

HEINZ WERNER AND
DEVELOPMENTAL SCIENCE



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HEINZ WERNER AND DEVELOPMENTAL SCIENCE

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Jaan Valsiner

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PREFACE

This book is a major project to satisfy my intellectual curiosity. In 1997 I accepted the offer of becoming a faculty member of Clark University with a query in my mind—how has it been that the rich traditions of two psychologists who had played key roles at Clark—Heinz Werner and G. Stanley Hall—have become well recognized but not developed further. The richness of the empirical work done at Clark at the times of both of them has been astounding. The ideas themselves—in the theoretical vein—are potent for many new directions that could establish developmental science in all its rigor as a basic way of knowing (*Wissenschaft*). Yet instead of further development what has happened is a case of glorious stagnation. The work of both Werner and G.S. Hall is widely recognized as belonging to the history of psychology—and the glory allotted to them this way effectively blocks their ideas from being used in furthering the discipline.

Since I have revolted against the glorification of anybody as a means of social neutering of the ideas, it occurred to me that a careful investigation of the development of these ideas within their social contexts—of the societies at large, and of Clark University as a microcosm—was in order. This book accomplishes this ambitious goal in respect to the contributions by Heinz Werner and his intellectual family of colleagues and students. The work on G.S. Hall and his era is still ahead.

The present book is the next step in the *genre* of analyzing history of a science—in this case that of psychology—as a tool for further innovation. Not repetition of the past, nor precise following of the gurus of the past (that activity fits religions, not sciences), but creative synthesis of selected ideas of the thinkers of the past for the sake of future development of science. I am fully aware of the long-existing belief—especially in the physical sciences—that history cannot illuminate the future of the science. I fully disagree. It depends, of course—how history is brought to function in its innovative role. My work to analyze the productive role of psychology's history owes much for the two decades of collaboration with René van der Veer, with whom together we have created the general perspective of intellectual interdependency while working in-depth on the ideas of Lev Vygotsky (van der Veer & Valsiner, 1991)

and other socio-genetic thinkers—George Herbert Mead, Pierre Janet, James Mark Baldwin (Valsiner & van der Veer, 2000). Along similar lines, the series of issues of *From Past to Future: Clark Papers on History of Psychology* (published since 1998) has been exploring the ideas of Arnold Gesell, Tamara Dembo, Zing-Yang Kuo, Karl Bühler and Alexander Chamberlain in a similar *genre*.

I have been lucky to encounter a fertile intellectual environment at Clark for this endeavor. Si Wapner's meticulous preservation of materials about Heinz Werner—not the least important of which is the preservation of his personal library and making it available for interested scholars as a part of the resources of Clark's Frances L. Hiatt School of Psychology has been most helpful in preparation of this book. I am always amazed to find new relevant nuances while looking through all of the original papers—including mundane records such as legal efforts of Werner to get paid by German government for years after his expulsion in 1933—all well preserved thanks to Si's dedication. Roger Bibace and Bob Baker have directed me towards usually unexplored sides of Werner's legacy, and Len Cirillo has corrected my excesses in looking at those. Thanks to the whole Department—including people who were here in the 1950s with Werner, and others for whom Werner's ideas were somewhat external superimposition—has taught me about the intricacies of the intellectual atmosphere. A discussion that looks lively and enlightening from outside may be a *corrida* for the insiders—who exchange the roles of the toreador, matador, and the bull in a way that cannot be discerned. At the same time, the ideas used in that game as weapons could be re-made into intellectual ploughshares—if the *telos* of intellectual interchange points towards new understanding of issues, rather than reification of some principles of truth. A very special gratitude goes to the late Richard Lazarus who, eight days before his passing, found the time to respond to my letter inquiring about his views on the life of the psychologists at Clark in the 1950s.

Working on this project has taken five years—well spent in this intellectual exercise. I hope that the results of this collective effort—uniting personal memories, analyses of ideas and their expansions, and bringing out to the public previously unknown controversies—stimulates the readers to return to Heinz Werner's empirical work and theoretical synthesis. I find Werner's contributions a central catalyst for all developmental science of the 20th century, and hope that in this new century we return to the future of their productive use.

Jaan Valsiner

Worcester, Ma.
April, 2003

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GENERAL INTRODUCTION

DEVELOPMENTAL SCIENCE IN THE MAKING: THE ROLE OF HEINZ WERNER

Jaan Valsiner

...man, destined to conquer the world through knowing, starts out with confusion, disorientation, and chaos, which he struggles to overcome. This struggle is a never-ceasing process, continuing throughout life: man's objects are always touched with a coefficient of indeterminacy and, as long as he is open to new environments and experiences, they are constantly in the process of transformation, changing in their significance. One may indeed say that man lives constantly in a world of becoming rather than in a world of being. (Werner & Kaplan, 1963. p. 13)

The general issue of development—becoming—has been the basic unresolved question of science. Different scientists have tried to solve it over the past two centuries—unsuccessfully. Yet their efforts—scattered over biology and psychology—are worth examining since new solutions to old problems can emerge from knowing about the previous impasses.

This book is about Heinz Werner's developmental ideas and their social contexts—both of his lifetime, and of our present day. Werner's own life and history of thought were filled with needs to adapt to new settings, episodes of indeterminacy following periods of stability in life, and—continuity in basic developmental thought. It could be said that Werner painted a consistent picture on the canvas of developmental psychology in the 20th century—the roots of which were in Continental European thought. He did it as an experimenter who was interested in basic human psychological processes—perceiving and meaning-making. The resulting canvas is rich in details—yet integrated by the one single general idea—differentiation of developing systems.

WERNER'S LEGACY

Werner's role in developmental science of the 20th Century has been pivotal—it unites European and American traditions in psychology. It brought together psychology, anthropology, biology, and psychiatry in a framework that in our time we recognize as interdisciplinary. And—in the social context of psychology in North America—it did create a distinctive “Clark school” of psychology in the second half of the 20th Century. In fact, it could be considered the “Second Clark School” that Werner's ideas helped to establish in the 1950s—the first being the tradition of G. Stanley Hall at the turn of that century. Werner probably would have frowned at the idea of his creating a “school” at Clark—as his focus was on basic ideas and their experimental study, rather than the social positioning of different traditions.

Werner's tradition—viewed by others in the North American context as a “school of thought”—unified theoretical width with carefully scripted empirical foci. So it was a “school” in the sense of empirical research tradition (even half century later a number of dissertations at Clark on empirical topics recite the “orthogenetic principle”). Yet it was not a “school” in the sense of basic developmental ideas—which were the core of all *Naturphilosophie*, *Ganzheitspsychologie*, and philosophical ideas of development from Goethe to Cassirer were translated into epistemological practices. Not surprisingly the presence of a psychological orientation in the social context of North American societies that focuses on the wholes—yet studies these wholes through carefully built experiments and innovative construction tasks—is a kind of a special case. Hence the “Clark tradition” of Werner has received a reputation for producing scholars capable of sophisticated theoretical thinking. This is particularly crucial in our present time where psychology faces one of its recurrent crises—lack of new theoretical breakthroughs combined with exponential growth of the corpus of empirical data.

GOALS OF THIS BOOK

It is precisely now—decades after Werner's ideas became known in the United States in the 1950s—that our contemporary efforts to build a developmental science may benefit from an analytic take into the history of the ideas of similar kind. However, a new look at Heinz Werner's legacy cannot be simple. This book is a collective, multi-voiced whole. We bring together different students of Werner and find out how they reflect back on their experiences—and how they have advanced developmental ideas in new ways. Some of these students have continued to follow Werner's ideas explicitly—while others have taken these ideas to areas where they are transformed into new forms. Contributors also include scholars who look at Werner from perspectives other than that of belonging to the “Wernerian school”. Personal reminiscences and scholarly contributions are purposefully intermingled in the book to give the readers a flavor of the human realities of science.

Three Objectives

The book has three goals. First, we will provide a systematic analysis of Heinz Werner's intellectual history as his life course includes the historically necessitated change of his cultural worlds—from the Old to the New. The new focus on Werner's ideas is especially concentrated on the European Period of his work, since there we can observe the creative contributions to science by Werner's phenomenological interests in language, perception, and music with the grand theoretical schemes that emerged in parallel from Hamburg between the two world wars. Aside from Werner's own step by step elaboration of the general differentiation and hierarchization theory (later labeled "the orthogenetic principle"), the other grand theoretical syntheses that emerged from Hamburg in the 1920s–30s were the personological system of William Stern, the theoretical biology of Jakob von Uexküll, and the philosophy of symbolic forms of Ernst Cassirer. Werner participated in the making of these traditions—and these traditions in the making played a role in Werner's theory.

Secondly, Werner's scholarly productivity in America—as he had his ups and downs in finding academic positions—continued in new ways. Werner lost the security of professorship in Hamburg and had to move from one temporary position to another—until setting down at Clark in 1947. During these years of no stable position, his empirical orientation became extended in the direction of study of children with various "blockages" or ordinary development. The empirical work done at Wayne County Training School had a major impact upon his development of the notion of rigidity. At Clark, Werner's presence created a new synthesis in a local scientific culture. His Continental European-based epistemological orientation towards seeing the differentiation of wholes into new organized systems became elaborated by his American colleagues and students through a rich empirical research program. That program has left a permanent mark into psychology in the United States in two ways—by recognizing the relevance of the whole ahead of its parts, and by providing different scientists who got their education with Werner at Clark to move productively to new areas of expertise. The latter are particularly relevant—while it is easy to detect the influence of the thinking of a major scholar upon those who proclaim to be his (or her) followers, it is the other kinds of disciples—the ones who do not glorify the father (or mother) figure and develop new ideas in new areas, who specify the actual breadth of the scholarly influence.

Thirdly—and perhaps most importantly for the making of Developmental Science at our time—Werner's legacy provides a systematic set of ideas for the future that may allow developmental scientists to avoid the traps of thought that have proven unsuccessful in the past. Similarly to other seminal developmental scientists of the past century—such as Jean Piaget and Lev Vygotsky—Werner's contributions leave many unanswered questions. Developmental Science returns to those—but hopefully with the knowledge of the efforts that took place in the past.

THE MAKING OF DEVELOPMENTAL SCIENCE: AGAIN!

What is “developmental science”? It is a curious phenomenon in contemporary psychology that we need to talk about the *making* of developmental science at all (Cairns, et al, 1996). After all, the developmental focus in biological sciences antedates the emergence of modern psychology by a few decades—if we consider Karl Ernst von Baer’s *Entwicklungsgeschichte der Thiere* (von Baer, 1828) as the beginning of developmental focus in biological sciences, in contrast to the emergence of psychology in 1860s–1870s (by the *Völkerpsychologie* efforts of Moritz Lazarus and Heymann Steinthal and the move into experimental psychology by Wilhelm Wundt). Yet in the history of psychology the developmental focus has emerged, disappeared, re-emerged, and then again disappeared—in a somewhat monotonic pattern (Cairns, 1998; Valsiner, 1998). It is as if some very powerful set of phenomena—which issues of development are—is wrestling for its place among the legitimate objects of scientific scrutiny. Yet the received norms of how science is to proceed seem to eliminate the core of the phenomena—development—from consideration. The study of developmental processes is easily being replaced by investigation into outcomes of these processes (cf. Werner, 1937). Hence the recurrent need for a distinct discipline—such as Developmental Science—that attempts to maintain focus of researchers on development.

In its newest reincarnation, Developmental Science is

... a general orientation for linking concepts and findings of hitherto disparate areas of developmental inquiry, and it emphasizes the dynamic interplay of processes across time frames, levels of analysis, and contexts. Time and timing are central to this perspective. The time frames employed are relative to the lifetime of the phenomena to be understood. Units of focus may be as short as milliseconds, seconds, and minutes, or as long as years, decades, and millennia. In this perspective the phenomena of individual functioning are viewed at multiple levels—from the sub-systems of genetics, neurobiology, or hormones to those of families, social networks, and cultures. (Carolina Consortium on Human Development, 1996, p. 1)

In short—contemporary developmental science is a focus on the basic processes of development, recognizing its multi-level, multi-trajectory, and probabilistically epigenetic nature (Gottlieb, 1997). Yet it is not new—there have been various efforts to create developmental science before, as the legacies of William Preyer, G. Stanley Hall, Lev Vygotsky, Arnold Gesell, Jean Piaget, and Heinz Werner demonstrate (Cairns, 1998). Possibly the recurrent returns to issues of development have even longer history—going back to Goethe’s *Metamorphoses* (Werner, 1926, p. 32) as well as to the work of Jean-Baptiste Lamarck. Basically all of developmental biology, evolutionary theory, and natural philosophy of the past two centuries is attempting to make sense of development.

“Y [environment] causes X”). To avoid invention of either inherent or external essentialist explanations, theorists who explain development in terms of node relations resort to some version of mutuality claim (“transactionism”, “interactionism” etc.). The entities—depicted as nodes—are viewed as in constant mutual relation. Yet the descriptions of such relations become node-like entities as well—the explanation of the linkages can easily take a form of descriptive labeling (e.g. the use of “coordination” in Dewey, 1896). In contrast, conceptualization of development in terms of field constructs creates formal terminology that allows for abstract accounting for immediate interdependencies within the system and its environment. What has been a complicated issue for existing field theories is the depiction of the directions of the transformation of the field, as well as its multi-level organization.

Thirdly, the study of development entails the notion of **hierarchical ordering** of the organism (and of the environment). The acceptance of the notion of hierarchy as a form of organization has been disputed in the social sciences of the past century, under the heavy influence of extra-scientific (democratic) ideal discourse. In contrast, evolutionary biology necessarily accepts the notion of hierarchy—some species are at higher level of organization of their adaptation than others. Within the organism, the structure occurs in the form of functional hierarchy where lower level operations are subordinated to a higher level of organization. It needs to be noted that organisms (or levels of operation within an organism) that are of higher level in contrast to those of lower levels need not be in any evaluative sense “better” than others. Hierarchical organization is a neutral form of relation—a system within which at least one part is in relations with at least one other part that subordinates the latter to the former. There are various kinds of hierarchical relations possible—ranging from transitive to intransitive forms (Valsiner, 1998, p. 217). It is the latter that are usable in developmental science.

Fourthly—the most important feature of development is the **emergence of new forms**. All the three previous characteristics are insufficient to make developmental science developmental. In terms of James Mark Baldwin—who formulated his “positive postulate” for developmental science

... that series of events is truly genetic [developmental] which cannot be constructed before it has happened, and which cannot be exhausted backwards, after it has happened. (Baldwin, 1906, p. 21)

The “positive” nature of this postulate is in its focusing of the study of development on that of the unfolding novel processes, rather than their prediction, or retrospective explanation. The phenomena of **emergence, becoming, and transformation** become the objects of investigation.

Centrality of Synthesis

All developmental phenomena entail processes of synthesis—emergence of new qualitative structure on the basis of previous structures. There are a number of ways to consider such synthesis:

- as a novel combination of previously known elements, which, in new configuration, establish a new whole (the way suggested by Wilhelm Wundt in his notion of *schöpferische Synthese*).
- as a transformation of a previous whole into a new—more, or less, structured one. Piaget’s focus on equilibration is perhaps fitting here, and so is Werner’s.
- as a transition of a structural state under stress—far from its equilibrium—into a new state. Here the traditions of thermodynamics (Ilya Prigogine, 1973) can be mentioned.
- as formally described through mathematical models of abrupt changes where quantified increases lead to qualitative novelty. The traditions of catastrophe theory models (Rene Thom) belong here.

Contemporary developmental science shows no clear dominance of any of these four ways. While there is increased flirtation with the “order-out-of-chaos” ideas borrowed from contemporary thermodynamics, their actual implementation in psychology remains purely formal. Wundt’s ideas have been—unfairly—dismissed as “too old”, and Piaget’s rich heritage seems to become too vague for the minds of new generations of researchers whose bright eyes are turned towards technology. Our new power tools—such as fMRIs and the like—allow us to ask new questions if we are ready for those—or repeat old questions in technically new forms. In the latter case no progress is made.

Implications for Development of Ideas

It is quite ironic that in the context of contemporary advances in Developmental Science (and while analyzing the ideas of Heinz Werner in this book)—we are again faced with an unsure prediction for the social maintenance of developmental ideas. The developmental science that began to grow in the 1990s may become extinct in the near future. This can—as it has been in the past—be the result of loss of focus on its subject matter (development) and its failure to create new methods for its study.

However, there is a wider issue to consider. Psychology as a whole has become empirically hyperproductive and theoretically mute—the ideas that are currently presented as “theories” are local, data-driven and methods-based (Gigerenzer, 1993)—rather than pertaining to general questions about the basics of the human *psyche*. One can speculate about the reasons for such change over less than a century—blaming easy social scapegoats (“e.g., “post-modernism”) for such change. What has become changed are the **relations between** theory, data, and phenomena—from the ideal of integrated whole (“methodology cycle”—Branco & Valsiner, 1997) to that of dominance of method over phenomena—under the nominal label of a conventionally accepted “theory” or “system”. Thus, empirical studies utilizing standardized tests—and using factor analysis as the method of data analysis while claiming to belong to “*the* vygotskian” tradition cannot be

compared with the efforts of Vygotsky, Piaget, or Werner to use abstract theoretical concepts to make sense of development in its generic form.

It is at the point of such danger of loss of generality of science that a new look at the theoretical and empirical contributions by Heinz Werner and his many colleagues might be intellectually stimulating. Werner's ideas are in many ways close to some other highly revered psychologists of the 20th century—Lev Vygotsky and Jean Piaget in particular. Intellectual interdependence between the three is clearly demonstrable. One could speculate what would have been the fate of Piaget's and Vygotsky's ideas had they—rather than Werner—been forced by historical circumstances to migrate from Europe to North America and set up their intellectual worlds here. There are no simple answers—yet it is most likely that the fascination with “piagetian” and “vygotskian” perspectives that became evident in the social scene of psychology and education in the U.S. in the 1960s–70s and 1980s–90s, respectively, would have been very different. Would the “orthogenetic principle” have been imported as a solution for most ailments in the U.S. educational system—instead of “zone of proximal development”? And the latter perceived as “too theoretical” a concept developed by a separate group of outsiders to the “mainstream”—in some small U.S. university? The paths of the social roles conceptual systems in a discipline play are worthwhile to study in themselves—how the “epistemic markets” (Rosa, 1994) rise and lower the values of different conceptual system is filled with ironic surprises of the history of science.

A GENERAL OVERVIEW OF WERNER'S CONCEPTUAL SYSTEM

Heinz Werner created his conceptual system slowly, systematically, and in the course of a life trajectory that spans two continents and one major period of World's social turmoil. Werner was both an experimentalist and theoretician. He unified both the potentials of the Old and New Worlds' intellectual backgrounds—and was vulnerable to the limitations of both. His work was benefiting from inputs on behalf of the best synthetic thinkers in philosophy (Ernst Cassirer) and biology (Jakob von Uexküll) of the 20th century—together with links to the most thoroughly developmental directions of holistic psychology (Felix Krueger's “Second Leipzig School”—Krueger, 1915) and the classic work of cognitive and language processes of Karl Bühler and the “Würzburg school”. Werner carries forth the *Naturphilosophie* traditions of Johann Wolfgang Goethe, who is said

... to array his observations of a living, growing form in terms of an imaginative, dynamically experienced, inner spatial unity (an inner time-space image), and, in being able to move around and back and forth within it, to get a sense of the *meaning* of each of the momentary spatial configurations, according to their place or position in relation to all the others within the whole. He wants an inner, synoptic sense of a living thing's life course, a sense of the inner space of its life possibilities. (Shotter, 2000, p. 241).

Quite explicitly, Werner's notion of the orthogenetic principle (see Kaplan, Bhatia and Josephs, below) goes back to Goethe (Werner, 1926, p. 32, 1940, p. 40). Werner's work systematized the basic ideas of developmental thought over the past two centuries, while offering new alleys for encounters with reality. Werner's perspective in psychology clearly prioritized field-theoretical constructs over node-based constructs (see above):

The position that seems to me most fertile . . . requires the abandoning of the widespread notion of a duality between person and field, irrespective of whether "field" pertains to a domain of objects or people. If one attempts to study the functioning of the individual in regard to his social climate or objective environment it seems to me that even the often used formulation of this relationship in terms of an "interaction" of two somehow "given" entities may be questioned; I deem it to be so much more fruitful to think here rather in terms of a growing polarization within a primary entity entailing the molding of not-yet-formed raw material into a self versus a field of objects and of "others" (Werner, 1962, p. 14)

Of course Werner was not a mathematician—a topologist who could have given an abstract formal existence to the field-theoretic underpinnings that came to Werner the phenomena-oriented experimentalist. It is not surprising that all kinds of field-theoretic solution efforts—Kurt Lewin's, Heinz Werner's, C. H. Waddington's, and others'—were lost in the social history of the discipline. Psychology has failed to integrate itself with mathematics—and has succumbed to the empire of statistical manipulations instead (see Gigerenzer et al., 1989).

Werner's Look at Developmental Psychology

Werner's notion of development was established in the 1920s as part of the general discourse about that topic—similar to that from where Lev Vygotsky and Karl Bühler gained their perspectives of critique of the essentialist, meanings-phobic, and non-developmental psychology (Bühler, 1927; van der Veer & Valsiner, 1991). Werner's focus sounds very close to our contemporary developmental science:

Formally considered, . . . developmental psychology has two basic aims. One is to grasp the characteristic pattern of each genetic level, the structure peculiar to it. The other, and no less important one, is to establish the genetic relationship between these levels, the direction of development, and the formulation of any general tendency revealed in developmental relationship and direction. The discovery of the structural pattern of the isolated mental level. Whether we are concerned with the development of the individual from childhood to maturity or with the development of the human race, etc., is one genetic problem. Complementary to it is the task of ordering the genetic relationships between particular levels. (Werner, 1940, p. 5)

The crucial focus of genetic (i.e., developmental) analysis is that of finding the process mechanisms that lead to outcomes (Werner, 1937). In the most general

terms, that process is the unity of **differentiation** and **hierarchization** (increasing sub-ordination—Werner, 1940, p. 41). Since both of these notions include their own opposites—differentiation includes de-differentiation, and hierarchization—de-hierarchization (reduction of hierarchical organization), developmental processes are open-ended in their constant movement between states of quasi-differentiated and quasi-hierarchical complexive (syncretic) states towards other states—lower or higher in the depth of hierarchical sub-ordination.

Werner's Methodological Credo

Werner was primarily an experimentalist who wove empirical evidence from any applicable source into a general developmental theoretical scheme. Largely in line with the ideas of the Second Leipzig School of Felix Krueger and his colleagues, Werner focused on the emergence of structure out of the quasi-differentiated field. Hence he added his counter-voice to Wilhelm Wundt's focus on creative synthesis (*schöpferische Synthese*—emergence of new forms from re-combination of elementary constituents) by giving primacy to the analysis of differentiating wholes:

Psychology, including ethnopsychology, must proceed from larger living unities and arrive by analysis at unities of a lower order. It is not the concept of "creative synthesis" but that of "creative analysis" which leads to fruitful results. The component members of a mass are dependent parts of this mass, which represents the real, living unity. The single man as a member of a generic unity possesses characteristics which are his because of his integration within a totality, and are intelligible only in terms of this totality. The problem of generic unity can be solved only by conceiving this unity to be a non-derivative whole governed by special laws which affect the human bearers of this unity in their role of dependent members. (Werner, 1940, p. 9; 1926, p. 10)

The primacy of the whole is reinstated as a methodological starting point. From here follows the central focus of Werner's methodology—the study of individuals not as individuals (in their uniqueness, idiosyncrasy, etc), but—while recognizing such individuality and capitalizing upon it—the whole is what matters:

The individual thinks, speaks a certain language, and acts in a characteristic way because of his participation, his integration, in the whole; and his thinking, talking, and acting are primarily understandable only in so far as he is identified with this totality. (Werner, 1940, p. 9, 1926, p. 10)

The targets of science—and developmental science in particular—are the general laws. These laws become known to us through episodic and particular encounters with psychological phenomena. Yet the issues at stake are those of basic universal science—not those of getting to know the particular context in some post-modern incarnation.

Developmental Experiments: Testing the “Upward” and “Downward” Movements

Werner considered two types of developmental (in his terms—genetic) experiments as the core for methodology.

First, it is possible to follow the formation of ordinary psychological functions—either in a laboratory under artificial conditions, or in the natural settings. This is made possible by the axiomatic focus on psychological events as **unfolding processes** (Werner, 1940, p. 37). The time frame of such processes may vary—from percept formation within a fraction of a second to the emergence of intellectual events over days, months, or years. Yet their basic pattern—that of becoming of new organizational forms—is similar across domains. Werner was a co-founder—with Friedrich Sander and Günter Ipsen—of the microgenetic experimental tradition in psychology (Valsiner & van der Veer, 2000, chapter 7).

Secondly, it is possible to study developmental processes through **genetic experiments on primitivation**. Such experiments can be made due to the vertical heterogeneity of already the established organizational forms:

... normal adult, even at our own cultural level, does not always act on the higher levels of behavior. His mental structure is marked by not one but many functional patterns, one lying above the other. Because of this the isolated individual, genetically considered, must occasionally exhibit in his varying behavior different phases of development (Werner, 1940, p. 38)

It is obvious that the two methodological schemes—looking at the “upwardly emerging” forms of organization, and at “downwardly occasional” functioning at lower levels—follow from the general notion of development as differentiation and hierarchization. The investigator can observe naturally occurring movements in either of these directions, or can evoke either of them through experimental intervention.

Two Basic Themes: Perception and Language

Werner’s interests began from his own musical education—but transcended it in the direction of study of perception and construction of melodies, speech utterances, and graphic symbols. Yet the very basic feature of human relating with the environment—perception—remained the core of his approach (Werner, 1955, p. 12). The critical contrast is between holistic perception processes involving both the environment and the perceiver (**physiognomic** perception) and “geometric-technical” fact of perception of properties of objects.

Werner introduced the notion of physiognomic nature of human functioning in 1926 at the 8th International Congress of Psychology in Groningen (Werner, 1927). It grew out of his basic roots in *Ganzheitspsychologie* tradition. Over his three basic life periods—Hamburg, Wayne County, and Worcester—these directions developed into two basic research streams—on **perceptual processes** (see chapters by Cirillo,

Carini, Wapner, below) and **symbol formation** (see chapters by Kaplan, Bhatia & Josephs; Miller).

The **sensory-tonic field theory** of perception (Werner & Wapner, 1949, 1956—see overview of the empirical projects in Wapner, this volume) was the framework for the majority of experimental studies conducted by Werner's disciples at Clark from the 1950s onwards. Its roots are deeply embedded in the field-based synthesis notion of *Ganzheitspsychologie*—"interaction" between motor and sensory factors can be viewed as differentiating from a whole field (Werner & Wapner, 1949, p. 90). Furthermore, the basic concept of the theory—tonus of the body—was taken from Kurt Goldstein's theory of the organism and based on neuropsychological knowledge base (Goldstein, 1939).

The sensory-topic theory provided an alternative to psychological explanations promoted by psychoanalysis—by conceptualizing the notion of energy transformation without any link with the posited substrate (libido). It also provided a rich ground for a myriad of clever experimental studies that demonstrated how the person's bodily system is in a relation of equilibrium with the surrounding sensory environment. All these studies were done utilizing the appropriate statistical techniques of the 1950s, when analysis of variance began its path to power in American psychology as a whole.

The **symbol formation** direction in Werner's thought was exemplified by the classic book on that topic (Werner & Kaplan, 1963). This book could be considered a presentation of the work done in the 1950s at Clark on the issues of semiotic (in Werner's terms—symbolic) distancing of the psychological functions from the immediate, here-and-now, contexts. The work on symbol formation continued the person-centered focus that Werner carried with him from his Hamburg times—yet with the addition of new connections with post World-War-II linguistics. The story told in it is that of the elaborated structure of distancing. Human beings—in their ontogeny—are involved in constant **overcoming of the immediacy** of their situated activity contexts through **semiotic construction**.

Werner himself did not use the notion of semiotics—yet the focus on symbol formation is a clear indication of his semiotic (or *sematological*—to use Karl Bühler's parallel term) interests. His focus was on the act of speaking as the place where symbolic vehicles are constructed. Thus, in the course of human development

... there is a progressive distancing or polarization between person and object of reference, between person and symbolic vehicle, between symbolic vehicle and object, and between the persons in the communicative situation, that is, the addressor and the addressee. (Werner & Kaplan, 1963, p. 42)

This focus on distancing is clearly developed by 1963 beyond the shape it took in the 1940s. In this earlier version, distancing emerged as a concept used to address the issue of transition from "primitive" to "cultivated" personality organization (e.g., Werner, 1940, pp. 404–412). By the end of Werner's European period—and in his early American years—his focus was on the phenomena that

were near the “primitivity” complex and only creating the bases for differentiation into elaborated new wholes. The major focus—in fact culmination of the coverage—in *Comparative Psychology of Mental Development* is in the analysis of “primitive personality”—rather than its “cultivated” counterpart (*Kulturmensch*—see Werner, 1940, chapter 13). In contrast, *Symbol Formation* moves the coverage to the structure of organization of the activity of speaking. In some sense there may be a formal parallel between the focus on construction of signification in human speech in its many forms, and Werner’s early interest in children’s construction of melodies.

The elaboration of the distancing notion can be considered an intellectual domain in which the “Clark years” added substantively to what was already set up for further differentiation of ideas in the European period. What is interesting is that the focus on symbol formation excluded empirical investigations of ontogeny over the first five years of children’s lives.¹ Instead, the evidence about the beginnings of symbol formation come from the observations by the Sterns on their children—Günther and Hilde—and from other earlier diary recordings known to child language researchers.² It was the middle childhood meaning construction data, as well as those from adults and psychiatric patients, that came from the “Clark years” (based on theses and dissertations of Margery Bodansky-Franklin, Arnold Miller, Leonard Cirillo, Robert Baker, Edith Kaplan, Alfred Goldman, and Sybil Speier-Barton). Werner’s focus on testing relevant theoretical arguments through look at the formal parallels between ontogeny, phylogeny (and human cultural history) and microgenesis are a continuous way of analyzing key issues. He was remarkably up-to-date in his grasp of the relevant research literature in different areas of investigation.

SCIENTIST IN THE MIDDLE OF THE TUMULTUOUS WORLD

Werner persevered as scientist despite the dramatic upheaval of his life course in 1933—when the Nazi regime terminated his professorship at Hamburg University (see Kreppner’s chapter, below). Becoming a reluctant emigré led him into a period of uncertainty of a clear basis for his scientific work. Arriving in the United States at a time of economic hardships led to an enforced temporary exit from university teaching (see Franklin, 1990, pp. 178–179 for a description). While in Germany Werner was viewed as a left-wing intellectual and accused by the regime

¹ Werner did advise his colleagues in Hamburg—Marta Muchow in particular—on issues of infant behavior [see Werner & Kaplan, 1963, p. 512—reference to an unpublished paper by Muchow and Werner on infant behavior, 1930]. Yet there are no direct empirical studies known where he would study very young children. The earliest ages he dealt with were 2–5 year olds—children who invented songs (Werner, 1917)—see van der Veer, this volume. This study comes from the very beginning of his academic career.

² With two exceptions—Bernard Kaplan’s son is described at age 13 months, and Si Wapner’s report on a 22 month old child is included (Werner & Kaplan, 1963, p. 86 and p. 102, respectively).

for being “pro-Jewish”, in America he encountered restrictions set to limit the competition for academic positions by German refugees. As a result, Werner spent seven years (1937–1944) working as an ordinary research psychologist in practice (Wayne County Training School). Yet that practice led to the major innovation in Werner’s “American years”—application of his developmental ideas to the study of mentally retarded children. As will be revealed in the present book, that experience also was the base for Werner’s assimilation of the “American way” of reliance on statistical methodology in his empirical research program at Clark in the 1950s. The history of Werner’s ideas in their transition from the Old to the New World is an interesting case for seeing how socio-cultural contexts canalize the scientist’s thinking.

PREVIEW OF THE BOOK

The present book includes extensive coverage of topics that have usually not been covered in the historical writings on Werner—his European period (in Vienna, Munich, and Hamburg—prior to the enforced exodus from Germany and migration to America. It will be seen (Part I of the book) how Werner’s ideas emerged and developed over the two decades (1910s and 1920s) reaching their creative culmination by the early 1930s. By his age 43—time when he had to leave Germany—Werner had made major contributions to developmental thought, had set up a number of creative empirical projects in Hamburg with his co-workers Martin Scheerer, Marta Muchow, and others (see the chapters by Ulrich Müller and Kurt Kreppner, below).

As emphasized above—after leaving Germany Werner had a rather complicated time in the United States trying to gain academic employment. It took him 14 years before he found his place at Clark. In this book we will see how the work done at the Wayne County Training School was relevant for later applications of his work to handicapped children (Part II—Arnold Miller’s chapter; Part III—the chapter by Marion Glick and Edward Zigler). While moving from one temporary position to another, Werner maintained his basic credo as an experimental scientist. This credo was crucial all over his career—but most prominently found its relevance in his role in the buildup of the psychology department at Clark in the 1950s (Part II, especially the chapter by Leonard Cirillo). That the social context of Clark University was very special in the 1950s becomes clear from the personal reminiscences and analysis of the “Clark culture” (Part III). That local subculture had its internal dynamics that mimicked the wider social processes that were in vogue in North American psychology at the time. The contrast between clinical and research orientations was being disputed nationally—and that dispute emerged in its local form at Clark (see chapter by Jennifer Lane, Mariola Magovcevic and Becca Solomon). In the 1950s psychology in the U.S. was undergoing the conversion to the use of sample-based statistical methodology. The local world at Clark

was moving in the same direction—uses of analysis of variance and comparisons of averages came into fashion in dissertations, in spite of the misfit of these techniques with basic developmental assumptions that were emphasized by Heinz Werner himself.

Finally, the whole Wernerian tradition has given rise both to direct following of the core ideas as well as to new developments that begin with Werner but lead to notably other directions (Part III—Roger Bibace, Part IV—chapters by Louis Carini, Arnold Miller, and Jonas Langer). There are many new ways to take Werner's ideas further—and the main focus of the present volume is to promote these possibilities through telling a complex story of a scientist in his social contexts. That story—complex and multifaceted one—gives a basis for innovations in our contemporary Developmental Science. Yet there are no ready-made recipes—the reader of this volume will, hopefully, arrive at one's own moments of inspiration while encountering some nuance of Heinz Werner or his ideas in this book.

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BASIC LIFE COURSE: HEINZ WERNER

- 1890– February, 11, born in Vienna—second child—first son to Leopold Werner (manufacturer) and Emilie Klauber Werner. Father dies in 1894.
- 1908–
1908–1909 Graduated from **Ober-Realschule**, Vienna.
Attending an engineering school (**Technische Hochschule**) in Vienna. Disappointment with the idea of becoming an engineer.
- 1909–1915 Studies at the **University of Vienna** in History of Music, then moved to Philosophy, Psychology, Biology and Germanic Languages (see chapter 1, this volume). First published articles.
1914 Trebitsch Prize for the study of the blind spot
- 1914 Defends Doctoral Dissertation *Psychology of Aesthetic Experience* (*Zur Psychologie des ästhetischen Genusses*, published in 1916)—*summa cum laude*.
- 1915–1916 works in the Physiological Laboratory (under Sigmund Exner) and at the Phonogram Archive of the Imperial Academy in Vienna (studies of musical abilities of children).
- Sept, 1915–Sept, 1917– Assistant to Oswald Külpe (who died on December, 30, 1915) and then to Karl Bühler (who was recalled from the front to continue Külpe’s work—Valsiner, 1998)—at the Psychological Institute, **University of Munich**.

- 1917–1920 Assistant to William Stern, Psychological Laboratory, **Kolonialinstitut Hamburg** (later University of Hamburg). In 1918 marries Jo Gervai.
- 1920–1926 *Privatdozent* (Associate Professor), **University of Hamburg** (see chapters 1–3, this volume). *Habilitationsthesis: Grundfragen der Intensitätspsychologie*. (published in 1922) Publication of *Die Ursprünge der Lyrik* (1924).
- 1926 First German edition of *Einführung in die Entwicklungspsychologie*.
- 1926–1933 *Ausserordentlicher* Professor, Psychological Institute, University of Hamburg. Lectures on: General and Experimental Psychology, Genetic Psychology, Psychology of Character, Psychology of Art, Ethnopsychology, Psychology of language. Colleagues at Hamburg: Ernst Cassirer, William Stern, Jakob von Uexküll, Emmanuel Sarris, Marta Muchow, Martin Scheerer.
1932—publication of *Grundfragen der Sprachphysiognomik*.
1933—Second German Edition of *Einführung in die Entwicklungspsychologie*.
- 1933 Expelled from University of Hamburg by the new Nazi law, stay in Holland, emigration to USA
- Sept, 1933–June, 1936 Visiting Lecturer, **University of Michigan**, Ann Arbor Studies on contour and metacontrast, binocular depth perception.
- Sept, 1, 1936–Aug, 31, 1937 Lecturer, **Harvard University**, Boston, Ma. Writing of *Process and achievement* (published in 1937)
- Sept, 1937–Feb, 1944 Research Psychologist, **Wayne County Training School**, Northville, Michigan
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1940—First English edition of *Comparative Psychology of Mental Development*
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- Feb, 1, 1944–Jan, 31, 1945 Substitute Instructor, **Brooklyn College**, Brooklyn, NY
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- Feb 1, 1945–Dec, 31, 1946 Instructor, bf Brooklyn College
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