THE MIDDLE EUROPEAN CONTRIBUTION TO INFANCY RESEARCH

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Modern forms of close international cooperation—from which infancy research has profited more than other scientific disciplines—have made it difficult to delineate geographical entities in research. Crossing boarders for conferences, for sabbatical years, or for ever has become a regular part of life among scientists. It is necessary to unravel deeper historical roots in order to detect geographical differences in scientific theories, concepts or methods. I have no other qualification for historical excursions than my Middle European origin and my own participation in infancy research. However, these two circumstances alone—each for a particular reason—sufficiently motivate for interest in history. Middle Europe has always challenged historians due to the complexity of past political and cultural currents. Conversely, care for infants—to say nothing about infancy research born as late as the present century—is interesting as an aspect which, in spite of its general importance, has attracted almost no attention in former historical documents. The story of Herodes the Great who is believed to have ordered to murder infants at the time of Christ's birth may be an exception, however, it is not a European story. Otherwise, infancy and childhood had to wait until the Age of Enlightenment for some public interest. Historical events prior to Enlightenment require some attention for other reasons; they help understand the complexity of Middle European circumstances.

Middle Europe prior to Enlightenment

A Japanese visitor to Europe may be amazed by the number of small countries and separatistic movements within them. Attempts to unite Europe for the sake of more effective competition with other large countries belong to the most difficult political problems. To understand the complexity it is necessary to realize that, for centuries, natural resources, mild climate, minimal volcanic activities, and advantageous water routes in Middle Europe have lured both peaceful nomadic nations seeking after fertile land back from overpopulated areas, and the rulers of major nations searching for more territory, resources, and vassals.

Since about 1800 BC, Europe witnessed migrations of Neolithic cultures from the East, the Celtic La Tene culture during the Early Iron Age, including the Halstatt culture, and the so called Urnfield cultures during Early Bronze Age. Between 1200 and 1100 BC,

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This paper is based on an invited address at the 1987 ISSBD Pre-Conference Workshop: " New Directions for Infancy Research." Requests for reprints should be addressed to Hanuš Papoušek, M. D., Sc. D., Professor of Developmental Psychobiology, Max-Planck Institute for Research in Psychiatry, Kraepelin Str. 10-EPB, D 8000 Munich-40, F. R. Germany.

Celtic civilization spread over Europe and crossed even the natural boarder between Middle and South Europe, the Alps. A few centuries later, Thraco-Cimmerian warriors with Late Bronze cultures migrated to Europe from the East whereas from Greece the Scythians invaded in response to attacks of Celtic raiders.

The further development of Middle Europe was strongly influenced by the migration of Germans, Kimbers, Teutons and Markomans from the Northern Europe southwards, and by Roman attempts to colonize Europe North of the Alps. Rome is believed to be founded in 750 BC, and during the first North-South migration in Europe, the expansive growth of the Roman Empire already conflicted with Gallic interests along the northern boarders. Provoked by Hannibal's sttack across the Alps against Rome (218 BC) during the Punic wars, and the later threat by Teutons (121 BC), Roman dictators felt compelled to build and fortify safe roads through the Alps and colonize the regions North of the Alps. Caesar's (57 BC) and Augustun's (26 BC) expeditions in particular contributed to the penetration of Roman civilization and disintegration of the Celtic La Tène culture.

In spite of initial military success, the Roman colonization to the North of the Alps met increasing difficulties under the pressure of further migrations from Northern Europe (Goths, Burgunds, Heruls, Sarmats, Franks, and Alamans), revolts in Gallic provinces, and the first major epidemy of plague brought in from North Africa in 252 AC. The stability of the Roman Empire deteriorated as evident in the fact that Roman emperors changed twelve times during two decades. In 340 AC, the Roman Empire split into two parts. The Western part then collapsed in 475 AC, to a great degree due to the Teutonic threat from the North and the additional invasion of Mongolian Huns under Attila's leadership about 450 AC. During those times, Middle Europe probably resembled a crossing with a chaotic traffic.

Slavic nations were the next to penetrate from the East to Middle Europe and to create new political entities. About 800 AC the Normans migrated from overpopulated Norway as far southwards as the Mediterranean sea. One century later, the Ungroffinnish tribes intruded to East and Middle Europe from Uralian areas, and Hungarians soon attacked neighbors in other parts of Europe. About the end of the first millennium AD, migrations slowed down, and the structure of Middle Europe indicated the future location of the present countries—Germany, Poland, Russia, Czechoslovakia, Hungary, Austria, and Switzerland.

Acculturation followed the struggles for territories and was closely connected with Christianization. Whereas Paris had had a bishopric since 250 AD and was christianized by St. Dionysis from Rome, dioceses in Middle Europe were founded later under Byzantine supervision, for instance, in Prague in 975 and in Moravia (Olomouc) in 1063. The establishment of royal dynasties with growing administrations and the increasing power of church brought about a rapid development of urban centers, architecture and arts, universities with educational systems for privileged classes, and the first scientific institutions. In the same vein, however, the gap between privileged and lower classes increased. People, often whole nations, were treated as articles of merchandise, sold or exchanged as parts of marital arrangements, donations, or tributes. Wars did not stop, only the reasons changed ; wars became almost a matter of fashions and display of power. Christian church utilized the Zeitgeist and organized five crusades against Turks and Arabs

in order to liberate Jerusalem between 1096 and 1228 AD.

The costs were disastrous; the crusades brought not only an enormous financial burden causing a moral disintegration of church but also apocalyptic epidemies. First came an epidemy of lepra in 1231, and then the "blake plague" in 1348 which cost 25 million lives, i.e., one third of the entire European population. England lost one half of its population. The plague spread particularly among urban population, due to poor hygiene in overcrowded cities. Unfinished gothic cathedrals in several European cities remind today's visitors of tragic dimensions of the costs. No wonder that social tensions increased to a degree calling for fundamental changes in social systems.

Legislative documents reveal that Middle European nations were ruled and administered with minimal attention to individual freedom and social needs of citizens except the privileged class in power. The Roman justice which considerably influenced the Middle European legislation exemplifies a horrible picture of ignorance and neglect in relation to child care in weak attempts to reduce the misuse of children. For instance, it prohibited the mutilation of foundlings in order to use them as more efficient beggars. Rearing abandoned children and selling them as slaves or prostitutes was obviously tolerated in antique Rome. Later on, in 1212 and 1213, a Children's Holy Crusade was organized for liberation of Jerusalem, however, thousands of children were in fact sold as slaves after arrival in Mediterranian harbors. We may ask whether humans were still only poorly humanized animals or already humans so strongly dehumanized due to civilization as long as the organization of social systems paid so little attention to altruitsic aspects of human coexistence.

Reformatory Movements and Enlightenment in Middle Europe

The care for progeny is a prototype of altruistic forms of social behavior. However, attentiveness to altruistic, prosocial forms of social coexistence seems to the author to be unevenly distributed between intellectual or artistic parts of populations, and possessors or administrators of physical forces. In comparison to the role of prominent rulers or the role of class conflicts in the processes of historical decisions, the dichotomy between altruistic and egocentric forms of leadership has drawn less attention although it may be particularly interesting in relation to the history of child care.

Leadership based upon intellectual capacities and reasoning prefers peaceful coexistence, profits from exchange of information and collective decisions, has no reason for hiding intentions, requires criticism, respects individual rights and freedom. It may fail in military engagements but achieve cultural progress in scientific or artistic sense, and thus it stands for humanism. Conversely, leadership based upon physical power, be it individual strength or possession of weapons, property, or high social ranks, tends to pursue egocentric enrichment, territorial expansion, personal or national dominance. Consequently, it prefers hiding true intentions, requires blind obediance, avoids or persecutes criticism, and is little interested in rights and needs of lower ranking or underprivileged individuals. The dichotomy may be of a psychobiological or temperamental origin, and may change during development, both individual and cultural. Social systems may thus mature towards more democracy, humanistic coexistence and cooperation, scientific and artistic progress, and towards less military expansivity and autocratic types of

governments.

The Middle European societies obviously reached the turning-point in direction towards democracy and altruism during the Age of Enlightenment. However, precursors of Enlightenment appeared already at the end of the XIV th century, for instance in connection with the Hussite reformatory movement in Bohemia (the Western part of the present Czechoslovakia).

Having lost their own Bohemian royal dynasty of Přemysls the Czechs invited the Luxemburg dynasty to rule Bohemia. When Charles IV had been crowned both as the king of Bohemia and the German emperor in 1347 Prague became the cultural centre of Middle Europe attracting outstanding scientists and artists, particularly since the foundation of the Charles University in 1368. As a rather liberal and educated ruler, Charles IV acknowledged manysided privileges to lower nobility and to bourgeoisie thus increasing democratic elements in the government. University academia soon played a central role in efforts to reform the corrupt church and change the social structure in favor of underprivileged classes.

After the death of Charles IV, the reformatory movement under the leadership of John Hus seized the majority of Bohemian population and threatened the stability of church hierarchy and neighboring regimes. The conservative church hierarchy responded forcibly : John Hus was declared heretic and burnt alive in Constance in 1415, and crusades were organized to suppress the Hussite reformation. Militarily, the Hussite comunity resisted successfully against crusades for decades, however, it could not resist against internal split in Czech nobility and bourgeoisie. Finally, the Hussite army was defeated, Bohemia lost freedom under foreign monarchies in 1621, and the entire reformatory movement was forcibly persecuted. More than 100,000 Czech and Moravian citizens emigrated in order to live in religious and intellectual freedom. In spite of that, the movement facilitated the later success of Luther's reformation in Germany and Calvin's reformation in Western Europe.

The Hussite movement is worth mentioning due to reforms concerning child care and education. At its height it practiced equal rights for men and women, and free education for children from all classes. The Hussite king George from Podebrady elaborated the first concept of Peace Agreement for contemporary governments thus preceding later efforts of Erasmus from Rotterdam. The movement distinctly exemplified the significance of intellectual leadership for enforcement of altruistic principles in social systems, and conversely, the hard resistance in the possessors of power against all such attempts. Moreover, the movement gave mankind an outstanding personality raising new fundamentals of child care and rearing during the Age of Enlightenment, namly, Jan Amos Comenius.

Comenius, the bishop of the Moravian Brothers, was compelled as a Protestant to spend his most productive years in exile. The cruelty of the Thirty-Year-War and recurrent epidemics in Central Europe hardened his decision to propagate humanism and rationalism, and to do so mainly by improving child education. Comenius's work " Opera Didactica Omnia " (1657) represents the pillars of didactics. Comenius was unique at his time in the belief that educational care should begin in infancy, and be based upon parental interventions and playfulness as stressed in the works " Schola Materni Gremii," and

"Schola Ludus." In "Orbis pictus," Comenius gave children the first picture book for learning languages which quickly became the first educational best seller. He required a proper balance between health care and education, and recommended a special education for mentally retarded children, a measure which had to wait 200 years to be understood and realized. As one of the most prominent Enlightenment academicians, Comenius participated at the foundation of Royal Academies of Sciences in France and England, and helped to reform the educational system in Sweden.

Comenius's exile and international engagement illustrates an increasing tolerance between European nations in cultural areas, and an increasing solidarity in pursuing humanistic ideas during the Age of Enlightenment. Although not yet properly organized, a new intellectual leadership gradually emerged from the growing communities of scientists and artists as a counterbalance to autocracy. Hellenic standards of democracy and harmony beween bodily efficiency and spiritual nobility were on the way of gaining new appreciation as antidotes against the lust of power which was becoming evident even in the Roman church.

The clergy disliked that development, however, it became increasingly difficult to act against the leading scientists, and not to profit from their discoveries. For instance, the extensive discoveries in astronomy and geography contradicted the dominating Christian ideology on the one hand but opened new ways for colonization and enrichment to both church and governments on the other. Ideological contradictions gained upsetting dimensions. In fact, the propagation of Christianity legitimized the import of black slaves from Africa or the murdering of American Indians by conquistadors. The respect to humanity and children's needs certainly increased during Enlightenment, however, only very little changed in the legislation. The misuse of children may have decreased in Europe but florished in colonies where religious intolerance enforced racial prejudices and facilitated exploitation and genocides.

During the Age of Enlightenment, development of sciences was speeded up by methodological inventions allowing exact measurements, particularly in physics and astronomy. The progress in sciences soon brought about changes in the general way of thinking which can be characterized as a detachment from philosophy in general, and averting from Aristotelian concepts in particular.

Philosophy at that time was dominated by Ptolemy's geocentric view of the Universe, and Aristotle's essentialistic way of classifying phenomena and attributing them idealistic values. Thus, circular and rectilinear movements represented heavenly perfect forms of movements and terrestrial deviations from them mere effects of disturbances. Nature was viewed anthropomorphistically with animals being imperfect humans, and children imperfect adults. Dualistic views of man as a person consisting of a mortal body and immortal spirit-a conglomerate of ideas—left no space for mundane interventions in the sake of a better mental development and health. Individuality as a deviation from the ideal deserved minimal attention.

When the Polish astronomer Nicolaus Copernicus explained in "De Revolutionibus Orbium Celestium" in 1543 that Ptolemy was wrong and that Earth is a planet of the sun he in fact demonstrated that sciences should rely upon exact measurements rather than dogmatic beliefs. His measurements had to be corrected with improved techniques by

Johannes Kepler at the Prague Castle, however, the conclusions were confirmed. Kepler's "Astronomia nova" (1609) outlined a picture of the Universe which was very different from the interpretation used by the Roman church.

With respect to the significance for further scientific progress it may be difficult nowadays to understand why a scientific discovery should be condemned if it disproves a religious dogma. However, the Roman pope prohibited the new astronomic theory as soon as Galileo Galilei acknowledged and eloquently propagated it in public in Italy in 1610. Among other things, the pope's step reconfirmed how difficult it may be for possessors and administrators of power to cope with revolutionary innovations either in sciences or in social systems.

It is partly understandable that for administration and legislation at that time it was a nightmare to cope with the dynamics of cultural and political changes in Middle Europe. Accumulation of property and power required a perfect administration which at that time could only be facilitated by availability of clearcut classifications, stable criteria and values. Unknowingly, rulers and administrators were probably becoming empirical followers of Aristotle independently of their real education in philosophy, and enforced the conservative tendency to dogmatize convenient principles, values, and criteria. The clerus of Roman church showed the same tendency while becoming a large body of political and economical power on the European stage and departing from the original forms of Chrstianity as of an altruistic religion of the proletariat.

That development did not occur without ambivalence. While Charlemagne ruled France (768-814), for instance, he ordered bishops to open access to fundamental education to all social classes in the monastery and cathedral schools. Similar efforts made by Enlightment scholars in Middle Europe met administrative resistance and fear of potential social revolutions as a consequence of liberalism. Jean Jacques Rousseau's book "Emil" recommending a return to naturalistic forms of child rearing and education was ordered by Parliament to be burnt in public in 1762. The Swiss follower of Rousseau and founder of an institution for poverty children in 1798, Johann Heinrich Pestalozzi met hard resistance in the Prussian admintration. His German student Friedrich Fröbel who opened the first "Kindergarten" for 1-to-6-year olds in 1839—a model for the modern German system of preschool education—and whose interpretation of human child education already included a core of the later biogenetic principle made a similar experience; his system was prohibited in Prussia.

Thus, in general, the first steps of sciences towards a political and theoretical emancipation were not much more than a beginning of a long and difficult process continuing till nowadays. The differences between essentialistic Aristotelian and Galilean approaches have represented complex problems to scientists themselves as particularly evident in concepts on child development, according to Kurt Lewin's warnings from 1931. The next section of this presentation will discuss those problems in more details.

Altogether the mentioned circumstances help to explain the relatively slow scientific progress in terms of early human development. The interest in child development may be mainly motivated by three aspects: (1) the parental tendency to provide all possible support for the survival and optimal adaptation of the progeny; (2) the interest of the social system in a proper social integration of the progeny as an assumption for a smooth

functioning of the system ; (3) the individual or cultural need to enrich the knowledge on the origin and development of man. Doubtlessly there used to be good and bad parents in the past very much like nowadays, and the long history of cultural achievements has proved that the past generations of parents knew well how to rear children provided that child development has not entirely been governed by genetic mechanisms. The social control and scientific understanding of the developmental procees represent more complex questions.

According to the author's opinion, the social control of interventions in favor of children was hindered by a theoretical preoccupation on the one hand, and by the increasing conservativism and dogmatism in administration on the other. If there were reasons for improving living conditions and thus preventing epidemics, or for supporting literacy and thus facilitating administrations there were also opposite interests. Misery guaranteed cheap working-power for the developing industry where the misuse of children of school age in mines and textile factories reached horrible levels in the eighteenth and nineteenth centuries. The belief that spirit has little to do with bodily health and environmental care, or that diseases are of devilish origin, was hardly influenced by the revolution in astronomic sciences ; it survived until the end of eighteenth century in many places, and delayed the development of scientific disciplines, such as pediatrics, child psychiatry, and child psychology.

Emergence of Developmental Psychology and Infancy Research

New universities and academies founded during the Age of Enlightenment represented solid crystallization centers for further intellectual and artistic progress. An Acdemy for Natural Sciences was opened in Halle in 1652, Royal Academies of Sciences were founded in London (1662), Paris (1666), Berlin (1711), and Petrograd (1711), Comédie Française came into being in Paris (1680), and Academy of Arts in Berlin (1696). Those cultural centers played important roles in the propagation of humanistic ideals, gradually reached relative academic freedoms, however, they could not directly and effectively change the structure of existing political systems.

Most European countries were politically preoccupied with intrigues among competing monarchistic dynasties whose conflicts together with Turkish invasions and expansive colonial politics provided a plenty of reasons for wars while leaving minimal latitude for attention to social needs of lower classes. Since the victory over Bohemian forces in 1621, two German dynasties were on the way to dominate Middle Europe and create empires in Austria and Prussia. However, the cultural heterogeneity of concerned territories caused additional, internal tensions.

In the meantime, however, an increasing resistance against social injustice grew in France. Advanced economists and sociologists criticized the unproportional distribution of privileges and national income from which the royal court alone was using more than one seventh although the entire feudal class represented less than one-half-percent and the entire clergy less than one-third-percent of the French population. The beginning of French social revolutions in 1789 found an enthusiastic echo in Middle Europe, where nations were just recovering from a period of Silesian wars (1740 to 1763). However, it took a long time to definitely install democracy in France, and Middle Europe again had

to first serve as a battlefield for escalating wars between Napoleon Bonaparte, and the coalition of Austria, Germany, England, and Russia. The final defeat of Napoleon in 1815 was followed by a restriction of academic freedoms and introduction of censorship in Germany in 1819. Only after further revolutions in France in 1830, 1848, Karl Marx's proclamation of the Communist Manifesto (1848), and the final defeat of autocracy in France in 1871, Middle European governments, too, were compelled to loosen absolutistic forms of rule. In 1848, the national minorities in the Austrian empire increased efforts for liberation under the leaderships of Garibaldi in Italy, Kossuth in Hungary, and Palacký in Bohemia.

It was not surprising under such conditions that the general problems of child protection and child education long remained a matter of interst to small groups of educated individuals or beneficial societies and gained on political significance only after the French revolutions. Even then, however, it was difficult to intervene. For instance, when the German Minister of the Education von Altenstein tried to loosen child slavery the Minister of the Interior seriously protested with arguments that the German industry could lose in competition with the British industry if it could not use women and children as working-power. Finally in 1839, the government prohibited the use of children under 9 years in mines, stampingmills, and metallurgical works. Children between 9 and 13 were not supposed to work more than 48 hours a week or in night shifts, however, it was difficult to control the measure during the entire nineteenth century. Similarily, the obligatory school education which had been introduced, for instance, in Prussia already in 1763 could only slowly be realized during the nineteenth century.

Child psychology emerged as a scientific discipline as late as at the beginning of the twentieth century, however, its lack was partly compensated for by increasing interest in mental development and health in medicine since the second half of the nineteenth century. The first children hospitals appeared in Paris (1812) and later in Berlin (1830), Vienna (1837), Prague (1842), Frankfurt (1845), Munich and Brno (1846), and Leipzig (1889). They quickly developed to educational centers of great reputation contributing not only to the knowledge of child diseases (for instance, Skoda, Rokitanski, or Mayr at the university of Vienna) but also to social care (for instance, Epstein in Prague) and care for mental development (Epstein's associate Czerny in Breslau). Contemporary family physicians and pediatricians used to be consulted in educational problems as well. Thus Czerny's book "The Physician as a Child Educator" (1908) met a broad interest. Czerny closely cooperated with an outstanding Russian pediatrician Krasnogorsky who significantly enriched neurophysiology while working with I. P. Pavlov in Petrograd and applied salivatory conditioning methods for studies of mental processes in children as early as 1907.

Since psychology originated in philosophy in Middle Europe, the medical roots of child psychology significantly counterbalanced the influence of speculative philosophical approaches while mediating scientific advance from experimental neurophysiology, developmental biology, and comparative biology. This contribution appeared particularly valuable in relation to later infancy research. The academic background, both historical and contemporary, in Middle European universities proved valuable for the fast development of child psychology at the beginning of the twentieth century in general.

In addition to the heritage of Comenius, the French encyclopedist Rousseau, John Locke, Pestalozzi, or Fröbel who were mentioned in the preceding section, further outstanding scientists of the nineteenth century enriched sciences with fundamental discoveries in Middle Europe. G. Mendel detected the laws of genetics, J. E. Purkinje excelled in neuroanatomy and neurophysiology, W. Preyer published his studies on the physiology of embryos (1885) and his pioneering work on "The Soul of the Child" (1882) which was based on a truly scientific diary with observations on his son's development from birth to three years. W. Häckel formulated his theory on the recapitulation of phylogeny during ontogeny (1886). W. Wundt, originally a physician, founded the first Institute of Experimental Psychology in Leipzig (1875). Kraepelin revolutionized psychiatry with scientific approaches to the causes of mental disorders, close cooperation with psychologists, and foundation of pharmacopsychology. S. Freud published his first studies of neuroses.

Although only a few names can be mentioned, they sufficiently illustrate the productive atmosphere in Middle European universities prior to the emergence of developmental psychology. Moreover, scientific societies and journals soon represented a large community of German speaking specialists. Thus they drew international attention to Middle European research and increased interest in cooperation, for instance, among Russian psychologists and neurophysiologists.

On psychological grounds, developmental psychology could early profit from achievements of several groups which became established at the beginning of the twentieth century both in Germany and Austria. W. Wundt elaborated voluntaristic concepts in Leipzig and paid attention to ethnographic approaches. In Berlin, Wertheimer, Koffka, Lewin, and Köhler applied holistic concepts in psychology, known as Gestalt-psychology. Köhler joined the Berlin group after a period of experimental studies on chimpanzee intellect on Tenerifa. The Viennese psychologist F. Heider drew attention to the naive concepts on psychological development as to prescientific, commonsense positions for the history of human thought. Heider carefully analysed the participation of those assumptions in naive psychology which had also been involved in scientific theories, for instance the assumptions of teleology, free will, or validity of personal experience. Interestingly, Kurt Lewin from the Berlin group went a similar way and strictly revised the construction of psychological theories beginning with prescientific philosophical concepts. Lewin applied mathematical laws and the dynamic laws of energy system as a base for the constructions of rigorous theories and made psychologists aware of the fallacy of confusing dichotomies, teleology, or essentialistic forms of classifications, used in the sense of Aristotelian philosophy.

Von Bertalanffy, a biologist and philosopher from Vienna, followed a somewhat parallel way and outlined fundamental concepts of development from the point of view of systems theory in relation to organismic systems, and with respect to specific features of human evolution and ontogeny. In concordance with Heider, Lewin, and holistic psychologists in general, von Bertalanffy did not accept pure empiricism and associationism which flourished in England and the United States at that time. On the contrary, he combined nativistic and empiricistic views in his interpretations of development. In this sense, the Piaget's theory was close to the Middle European positions as well.

Perhaps the most consequent organismic developmentalist among European psychologists was the Austrian psychologist educated in Germany, Heinz Werner. His broad knowledge of comparative biology, anthropology, embryology, and pathology stimulated Werner for attempts to explain the most global aspects of development from holistic and organismic views and led him to the idea of the " orthogenetic principle," according to which the process of development encompasses a gradual differentiation and hierarchical integration. Werner, too, saw interactions rather than dichotomies between, for instance, genetic factors and learning processes. He stressed the multiform character of development and objected against its reduction to single dimensions for the purpose of easier experimenting and quantification.

Interestingly, William Stern who worked with Werner in Hamburg introduced the intelligence quotient into child psychology as a measure of mental capacities (1912). William Stern with his wife also used observations of their own child for the study of psychological development which was published in W. Stern's " Psychology of Early Childhood " (1914).

Between the two World Wars, child psychology in Vienna attracted a particular attention due to the contributions of Karl and Charlotte Bühler, and their coworkers Hetzer, Schenk-Danzinger, and Wolf. Their interests covered the psychology of early childhood, the effects of social environment, and the development of speech.

It would be difficult to review the entire advantageous atmosphere in detail. The selected examples hopefully show that the situation in Middle Europe before World War II was mature to deliver a solid conceptual base for attacking the difficult problem of the earliest periods of development—human infancy. Clinical evidence suggested that the course of infancy might play an important, if not critical role in the entire human life. Infants, however, seemed to many researchers too fragile to be used as experimental subjects. Moreover, infancy represented a methodologically difficult area of exploration.

Unfortunately, the controversy between intellectual potentials and political blindness operated anew and more destructively than at any time before. Hitler's rise to power and World War II dramatically changed the entire stuation and left a deep gap behind. Many of the prominent psychologists just mentioned in this section emigrated in order to avoid racial or political persecution, others died or had to interrupt their activities due to various war events.

War experience drew attention to infancy from new aspects. Increased infant mortality required multiform medical interventions. Numerous cases of parent-infant separation called for clinical evaluations of psychological or psychiatric consequences. The mobilization of women for war industry necessitated organization of a network of day care facilities. The loss of millions of young men caused an increased frequency of fatherless, so-called unipolar forms of child rearing. These and similar factors speeded the development of infancy research.

In addition, the postwar technological revolution provided infancy researchers with new powerful equipments, such as electronic polygraphy for the study of various autonomic functions, electroencephalography, audiovisual recording and microanalyses of overt behaviors and vocalizations, spectrographic analyses of vocal sounds, unobtrusive ultrasonic devices for recording fetal behaviors in utero, and last but not least, computers.

The Present Situation in Infancy Research in Middle Europe

The conceptual heritage of the prewar Middle European psychology and developmental psychology certainly remained available and together with the postwar technological progress facilitated the fast development of infancy research. However, the political picture of Middle Europe changed. The " iron curtain " ideologically divided Europe into Eastern and Western halves leaving almost no space between them. Infancy research requires interdisciplinary and international cooperation by principle. The modern concepts of develomental precesses stress interactions rather than simplified dichotomies between opposing theories. From this view, iron curtains of any sort are medieval requisites, hostile to scientific and artistic interests of mankind, barriers against altruism. At present, however, one iron curtain makes it impossible to delineate Middle European positions in infancy resarch.

Interesting innovations improved the organization of interdisciplinary cooperation in infancy research on both sides of the iron curtain. Thus Eastern European countries could profit from the foundation of Academies of Sciences and a network of research institutes covering major scientific problem. For instance, K. Kubât organized a complex interdisciplinary approach to infancy research at the Research Institute for the Care for Mother and Child in Prague, Czechoslovakia. Well known are the studies on the early development of behavioral states (J. Dittrichová, K. Paul) and learning capacities in infants (O. Janoš, J. Koch, H. Papoušek) from that institute. At the same time the Charles University in Prague opened a special Medical School for Pediatrics under the chair of J. Houštěk where all medical disciplines were conceptualized from developmentalistic views and developmental psychology was introduced as a new, obligatory discipline.

A close interaction between comparative biologists and human infancy researchers has developed in the research institutes of the German Max-Planck Society and at the German universities. Human ethologists cooperating with K. Lorenz in Seewiesen turned attention to cross-cultural research on social and communicative development (I. Eibl-Eibesfeldt) and on the neurological regulation of behavioral development (H. F. R. Prechtl). Prechtl later founded an excellent research in developmental neurology at the Groningen University, Holland, and has significantly contributed to the knowledge on the regulation of behavioral states and motor behaviors in newborns, prematures, and fetus in utero. Psychobiological aspects of early social interactions and preverbal human communication have been studied at the Max-Planck Institute for Research in Psychiatry in Munich (H. and M. Papoušek) in a close cooperation with experimental primatologists (D. Ploog, S. Hopf, U. Jürgens, M. Maurus).

B. Hassenstein with coworkers at the University of Freiburg, Germany, also enforced the bridges between comparative zoology and research on child development. S. Schindler from the University of Salzburg, Austria, devoted much effort to yet another new developmental aspect—the prenatal psychology. New groups of child psychologists involved in infancy research appeared, among others, in Berlin (H. Rauh), Regensburg (K. and K. E. Grossmann), or Osnabrück (H. Keller).

The rise in developmental orientation is not just a fashionable " boom " but obviously a part of a spontaneous and very general response of humanity to the unprecedented

dimensions of both physical and moral disasters which were caused by the humanistic blindness and lust of power in political dictatorship during World War II. The ideological significance of the developmental orientation for a peaceful future of mankind has been philosophically stressed by C. F. von Weizsäcker in Germany.

In relation to a potential overpopulation of Earth and other ecological problems, it has also become evident that not the quantity but the quality of the next progeny should increase. The qualitative care clearly depends on a safe scientific knowledge of all intrinsic and environmental factors regulating human development. Thus it also depends on an unlimited freedom and sufficient resources for cultural cooperation by prlnciple.

Developmental ethologists (Immelmann) and child psychologists (K. Grossmann) at the Bielefeld University, Germany, initiated an unprecedented project of an international and interdisciplinary year (1977/78) of cooperation on "Comparative Ontogeny of Human and Animal Behavior." That project brought together many leading scientists from various countries and exemplified the significance of complex cooperation for modern developmental research. In the same vein, however, it documented the decreasing role of national differentiation in research.

Another reason which makes the geography of sciences difficult is the increasingly cosmopolitan character of present sciences in Western countries. The leading position in the organization of infancy research has been occupied by the United States soon after World War II, however, the American research has also absorbed a great deal of the European heritage, both conceptual, and personal. Thus the American colleagues sometimes recommend: "If you want to see Europe you have to cross the Atlantic River but do not cross it if you want to become familiar with European developmentalists."