THE PHILOSOPHICAL DEVELOPMENT OF THE CONCEPTION OF PSYCHOLOGY IN GERMANY, 1780-1850

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Although it is generally acknowledged that the modern science of psychology was produced in the mid-nineteenth century by the cross-fertilization of philosophy and physiology, few historians have tried to specify the exact role of philosophers in the evolution of modern psychology. The purpose of this article is to identify one important line of development from within early-nineteenth-century German philosophy toward the conception of psychology as an independent, experimental, and mathematical science. The thesis it proposes is that Immanuel Kant's criticism of the psychological tradition and his articulation of a specific philosophy of science provided the negative and positive foundations upon which Jakob Friedrich Fries, Johann Friedrich Herbart, and Friedrich Eduard Beneke developed the conceptualization of scientific psychology.

Around the middle of the nineteenth century, German psychology became experimental in practice. At this point, with the work of E. H. Weber, Gustav Fechner, Hermann von Helmholtz, and Wilhelm Wundt, the modern phase of psychology is most often reckoned to have begun. The primary purpose of this article is to trace one line of theoretical development — from Immanuel Kant, to Jakob Friedrich Fries, to Johann Friedrich Herbart, to Friedrich Eduard Beneke — which preceded and at least partially determined these investigations of mid- and late-nineteenth-century German psychology. In so doing, this article will throw some light upon a neglected topic: the contribution of the German philosophical tradition to the development of modern psychology. I call this topic neglected because, although it is generally acknowledged that modern psychology is the offspring of both philosophy and physiology, few historians of psychology have tried to specify the exact role played by German philosophers in the evolution of scientific psychology. And none have succeeded in relating the various contributions of these philosophers to a single line of development. In this article, focusing upon four particular philosophers, I shall attempt to do both.

The theoretical development I will be concerned with is the development of the conception of the nature and methods of psychology as seen in the works of Kant and three of his followers. Taking rational psychology as a major part of the context of Kant's work, this article will deal with the transition from a psychology which in theory was "philosophical" to a psychology which in theory was "scientific." My thesis is that Kant's critique of psychology and his philosophy of science established the context within which the later post-Kantians proceeded toward a new conception of the nature and

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methods of psychology, a conception which underly the practice of the new experimental psychology. Stated inversely, I shall argue that Fries, Herbart, and Beneke, largely on the basis of Kant's critical analysis of psychology and independent of developments within physiology, elaborated the conception and the philosophical justification of psychology as a natural science.

Our story begins in 1781 when Immanuel Kant (1724-1804) published his first great work, *Kritik der reinen Vernunft*. Among the many things Kant attempted to accomplish in this work was a systematic critique of the rational psychology of his age. The principal authors against whom he directed this critique were A. G. Baumgarten, Martin Knutzen, Hermann Samuel Reimarus, and Moses Mendelssohn. But he intended his critique to have a much broader significance: he wished to deny the validity of any rational psychology; that is, any attempt to ascertain the nature of the thinking subject (or soul) by means of rational analysis.

Although Kant's specific arguments against the validity of rational psychology varied from the first to the second (1787) edition of *Kritik der reinen Vernunft*, his general argument remained the same and was quite simple. To know the nature of the soul, or the "I," he argued, is beyond the power of human reason. There can be no purely rational knowledge of the soul. All arguments about the soul's substantiality, simplicity, identity, and relation to the physical world ultimately begin with "the single proposition 'I think.'" This proposition is empirical, not rational. It is based upon a posteriori experience rather than a priori reason. And experience can never provide a basis for a purely rational and certain proof of the nature of the soul. Just because there is an empirical "I" in every act of thought, for instance, does not prove that this "I" is substantial, or that it is identical from one thought to another, or that it is simple. Nothing about the essence of the "I" follows necessarily from its existence. Even granting, as Kant did, that there must be a noumenal "I" to account for the a priori possibility of knowledge, no attribute besides existence can be validly predicated of this "I." Any other attribute, such as substantiality, would be drawn invalidly from the realm of experience. Fortunately, it is unnecessary for us to go any further here into the reasoning of Kant's critique of rational psychology. It suffices to note Kant's conclusion that, since rational psychology is "a science surpassing all powers of human reason," there is nothing left for us "but to study our soul under the guidance of experience, and to confine ourselves to those questions which do not go beyond the limits within which a content can be provided for them by possible inner experience." In other words, Kant concluded that psychology can only be an empirical science.

Kant's critique of psychology did not stop here. In 1786 he published his *Metaphysische Anfangsgründe der Naturwissenschaft*. In the preface of this work he gave a concise analysis of the status of psychology as an empirical science. Psychology—or "the empirical doctrine of the soul"—can never, he said, become "a natural science proper"; it can "never become anything more than a historical...natural doctrine of the internal sense." In other words, psychology can provide only "a natural description of the [phenomena of the] soul, but not a science [i.e., demonstrative knowledge] of the soul."

The reason psychology could never become a "natural science proper," according to Kant, was that it could not be based upon a priori principles and thus could not yield apodictic, or certain, knowledge. More specifically, psychology could not employ mathematics, which provides the necessary means for the a priori construction of con-
cepts in science. According to Kant, "in every special doctrine of nature only so much science proper can be found as there is mathematics in it." Mathematics is the "pure [a priori] part of science, which lies at the foundation of the empirical part of science." In other words, all true science must have a rational as well as empirical part. Experience provides the empirical data; mathematics provides the inherently rational relationships between these data. But psychology could never employ mathematics, in Kant's opinion, because its empirical data do not have spatial dimensions and therefore exist only in the single dimension of time. Therefore, "unless one might want to take into consideration merely the law of continuity in the flow of... internal changes," mathematics could not be applied to purely mental phenomena. As a result psychology could "become nothing more than a systematic art... never a science proper; for... it is merely empirical." By "merely empirical" Kant meant that psychology had to depend entirely upon an inductive, or a posteriori, collection of data. Such a procedure can never yield apodictic knowledge because it contains no a priori, necessary elements. Instead it can lead only to tentative "laws of experience."

But the designation of psychology as "merely empirical" did not mark the end of Kant's critique. In the same preface to the same work he said that not only is psychology "merely empirical," it is not even a good empirical discipline. Psychology suffers, Kant pointed out, "because in it the manifold of internal observation is separated only by mere thought, but cannot be kept separate and be connected again at will." In brief, psychology cannot control its phenomena; it cannot be "experimental." Furthermore, psychology suffers from the poor quality and restricted range of the observations which are available to psychologists. On the one hand, "the [act of] observation itself alters and distorts the state of the object [i.e., the mental phenomenon] observed"; on the other, "still less does another thinking subject submit to our investigations in such a way as to be conformable to our purposes." Thus, the psychologist can only report on his own mental phenomena, and even then he cannot be completely accurate in his reports.

Such was the negative part of Kant's critique of "merely empirical" psychology. Psychology, in short, could never become a truly rational science, based upon mathematics and yielding necessary truths, nor could it become an experimental science. Kant could see no way to change this verdict, but he did see a way in which psychology could at least become a better empirical science. Psychology could, he said, make use of a different methodology, a so-called "anthropological" methodology based upon observations of the external rather than internal sense. He set forth this thesis, which completed his critique of psychology, in his *Anthropologie in pragmatischer Hinsicht*, published in 1798. According to this positive suggestion, psychology, although remaining "merely empirical," could become more useful to mankind if it would forsake its traditional introspective method and begin to make systematic observations of men and women "in the world" as they behave and interrelate with their fellow citizens. Such knowledge of "human nature" as can be gathered in this manner — and supplemented by "travelling, or at least reading travelogues" (as Kant avidly did) and by such "auxiliary means" as the study of "world history, biography, and even plays and novels" — could be distilled, Kant said, into "laws of experience" which would assist men and women in the course of their lives. Knowing better how their fellow citizens tend to behave, and how they tend to react to certain behaviors, would provide a natural foundation upon which individuals could make choices about their own best course of action. This was a sufficient justification, in Kant's opinion, for developing an empirical psy-
chology based upon external rather than internal observation. But it was not by his advocacy of external observation that Kant influenced the conceptual development of psychology from a purely observational psychology to experimental psychology, from common-sense theories to mathematical measurement, in a word, from philosophical and "natural-historical" psychology to scientific psychology. Instead, it was in a much more subtle way, by his negative criticisms of psychology and by his philosophy of science. There is, of course, a great deal of irony in this assertion. If Kant's critique of psychology and his philosophy of science did in fact influence the development of psychology into a mathematical and experimental science, this was certainly not Kant's intention. As we have seen, his critique explicitly stated that psychology could never be a science in any strict sense. But nevertheless Kant's contribution to this development had a logic all its own which can be summarized in three brief clauses: (1) Kant articulated a philosophy of science, (2) which excluded psychology from the domain of true science, (3) thus posing a problem for later Kantian and semi-Kantian psychologists. In brief, Kant's heritage to psychology was a challenge. However unintentionally, he set a task for the subsequent generation of psychologists by leaving them, on the one hand, an exalted ideal of science— which included the notion that a true science must be both mathematical and experimental — and, on the other hand, a lowly image of psychology as a "merely empirical" discipline which could never become a "natural science proper." As we shall now see, Fries, Herbart, and Beneke, each in a different way unsatisfied with Kant's prescription about psychology as a nonscience, took up this challenge and revised the Kantian estimate of psychology point by point, claiming respectively that psychology is not merely empirical, that it can be mathematical, and finally that it can also be experimental.

The first step in this process of revising Kant's conception of psychology was taken by Jakob Friedrich Fries (1773-1843). Although Fries is not now very widely known in the English-speaking world, he was an important philosopher who taught at Heidelberg and Jena in the generation after Kant. At a time when most German philosophers, under the leadership of Fichte, Schelling, and Hegel, turned to various forms of "transcendental" idealism, Fries remained firmly "critical." That is, he developed the methodological basis rather than the speculative implications of Kant's philosophy. Maintaining that knowledge of the transcendent (i.e., the noumenal nature of things) is impossible, Fries rejected the attempts of the idealists to reduce reality to a system of absolute truths. Instead he concentrated, as did Kant, upon the discovery of the critical bases of knowledge. To do so, he relied upon analytical, descriptive, and deductive procedures rather than the constructive metaphysical reasoning of the idealists. In the course of his efforts, he contributed new methods and distinctions to the critical philosophy, and he came to the conclusion that psychology is the fundamental science and the foundation of philosophy.

Fries first came to this conclusion in a series of articles written in 1798. Later he developed his thesis further in his three-volume Neue Kritik der Vernunft, published in 1807, and in his two-volume Handbuch der psychischen Anthropologie, published in 1820-1821. In these works the principal arguments made by Fries against Kant's conception of psychology as merely empirical were, first, that through their empirical observations psychologists can discover a truly rational basis for their discipline, and, second, that psychological observations provide the basis of all knowledge — even in Kant's own critical philosophy! In other words, Fries argued that Kant himself, in his Kritik der
ackly, metaphysics) had to provide the rational basis of psychology. In fact, Herbart considered psychology a branch of applied metaphysics. It is certainly not because of this assertion that Herbart earned a place in the history of psychology; rather it is because he further insisted that, besides being metaphysical, psychology must also be empirical and mathematical.

Herbart set forth this new conception of psychology as metaphysical, empirical, and mathematical in his *Lehrbuch zur Psychologie*, published in 1816, and in his two-volume masterpiece, *Psychologie als Wissenschaft, neu gegründet auf Erfahrung. Metaphysik und Mathematik*, published in 1824-1825. The historically important element in this conception was clearly the thesis, which Herbart took from Kant, that psychology had to become mathematical if it were to be truly scientific. Kant, of course, had denied the possibility of this ever occurring; but Herbart not only asserted that psychology could become a mathematical science, he also developed his own system of mathematical psychology. Interestingly enough he based this system upon an idea postulated by Kant and repeated by Fries, namely, that psychological phenomena can be distinguished as more or less intense and that the degree of their intensity varies over time. Kant had even referred to the implication of this premise when he stated in *Metaphysische Anfangsgründe der Natürwissenschaft* that psychological phenomena cannot be treated mathematically "unless one might want to take into consideration merely the law of continuity in the flow of internal changes." Neither Kant nor Fries thought it worthwhile to do so; Herbart did. For if psychological phenomena (or "presentations" as Herbart called them) could be distinguished as more or less intense, he reasoned, one could assign numerical values to the different degrees of intensity and, assuming (as his metaphysics had "proven") that every increase in the intensity of one presentation results in a proportionate decrease in the intensity of another presentation, one could explain psychological dynamics by means of an equilibrium model which could be described in terms of exact mathematical equations. This is precisely what Herbart proceeded to do.

There was a problem in Herbart's attempt to mathematize psychology, however. Although he could arbitrarily assign numeric values to the intensities of different presentations, he could not actually measure them according to any kind of objective standard. Therefore, many other philosophers, including Friedrich Eduard Beneke (1798-1854), felt that Herbart's elaborate system was insufficiently empirical. But Beneke, who spent most of his philosophical and academic career opposing and being opposed by the idealists at the University of Berlin, did not reject the ideal or the future possibility of a valid mathematical psychology. Mathematics, he agreed in his *Lehrbuch der Psychologie als Naturwissenschaft*, first published in 1833, is an accepted part of natural-scientific methodology, and the kind of exactitude which it affords is the goal of all science. But, he said, "it may be that the task of applying mathematical calculations to these [relations between psychic phenomena] has in any case come much too soon." Not until more accurate empirical observations, more adequate theories, and most of all, reliable means of measurement were available could mathematics be validly utilized in psychology. This was Beneke's opinion in 1833, well before the dawn of modern scientific psychology. The subsequent course of events proved him to be correct on this score, but this was not the only prescient facet of his conception of psychology. More important, Beneke completed the revision of Kant's assessment of psychology by prescribing the use of experimentation in psychology.
had made use of empirical — and introspective — observations as the basis of his analysis of the a priori forms, categories, and ideas of the human mind. One must know something about knowledge before one can analyze its innate structure, Fries said, and this “fore-knowledge” is not itself a priori but is rather the product of experience. Fries did not deny that there are a priori elements in knowledge, but he stressed that these elements can be known only in the course of experience. Furthermore, he maintained that the processes of inner experience are as amenable to empirical observation and rational analysis as the objects of outer experience. That observations of the inner sense are occasionally subject to illusions is no more an argument against the possibility of an introspective psychology than that observations of the outer senses are occasionally subject to illusions is an argument against the credibility of the sciences based upon external observations. Psychology, which deals with the realm of inner experience, can be as scientific as the natural sciences which deal with the realm of outer experience, not because it can be mathematical or experimental, but because it can be based upon rational principles derived from a critical analysis of mental phenomena. Fries himself derived a number of such principles, including the principles of the basic activity and unity of the mind, the stimulability of reason, the three-fold division of mental faculties, and the stages of mental growth. By means of these principles, he maintained, psychologists could rationally and systematically (which was to say, “scientifically”) treat the various phenomena of inner experience.

With these assertions Fries modified Kant’s conception of psychology in two ways. First, he denied that psychology was merely empirical, claiming instead that psychology was a true and autonomous science, based upon its own rational principles. And, second, he denied that the introspective technique compromised the scientific status of psychology. Both these modifications were derived from Kant’s own thought. The first was based upon Kant’s insistence that any true science must have a rational foundation; the second, upon Kant’s introspective procedure in *Kritik der reinen Vernunft*. The next step in the revision of Kant’s critique of psychology was taken by Johann Friedrich Herbart (1776-1841), a German philosopher who taught at Königsberg after Kant (and later at Göttingen) and who has subsequently become better known than Fries. Like Fries, whom he knew and admired, Herbart opposed the dominant idealism of his time. But unlike Fries, he was not satisfied to simply continue emphasizing the critical, methodological side of Kant’s philosophy. Instead, he developed his own metaphysical system, a form of atomistic realism, which he offered as an alternative to idealism. Nonetheless, he considered himself a disciple of Kant, or as he put it, “a Kantian of 1828.” He saw himself as the philosopher who had brought Kant’s philosophy to completion by developing the critically sound metaphysics which had been Kant’s ultimate, but never realized, goal.

Herbart recognized that Fries had provided the best critique of Kant’s system to date. As he said, “It seems probable that, if Kant still lived and had his former vigorous power of thinking, no one would be able to induce him to revise his system better than Herr Fries.” But Herbart did not think that Fries’s own system represented the best possible correction of Kant’s philosophy. For one thing, Fries had canonized subjectivism which, Herbart felt, was only a short step from idealism; and he had also mistakenly tried to base philosophy upon psychology. Herbart denied that psychology could itself provide an adequate basis for philosophy. Instead he insisted, in a way reminiscent of the rational psychologists whom Kant had criticized, that philosophy (or more ex-
This innovation, the insistence that psychology become an experimental science, was made by Beneke as part of his attempt to initiate a "back to Kant" movement. In opposition to the rational, deductive psychology of the idealists, Beneke emphasized the empirical nature of psychology, and, with repeated references to Kant's insistence upon the continual critical analysis of experience, he maintained that psychology could and should become an experimental science. That is, he said that psychologists should continually test their empirical results and theoretical hypotheses under controlled conditions and with the systematic variation of variables. "For instance," as he later wrote, "after we have observed a given situation we can observe it again, or one differing from it in this or that degree, and with this or that degree of attention, for this or that length of time." Along this line, Beneke suggested various experiments that could be made upon memories, perceptions, and feelings. This does not mean, however, that Beneke himself carried out many such experiments. He did not. But the important fact is that he realized and publicly stated, particularly in his Die neue Psychologie, published in 1845, that if psychology was to become a "natural science proper" it would have to begin to perform such experiments as he had suggested.

With this final step Beneke closed the circle which began with Kant. With Beneke the conception of psychology which had been originally criticized by Kant had been revised to the point where it now met the conception of science which had guided Kant's critique. With his conceptualization of psychology as empirical, experimental, and (at least potentially) mathematical, Beneke foresaw, recommended, and contributed to the direction in which psychology actually did develop in the future. Exactly how his conception of psychology actually contributed to what he called "the new psychology," and exactly how the separate developments within the physiological and philosophical traditions accommodated themselves to one another after 1850, are stories to be told at another time and perhaps in a different place. It is enough here to have shown that there was an autonomous development toward a scientific psychology within the German philosophical tradition, that from a Kantian foundation there emerged a new vision — and a very prophetic vision — of what psychology could and should become.

**Notes**

1. The choice of Fries, Herbart, and Beneke (and the designation of them as Kant's "followers") is not arbitrary. When one lists all the early-nineteenth-century German philosophers who considered themselves psychologists and who also considered themselves either Kantian or semi-Kantian and remained true to Kant's program at least to the extent that they opposed the mass movement in philosophy and psychology towards speculative idealism, one ends up with a total of three individuals — Fries, Herbart, and Beneke. As I have shown in my dissertation, and as I plan to report elsewhere, the influence upon psychology of the other early-nineteenth-century German philosophers, by and large all idealists, was very considerable, but not upon the general macroconception of psychology. Indeed, the idealistic philosophers generally represented a major obstacle to the development of an experimental psychology. Nonetheless, they influenced the development of many of the basic microconcepts (and related subject matters) of late-nineteenth-century and twentieth-century psychology, e.g., consciousness, ego, personality, imagination, and will.

2. Immanuel Kant, *Critique of Pure Reason*, trans. Norman Kemp Smith, unabridged ed. (New York: St. Martin's Press, 1965). Kant's discussion of rational psychology is found in the section on "The Paralogisms of Pure Reason," pp. 328-383. It should be noted that the *Critique* contained Kant's first published criticism of psychology. His lectures on anthropology, which began in 1773 or 1774, show that he was critical of the psychology of his age well before 1781. See Immanuel Kant, * Reflexions Kant sur l'Anthropologie*, ed. Benno Erdmann (Leipzig: Fues, 1882). The 1770s, as is well known, was the period in which Kant first developed the basic themes of his "critical philosophy" after he had been "awakened" from his "dogmatic slumber" and greatly influenced in the 1760s by the works of David Hume, Gottfried Wilhelm Leibniz's newly published *Nouveaux Essais sur l'entendement humain* (Amsterdam: R. E. Raspe, 1765), and Jean Jacques Rousseau's *Emile: ou, De l'éducation*, 4 vols. (Amsterdam: J. Naulme, 1762).
Seele

"Phaedon; oder Uber die Unsterblichkeit der Seele" (1767), in analysis of Kant’s arguments. The conclusion was first reached by Friedrich Ueberweg in his Philosophy. It has been repeated by others since that time. That Baumgarten’s work also influenced Kant’s critique of rational psychology is based upon an internal respectability to criticize. See Friedrich Paulsen.

The traditional definition of rational psychology as the metaphysical science of all that is possible to the human soul was made by Christian Wolff in his Psychologia Rationalis (1741), in "Philosophia Naturalis," and has been repeated by others since that time. That Baumgarten’s work also influenced Kant’s critique of rational psychology is based upon an internal respectability to criticize. See Friedrich Paulsen.

The introduction to each work is particularly relevant to the topic under discussion. The following references to Fries’s Kritik are made to the second revised edition of this work, titled "Neue oder anthropologische Kritik der Vernunft" (1828-1831), as it is found in his Sammlung Schriften. These articles will appear in vol. 2 of Fries’s Sammlung Schriften, ed. Gerhard Lutz (Bonn: T. Mohr, 1891). All these studies are excellent contributions, but their scope differs from the approach taken here. All five articles appeared in 1798 in Kantian Erhard Schmid, ed., "Psychologisches Magazin," vol. 3: "Uber das Verhalten der empirischen Psychologie zur Metaphysik," p. 15-202; "Proportion des abstrakten empirischen Psychologischen," p. 203-207; "Von der rationalem Seeleelehre," p. 268-291; and "Abris der Metaphysik der inneren Natur," p. 343-353; and "Allgemeine Übersicht der empirischen Erkenntnisse des Geistes," pp. 354-402. These articles will appear in vol. 2 of Fries’s Sammlung Schriften, ed. Gerhard Lutz (Bonn: T. Mohr, 1891).

12. Ibid., p. 8.
13. Ibid., p. 8.
14. Immanuel Kant, Anthropology from a Pragmatic Point of View. Trans. Mary J. Gregor (The Hague: M. Nijhoff, 1974). This work was based upon the anthropological lectures which Kant had been giving, and revising, since 1773-74.
15. Ibid., pp. 4-5.
16. For further information and related analyses of Kant’s view on psychology, see esp. Edward Franklin Bobbs-Merrill, 1970), p. 8. With regard to Kant’s critique of rational psychology as the metaphysical science of all that is possible to the human soul was made by Christian Wolff in his Psychologia Rationalis (1741), in "Philosophia Naturalis," and has been repeated by others since that time. That Baumgarten’s work also influenced Kant’s critique of rational psychology is based upon an internal respectability to criticize. See Friedrich Paulsen.


27. See Kant, *Critique*, p. 373; *Prolegomena*, p. 54. Regarding Fries's discussion of the law of continuity (or quality), cf. Nelson, *Progress*, 2: 258-259. For further information on this topic, see my forthcoming article on "The Historical Foundation of Herbart's Mathematization of Psychology."


31. In 1832 Beneke wrote *Kant und die philosophische Aufgabe unserer Zeit* (Berlin: E. S. Mittler, 1832), which Francis Burke Brandt has called the beginning of the "back to Kant" movement in his Friedrich Eduard Beneke: The Man and His Philosophy (New York: Macmillan, 1895), p. 28. While Burke was undoubtedly correct in asserting that Beneke wanted to start a "back to Kant" movement, it must be noted that there is no proof that the actual "back to Kant" movement, which began after the middle of the century, was indebted in any direct way to Beneke.


34. The beginning of the accommodation of the two traditions took place in Beneke's own thought. Although, as has been argued here, Beneke's ideal of critical empiricism, or experimentalism, in psychology was the result of his study of the philosophical tradition, his hope for the realization of this ideal was greatly encouraged by his awareness of the new advances in the experimental study of physiology. In fact, Beneke's own psychological doctrines were based upon concepts, such as "traces" and "germs," which he had drawn by analogy from contemporary physiology. However, Beneke firmly rejected any suggestion that psychology could be reduced or causally related to physiology. Quite the contrary, he believed psychology to be a completely autonomous science which served as the foundation of all the other sciences, including physiology.