 1970, p. 11). Three decades later, Blumenthal modified his judgement by hopefully stating: “But it is a caricature that current historians are now working to correct...” (1997, p. 118). However, with very few exceptions, the general verdict still remains valid. Assessing Wundt’s eminence as an outstanding scholar reveals a fundamental contradiction. Quoting Blumenthal again: “At the beginning of psychology’s modern era... stands the formidable instigating presence of Wilhelm Wundt (1832–1920), the strongest initial force behind that beginning and still the most prolific academic psychologist of all time.” (1997, p. 117).

Even in Germany, a distancing from Wundt’s work was already noticeable during his lifetime. How did this break of tradition, which was caused by ignoring the foundation that Wundt laid in psychology, come about? Wundt is still remembered in many textbooks as the founder of the first laboratory for experimental psychology. However, neither his original and comprehensive conception of experimental and cultural psychology, nor his advanced methodology and multimethod strategies are explained. In light of the continuing theoretical controversies concerning various trends in psychology as well as opposing research aims and schools, it is worth remembering the advanced conception that Wundt posited. He was convinced that human reason does not seek to attain a theoretical conception of the world that conforms to the *principle of parsimony*, but rather seeks a *consistent* and *non-contradictory* representation of it. Thus, instead of merely depicting a variety of psychological aspects and unconnected parameters, theory in psychology should aim to conceive of (1) *complementary frames of reference* that are categorically different, but necessary to represent the *coordination* of psychological and physiological processes that constitute the psycho-physical unity, and (2) theoretical constructs related to the higher *integration* of motivational (dynamic), emotional, sensory, and cognitive processes, as expounded in Wundt’s *apperception theory of psychical processing*. Wundt was a neurophysiologist before becoming a psychologist, and he initially focused on experimental psychology and then later cultural psychology. In addition, he wrote sophisticated works on ethics, epistemology, and philosophy. Since Wundt, which other psychologist has been able to emulate his nearly universal theoretical horizon or intensive research program that lasted for more than 50 years?

¹ I would like to thank Dr. Frank Illing for his careful formal and stylistic review of the manuscript and content suggestions, as well as Aaron Woeste for his insightful copyediting of the English translation.

As an assistant to Hermann Helmholtz in Heidelberg, Wundt researched motor and vegetative reflex activity and sensory physiology. He supervised courses in experimental physiology for students of medicine and wrote a textbook on physiology (*Lehrbuch der Physiologie des Menschen*, 1865) and a handbook on medical physics (*Handbuch der medizinischen Physik*, 1867a) before being inspired by Gustav Theodor Fechner (1860, 1861) to turn to experimental psychology. The connection between physiology and psychology with a strong inclination toward philosophy was so attractive to the universities in Zurich, and later in Leipzig, that he was appointed professor of *inductive philosophy* at the University of Zurich in 1874 and professor of *philosophy* in Leipzig in 1875, despite not having studied philosophy. At that time, there was a strong interest in interdisciplinary mediation between the empirical sciences and philosophy, which Wundt embodied.

Grundzüge der physiologischen Psychologie (“Principles of physiological Psychology”), Wundt’s most frequently quoted work, appeared in 1874 and contained a summary of his research and teaching at Heidelberg University. 1874 was a remarkable year for several other reasons as well. In that year, Franz Brentano published his programmatic work entitled *Psychologie vom empirischen Standpunkt. Von der Klassifikation der psychischen Phänomene* (“Psychology from an Empirical Standpoint. On the Classification of Psychological Phenomena”), the precursory treatise to the emerging phenomenological psychology advanced by his student Edmund Husserl. 1874 was also the year in which Brentano’s short-term student and eventual doctoral candidate Sigmund Freud held his first, but unfortunately undocumented, lecture at a Viennese student’s association. The lecture presumably dealt with teleological analysis, i.e. the principle of purpose in psychology (Fahrenberg, 2015a, p. 775). Furthermore, Gustav Theodor Fechner held his last lectures in Leipzig in 1874 entitled *Über psycho-physische Messmethoden* (“On Psycho-Physical Measurement”) and *Über die Grundbeziehung des materiellen und des geistigen Prinzips* (“On the Basic Relationship Between the Material and Mental Principle”). In 1875, Wundt held lectures in Leipzig on the psychology of language, anthropology, logic, and the theory of science. In 1879, decisive steps were taken to establish the *Institute for Experimental Psychology* at the University of Leipzig, the first of its kind and thus the beginning of psychology as an academic discipline.

There is no doubt that Fechner and Wundt as well as Brentano and Freud fundamentally influenced the development of psychology around the world, not only in German-speaking countries. However, further inquiry is needed into their intellectual lines of tradition and influences, in particular by Johann Friedrich Herbart, Immanuel Kant, and Gottfried Wilhelm Leibniz. Their explicit and fundamentally different views on psychology invite analysis of their specific guiding principles, assumptions about human nature, and philosophical presuppositions, as well as those of modern-day psychologists. Wundt cited and critically discussed philosophical and epistemological postulates about psychology proposed by Kant and Herbart, and it is obvious from his work that he was much more influenced by Leibniz.

There is ample evidence that Wundt transformed *philosophical* conceptions proposed by Leibniz, e.g. his ideas about elementary perception and apperception as well as motivation and self-consciousness, into *psychological* research and experimentation. The influence is even more evident in Wundt’s principles of epistemology, which include the notion of psychophysical parallelism (instead of mind–body dualism), continuity of development (evolution), causality, and purpose, as well as perspectivism.

Wundt's intellectual tradition fundamentally differs from the tradition of English sensualism and empiricism as represented by John Locke, George Berkeley, and David Hume. This opposition should be pointed out from the beginning since Wundt's contrasting philosophical background might prove to be a major source of misconceptions about his psychological work and methodology. Wundt was highly critical of empiricism, the mechanics of elementary associationism, and the doctrine that posited the metaphysical dualism of body and soul.

On the title page of *Beiträge zur Theorie der Sinneswahrnehmung* ("Contributions to the Theory of Sensory Perception," 1862), his first book on psychology, Wundt quoted Leibniz: "Nihil es in intellectu quod non fuerit in sensu, nisi intellectu ipse" ("Nothing is in the intellect that was not first in the senses, *except the intellect itself*," *Nouveaux essais*, 1765). With his ironic addendum, Leibniz rejected John Locke's plain sensualism (empiricism) and view that the intellect is merely a blank slate. This epigraph is unique since Wundt refrained from such epigraphs in his later works. Wundt explained that he rejected the assumption of "innate ideas" and teleology insofar as a purpose in nature is assumed; however, he emphasized that logic, categories, and laws of reasoning are not yet included in the sensory impressions, and human beings are capable of voluntary action based on motives and values. Wundt's psychology cannot be understood without acknowledging his epistemology and its system of categories and principles. Leibniz's influence on Wundt's psychology has often been neglected, especially by the Anglo-American history of psychology (cf. Fahrenberg, 2016a, 2017).

Wundt elaborated on the epistemological distinctions between mental science and natural science by referring to essential *categories* of knowledge specific to his conception of psychology. He delineated fundamental categories with which to designate human beings, including the concepts of *subject* and *voluntary action* based on *values*. These categories, which are totally inadequate in the natural sciences, are essential in the humanities, and psychology would suffer greatly from a narrowing to neuro-reductionism and the associated category mistakes.

One of the main objectives here is to keep Wundt's guiding principle in mind, i.e. that psychologists in particular should remain conscious of the epistemological and philosophical presuppositions of their research and professional practice, and therefore openly and critically discuss their individual "metaphysics" or belief systems, which tend to be kept private.

There are further obstacles to understanding Wundt's legacy, such as his style of writing, thinking, and use of the scientific terminology of his time. His writing in German is shaped by the Latin grammar of the Heidelberg Gymnasium, which often uses subordinate clauses, and some of the essential terms do not have direct equivalents in English. This makes his writing demanding, even for contemporary German readers. Furthermore, Wundt prefers to discuss controversies in a dialectic manner by taking opposing viewpoints to illuminate the underlying contradictory arguments. This perspectivism is precisely the style of thinking that Wundt considers characteristic of Leibniz.

Critical evaluations of the Anglo-American reception of Wundt's work by Kurt Danziger (Canada), Saulo Araujo (Brazil), and Blumenthal (United States) remain largely valid. But how could the lack of awareness of Wundt have changed given the fact that his primary works have not been translated into English? To date, there is *no* adequate English translation of Wundt's essential works. Titchener translated only the first few chapters of the *Grundzüge der physiologischen Psychologie* on neurology and neurophysiology, but omitted Wundt's

psychology. The 6th edition (1908-1910, 3 vols.), based on four decades of research in Leipzig, was never translated. Translations of other major works are also missing, including *Völkerpsychologie* (“Cultural Psychology”, 1st ed., 1900-1920, 10 vols.), *Logik und Wissenschaftslehre* (Logic and Theory of Science, 1st ed. 1880-1883; 4th ed., 1919-1921, 3 vols.), and *System der Philosophie* (System of Philosophy, 1st ed., 1889a; 4th ed., 1919b, 2 vols.). However, there is one exception: *Ethik* (Ethics, 1st ed., 1886; 4th ed., 1912a, 2 vols.) was partly translated by Washburn in 1901 based on the first edition.

The present book is an abridged version of the German edition published in 2018, which provides the first-ever overview of Wundt’s entire work, as well as a detailed analysis of its reception history. It contains hypotheses about the attitudes and motives underlying the dynamics of intellectual change that led to Wundt becoming nearly an outsider during his lifetime, while many one-sided and speculative trends and schools advanced by his contemporaries prevailed. It is worth noting that none of Wundt’s many assistants or PhD students in Leipzig, such as Cattell, Külpe, Meumann, Münsterberg, Spearman, or Titchener, were willing or able to present the essence of his entire body of work in a didactically appropriate overview or as a comprehensive textbook. In 1979, around the centenary of the founding of the first laboratory in Leipzig, there was greater interest in Wundt and an increase in publications about him. However, the contributions often referred to institutional and biographical details as well as “Wundtiana.” Thus, only very few articles dealt with the entirety of his original theoretical conception or his sophisticated epistemology and methodology.

This book attempts to provide a consistent overview of Wundt’s neuropsychology, general psychology, cultural psychology, ethics, and epistemology, as well as to eliminate basic misunderstandings. Wundt’s *Principles of physiological Psychology* is by no means a textbook of *Physiological Psychology*. Wundt used physiological methods as an adjunct to experimental methods in psychology. However, he did not consider physiological concepts to have any *explanatory* relevance. Wundt’s 10-volume *Völkerpsychologie* (wrongly translated as *Folk Psychology*) is *not* a work of ethnology, but aims to elaborate a *developmental theory of mind*, which, for instance, seeks to understand the genesis of thinking via the development of language. The *theory of apperception* and the *developmental theory of mind* are central guiding ideas in Wundt’s body of work.

An overview of Wundt’s complete body of work and a summary of his main teachings will greatly facilitate access to his work and research. Wundt’s terminology was coined 150 years ago, and in some respects it needs to be updated into modern German and then translated into English, ensuring that it still conveys specific notions and connotations that do not have exact equivalents in English. The Glossary included in Chapter 3, the book’s main chapter, compiles a number of crucial terms used by Wundt, as well as their suggested translations. Chapter 3 also provides an introduction to Wundt’s system of principles and basic theoretical constructs. This is followed by sections on sensory psychology, neuropsychology, psychophysiology, animal psychology, general psychology, and cultural psychology. Specific attention is devoted to Wundt’s *apperception theory* of psychical (mental) processing, which connects general and cultural psychology. Furthermore, Chapter 3 contains sections on ethics, epistemology, methodology, and philosophy. Several sections were considerably shortened for the English edition, including the discussion of methodological issues, i.e. the

controversy about measurement in psychology, as well as parts of the philosophical discussion. Likewise, the detailed account of Wundt's reception in Germany contained in Chapter 4 has also been shortened, and some additional English sources and secondary references have been added. Chapter 5 reviews the few existing attempts at reconstructing certain aspects of Wundt's psychology and specifically discusses the reconstruction of his *theory of apperception*. Finally, Chapter 6 summarizes essential contributions that originated in Wundt's psychology, epistemology, and methodology, and discusses their continued relevance.

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1 Introduction and Overview

1. 1 In Remembrance of Wilhelm Wundt

After Wundt's death, the remembrances and obituaries that were published showed how greatly the founder of experimental psychology, author of *Cultural Psychology* (Völkerpsychologie) and philosopher (with his works on ethics, logic and epistemology) had been respected. But did his essential guiding ideas gain any permanent influence on the further development of psychology? These ideas included the process analysis of psychical activity, the developmental theory of the mind based on cultural psychology, supplementation of experimental and qualitative methodology, and the demand for a critical examination of implicit philosophical presuppositions in empirical psychology. How could Wundt as the founder of experimental psychology and the first permanent laboratory with a research program become a kind of outsider in psychology during his lifetime? Is his work sufficiently accessible?

When the *Gesellschaft für experimentelle Psychologie* (German Society for Experimental Psychology) was founded in 1904, the assembly gave a greeting address to the then 72-year-old senior professor Wundt at the suggestion of Oswald Külpe, Wundt's former assistant in Leipzig. Georg Elias Müller from Göttingen was elected president of the Society at the assembly and maintained this position until 1927 (Gundlach und Stöwer, 2004). Even more significant than Wundt's personal absence, were the relatively few appearances of his name and the obvious neglect of his research program in the published congress papers, making it clear that by 1904 the era of Wundt was over from the viewpoint of the academic psychologists. Wundt now appeared as an important figure in the *history* of psychology worthy of a special greeting address.

The motives behind this conspicuous distance are unknown. Was it that he did not want to become a member of that Society or that he was not directly asked? In those years, Wundt was already engaged in writing his 10-volume work on cultural psychology published under the title *Völkerpsychologie*, and he had broadened his theoretical and methodological horizon to an almost universal range. To him, G. E. Müller's psychophysics and memory research must have seemed quite narrowly conceived.

Wundt was an honorary member in 12 scientific societies in Germany and abroad as well as a member of the *Pour le Mérite* order for arts and sciences and a foreign or corresponding member of 13 academies. He was also an honorary citizen of Leipzig and Mannheim. Between 1875 and 1919, Wundt had 186 PhD students, including 19 from the United States, England and Canada, and at least 24 from Russia, Romania, and other Eastern European countries. The lists of his PhD students, assistants and foreign guests included many names that later became well known.

Bernhard Rost writes about Wundt's funeral (1920, p. 14): "On September 4, 1920, he was cremated at the Leipzig Südfriedhof (Southern Cemetery). I also attended the emotionally moving funeral ceremony. Attendance was low. A disgrace to the German people not to have honored one of their greatest minds." – The obituaries written by his Leipzig colleagues (1922/23) are far from being a consistent appreciation of Wundt and his lifework. The first article is an inconsistent

and stylistically poor contribution by his successor at Leipzig University, Felix Krueger, who appears barely able to convey Wundt's achievement as a pioneer in cultural psychology. Other contributions generally remain quite vague, giving a strangely superficial or one-sided picture. In contrast, Emil Kraepelin (1920) wrote a masterly articulated obituary and Aloys Fischer (1932) later commemorated Wundt on the occasion of the centenary of his birthday.

Distancing and the Break of Tradition

The retrospective on the 100-year anniversary of the *German Society of Psychology* (ed. Rammsayer und Troche, 2005), which intended to be representative, has special significance for two reasons. First, these reviews cover a century of the history of psychology in Germany. Second, the authors are former presidents of this Society, which means that their views can be considered to represent the views of a majority. Although Wundt is the psychologist most frequently listed in the index of names, he is often mentioned only casually, inaccurately or remarkably one-sidedly – in the sense of a “natural scientist stereotype” (cf. Chapter 4).

Fischer (1932), the philosopher and educational psychologist, wrote one of the few tributes in commemoration of Wundt's 100th birthday. “That Wundt, who in the course of his life was an authority of international prestige, has disappeared from the discussion a few years after his death, so that he seems to be unknown, almost as if he had never lived, speaks not so much against him as it does against the epigones of the World War period whose thinking focuses narrowly on issues of necessity and power... If the younger generations, even students, do not want to know Wundt, then the impression of him as a fashionable celebrity whose short-lived fame was already incomprehensible and undeserved and whose work, barren and vain, sank together with him into the tomb of oblivion grows stronger. Wundt has not been confined to empirical research, but starting from the empirical sciences, he arrived at a philosophical standpoint that afforded him an overview of the entire intellectual world of his era and made him impressive and worthy of admiration as one of the last encyclopaedic thinkers, which are not uncommon in the history of German philosophy. On the occasion of his last birthday and immediately after his death, Wundt was thanked and complimented as the great psychologist and creator of the first laboratory for experimental psychology ... but even in this respect ... there were more restrictive concerns and distance than an honest and thorough understanding of the fundamental importance of his life-work, especially for present-day psychology. The lasting merit of his work and school of thought is the rigour of the methodical requirements for psychological research.... He, who wants to study mankind as a psychologist, cannot abandon the connection between biology and history – or as Wundt put it, physiology and psychology – which Wundt first established.” (pp. 353-358).

Wundt's Legacies

Wundt is still quite well known as the founder of psychology as a discipline or at least as the founder of the first laboratory. But what do current professional psychologists associate with him in addition to this? Perhaps only his experimental psychology or maybe also his “other legacy,” namely his “Völkerpsychologie,” which is often mistaken for *ethnology* rather than recognized as *cultural psychology*, thus forming the basis of a psychological developmental theory of the mind. The year 1979 was the centenary of the founding of Wundt's laboratory in Leipzig and accordingly, the *XXIInd International Congress of Psychology* took place in Leipzig the

following year. A series of lectures was held and a number of books contained essays on Wundt's psychology, which revived interest in his complete work. After this relative peak (cf. Chapter 4), an increased interest in the history of psychology continued into the following decades. However, neither a thoroughly elaborated, concise biography of Wundt's life *and* work, nor an annotated edition of his outstanding books or an adequate overview representing his basic intentions and achievements in the theory and methodology of psychology emerged during this time.

In her retrospective *Wilhelm Wundt und seine Schüler* (Wilhelm Wundt and his Students), Meischner-Metge (2003) conveyed numerous historical details about the founding of the institute, doctoral students, publications and Wundt's relationships with his outstanding "students" Kraepelin, Külpe, Meumann, and Münsterberg. She also inquires into the reception history of his life-work, and agrees with Klemm (1922, p. 107) that Wundt probably had disciples, but no school (cf. Chapter 4). Wundt himself rejected the term *Leipziger Schule* (Leipzig School) in a letter to Külpe (1895, cf. Meischner-Metge, p. 156). Wundt was not a professor who sought to gather disciples around him. Wundt wanted to develop psychology in a state of composure and with high standards as an independent subject within philosophy. Within limits, he supported applied research together with the Leipzig Teacher's Association in the educational field ... At the Leipzig Institute, Wundt embodied a kind of gray eminence, which was kindly characterized by the authors of the Festschrift as 'unintendedly authoritative' and whose influence ended with his retirement.... The fact that important premises and viable approaches were forgotten for a long period of time did not avail the development of psychology (pp. 165-166).

In the preface of the essay collection *Wilhelm Wundts anderes Erbe. Ein Missverständnis löst sich auf* (Wilhelm Wundt's Other Legacy. Dissolving a Misunderstanding), Jüttemann (2006b) mentions three components of Wundt's intellectual legacy: the undisputed merit of establishing psychology as an institutionalized science and helping it to gain worldwide recognition; the resolutely antimaterialistic foundation of psychology as part of the humanities; and lastly, the establishment of a historical cultural and social psychology. "Together, these three components of his legacy, which must be considered as a whole, form the integrative model of psychology as a part of the humanities, which Wundt not only theoretically derived from the concept of mind, but also put into practice to an astonishing extent as a research program."

"From a historical perspective, Wundt earned almost exclusive praise over many years for founding the institute, such that the myth arose that he was the prototype of an experimenter and an uncompromising pioneer of psychology oriented towards the natural sciences. This is a huge misconception, which may even be called tragic considering some of its consequences. This misconception can be regarded as an expression of a distorted reconstruction and, at least partly, a consciously denied 'truth about Wundt,' which is only gradually dissolving. The aim of this book is to accelerate this process of clarification while at the same time rediscovering Wundt's 'other legacy' and bringing it recognition, despite, as is to be expected, now outdated terms and inadequate methodical conceptions. However, this book can at best initiate an effort towards this goal." (pp. 9-10). The problematic interactions between Wundt and Külpe as well as other obstacles appear to have also contributed to this misconception. "But since the *Zeitgeist* prevalent in the field of psychology at the time favored the orientation towards and guidance by the natural sciences, there was an extreme divergence between the perception of the overpowering founding father on the one hand, who could absolutely not be ignored by his successors, yet whose prestige they had to maintain in the interest of the field of study, and the image of Wundt as a scientist within the humanities with an antimaterialistic and antipositivistic orientation ... On the other

hand, they decidedly rejected him and his ten-volume *Völkerpsychologie*, which they preferred to ignore, as well as his advocating for a concept of psychology that is methodologically open and geared towards the whole subject. There were two approaches to solving the problem that arose from this discrepancy, both of which were widely used ... One approach consisted in a partial or complete ignorance of Wundt's lifework, which was sometimes equivalent to a denial. The other approach, which was temporarily applied with great success, consisted in converting Wundt from a scholar of the humanities who was partly active in the natural sciences to a pure natural scientist. This produced a huge misconception, which has been considerably difficult to rectify because—as another example of the irony of fate – the myth of Wundt as the prototypical positivist serves the interests of certain political issues within the profession in the eyes of some representatives and continues to persist to this day.” (pp. 26-27).

Jüttemann (2006b, 2007a) decidedly highlights Wundt's original conception of psychology and his legacy with its great “integrative potential.” He criticizes both the prevalent stereotype of the “natural scientist Wundt” and the “distorted history of reception.” Jüttemann regards Wundt primarily as a scholar of the humanities, and even as the actual founder of a psychology that is conceived as part of the humanities. However, this portrayal of the ‘other Wundt’ could entail new difficulties: How is it to be understood that, parallel to the publishing of the first volumes of the *Völkerpsychologie*, Wundt expanded the *Grundzüge der physiologischen Psychologie* (Principles of physiological Psychology (1902-1903) to three volumes and went beyond a detailed account of neurology and neurophysiology in trying to develop a *neuropsychological modeling* of the apperception process through further elaboration of the central theoretical foundation of his *general* psychology? From Wundt's point of view, this is not an irreconcilable contradiction, but rather stems from complementary perspectives on the psycho-physical unity, i.e. his “perspectivistic monism.”

How can Wundt's *other* legacy be updated without abandoning his *first* legacy? To combine both as Wundt conceived of and tried to elaborate them in his research is the more sophisticated, albeit difficult way. Writing about Wundt's relevance for today's psychology also requires the reconstruction of his guiding ideas and their mediating potential in modern terminology. This includes neuropsychology, psychophysics and experimental sensory psychology as well as Wundt's view of animal psychology and the ontological continuum of evolution that seemed strange to many scholars of the humanities at the time, including Wundt's students.

1. 2 Objectives

So far there is no overview of Wundt's entire work. Its extent and interdisciplinary horizon, as well as his sophisticated writing style constitute a demanding task for today's readers. However, a reasonable understanding of the complete work is necessary to investigate the reception of his ideas and their relevance to today's discussions about the foundations of psychology and ongoing controversies in theoretical psychology more precisely. Furthermore, there are additional reasons to attempt such an overview. The year 2020 is the centenary of Wundt's death, meaning that a number of recollections and commemorations are expected. There is, for example, an initiative for establishing a *Wilhelm Wundt Foundation at Grossbothen* near Leipzig in order to set up a research facility at Wundt's last place of residence intended to systematically complement the

projects carried out at the *Leipzig University Archives* and the *Leipzig Institute of Psychology*. In both respects, the following overview may be useful. In the past, there was never an attempt to write a comprehensive account that covers both his biography and his entire body of scientific work. Although such an account of Wundt's life and work cannot be accomplished here, the present book will convey contextual information and details aimed at this goal. An abbreviated biographical outline, however, is essential in order to provide background information about his family, education, professional activities, social attitudes, beliefs, and intellectual characteristics (cf. Chapter 2).

The outline of the main part in eight Chapters (3.2 - 3.9) corresponds to Wundt's fields of research, namely neuropsychology and the primary fields of psychology, as well as ethics, epistemology, and philosophy. Each chapter includes extensive quotations from Wundt's work and sections on methodology and the contemporary reception of his basic concepts. The overview includes several elaborations, i. e. on the system of categories and the controversy about measurement in psychology. Chapter 3.9 is summarized by referring to Wundt's plea for a closer connection between psychology and philosophy as a necessary precondition for critical reflection on philosophical presuppositions present in empirical psychology.

Chapter 4 deals with the reception of Wundt's work since 1858 and is based on contemporary reviews and textbooks as well as a number of recent sources and some bibliometric data. This chapter is mainly based on a previous study entitled *Wilhelm Wundt – Gründervater der Psychologie und Aussenseiter?* (Wilhelm Wundt – Founding Father of Psychology and Outsider?, Fahrenberg, 2011). Since this comprehensive documentation is easily accessible on the internet, extensive quotations and commentaries will not be repeated here (Fahrenberg, 2011, pp. 105-133, documentation pp. 231-623). Based on this resource, hypotheses were developed to interpret Wundt's significant loss of influence after the turn of the century in 1900 (pp. 143-175). Occasional cross references, a summary of the findings, and a number of more recent references since 2011 will suffice here. Since the results of bibliometric analysis on Wundt's reception have been previously provided, they are presented here only briefly. It is worth mentioning that, compared to the earlier presentation, a modified assessment of certain aspects of Wundt's conception was attained by further studying his work. The crosslinks between Wundt's general psychology and his cultural psychology (*Völkerpsychologie*) are now seen more clearly, as is the essential influence of Leibniz on Wundt's epistemology and methodology. Chapter 4 concludes with a renewed commentary about the conspicuous break of tradition.

Chapter 5 reviews previous attempts to reconstruct parts of Wundt's theory of science and of specific concepts in psychology. Particular importance is assigned here to the theoretical construct of *apperception* and Wundt's system of epistemological principles (*Prinzipienlehre*). The theory of apperception and the system of epistemological principles are of fundamental significance because they constitute the common basis for Wundt's general and cultural psychology. There are additional domains in Wundt's conception of psychology where a reconstruction using modern terminology should be pursued. Such concepts include Wundt's theory of motivation (*volition*), theory of language, and comprehensive account of common motives in cultural development. In this respect, only a few references can be provided since a careful reconstruction that adequately reflects Wundt's intentions would require interdisciplinary cooperation.

The final Chapter 6 aims to describe the essence of Wundt's work and provides a summary of what constitutes the continued relevance of Wundt's conception of psychology.

1. 3 Approaches to Wundt's Work

Contexts and Principles

Wundt's empirical psychology can only be understood in the context of his epistemology, which he developed in parallel starting in 1862 and systematically elaborated and published in the revised editions of *Logik und Wissenschaftslehre* (Logic and Theory of Science, 4th ed., 3 volumes, 1919-1921). Hardly any other psychologist has dealt so intensely with these complicated issues and the variety of seemingly incompatible positions (even in ethics and logic) as Wundt did. The postulates of his epistemology, methodologically explained in his *system of principles* (Prinzipienlehre), are original. Therefore, they cannot simply be subsumed under one of the main schools in epistemology like idealism, materialism, and positivism, or their derived versions, which Wundt criticised extensively, nor under the monist or dualist interpretation of the psychical-physical relationship ("mind-body problem"). The modern framing of physicalistic-reductionistic standpoints or neuroreductionism would have been equally unacceptable to him.

Wundt coined the concept of *psychophysical parallelism*, but he differs from other theorists. In following Leibniz's thinking, Wundt decidedly links the idea of the parallelism of psychical and physical processes with an epistemological and categorical distinction: the physical processes, e.g. neurophysiology, have to be investigated and explained from the point of view of *natural causality*; the investigation of psychical processes also requires *analysis* with respect to the ends and means formulated in the *principle of purpose*. Otherwise, psychologists could not attain adequate access to and understanding of voluntary action (intentional acts). Causal and teleological analysis complement each other in the conception of the psychophysical unity of man. Wundt, therefore, demands a coordinated strategy of both causal and teleological analysis, since the principle of cause and the principle of purpose constitute two aspects of the fundamental *law of sufficient reason* first recognized by Leibniz.

Wundt also writes about "complementary points of views" in many other contexts. Today, one could point to the *principle of complementarity* coined by Niels Bohr. However, Bohr was referring to the wave-particle problem in the theory of light in physics, and his later attempts at generalizing this idea were only partly convincing (Bedau und Oppenheim, 1961; Fahrenberg, 2013a). Thus, the term *perspectivity* (*perspectivism*) is more suitable for highlighting complementary reference systems based on fundamentally different categories. The concept of *perspective* was also introduced by Leibniz, however not in the context of his reflections on parallelism (cf. Chapter 3. 9).

Guiding Principles

Wundt's principles take either the form of *philosophical postulates* giving absolute presuppositions about scientific thinking, e.g., categories of space and time, substance and actuality (change), cause and purpose, or *epistemological principles* that could eventually be more or less revised according to further analyses and experience. Some of the most important postulates and epistemological principles are presented here in brief. Extensive citations and comments will follow in later chapters.

Psychology is *not* a science of the individual "soul". According to Wundt, *Seele* (psyche) is another term for inner experience that is in continuous flow. For an understanding of Wundt's psychology, his *postulate of actuality* should be mentioned from the outset. This *process theory* has far-reaching consequences for the definition of psychology because the actively organizing and motivating processes are no longer traced back and explained by assuming a transcendent soul or an underlying "metaphysical substance." Thus, not only the traditional reference and belief in the metaphysical concept of "soul" are absent in Wundt's psychology, but also the concepts of "Ego," "self" or "acting agent." The individual personality is the "unity of feeling, thinking and willing, in which the will appears as the bearer of all other elements." Personality means a "self-conscious being, acting with a consistent and selective will," and it includes "the freedom and responsibility of the will" in an ethical sense. Wundt conceives of *consciousness* as the entire content of the immediate experience, i.e. the formation of representations from sensory impressions in the "coming and going of representations (ideas) and feelings." He assumes that there is a continuum of conscious processes with various degrees of clarity and he discusses dreams and hypnosis, as well as unnoticed neurophysiological processes, but he rejects the conception of "the unconscious" because there is no methodically reliable access to it (cf. Chapters 3.7 and 3.8).

According to Wundt, one could say with sufficient certainty that nothing happens in our consciousness that does not find its physical basis in certain physiological processes. However, psychology cannot be reduced to physiology. Physiological methods are helpful and therefore important tools for psychophysics, research on emotions, and other fields of empirical psychology, but they remain principally inadequate for the essential task of psychology. Man, as a "thinking and willing subject," cannot be explained in terms provided by the *natural sciences*. Psychology, instead, requires specific categories and independent epistemological principles, especially with respect to the analysis of voluntary and purposeful action. Such inquiries are basic to the humanities (*Geisteswissenschaften*), but alien to physiology and natural science.

"We want to call the entry of an idea into the inner field of vision *perception*, its entry into the focus (or the attention field) *apperception*." Apperception is Wundt's central theoretical concept. He distinguishes between two meanings of apperception: First, a clear representation in contrast to a vague, mere perception, and second, the inclusion of such sensory representations into self-consciousness. Here, Wundt is aligned with two of Leibniz's assumptions, namely that there is a continuum between the unnoticed "little perceptions" and apperception as an inclusion of sensory impressions in the ongoing process of consciousness, whereby self-consciousness and individuality emerge. This dynamic process is influenced by man's active striving (*appetitus*). First and foremost, apperception refers to the control of selective attention. A more generalized notion of apperception denotes a motivated and integrative process. Sensory impressions and other mental representations, feelings, and volitional activity are selected, analyzed, combined, and expressed in various ways, as well as evaluated and directed, not merely "processed," but "creatively synthesized." Apperception is an active processing, representing, and orienting, superimposed on sensory impressions and passive associations, and eventually initiating voluntary action. With respect to this multimodal process, Wundt seeks to develop descriptive and experimental methods suited to differentiating motivational, cognitive, and emotional aspects, as well as coordinated neurophysiological functions in order to elaborate a comprehensive process theory.

Wundt's apperception theory is an excellent example in the history of ideas of how the views of an eminent philosopher and universal thinker such as Leibniz and his thoughts about

perception and apperception, consciousness and “striving,” parallelism and the perspectivity of thought, were transformed by a psychologist and neurophysiologist into empirical psychological concepts, and possibly, operational definitions suited to experimental psychology and aimed at understanding the complex integrative performance in consciousness and voluntary action. Wundt often mentions Leibniz, but does not comment on him in detail until 1917 when he published an essay on Leibniz.

According to Wundt, it is not the individual elements, but their links (“psychical connections”) in the integrative apperceptive performance and voluntary orientation that constitute the main subject of psychology. Many of Wundt’s guiding ideas converge in two concepts, namely in the generalized *theory of apperception* based on his experimental psychology, and in his *psychological developmental theory of the mind* derived from his empirical cultural psychology. The *apperception theory* and the *system of principles* constitute the common theoretical and methodological basis of both these fields.

In his work *Die Psychologie im Beginn des zwanzigsten Jahrhunderts* (Psychology at the Beginning of the 20th Century, 1904/1913), Wundt extensively explains the development from philosophical to empirical psychology in the 17th, 18th and 19th centuries in the context of the history of ideas, and highlights the prevailing ontological way of thinking by saying that one could set up apodictic sentences about God and the world, and even about the soul of man, without attending to the actual mental experiences at all (p. 180). Next, Wundt distinguishes between two important currents in more recent psychology, namely (1) *experimental psychology*, which developed into Fechner’s psychophysics under the influence of the natural sciences (nerve and brain physiology as well as sensory physiology), and (2) *comparative psychology* and *cultural psychology*. – Later, in his theory of science, Wundt presented his thematically ordered systematics of psychology in detail (1921, pp. 144-299, cf. Chapter 3. 8. 2).

Reflections on Wundt

There is a maxim that states when discussing epistemological and methodological controversies participants should clarify their standpoint – at least roughly – in order to enable others to evaluate their arguments within the given context.

Dealing with methodological questions – both with respect to the psychophysiological research in the laboratory and in academic teaching – gives rise over time to one’s own perspective. This is all the more true for someone who is from a generation in which training in the method of psychological interpretation, i.e. principles derived from hermeneutics and from psychoanalysis, along with experimental psychology, was an unquestioned part of the study of psychology, a course of study which was much more comprehensive at that time. The exam (Diploma in Psychology) included a number of secondary subjects that were taught in other institutes or faculties, such as philosophy, educational science, sociology, physiology, ethology (animal psychology), and psychopathology. The experience of distinct perspectives and methods certainly shapes one’s understanding of psychology.

During my own studies – as some of my existing lecture notes 1957-1961 prove – several of Wundt’s positions were presented, such as the definitions of attention and consciousness, apperception, experimental psychology, and other topics, as well as his interest in cultural development. However, this did not result in a systematic understanding of Wundt’s general psychology

or cultural psychology, not to mention the fact that Wundt's theory of science was completely omitted from textbooks. Wundt's psychology and philosophy, ideas, and principles, were largely forgotten. Later, in my own research work, Wundt's three-dimensional theory of emotions and the psychophysiological methods became important, as did the multi-method assessment, the notion of psychophysical parallelism, and consequently, the complementarity of reference systems.

It was only after these academic years that I undertook a more thorough reading of Immanuel Kant's *Anthropologie in pragmatischer Hinsicht* (Anthropology from a Pragmatic Point of View, 1798) and the question emerged regarding the reception of these thoughts by later psychologists. Despite its title, given the essence of his concise and succinct methodological critique and his range of psychological subjects, Kant's book could be regarded as the first textbook on psychology. Thus, the question regarding Kant's influence on Wundt arose. Apparently, Kant's psychological treatise was not appropriately received during or after Wundt's time (Fahrenberg, 2004a, 2004b, 2008, 2011; Sturm, 2009).

Wundt's views are attractive and inspiring for the following reasons:

- the critical realism and the demand for critical reflection on philosophical presuppositions in empirical psychology and methodology;
- the heuristics in the idea of psychophysical parallelism (with a monist orientation) and the coordinated taking of perspectives between psychical processes and their neurophysiological bases (epistemological dualism);
- the system of specific categories and epistemological principles in psychology (mental science) with respect to consciousness and cultural psychology as opposed to reductionism and physicalistic views in neuroscience;
- the intention to develop multimodal theoretical constructs and multimethod research strategies;
- the occasional scepticism with regard to a hasty involvement in applied psychology without sufficient evaluation of the scientific foundations;
- the openness to psychological aspects of ethics, including professional ethics.

Initially, I encountered some difficulties in understanding Wundt's conception with respect to the postulate of *psychical causality* and the *voluntaristic orientation* in his psychology. In both respects, it turned out to be useful to go back to Leibniz and read philosophical interpretations that deal with the difficult topic of cause and purpose. Although Wundt's considerations are more sophisticated, one has to agree with him that physical processes can be explained sufficiently with regard to their causality, whereas higher psychical processes, like voluntary action, require the concept of purpose. Without taking into account the subject's intention (will), many of the behavioral activities cannot be adequately interpreted. A theory of volitional processes is incomplete if it does not include assertions about the dynamism of these processes: An entelechy, an innate instinct, needs, the "selfish genes", and similar metaphors. In contrast to this, Wundt's "voluntaristic" assumptions are psychologically more differentiated, for instance through the demarcating of his motivation theory from the philosophy of naturalism and vitalism.

1. 4 Previous Publications by the author about Wilhelm Wundt and Theoretical Psychology

- (2008). Die Wissenschaftskonzeptionen der Psychologie bei Kant und Wundt als Hintergrund heutiger Kontroversen (*Scientific Concepts of Psychology by Kant and Wundt as a Background to Today's Controversies*).
- (2011). Wilhelm Wundt: Pionier der Psychologie und Aussenseiter? (Wilhelm Wundt: Pioneer of Psychology and Outsider?).
- (2012). Wilhelm Wundts Wissenschaftstheorie der Psychologie. Ein Rekonstruktionsversuch (Wilhelm Wundt's Scientific Theory of Psychology: An attempt at Reconstruction).
- (2013). Zur Kategorienlehre der Psychologie. Komplementaritätsprinzip. Perspektiven und Perspektiven-Wechsel (Systems of Categories in Psychology. Complementarity Principle, Perspectives and Perspective-taking).
- (2015). Theoretische Psychologie – Eine Systematik der Kontroversen (Theoretical Psychology – Systematics of Controversies).
- (2015). Wilhelm Wundts Neuropsychologie (Wilhelm Wundt's Neuropsychology).
- (2016). Leibniz' Einfluss auf Wundts Psychologie, Philosophie und Ethik (Leibniz's Influence on Wundt's Psychology, Philosophy and Ethics).
- (2016). Wilhelm Wundts Kulturpsychologie (Völkerpsychologie): Eine psychologische Entwicklungstheorie des Geistes (Wilhelm Wundt's Cultural Psychology: A Psychological Developmental Theory of the Mind).
- (2016). Wilhelm Wundts Nachlass. Eine Übersicht (Wilhelm Wundt's Estate. An Overview).
- (2017). Wilhelm Maximilian Wundt. German Wikipedia; Wilhelm Maximilian Wundt. English Wikipedia.
- (2017). The influence of Gottfried Wilhelm Leibniz on the Psychology, Philosophy, and Ethics of Wilhelm Wundt.
- (2018). Memorandum zu einer Wilhelm-Wundt-Stiftung Grossbothen. Dokumentation, Edition, Rezeptionsforschung und Rekonstruktion (Memorandum: Wilhelm Wundt Foundation. Documentation, Edition, Reception Research, and Reconstruction).
- (2018). Wilhelm Wundt (1832 – 1920). Gesamtwerk: Einführung, Zitate, Rezeption, Kommentare, Rekonstruktionsversuche. (Work: Introduction, Quotations, Reception, Commentaries, Attempts at Reconstruction).

(cf. German edition for more details.)

2 Wilhelm Wundt: A Short Biography

2. 1 Curriculum Vitae

Wilhelm Maximilian Wundt was born on August 16, 1832 in Neckarau, Baden, and died at the age of 88 on August 31, 1920 in Grossbothen near Leipzig. His father, Maximilian Wundt (1787–1846), was a Lutheran minister in Heidelberg, Baden; the paternal grandfather Friedrich Peter Wundt (1745–1805), theologian and professor of geography. Wundt's mother Maria Friederike Wundt (1797–1868), daughter of Heinrich August Mau, professor of theology and Luise Mau, née von Rumohr.

In 1867, Wilhelm Wundt met Sophie Mau (1844–1912), whose father Heinrich August Mau was a theology professor in Kiel. The couple married in 1872 and had three children: Eleonore (1876–1957), Max (1879–1963), and Louise (1880–1884), called Lilli, who died at a young age. (Drüll, 2019; Lamberti, 1995).

Eleonore Wundt helped her father, wrote letters and other texts, and later, due to his increasing vision and reading impairment, wrote extensive excerpts, in particular for *Völkerpsychologie* (Cultural Psychology). The dedication in volume 5 reads: Dedicated to my faithful companion in the jungle of myths and fairytales (1914, p. V). Max Wundt studied philosophy and was a professor at the universities of Jena and Marburg. After the end of the Second World War, he lived with his family in Tübingen.

Wundt taught until 1917, and from around this time lived in his house in Grossbothen near Grimma/Leipzig, which was initially rented for summer vacation and supplemented the house owned in Heidelberg. Wundt lived there in the summer of 1920, supported by his daughter Eleonore. On July 24, 1920, he dictated the preface to *Erlebtes und Erkanntes* (Experience and Realization). He intended to return to Leipzig in the autumn but died on August 31st of that year. His tomb, as well as that of his wife Sophie and his daughter Eleonore, is located at the Southern Cemetery in Leipzig.

Lamberti (1995) has portrayed Wundt's biography and family history, including 80 illustrations, to such an exquisite degree that it is necessary to refer primarily to his book. Also, the biography written by Meischner and Eschler (1979) and Ungerer's (2016) *Zur Biographie Wilhelm Wundts* are informative and richly illustrated. A biographical sketch is included in the Wikipedia article about *Wilhelm Wundt*. The *Heidelberger Gelehrtenlexikon* (Heidelberg Scholar Lexicon) 1803–1932 (Drüll, 2019) and the *Professorenkatalog der Universität Leipzig* (Professors' Catalogue of the University of Leipzig) also contain some additional data. In addition to Wundt's estate, the Leipzig University Archive's collection (<https://www.archiv.uni-leipzig.de/>) includes a photo of Wundt's room in the former institute at Tieckstrasse as well as other documents. The collection is entitled *Der Philosoph und Hauptbegründer der modernen wissenschaftlichen Psychologie Wilhelm Wundt* (Wilhelm Wundt: The Philosopher and Principal Founder of Modern Scientific Psychology).

In addition to this, many encyclopedias include more or less detailed and more or less adequate short biographies, whose reliability and validity needs to be checked on a case-by-case basis. Important facets of his biography were studied and commented on by historians of psychology, especially in the compilations edited by Bringmann and Tweney (1980), Bringmann and Scheerer (1980), and Rieber and Robinson (1980, 2001). There are additional studies by other authors, which cover Wundt's family and his ancestors, youth, political activities in Heidelberg, work as an assistant to Helmholtz, the foundation and further development of the laboratory for *Experimental Psychology* in Leipzig, and his relations with the best-known of his assistants and colleagues. The recent publication by Ungerer (2016), which compiles contributions written together with Bringmann since 1980 and other articles, is especially noteworthy, particularly since it contains more details from the Heidelberg years.

In contrast to this, the volume *Wilhelm Wundts anderes Erbe. Ein Missverständnis löst sich auf* (Wilhelm Wundt's Other Legacy: Dissolving a Misunderstanding) published by Jüttemann (2006a) and the monograph by Araujo (2016), *Wundt and the Philosophical Foundations of Psychology. A Reappraisal*, deal with important facets of Wundt's entire body of work.

Life and Work Biography

This book does not intend to provide a detailed biography of Wundt. The following biographical outline intends only to provide an overview of the significant phases of Wundt's life and the professional context of his work. For orientation purposes, selected biographical data has been summarized in a table. An overview of the most important publications is included. In the last year of his life, Wundt published his autobiography entitled *Erlebtes und Erkanntes* (1920a). The table of contents is laid out in an unusually detailed way, so that it becomes clear through his retrospection what was essential to him in life. Topics on childhood and youth cover about 52 pages, studies and doctorate 62 pages, habilitation and further research in Heidelberg 127 pages, his year in Zurich 18 pages, philosophy and other topics 23 pages, and his time in Leipzig 117 pages. The table of contents of *Erlebtes und Erkanntes* is not provided here since it can be easily accessed on the internet (<http://gutenberg.spiegel.de/buch/erlebtes-und-erkanntes-193/1>).

A portrayal of both Wundt's personality and his complete work does not exist, although the manifold relations of his life and scientific sphere pose a challenge to a more thorough biographical study, which would include the general orientation of his studies, time as an assistant, first publications and teaching activities in Heidelberg, appointment and founding of the laboratory in Leipzig, research orientation and teaching, personal motivation and attitudes toward matters related to worldview, politics, and religion, and his positions on ethics and metaphysics.

Biographies have been written by:

Edmund König (1901; 3rd edition 1909, 232 pages)

Rudolf Eisler (1902, 209 pages)

Stanley Hall (English 1912; German edition 1914, 178 pages)

Alfred Heussner (1920, 142 pages in octavo format)

Willi Nef (1923, 357 pages)

Peter Petersen (1925, 303 pages)

The first biographers, König and Eisler, were not familiar with Wundt's later works with substantially extended editions of *Grundzüge der physiologischen Psychologie* (Principles of Physiological Psychology), *Logik* (Logic) and *System der Philosophie* (System of Philosophy) and were barely familiar with the beginnings of the *Völkerpsychologie*. Nevertheless, Eisler has the distinction of having meticulously presented Wundt's philosophical thought. Eisler was later well-known thanks to his *Philosophisches Handwörterbuch* (Concise Dictionary of Philosophy, 1904/1922); he also published an instructive article on apperception. In 1928, Eleonore Wundt wrote a few biographical pages about her father, which also include an insightful presentation of important theoretical connections in his work, his cultural psychology and theory of principles, and thus surpasses many of the later attempts of other authors. On the other hand, the philosopher Max Wundt mentions his father only briefly in his books (cf. Chapter 3. 9). In *Überwegs Grundriss der Geschichte der Philosophie* (Überweg's Outline of the History of Philosophy), a classic in German philosophy, there is a well-founded – and in some respects critical – article by Oesterreich (1923/1951) on Wundt's work.

Half a century later, two biographies with selected topics appeared, both of which were written from a more or less Marxist-Leninist perspective, and in this sense stimulate a critical debate. These were written by Wolfram Meischner and Erhard Eschler (1979), and Alfred Arnold (1980). There was an international symposium held in Leipzig in 1979, the year before the *International Congress of Psychology*. The symposium's contributions were published under the title *Wilhelm Wundt. Progressives Erbe, Wissenschaftsentwicklung und Gegenwart. Protokoll des internationalen Symposiums, Leipzig 1. und 2. November 1979*. (Wilhelm Wundt. Progressive Heritage, Development of Science and the Present. Proceedings of the International Symposium, Leipzig, November 1st and 2nd, 1979), (Meischner und Metge, 1980) and a considerable number of publications from the Leipzig Institute appeared thereafter (cf. German edition for more details).

In addition, there is no shortage of essays and book chapters from historians of psychology, in which individual biographical aspects or larger sections of Wundt's work have been studied in detail, such as during his time in Heidelberg and the years in Leipzig when the institute was founded. Biographical details also inspired comments and psychological interpretations. For instance, Wundt's memories of his serious illness in 1857, his political commitment in Heidelberg, and his personal and scientific relations with Helmholtz. Such attempts at psychological interpretation remain highly problematic if they are undertaken without considering the important context of Wundt's work, and if they cannot be supported by additional information. More recently, access to a large part of his existing correspondence has become available. However, private correspondence in Wundt's estate, which is still owned by the family, currently remains unavailable.

The reasons why there is no biography that deals with both, Wundt's personality and his *whole work*, can only be guessed. On the one hand, Wundt's autobiography and the aforementioned *biographical* attempts have existed since König (1901) and Eisler (1902). On the other hand, the interdisciplinarity, difficulty, and scope of his work might have discouraged such a comprehensive undertaking.

Studies and Academic Career

Wundt studied medicine from 1851 to 1856 at the universities of Heidelberg and Tübingen. Among his teachers were the anatomist and physiologist Friedrich Arnold (a maternal uncle), the

chemist Robert Bunsen and the physicist Philipp von Jolly. After state examinations and his doctoral dissertation entitled *Untersuchungen über das Verhalten der Nerven in entzündeten und degenerierten Organen* (Research on the Behavior of Nerves in Inflamed and Degenerated Organs), which was awarded *summa cum laude*, Wundt became an assistant in Heidelberg to the pathologist and physician Karl Ewald Hasse, and then moved to Berlin for a research semester with Johannes Müller and Emil du Bois-Reymond.

After his habilitation in 1857, which was necessary to become a lecturer, he was appointed lecturer (unsalaried) at Heidelberg University and held lectures on general physiology and medical physics. While recovering from a life-threatening acute illness, he applied for the position of assistant with the physiologist and physicist Hermann von Helmholtz. During his period as an assistant from 1858 to 1863, he trained students of medicine in experimental physiology, lectured on physiology and other subjects, and began his own research on physiology and sensory psychology. At this time, he wrote his first contributions on experimental psychology entitled *Beiträge zur Theorie der Sinneswahrnehmung* (Contributions on the Theory of Sensory Perception). After Helmholtz accepted a professorship in physics in Berlin in 1870, Wilhelm Kühne became his successor in the following year. Wundt, who was appointed associate professor of anthropology and medical psychology in the Faculty of Medicine in 1864, received a salaried associate professorship in 1871.

Only one year after his appointment as a chaired professor of inductive philosophy at the University of Zurich in 1874, Wundt accepted an appointment as professor of one of two chairs for philosophy at the University of Leipzig. He appears to have taken some equipment from the small private laboratory in his home, where he carried out physiological experiments starting in 1855 with the assistance of his mother, who also provided partial financing. In Leipzig, he initially contained only his equipment in a separate room and in 1879 he established a small laboratory for his own experimentation and for demonstrations to students, thus emerged the *Institut für experimentelle Psychologie zu Leipzig* (Wundt, 1910b).

From these beginnings, the world's first institute of psychology with a continuous research program was developed. Between 1889 to 1890, Wundt served as rector of the University of Leipzig.

2.2 Research and Teaching

The Founding of the Laboratory

The small laboratory facility was officially recognized by the university in 1883. It was equipped with facilities and provided with an annual budget as the *Institut für experimentelle Psychologie* (Institute for Experimental Psychology) in 1884. In 1913, Wundt founded a *Völkerpsychologische Abteilung* (Department of Cultural Psychology) at the institute. In 1917, at the age of 85, he gave up his teaching activities (Lamberti, 1995; Meischner and Eschler, 1979; Sprung 1979; Sprung and Sprung, 1980; Ungerer, 2016). Wundt (1910b) himself portrayed the arduous journey of obtaining a room for research and teaching in experimental psychology to the official recognition as an institute by the university and the expansion of the institute with a department of cultural psychology. Other authors have also described the foundation phase in Leipzig in the context of the then developing discipline of psychology (Thomae, 1977; Meischner and Eschler, 1979;

Leary, 1979, 1980; Bringmann, Bringmann and Balance, 1980; Bringmann, Bringmann and Ungerer, 1980; Bringmann and Ungerer, 1980; Sprung and Sprung, 1980, 1981; Métraux, 1980; Farr, 1983; Lamberti, 1995; Haupt, 2001; Friedrich, 2009; Wolfradt, 2011; Ungerer, 2016, among others). The building in which the Leipzig Institute of Psychology is presently located – after a previous relocation – contains a "Wundt room" with Wundt's desk, some equipment from that time, as well as some other memorabilia or "Wundtiana" (cf. Lamberti, 1995).

Wundt mainly used devices from the instrument maker E. Zimmermann of Leipzig in his laboratory. Wontorra (2009) selected devices from E. Zimmermann's extensive catalogue that would have been sufficient for an experimental psychology laboratory of that era, i.e. from the time Wundt's laboratory was founded until about three or four decades later and assembled the equipment for an exhibition. The exhibition included an apparatus used for tachistoscopic presentation of stimuli and precise timing, a control system for experimentation, various recording systems, and early electromechanical devices (cf. <http://psychologie.biphaps.uni-leipzig.de/wundt/devices/devices.htm>).

Wundt was also the founder of two journals that promoted the work carried out at the institute in Leipzig, namely *Philosophische Studien* (Philosophical Studies, 1883-1903) and *Psychologische Studien* (Psychological Studies, 1905-1917).

After the death of his wife Sophie, Wundt lived at his house in Grossbothen near Leipzig. Since 2014, an initiative has been underway to preserve this house, which has fallen into decay, and to list it as a historic monument and make it into a place for new, more in-depth research on Wundt (cf. *Initiative Wundt-Haus Grossbothen*, Jüttemann, 2014) and *Memorandum zu einer Wilhelm Wundt-Stiftung Grossbothen* (Memorandum on a Foundation for Wilhelm Wundt, Fahrenberg, 2018b).

Teaching Activity

Beginning in 1875, Wundt held lectures and seminars in Leipzig on a wide range of subjects: logic and methodology, psychology of language, anthropology (natural history and prehistory of man), psychology, general findings on brain and nerve physiology in connection with psychology, history of recent cosmology, historical and modern philosophy, and courses in experimental psychology. *Historische Vorlesungsverzeichnisse der Universität Leipzig* (Historical Registers of Lectures at the University of Leipzig, http://histvv.uni-leipzig.de/dozenten/wundt_w.html) show that the first "Psychophysische Übungen" (Tutorials in Psychophysics) were held in the summer of 1881 and the first "Seminar für experimentelle Psychologie" (seminar on experimental psychology for advanced students) in the winter of 1883. The last two courses in the winter of 1913, no. 171 and 172, dealt with the *Geschichte der neueren Philosophie mit einer einleitenden Übersicht über die Geschichte der älteren Philosophie* (history of recent philosophy with an introductory overview of the history of early philosophy) and, in the summer of 1914, with *Psychologie*. Among other documents, the *University Archive in Leipzig* also contains a record of the seminar on experimental psychology, which took place in the summer of 1891, as well as statistics of participants in Heidelberg and Leipzig from 1871 to 1917.

There is an undated transcript from the lecture on *Völkerpsychologie* by Eleanor Wundt. It comprises handwritten accounts of the introduction and the section on language in nine parts, and similar accounts of the other topics. The lecture transcript on psychology is dated to the summer

of 1903 (University Archive Leipzig). Previously, only lecture notes by Albert Thumb, a student from Freiburg, were accessible (Jahnke, 1998; Bringmann, Bringmann and Ungerer, 1980).

Academic-Intellectual Environment

In his memoirs, Wundt often writes about the colleagues important to him, friendships between the senior lecturers in Heidelberg, social relations and the personal style of professors, and the academic life in the faculties of the universities of Heidelberg, Zurich, and Leipzig. In addition to Helmholtz, Wundt also associated with the law professor Oskar von Bülow (later also in Leipzig) and the theologian and philosopher Carl Heinrich Cornill in Heidelberg. Ungerer (2016) pointed out that during his school years in Heidelberg, his teacher, the later linguist Bernhard Jülg, drew attention to comparative linguistic research and that Wundt originally wanted to study philology.

The academic environment in Leipzig was even more varied and presented the opportunity to establish many interdisciplinary contacts. Wundt cultivated a professional exchange with some colleagues, such as the philosopher and physician Rudolph Hermann Lotze (1817–1881), and the anatomist and physiologist Ernst Heinrich Weber (1795–1878), and others, who he counted as friends, such as Gustav Theodor Fechner (1801-1887). Wundt later received Fechner's bequest. Fechner followed Wundt's research at the institute with great interest and also offered some critical advice (Meischner-Metge, 2003), commenting on Wundt's plan to establish an institute in Leipzig as follows: "You'll be finished with all of psychology in a few years." (Klemm, 1922, p. 95).

Other names also deserve to be mentioned including the physiologists Carl Ludwig, Johann Nepomuk Czermak, and Ewald Hering, the Indo-European philologist and linguist Karl Brugmann, the law historian Rudolph Sohm, and the botanist Wilhelm Pfeffer. The historian Karl Lamprecht, the geographer Friedrich Ratzel, and the chemist Wilhelm Ostwald were part of Wundt's discussion circle at the Café in the Leipzig Theater.

Controversies about fundamental questions of psychology arose in Leipzig with the mathematician and philosopher Moritz Wilhelm Drobisch (1864), a follower of Herbart, and the philosopher Eduard Zeller (1882a, 1882b), who denied the measurability of mental processes. A lengthy controversy arose with the astrophysicist Friedrich Zöllner and the law professor Hermann Ulrici in Halle about spiritualism (Wundt, 1879; Bringmann, Bringmann and Bauer, 1990).

Assistants and Staff

The first assistant was the American James McKeen Cattell (not to be confused with Raymond B. Cattell known for personality research and multivariate methodology). The status and income of a volunteer assistant at that time is not at all comparable with today's assistants; in this respect, the distinction between assistant, PhD-student, and co-worker is questionable. Between 1885 and 1909, a total of 16 assistants were mentioned (Meischner-Metge, 2003). Meischner-Metge distinguishes between assistants, doctoral students, co-authors of the *Festschrift* on the occasion of Wundt's 70th birthday, and mere auditors and participants in the laboratory. In addition to the first assistant James McKeen Cattell, Meischner-Metge mentions Ludwig Lange, Oswald Külpe, August Kirschmann, Ernst Meumann, Friedrich Kiesow, Paul Mentz, Erich Mosch, Robert Müller, Wolfgang Möbius, Wilhelm Wirth, Ernest Dürr, Felix Krueger, Otto Klemm, Paul Salow,

and Friedrich Sander. Of these, Klemm, Külpe, and Lange, did not submit a dissertation in experimental psychology. Other noteworthy colleagues and outstanding doctoral students also deserve mention: Alfred Georg Ludvig Lehmann, Gottlob Friedrich Lipps, Karl Marbe, Walther Moede, Hugo Münsterberg, Charles Spearman, Gustav Wilhelm Störring, Edward Bradford Titchener, Lightner Witmer, and the psychiatrist Emil Kraepelin. Many of these collaborators later became well-known pioneers in various fields of psychology (cf. [https://home.uni-leipzig.de/biocog/content/en/Psychology history/](https://home.uni-leipzig.de/biocog/content/en/Psychology%20history/)).

In addition to short biographies of some well-known doctoral students, three complete dissertations are available on the Leipzig Institute's website: Max Friedrich's dissertation entitled *Über die Apperzeptionsdauer bei einfachen und zusammengesetzten Vorstellungen* (On the Apperception Duration in Simple and Composite Representations), James McKeen Cattell's *Psychometrische Untersuchungen* (Psychometric Examinations), and Charles Spearman's *Die Normaltäuschungen in der Lagewahrnehmung* (Normal Illusions in Perception of Position) (cf. <https://home.uni-leipzig.de/biocog/content/de/psychologiegeschichte/>).

The associates and colleagues who later became professors in Leipzig are well documented in the *Leipziger Professorenkatalog* (Leipzig Register of Professors), including August Kirschmann, Otto Klemm, Felix Krueger, Rudolf Lehmann, Ernst Meumann, and Wilhelm Wirth. There are articles about many of these individuals on the German and/or English Wikipedia pages as well as in encyclopedias and textbooks on the history of psychology. Due to the problematic experiences during his research semester with Emil Du Bois-Reymond in Berlin, Wundt said the following about the role of academic teachers and students: "First, if you ever have a disciple, let him, wherever possible, go his own way; and second, beware of becoming the head of a school." (*Erlebtes und Erkanntes*, 1920a, p. 148). In his memoir, the names of some closely related people, such as Max Klinger, who created the bust portrait, or Wilhelm Ostwald, do not appear. He leaves out many areas of life as well as many people. For instance, Külpe, Meumann, Münsterberg, and several others are not mentioned at all.

Meischner-Metge (2003) attempts to describe Wundt's relationship with his most well-known "disciples": Kraepelin, Külpe, and Meumann. She examines the personnel situation at the Institute, including Wirth's department, and the discussion and decision about Wundt's successor. According to Meischner-Metge, Spranger wanted to get Ziehen to come to Leipzig, but without clearly rejecting Krueger. Eventually, Krueger, Ziehen, and Lipps were on the short list of successors. Krueger was probably the most skillful in dealing with Wundt. Among his colleagues, he probably would have been the one who could have carried on Wundt's work in cultural psychology, and perhaps had even promised to do so, although Wundt had commented critically on Krueger's attempts to that effect (Meischner-Metge, 2003, p. 165; see the German edition for more details).

Doctoral Students and Visitors

Between 1875 and 1919, Wundt wrote the first of the two academic appraisals on 186 doctoral theses. The focal points of the experimental studies (85 dissertations) were Fechner's psychophysics and research on apperception with reaction time measurements and other methods. Apart from many philosophical themes, there were relatively few theses concerning cultural psychology (Gundlach, 1993; cf. *Wilhelm Wundt und die Anfänge der experimentellen Psychologie*, Wilhelm Wundt and the Beginnings of Experimental Psychology) ([http://psychologie.biphaps.uni-](http://psychologie.biphaps.uni-leipzig.de/)

leipzig.de/wundt/). In the list of doctoral students there are about 70 foreigners: 19 from the United States, England, and Canada, and at least 24 students from Russia, Romania and other Eastern European countries, as well as 2 from India. However, there are no students from France, Italy, and Spain. Ben-David and Collins (1966) have pointed out that Wundt trained more than half of the American psychologists of the first and second generation (see also Baldwin, 1980; Hillix and Broyles, 1980; Pintner, 1920; Tinker, 1932).

The following students (or visitors) whose names later became prominent are also mentioned: James Baldwin, Vladimir Mikhailovich Bekhterev, Franz Boas, Émile Durkheim, Stanley Hall, Harald Höföding, Edmund Husserl, Ludwig Lange, Bronislaw Malinowski, Matataro Matsumoto, George Herbert Mead, Albert Michotte, Nicolai Lange, Edward Sapir, William Isaac Thomas, Ferdinand Tönnies, William James (cf. Meischner-Metge, 2003; Sprung, 1979). The philosophers Wilhelm Dilthey, Aloys Riehl, and Eduard Spranger are also noteworthy, as well as visits and correspondence with former colleagues such as Emil Kraepelin, Oswald Külpe, Theodor Lipps, Ernst Meumann, and Hugo Münsterberg.

Politics

Wundt was co-founder of the *Verein deutscher Arbeitervereine* (Association of German Workers' Associations). He was a member of the liberal *Badische Fortschrittspartei* (Progressive Party of Baden), and as representative of Heidelberg, he was a member of the second chamber of the parliament known as *Badische Ständeversammlung* (Baden States Assembly) from 1866 to 1869. Wundt's fields of activity included the legal status of students, school reform, and the commission report on the draft law concerning the legal relationship between students and the universities. Regarding the school system, he advocated for the so-called *Simultanschule* (simultaneous school), i.e. a school for pupils of all religious denominations. Furthermore, he advocated for the reduction of religious lessons and for the training of female teachers for boys' schools. Until 1874, Wundt served as co-founder, and temporarily chairman, of the *Heidelberger Arbeiterbildungsverein* (Heidelberg Association for Workers' Education) and promoted teaching in the German language, arithmetic, bookkeeping, and writing, in order to improve the social situation of the workers. During his entire life, Wundt was committed to progress in educational policy and reform (Finster, 1980; Ungerer, 2016).

Awards

In 1876, Wundt was awarded Dr. phil. h.c. by the University of Leipzig, and in 1887 Dr. jur. h.c. by the University of Göttingen. In addition, he was an honorary member of 12 scientific societies at home and abroad. In 1888, he was appointed *Königlich Sächsischer Geheimer Hofrat* (Royal Saxon Secret Councilor), and in 1912 he was elected to be a member of the order *Pour le Mérite for sciences and arts*. He was a foreign or corresponding member of 13 academies, and became an honorary citizen of Leipzig in 1902, and of Mannheim in 1907 (Lamberti, 1995; Meischner and Eschler, 1979; Ungerer, 2016).

Conversation Circle at the Theater Café

In Leipzig, Wundt maintained close professional and friendly exchange with the geographer Friedrich Ratzel, the historian Karl Lamprecht, and the chemist Wilhelm Ostwald (awarded the Nobel

prize in 1909). They met for many years around the turn of the century in the Theater Café. These professors, who included Wundt because of his dedication to cultural psychology, were relative outsiders in their respective disciplines. Their fundamentally monistic position and openness to Darwin's *On the Origin of Species*, then still widely rejected, could have formed a common bond between them. There is not yet a portrayal of this interdisciplinary circle, neither from the perspective of the history of ideas nor in a biographical respect.

Correspondence

With regard to Wundt's correspondence, former assistants and co-workers such as Kraepelin, Külpe, Th. Lipps, Meumann, and Münsterberg should be mentioned first. During his work on *Völkerpsychologie*, Wundt's correspondence seems to have expanded due to the interdisciplinary scope of his research, and included correspondence with outstanding philologists of Indo-European languages, philosophers, theologians, and natural scientists in Germany such as E. Haeckel (biology), C. Meinhof and E. Hahn (ethnology), K. Brugmann (philology), P. Barth, R. Eucken, H. Lindau, Fr. Paulsen, W. Schuppe, A. Sichler, Th. Valentiner (philosophy, educational science), F. Tönnies (sociology), K. Thieme (theology), R. von Jhering and O. Bülow (law).

Wundt's bequest at the *University Archives* at Leipzig contains not only the letters Wundt received in the course of his very extensive correspondence, but often also letters he wrote himself, an effort that was organized by Eleonore Wundt. The majority of the letters are kept relatively short and consist of expressions of gratitude in return for books received and their possible integration into Wundt's own works, brief references to work projects or manuscripts, recommendations, greetings, and congratulations. However, individual letters are of greater interest. A selection of Wundt's correspondence, designated as a *demo version*, was previously made available directly on the Institute's website by Wontorra, Kästner and Schröger (2011), including some interesting letters from Wundt's correspondence with Cattell, Fechner, Helmholtz, Kraepelin, Külpe, Lindau, Meumann, Münsterberg, Ostwald, and Ribot, etc. (<http://www.uni-leipzig.de/~wundtbriefe/>) (last updated July 10, 2011; cf. Wontorra, Kästner and Schröger, 2012). Even before this archive, several authors quoted individual letters (e.g. Araujo, 2016; Bringmann and Ungerer, 1980; Fahrenberg, 2011; Fischl, 1959; Lamberti, 1995; Meischner-Metge, 1990, 1998, 2003; Schlotte, 1955/56), but there is still a lack of edited and annotated correspondence similar to that between Wundt and Kraepelin (Steinberg, 2002) or the correspondence between Wundt and Oswald Külpe, Ernst Meumann, and Hugo Münsterberg (Fuchs and Meyer, 2017).

In 2016, the University Archive in Leipzig completed the digitization of its bequest from Wundt. At present, it amounts to approx. 5,800 items, providing excellent documentary material (Meyer, 2015). This material represents an extraordinary step forward for research on Wundt, especially since it is accessible on the internet and includes correspondence, scripts, excerpts, lecture transcripts, a number of hitherto unknown, unpublished poems of Wundt's, various documents from the Leipzig Institute (also from a later date), and some Wundtiana (Meyer, 2015; Meyer, Schröger, Mädebach, 2016).

Regarding the estate now accessible at the University Archive in Leipzig, Meyer (2015) wrote: "In addition to the work materials and personal documents, the letters represent the second largest group in the bequest. Until now, only individual sections of this correspondence have been edited scientifically, and in part also made available to the public in digitized form. The approximately 4,860 documents were preserved in a special manner: After the death of her father,