

**INTRODUCTION:
THE FUNDAMENTAL PROBLEMS
OF DEFECTOLOGY¹**

1

Only recently, the entire field of theoretical knowledge and practical scientific work, which we conveniently call by the name of "defectology," was viewed as a minor part of pedagogy, not unlike how medicine views minor surgery. All the problems in this field have been posed and resolved as quantitative problems. Entirely accurately, M. Kruenegel² states that the prevailing psychological methods for studying an abnormal child (A. Binet's³ metric scale or G.I. Rossolimo's⁴ profile) are based on a purely quantitative conception of childhood development as impeded by a defect (M. Kruenegel, 1926). These methods determine the degree to which the intellect is lowered, without characterizing either the defect itself or the inner structure of the personality created by it. According to O. Lipmann,⁵ these methods may be called measurement, but not an examination of ability, *Intelligenzmessungen* but not *Intelligenzpruefungen* (O. Lipmann, H. Bogen, 1923), since they establish the degree, but neither the kind nor the character of ability (O. Lipmann, 1924).

Other pedagogical methods for studying the handicapped child are also correct and relevant—not only psychological methods, but also those encompassing other sides of a child's development (anatomical and physiological). And here, scale and measure have become the basic categories of research, as if all problems of defectology were but problems of proportion, and as though all the diverse phenomena studied in defectology could be encompassed by a single scheme: "more versus less." In defectology, counting and measuring came before experimentation, observation, analysis, generalization, description, and qualitative diagnosis.

Practical defectology likewise chose the simplest course, that of numbers and measures, and attempted to realize itself as a minor pedagogical field. If, in theory, the problem was reduced to a quantitatively limited, proportionally retarded development, then, in practice,

the idea of simplified and decelerated instruction naturally was advanced. In Germany, the very same Krienegele, and in our country A. S. Griboedov,⁶ rightly defend the notion: "A reexamination of the curriculum and methods of instruction used in our auxiliary schools is essential" (A. S. Griboedov, 1926, p. 28), since "a reduction of educational material and a prolongation of its study time" (*ibid.*),—that is, purely quantitative indicators—have constituted until this time the only distinctive features of the special school.

A purely arithmetical conception of a handicapped condition is characteristic of an obsolete, old-school defectology. Reaction against this quantitative approach to all theoretical and practical problems is the most important characteristic of modern defectology. The struggle between these two attitudes toward defectology—between two antithetical ideas, two principles—is the burning issue in that positive crisis which this area of scientific knowledge is presently undergoing.

Viewing a handicapped condition as a purely quantitative developmental limitation undoubtedly has the same conceptual basis as the peculiar theory of preformed childhood operations, according to which post-natal childhood development is reduced exclusively to quantitative growth and to the expansion of organic and psychological functions. Defectology is currently undertaking a theoretical task which is analogous to the one once performed by pedology and child psychology, when both defended the position that a child is not simply a small adult. Defectology is now contending for a fundamental thesis, the defense of which is its sole justification for existence as a science. The thesis holds that a child whose development is impeded by a defect is not simply a child less developed than his peers but is a child who has developed differently.

If we subtract visual perception and all that relates to it from our psychology, the result of this subtraction will not be the psychology of a blind child. In the same way, the deaf child is not a normal child minus his hearing and speech. Pedology has long ago mastered the idea that if viewed from a qualitative perspective, the process of child development is, in the words of W. Stern,⁷ "a chain of metamorphoses" (1922). Defectology is currently developing a similar idea. A child in each stage of his development, in each of his phases, represents a qualitative uniqueness, i.e., a specific organic and psychological structure; in precisely the same way, a handicapped child represents a qualitatively different, unique type of development. Just as oxygen and hydrogen produce not a mixture of gases, but water, so too, says Guertler,⁸ the personality of a retarded child is something qualitatively different than simply the sum of underdeveloped functions and properties.

The specific organic and psychological structure, the type of development and personality, and not qualitative proportions, distinguish a retarded child from a normal one. Did not child psychology long ago grasp the deep and true similarities between the many developmental processes in a child and the transformation of a caterpillar first into a chrysalis and from a chrysalis into a butterfly? Now, through Guertler, defectology has voiced the view that a child's retardation is a particular variety or special type of development, and not a quantitative variant of the normal type. These, he states, are different organic forms, not unlike a tadpole and a frog (R. Guertler, 1927).

There is, actually, complete correspondence between the particular characteristic of each age-level in the development of a child and the particular characteristics of different types of development. Just as the transition from crawling to walking, and from babble to speech, is a metamorphosis (i.e., a qualitative transformation from one form into another) in the same way, the speech of a deaf-mute child and the thought processes of an imbecile are functions qualitatively different from the speech and thought processes of normal children.

Only with this idea of qualitative variations of separate elements) in defectology acquire, for the first time, if it proceeds from exclusively negative based on purely negative definit central to modern defectology, an position of a particular, concrete system of positive tasks, both the viable as a science because it has research and understanding. As B follow from a purely quantitative treatment and remediation can be b and techniques and not upon syst

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Only with this idea of qualitative uniqueness (rather than the overworked quantitative variations of separate elements) in the phenomena and processes under examination, does defectology acquire, for the first time, a firm methodological basis. But no theory is possible if it proceeds from exclusively negative premises, just as no educational practice can be based on purely negative definitions and fundamentals. This notion is methodologically central to modern defectology, and one's attitude toward this notion determines the exact position of a particular, concrete problem. Defectology acquires, with this idea, a whole system of positive tasks, both theoretical and practical. The field of defectology becomes viable as a science because it has assumed a particular method and defined its object for research and understanding. As B. Schmidt [no ref.] put it, only "pedological anarchy" can follow from a purely quantitative conception of juvenile handicaps, and programs of treatment and remediation can be based only on uncoordinated compendia of empirical data and techniques and not upon systematic scientific knowledge.

It would be a great mistake, however, to think that with the discovery of this idea the methodological* formation of a new defectology is complete. On the contrary, it has only just begun. As soon as the possibility of a particular perspective on scientific knowledge is determined, then the tendency arises to search for its philosophical foundations. Such a search is extremely characteristic of modern defectology and is an indication of its scientific maturity. As soon as the uniqueness of the phenomena being studied by defectologists has been asserted, the philosophical questions immediately arise: that is, questions of principles and methods of knowledge and examination of this uniqueness. R. Guertler has attempted to establish a basis for defectology in an idealistic philosophy (R. Guertler, 1927). H. Noell based his discussion of the particular problem of vocational training for students in auxiliary schools on the modern "philosophy of value," developed by W. Stern, A. Messer (1906, 1908), Meinung,** H. Rickert,⁹ and others. If such attempts are still relatively rare, then the tendency toward some philosophical formulation is easily detected in almost any significant new scientific work on defectology.

Apart from this tendency toward philosophical formulations, absolutely concrete separate problems face defectology. Their solution constitutes the major goal of research projects in defectology.

Defectology has its own particular analytical objective and must master it. The processes of childhood development being studied by defectology represent an enormous diversity of forms, almost a limitless number of types. Science must master this particularity and explain it, as well as establish the cycles and transformations of development, its imbalances and shifting centers, and discover the laws of diversity. Further, there is the practical problem of how to master the laws of development.

This article attempts to outline critically the fundamental processes of defectology in their intrinsic relationship and unity from the point of view of those philosophical ideas and social premises, assumed to be the basis of our educational theory and practice.

* The term methodological means here a general method of inquiry and is closer to scientific epistemology. [Tr.]

** Possibly, a reference to Alexius Meinong (1853-1920), who was concerned with a theory of knowledge at Vienna and Graz. [Ed.]

2

The dual role of a physical disability, first in the developmental process and then in the formation of the child's personality, is a fundamental fact with which we must deal when development is complicated by a defect. On the one hand, the defect means a minus, a limitation, a weakness, a delay in development; on the other, it stimulates a heightened, intensified advancement, precisely because it creates difficulties. The position of modern defectology is the following: Any defect creates stimuli for compensatory process. Therefore, defectologists cannot limit their dynamic study of a handicapped child to determining the degree and severity of the deficiency. Without fail, they must take into account the compensatory processes in a child's development and behavior, which substitute for, supersede, and overarch the defect. Just as the patient—and not the disease—is important for modern medicine, so the child burdened with the defect—not the defect in and of itself—becomes the focus of concern for defectology. Tuberculosis*, for example, is diagnosed not only by the stage and severity of the illness, but also by the physical reaction to the disease, by the degree to which the process is or is not compensated for. Thus, the child's physical and psychological reaction to the handicap is the central and basic problem—indeed, the sole reality—with which defectology deals.

A long time ago, W. Stern pointed out the dual role played by a defect. Thus, the blind child compensates with an increased ability to distinguish through touch—not only by actually increasing the stimulability of his nerves, but by exercising his ability to observe, estimate, and ponder differences. So, too, in the area of psychological functions, the decreased value of one faculty may be fully or partially compensated for by the stronger development of another. For example, the cultivation of comprehension may replace keenness of observation and recollection, compensating for a poor memory. Impressionability, the tendency to imitate, and so forth compensate for weakness of motivation and inadequate initiative. The functions of personality are not so exclusive that, given the abnormally weak development of one characteristic, the task performed by it necessarily and in all circumstances suffers. Thanks to the organic unity of personality, another faculty undertakes to accomplish the task (W. Stern, 1921).

In this way we can apply the law of compensation equally to normal and abnormal development. T. Lipps¹⁰ saw in this a fundamental law of mental life: if a mental event is interrupted or impeded, then an "overflow" (that is, an increase of psychological energy) occurs at the point of interruption or obstruction. The obstruction plays the role of a dam. This law Lipps named the law of psychological damming up or stowage (*Stauung*). Energy is concentrated at that point where the process met with delay, and it may overcome the delay or proceed by roundabout ways. Thus, in place of delayed developmental processes, new processes are generated due to the blockage (T. Lipps, 1907).

A. Adler¹¹ and his school posit as the basis of their psychological system the study of abnormal organs and functions, the inadequacy of which constantly stimulates an intensified (higher) development. According to Adler, awareness of a physically handicapped condition is, for the individual, a constant stimulation of mental development. If any organ, because of a morphological or functional deficiency, does not fully cope with its task, then the central human nervous and mental apparatus compensates for the organ's deficient operation by creating a psychological superstructure which shores up the entire deficient organism at its

* We recall this is the disease Vygotsky died of. [Ed.]

weakened, threatened point. Conflict arises from contact with the exterior milieu; conflict is caused by the incompatibility of the deficient organ or function and the task before it. This conflict, in turn, leads to an increased possibility of illness and fatality. The same conflict may also create greater potentialities and stimuli for compensation and even for over-compensation. Thus, defect becomes the starting point and the principal motivating force in the psychological development of personality. It establishes the target point, toward which the development of all psychological forces strive. It gives direction to the process of growth and to the formation of personality. A handicap creates a higher developmental tendency; it enhances such mental phenomena as foresight and presentiment, as well as their operational elements (memory, attention, intuition, sensibility, interest)—in a word, all supporting psychological features (A. Adler, 1928).

We may not and *ought* not agree with Adler when he ascribes to the compensatory process a universal significance for all mental development. But, there is no contemporary defectologist, it seems, who would not ascribe paramount importance to the effect of personality on a defect or to the adaptive developmental processes, i.e., to that extremely complex picture of a defect's positive effects, including the roundabout course of development with its complicated zigzags. This is a picture which we observe in every child with a defect. Most important is the fact that along with a physical handicap come strengths and attempts both to overcome and to equalize the handicap. These tendencies toward higher development were not formerly recognized by defectology. Meanwhile, precisely these tendencies give uniqueness to the development of the handicapped child; they foster creative, unendingly diverse, sometimes profoundly eccentric forms of development, which we do not observe in the typical development of the normal child. It is not necessary to be an Adlerite and to share the principles of his school in order to recognize the correctness of this position.

"He will want to see everything," Adler says about a child, "if he is nearsighted; to hear everything, if he is hearing impaired; he will want to say everything, if he has an obvious speech defect or a stutter. ... The desire to fly will be most apparent in those children who experience great difficulty even in jumping. The contrast between the physical disability and the desires, fantasies, dreams, i.e., psychological drives to compensate, are so universal that one may base upon this a *fundamental law*: *Via subjective feelings of inadequacy, a physical handicap dialectically transforms itself into psychological drives toward compensation and overcompensation*" (1927, p. 57). Formerly, it was believed that the entire life and development of a blind child would be framed by blindness. The new law states that development will go against this course. If blindness exists, then mental development will be directed away from blindness, against blindness. Goal-oriented reflexes, according to I. P. Pavlov,¹² need a certain tension to achieve full, proper, fruitful development. The existence of obstacles is a principal condition for goal achievement (1951, p. 302). Modern psychotechnics is inclined to consider control [or self-direction] to be a function so central to the educational process and to the formation of personality as a special case of the phenomena of overcompensation (J. N. Spielrein, 1924).

The study of compensation reveals the creative character of development directed along this course. It is not in vain that such psychologists as Stern and Adler partly based the origins of giftedness on this understanding. Stern formulates the idea as follows: "What does not destroy me, makes me stronger; thanks to adaptation, strength arises from weakness, ability from deficiencies" (W. Stern, 1923, p. 145).

It would be a mistake to assume that the process of compensation always, without fail, ends in success, that it always leads from the defect to the formation of a new capability. As with every process of overcoming and struggle, compensation may also have two extreme outcomes—victory and failure—and between these two are all possible transitional points. The outcome depends on many things, but basically, it depends on the relationship between (1) the severity of the defect and (2) the wealth of compensatory reserves. But whatever the anticipated outcome, *always and in all circumstances*, development, complicated by a defect, represents a creative (physical and psychological) process. It represents the creation and re-creation of a child's personality based on the restructuring of all the adaptive functions and on the formation of new processes—overarching, substituting, equalizing—generated by the handicap, and creating new, roundabout paths for development. Defectology is faced with a world of new, infinitely diverse forms and courses of development. The course created by a defect—that of compensation—is the major course of development for a child with a physical handicap or functional disability.

The positive uniqueness of the handicapped child is created not by the failure of one or another function observed in a normal child but by the new formations caused by this lapse. This uniquely individual reaction to a defect represents a continually evolving adaptive process. If a blind or deaf child achieves the same level of development as a normal child, then the child with a defect achieves this *in another way, by another course, by other means*. And, for the pedagogue, it is particularly important to know the *uniqueness* of the course, along which he must lead the child. The key to originality transforms the minus of the handicap into the plus of compensation.

3

There are limits to uniqueness in the development of handicapped children. The entire adaptive system is restructured on new bases when the defect destroys the equilibrium that exists among the adaptive functions; then, the whole system tends towards a new equilibrium. Compensation, the individual's reaction to a defect, initiates new, roundabout developmental processes—it replaces, rebuilds a new structure, and stabilizes psychological functions. Much of what is inherent in normal development disappears or is curtailed because of a defect. A new, special kind of development results. "Parallel to the awakening of my consciousness," A.M. Shcherbina¹³ tells us about himself, "was the gradual, organic elaboration of my psychic uniqueness. Under such conditions, I could not *spontaneously* sense my physical shortcomings" (1916, p. 10). But the social milieu in which the developmental process occurs place limits on organic uniqueness and on the creation of a "second nature." K. Buerklen¹⁴ formulated this idea beautifully as it applies to the psychological development of the blind. In essence, this idea may be extended to all of defectology. "They develop special features," he said about the blind, "which we cannot observe among the seeing. We must suppose that if the blind associated only with the blind and had no dealings with the seeing then a special kind of people would come into being" (K. Buerklen, 1924, p. 3).

Buerklen's views can be elaborated as follows: Blindness, as a physical handicap, gives impetus to compensatory processes. These, in turn, lead to the formation of unique features in a blind person's psychology and to the reformulation of all his various functions, when directed toward a basic, vital task. Each individual function of a blind person's neuropsy-

chological apparatus has unique features, often very marked in comparison with those of a seeing person. In the event that a blind person were to live only among blind people, these biological processes, which formulate and accumulate special features and abnormal deviations, would, when left alone, inevitably lead to the creation of a new stock of people. Notwithstanding, under pressure from social demands, which are identical for the seeing and the blind, the development of these special features takes a form in which the structure of a blind person's personality *as a whole* will tend to achieve a specific, normal social type.

The compensatory processes which create unique personality features in a blind child do not develop freely. Rather, they are devoted to a specific end. Two basic factors shape this social conditioning of a handicapped child's development.

First, the effect of the defect itself invariably turns out to be secondary, rather than direct. As we have already said, the child is not directly aware of his handicap. Instead, he is aware of the difficulties deriving from the defect. The immediate consequence of the defect is to diminish the child's social standing; the defect manifests itself as a social aberration. All contact with people, all situations which define a person's place in the social sphere, his role and fate as a participant in life, all the social functions of daily life are reordered. As emphasized in Adler's school of thought, the organic, inherent (congenital) causes of this reordering operate neither independently nor directly, but indirectly, via their negative effect on a child's social position. All hereditary and organic factors must also be interpreted psychologically, so that their true role in a child's development can be taken into consideration. According to Adler, a physical disability which leads to adaptation creates a special psychological position for a child. It is through that special position, and only through it, that a defect affects a child's development. Adler calls the psychological complex, which develops as a result of the child's diminished social position due to his handicap, an "inferiority complex" (*Minderwertigkeitsgefuehl*).^{*} This introduces a third, intermediate factor into the dyadic process of "handicap compensation" so that it becomes "handicap inferiority complex compensation." The handicap, then, evokes its compensation not directly but indirectly, through the feelings of inferiority which it generates. It is easy to illustrate, through examples, that an inferiority complex is a psychological evaluation of one's own social position. The question of renaming the auxiliary school has been raised in Germany. The name *Hilfsschule* seems degrading to both parents and children. It inflicts a stamp, as it were, of inferiority on the pupil. The child does not want to attend a "school for fools." The demeaning social status associated with a "school for fools" partially affects even the teachers. They are, somehow, on a lower level than teachers in a school for normal children. Ponsens and O. Fisher [no ref] propose names such as therapeutic, training, or special school (*Sonderschule*), school for the retarded, and other new names.

For a child to end up at a school for fools means to be placed in a difficult social position. Thus, for Adler and his followers, the first and basic point of the educational process is a struggle against an inferiority complex. It cannot be allowed to develop and possess the child or to lead him into unhealthy forms of compensation. The basic idea of individual-psychological therapeutic education, says A. Friedmann,¹⁵ is encouragement (*Ermuetigung*). Let us assume that a physical handicap does not lead, for social reasons, to the generation of an inferiority complex—that is, to a low psychological estimation of one's own social standing.

* The Russian text has *Minderwertigkeitsgefuehl*. Perhaps, however, the Adlerian term *Minderwertigkeitskomplex* was intended for insertion since that describes the *complex* of feelings interrelated with their attendant social status.

Thus, notwithstanding the presence of a physical handicap, there will be no psychological conflict. As a result, some people with, let us say, a superstitious, mystical attitude toward the blind have a specific conception of the blind, a belief in their spiritual insight. For them, a blind person becomes a soothsayer, a judge, a wise man. Because of his handicap, he holds a high social position. Of course, in such circumstances, there can be no question of an inferiority complex, feelings of disability and so on. In the final analysis, what decides the fate of a personality is not the defect itself, but its social consequences, its socio-psychological realization. The adaptive processes, also, are not aimed directly at making up the deficiency, which is for the most part impossible, but at overcoming the difficulties which the defect creates. The development and education of a blind child have to do not so much with blindness itself as with the social consequences of blindness.

A. Adler views the psychological development of the personality as an attempt to attain social status with respect to the "inherent logic of human society," and with respect to the demands of daily life in society. Development unwinds like a chain of predetermined, even if unconscious, actions. And, in the end, it is the need for social adaptation which, by objective necessity, determines these actions. Adler (1928), with good reason, therefore, calls his psychology positional psychology, in contrast to dispositional psychology. The first derives psychological development from the personality's social position, the second from its physical disposition. If social demands were not placed upon a handicapped child's development, if these processes were at the mercy of biological laws only, if a handicapped child did not find it necessary to transform himself into an established social entity, a social personality type, then his development would lead to the creation of a new breed of human being. However, because the goals of development are set *a priori* (by the necessity of adapting to a sociocultural milieu based on the normal human type), even the adaptation process does not occur freely, but follows a definite social channel.

Thus, a handicapped child's developmental processes are socially conditioned in two ways. The social effect of the defect (the inferiority complex) is one side of the social conditioning. The other side is the social pressure on the child to adapt to those circumstances created and compounded for the normal human type. Within the context of final goals and forms, profound differences exist between the handicapped and the normal child in the ways and means of their development. Here, precisely, is a very schematic view of social conditioning in that process. Hence, there is a dual perspective of past and future in analyzing development that has been complicated by a defect. Inasmuch as both the beginning and the end of that development are socially conditioned, all its facets must be understood, not only with respect to the past, but also with respect to the future. Along with an understanding of compensation as the basic form of such development comes an understanding of a drive toward the future. The entire process, as a whole, is revealed as a unified one, as a result of objective necessity striving forward toward a final goal, which was established in advance by the social demands of daily life. The concept of unity and wholeness in a child's developing personality is connected to this. Personality develops as a united whole, with its own particular laws; it does not develop as the sum or as a bundle of individual functions, each developing on the basis of its particular tendency.

This law applies equally to somatics and physics, to medicine and pedagogy. In medicine, the belief is becoming more prevalent that the sole determinant of health or illness is the effective or ineffective functioning of the organs and that isolated abnormalities can be evaluated by the degree to which the other functions of the organism do or do not compensate for the abnormality.

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W. Stern advances the following idea: Individual functions deviate from normality, while the whole personality or organism might still belong to an entirely normal type. A *child* with a defect is not necessarily a *defective child*. The degree of his disability or normality depends on the outcome of his social adaptation that is, on the final formation of his personality as a whole. In and of themselves, blindness, deafness, and other individual handicaps do not make their bearer handicapped. Substitution and compensation do not just occur randomly, sometimes assuming gigantic proportions and creating talents from defects. Rather, *as a rule*, they necessarily arise in the form of drives and idiosyncrasies at the point where the defect prevails. Stern's position supports the fundamental possibility of social compensation where direct compensation is impossible, i.e., it is the possibility in principle that the handicapped child can, in principle, wholly approximate a normal type that might enable winning full social self-esteem.

Compensation for moral defectiveness (moral insanity),* when it is viewed as a *special kind of organic handicap or illness*, can serve as the best illustration of secondary social complications and their role in a handicapped child's development. All consistent, intelligent psychologists proceed from a similar point of view. In part, in *our* country the reexamination of this question and the clarification of the falsity and scientific groundless of the very concept of moral disability as applied by P. P. Blonskii¹⁶, A. B. Zalkind,¹⁷ and others has had great theoretical and practical significance. West European psychologists are coming to the same conclusions. What was taken to be a physical handicap or illness is, in fact, a complex of symptoms with a specific psychological orientation found in children who have been completely derailed socially; it is a socio and psychogenic phenomenon, not a biogenic disorder.

Anytime the erroneous recognition of certain *values* comes into question, as J. Lindworsky¹⁸ stated at the First Congress on Special Education [lit. "Therapeutic Pedagogy"] in Germany,¹⁹ the reason for this should be sought, not in an inherent anomaly of the will, nor in specific distortions of individual functions. Rather, it should be sought in the view that neither the surrounding milieu nor the individual himself fostered recognition of those values. Probably, the notion of calling emotional illness *moral insanity* would never have been conceived, if first the attempt had been made to summarize all the shortcomings of values and motives met among normal people. Then, it might have been discovered that every individual has his own insanity. M. Wertheimer²⁰ also comes to this conclusion. Wertheimer, citing F. Kramer [no ref] and V. K. Garis [no ref], the founder of Gestalt psychology in the United States,** asserts that if one examines the personality as a whole, in its interaction with the environment, the congenital psychopathic tendencies in a child disappear. He emphasizes the fact that a well-known type of childhood psychopathy exhibits the following symptoms: rude carelessness, egoism, and preoccupation with the fulfillment of elemental desires. Such children are unintelligent and weakly motivated, and their physical sensitivity (for example, pain sensitivity) is considerably lowered. In this, one sees a particular type which, from birth, is destined for asocial behavior, ethically handicapped

* The text frequently writes "moral insanity" in Roman letters either as a gloss for the Russian term or even as a section heading.

** It is quite likely that Vygotsky intended to credit Wertheimer with founding American Gestalt psychology although the translation adheres closely to the Russian text. Of course the triumvirate which founded Gestalt psychology in Germany (Koehler, Koffka, and Wertheimer) all emigrated to the United States at about the same time (see Boring, E. *A History of Experimental Psychology*: Second Edit. Appleton-Century-Crofts, New York, 1950. [Ed])

with respect to inclinations, and so on. While the earlier term *moral insanity* implied an incurable condition, transferring these children into a different environment often shows that we are dealing with a particularly keen sensitivity and that the deadening this sensitivity is a means of self defense, of closing oneself off, and of surrounding oneself with a biological defensive armor against environmental conditions. In a new environment, such children display completely different characteristics. Such results occur when children's characteristics and activities are examined not in isolation, but in their relation to the whole, in the dynamics of their development (*Si duo paciunt idem non est idem*). In theoretical terms, this example is indicative. It explains the emergence of alleged psychopathy, of an alleged defect (moral insanity), which was created in the imagination of the investigators. And this is why they were unable to explain the profound social unsuitability of the children's development in similar cases. The significance of sociopsychogenic factors in the child's development is so great that it could give the illusion of being a handicap, the semblance of illness, and an alleged psychopathy.

4

In the last two decades, scientific defectology has become aware of a new form of disability in children. In essence, it is a motor deficiency (M. O. Gurevich).²¹ Although oligophrenia (mental retardation) has always been characterized primarily by some mental defect or another, a new form of abnormal behavior—the underdevelopment of a child's motor apparatus—has recently become the object of intense study as well as of practical and therapeutic pedagogical activity. This form of disability in children has various names. Dupré²² calls it *debilité motrice* (i.e., motor disability, by analogy with mental disability). While T. Heller²³ calls it motor delay, and in extreme forms, motor idiocy, K. Jacob²⁴ and A[?]. Homburger (1926a, 1926b) label it motor infantilism and M. O. Gurevich calls it motor deficiency. The essence of this phenomenon, as implied by the various nomenclatures, is a more-or-less pronounced developmental motor deficiency, which is in many ways analogous to the mental disability of oligophrenia.

This motor disability, to a large extent, permits compensation, motor functions, and the equalization of the handicap (Homburger, M. Nadoleczny,²⁵ Heller). Motor retardation often and easily responds, within certain limits, of course, to pedagogical and therapeutic influence. Therefore, taken alone, motor delay requires, as in the scheme, the dual characterization: defect—compensation. The dynamics of this form of disability, like those of any other form, can be ascertained only if one takes into account the organ's positive response stimuli, namely, those which compensate for the defect.

The introduction of this new form of deficiency into the inventory of science has had a fundamental and profound significance. This is not only because our definition of disability in children has broadened and been enriched by the knowledge of vitally important forms of abnormal development in a child's motor system and the compensatory processes created by it but also, and principally, because it has demonstrated the relationship between this new form and other forms which were already known to us. For defectology (both theoretical and practical), the fact that this form of disability is not necessarily connected to mental retardation is of fundamental importance. "A deficiency of this type," says Gurevich, "not infrequently coexists with mental deficiency. Sometimes, however, it may exist independently of it, just as mental deficiency may be present when the motor apparatus is well

developed" (cf. *Questions*). Therefore, motor operations are a... Motor delay may combine... creating a unique picture of... can often be observed in d... statistics for the frequency... 75 percent of all idiots, 44... of normal children that we...

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developed" (cf. *Questions of Pedology and Child Psychoneurology*, 1925, p. 316). Therefore, motor operations are of exceptional importance in the study of handicapped children. Motor delay may combine, in varying degrees, with all forms of mental retardation, thus creating a unique picture of childhood development and behavior. This form of disability can often be observed in deaf children. Naudacher [in a report in Gurevich, *op.cit.*] offers statistics for the frequency with which this form of deficiency combines with other forms: 75 percent of all idiots, 44 percent of the imbeciles, 24 percent of the debiles, and 2 percent of normal children that were studied were found to have a motor disability.

It is not the statistical computation that is fundamentally important and decisive. Rather, it is the unquestionable proposition that motor delay *can* occur independently of any mental disability. It may be absent in the case of mental retardation and may exist in the absence of any mental deficiency. In instances of combined motor and mental deficiencies, each form has its own dynamics. Compensation for operations in one sphere may occur at a different tempo, in a different direction, than in another sphere. As a result, an extremely interesting interrelationship between these spheres is created in the process of a handicapped child's development. Given the relative independence of the motor system from the higher mental functions and the fact that it is easily guided, it is often found to play a central role in compensating for mental defects and in equalizing behavior. Therefore, when studying a child we must not demand only a twofold characterization (motor and mental) but must also establish the relation between the two spheres of development. Very frequently this relation may be the result of compensation.

In many cases, according to K. Birnbaum's view [no ref.], even real defects, embedded organically in cognitive behavior, can be compensated for, within certain limits, by training and through development of substitutional function; "motor training" which is now so highly valued. Experimental investigations and practical experience in school corroborate this. M. Kruenegel, who has most recently conducted experimental research on the motor skills of mentally retarded children (M. Kruenegel, 1927), applied N.I. Ozeretskii's²⁶ metric scale of motor skills. Ozeretskii set himself the task of creating a method for determining motor development graduated by age level. Research has shown that motor skills are more highly developed than mental capabilities from one to three years, for 60 percent of all the children studied. In 25 percent of cases, motor skills coincided with cognitive development and they lagged behind in 15 percent. This means that motor development in a mentally retarded child most frequently outstrips his intellectual development at one to three years and only in one quarter of the cases coincides with it. On the basis of his experiments, Kruenegel comes to the conclusion that about 85 percent of all mentally retarded children in auxiliary schools, with the appropriate education, are capable of work (trade, industrial, technical, agricultural, and so forth). It is easy to imagine the great practical significance that the development of motor skills can have in compensating, to a certain degree, for mental defects in mentally retarded children. M. Kruenegel, along with K. Bartsch, demands the creation of special classes for vocational training and for the development of motor skills for mentally retarded children (*ibid.*).

The problem of motor disability is a wonderful example of that unity in diversity which can be seen in the development of a handicapped child. Personality develops as a single entity, and as such, it reacts to the defect and to the destruction of equilibrium caused by the defect. It works out a new system of adaptation and a new equilibrium in place of the one destroyed. But precisely because personality represents a unit and acts as a single entity, its development involves the advances of a variety of functions which are diverse and relatively

independent of each other. These hypotheses—the diversity of relatively developmentally independent functions, and the unity of the entire progress in personality development—not only do not contradict each other, but, as Stern has shown, reciprocally condition each other. The compensatory reaction of the entire personality, stimulated by the defect in another sphere, finds expression in intensified and increased development of some single function as, for example, motor skills.

5

The notion, expressed in the study of motor skills, that the separate functions of the personality are diverse and complex in structure, has recently pervaded all areas of development. When carefully analyzed, not only personality as a whole, but also its separate aspects reveal the same unity in diversity, the same complicated structure, and the same interrelationship of separate functions. One might say, without fear of error, that the development and expansion of scientific ideas about personality at the present time are moving in two, seemingly opposing directions: (1) discovery of its unity and (2) discovery of its complicated and diverse structure. In part, the new psychology moving in this direction has almost destroyed, once and for all, former notions about the unity and homogeneity of the intellect and that function which the Russians, not altogether accurately, call "giftedness" and which the Germans call *Intelligenz*.*

Intellect, like personality, undoubtedly represents a single entity but is neither uniform nor simple. Rather, it is a diverse and complicated structural unity. Thus, Lindworsky reduces the intellect to the function of perceiving relationships, a function, which in his eyes, distinguishes humans from animals, and which gives thought unto thought. This function (the so-called intellect) is no more inherent in Goethe than to an idiot and the enormous difference which we observe in the thought processes of various people can be reduced to the life of ideas and memory (J. Lindworsky, 1923). We will return later to this paradoxically expressed, but profound idea of Lindworsky. Now, what is important to us is the conclusion which the author drew from his understanding of the intellect at the Second German Congress on Therapeutic Pedagogy. Any mental defect, Lindworsky affirmed, is based in the final analysis on one or another of the factors used in perceiving relationships. A mentally retarded child can never be presented simply as mentally retarded. It is always necessary to ask what constitutes the intellect's deficits, because there are no possibilities for substitution, and they must be made available to the mentally retarded. In this formulation we already find the notion absolutely clearly expressed that various factors must enter into the composition of such a complicated education; that, corresponding to the complexity of its structure, there is not one but many qualitatively different types of mental disability; and finally, that because the intellect is so complex, its structure permits broad compensation of its separate functions.

This doctrine now meets with general agreement. O. Lipmann systematically traces the steps through which the development of the idea of overall ability has passed. In the beginning, it was identified with any single given function, for example, memory; the next step was the recognition that ability appears in an entire group of psychological functions (attention, synthesis, discrimination and so forth). C. Spearman³⁷ distinguishes two factors

* N. E. Rummatsev translates this word as *intelligence* [intelligentnost']. Hereafter, we will use the less-than-accurate term *intellect* for this sense. [Transl.]

in any rational activity: one is the general one, which has to do with the ability to the mean of the experiments of R. Yerkes and Bogen [no ref.] on normal children, but many types of ability are involved in any operation. For one and the same child, and, simultaneously, another child, retardation—one affects one type of operation ("There is," says Lipmann, "a general operation.")³⁸ Similar formulations were used by E. Thorndike³⁹ and others. Lipmann applied the methods of W. Stern to severely retarded children. He found that children who turned out to be retarded in new operations was extremely difficult to devise tools, to use them, and that is, of rational activity. In such cases, one must select, as a separate factor, a rational, purposeful activity. In such a nature, rational activity is

Lipmann and Stern's practical intellect, laid out in terms of ability undoubtedly has a special nature, which appeared as the fifth

A special qualitative factor in intellectual activity, practical intellect, each time creating a unique factor as the fulcrum of compensation. If one factor is counted, the entire intellect will be incomplete. Let us limit our study of intellectual activity can be reduced to the characteristics of each type are different from another. Let us limit our study of practical and theoretical intellect to experimental studies. In the study of mentally retarded (feeble-minded) children, rational, practical functions and differences in this area between them are very interesting (O. Lipmann).

Studies on practical intellect and its role in the theory and practice of mental retardation and its development in general, whether mentally retarded

* *Es gibt ein Schwachsein* (Lipmann).

ity of relatively developmentally in personality development—not reciprocally condition each other. Formulated by the defect in another development of some single function

that the separate functions of the only pervaded all areas of development is a whole, but also its separate complicated structure, and the same without fear of error, that the personality at the present time are every of its unity and (2) discovery psychology moving in this direction about the unity and homogeneity of either accurately, call “giftedness”

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in any rational activity: one is the factor specific to the given type of activity and the other is the general one, which he considers to be ability. A. Binet finally reduced the determination of ability to the mean of an entire series of heterogeneous functions. Only recently the experiments of R. Yerkes²⁸ and W. Koehler²⁹ on monkeys, and those of E. Stern and H. Bogen [no ref.] on normal and retarded children have established that not just one ability but many types of ability exist. Specifically, rational cognition coincides with a rational operation. For one and the same person, a certain type of intellect may be well developed and, simultaneously, another type may be very weak. There are two types of mental retardation—one affects cognition and the other operation; they do not necessarily coincide. (“There is,” says Lipmann, “a mental retardation of cognition and a mental retardation of operations.”)⁴ Similar formulations by Kenman, M. N. Peterson, P. Pinter, G. Thompson, E. Thorndike³⁰ and others more or less recognize this (O. Lipmann, 1924). E. Lindemann³¹ applied the methods of W. Koehler, which were developed for experiments on monkeys, to severely retarded children. Among them, there appeared a group of severely retarded children who turned out to be capable of rational activity. Only their ability to remember new operations was extremely weak (E. Lindeman, 1926). This means that the ability to devise tools, to use them purposefully, to select them, and to discover alternate methods—that is, of rational activity—was found to occur in severely retarded children. Therefore, we must select, as a separate sphere of research, practical intellect: namely, the ability for rational, purposeful activity (*praktische, natuerliche Intelligenz*). By its psychological nature, rational activity is different from motor ability and from theoretical intellect.

Lipmann and Stern’s suggested profiles of practical intellect are based on the criteria of practical intellect, laid out by Koehler, namely the ability to use tools purposefully. This ability undoubtedly has played a deciding role in the transition from monkey to man and which appeared as the first precondition of labor and culture.

A special qualitative type of rational behavior, relatively independent of other forms of intellectual activity, practical intellect may be combined in varying degrees with other forms, each time creating a unique picture of the child’s development of behavior. It may appear as the fulcrum of compensation, as the means of equalizing other mental defects. Unless this factor is counted, the entire picture of development, diagnosis, and prognosis will certainly be incomplete. Let us leave for a moment these questions of how many major types of intellectual activity can be discerned—two, three or more—of what the qualitative characteristics of each type are, and of which criteria allow one to distinguish one given type from another. Let us limit ourselves to pointing out the profoundly qualitative distinctions between practical and theoretical (problematic) intellect, which have been established by a series of experimental studies. In particular, the brilliant experiments by Bogen on normal and mentally retarded (feeble-minded) children without doubt revealed that the aptitude for rational, practical functioning represents a special and independent type of intellect; the differences in this area between normal and disabled children, established by the author, are very interesting (O. Lipmann and H. Bogen, 1923).

Studies on practical intellect have played and will long continue to play a revolutionizing role in the theory and practice of defectology. They raise the question of a qualitative study of mental retardation and its compensation, and of the qualitative determination of intellectual development in general. For example, by comparison with a blind child, a deaf-mute, whether mentally retarded or normal, turns out to be different in terms not of degree, but of

⁴ *Es gibt ein Schwachsinn des Erkennens und einen Schwachsinn des Handelns.*

type, of intellect. Lipmann speaks about the essential difference in origin and type of intellect and when one type prevails in one individual and another in another (O. Lipmann, 1924). Finally, even the idea of intellectual development has changed. Intellectual development is no longer characterized by merely quantitative growth, by a gradual strengthening and heightening of mental activity; rather, it boils down to the notion of transition from one qualitative type to another, to a chain of metamorphoses. In this sense, Lipmann brings up the profoundly important problem of qualitative characteristics of age, by analogy with the phases of speech development established by Stern (1922): the stages of speech about objects, actions, relationships, and so forth. The problem of complexity and heterogeneity in the intellect demonstrates new possibilities for compensating within the intellect itself. The fact that aptitude for rational performance is present in profoundly retarded children reveals vast and absolutely new perspectives for the education of such a child.

6

The history of cultural development in an abnormal child constitutes the most profound and critical problem in modern defectology. It opens up a completely *new line of development* in scientific research.

A normal child's socialization is usually fused with the processes of his maturation. Both lines of development—natural and cultural—coincide and merge one into the other. Both series of changes converge, mutually penetrating each other to form, in essence, a single series of formative socio-biological influences on the personality. Insofar as physical development takes place in a social setting, it becomes a historically conditioned biological process. The development of speech in a child serves as a good example of the fusion of these two lines of development—the natural and the cultural.

This fusion is not observed in a handicapped child. Here the two lines of development usually diverge more or less sharply. The physical handicap causes this divergence. Human culture evolved in conditions of a certain stability and consistency in the human biological type. Therefore, its material tools and contrivances, its sociopsychological apparatuses and institutions are all intended for a normal psychophysiological constitution. The use of these tools and apparatuses presupposes, as necessary prerequisites, the presence of innate human intellect, organs, and functions. The creation of conformable functions and apparatuses conditions a child's socialization; at a certain stage, if his brain and speech apparatus develop normally, he masters language; at another, higher stage of intellectual development, the child masters the decimal system of counting and arithmetic operations. The gradual and sequential nature of the socialization process is conditioned by organic development.

A defect creates a deviation from the stable biological human type and provokes the separation of individual functions, deficiencies or damage to the organs. It thereby generates a more or less substantial reorganization of the entire development on new bases and according to a new type: in doing all this, it naturally disturbs the normal course of the child's acculturation. After all, culture has adapted to the normal typical human being and accommodates his constitution. Atypical development (conditioned by a defect) cannot be spontaneously and directly conditioned by culture, as in the case of a normal child.

From the point of view of the child's physical development and formation, deafness, as a physical handicap, appears not to be a particularly severe disability. For the most part, deafness remains more or less isolated and its direct influence on development as a whole

is comparatively small. It does not affect the child's overall development. But the lack of human speech, creates one of the most serious entire cultural development is not a normal one. Not only is the child's development, but, most importantly, his future will be significantly different and completely *different* from that of a normal development will diverge substantially. This divergence will be determined by the quantitative effects of the defect.

Frequently, unique, special systems of theoretical interest (such as specially created tactile alphabet) and the gesticulation (the phonetic alphabet of the deaf) means, the process of acquisition by profoundly distinctive features with the eye are different from the cultural function in the child's life base.

To formulate the problem of a line of development, governed by the process of overcoming them, represents a primitive in a child is based on a type of psychological development. A *primitive child*, meets with a controversy about the concept defined by its opposite—*ability*, so *primitiveness* is a

A primitive child is a child whose mind is a healthy one. In the course of development, and achieved primitiveness is distinct from that of the mentally retarded are like *this* do not usually attain fullness. On the other hand, a "primitive" may reach a very high level of development is an example of pure, isolated

For a long time, primitive childhood development and appearances of these two types of activity, stunted intellectual expressionability, and so forth currently available (Binet) is similar to the portrayal of the

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is comparatively small. It does not usually create any particularly severe damage or delays in overall development. But the muteness which results from this defect, the absence of human speech, creates one of the most severe complications of all cultural development. The entire cultural development of a deaf child will proceed along a different channel from the normal one. Not only is the quantitative significance of the defect different for both lines of development, but, most importantly, the qualitative character of development in both lines will be significantly different. A defect creates certain difficulties for physical development and completely *different ones* for cultural development. Therefore, the two lines of development will diverge substantially from one another. The degree and character of the divergence will be determined and measured in each case by the different qualitative and quantitative effects of the defect on each of the two lines.

Frequently, unique, specially created cultural forms are necessary for cultural development in the handicapped child. Science is aware of a great number of artificial cultural systems of theoretical interest. Parallel to the visual alphabet used by all humanity is a specially created tactile alphabet for the blind—Braille. Dactylology, (i.e., the finger alphabet) and the gesticulated, mimed speech of the deaf-mute have been created alongside the phonetic alphabet of the rest of mankind. By comparison with the use of the usual cultural means, the process of acquiring and using these auxiliary cultural systems is distinguished by profoundly distinctive features. To read with the hand, as blind children do, and to read with the eye are different psychological processes, even if they fulfill one and the same cultural function in the child's behavior and have similar physiological mechanisms at their base.

To formulate the problem of cultural development in a handicapped child as a particular line of development, governed by special laws, with its own particular difficulties and means of overcoming them, represents a serious goal for modern defectology. The notion of primitivism in a child is basic here. At the moment, it seems as though singling out a special type of psychological development among children, namely, *the development pattern of the primitive child*, meets with no objections from any direction, although there is still some controversy about the content of this idea. The meaning of the concept of primitivism is defined by its opposite—acculturation. Just as being handicapped is the polar opposite of ability, so *primitiveness* is the polar opposite of *cultural development*.

A primitive child is a child who has not completed cultural development. The primitive mind is a healthy one. In certain conditions the primitive child completes normal cultural development, and achieves the intellectual level of a cultured person. In this respect, primitivism is distinct from mental retardation. The latter is a result of a physical handicap; the mentally retarded are limited in their natural intellectual development and *as a result of this* do not usually attain full cultural development. With respect to natural development, on the other hand, a "primitive child" does not deviate from the norm. His practical intellect may reach a very high level, but he still remains outside cultural development. A "primitive" is an example of pure, isolated *natural development*.

For a long time, primitivism in a child was considered to be a pathological form of childhood development and was confused with mental retardation. In fact, the outward appearances of these two phenomena are often extremely similar. Limited psychological activity, stunted intellectual development, deductive inaccuracy, conceptual absurdity, impressionability, and so forth, can be symptoms of either. Because of the research methods currently available (Binet and others), the primitive child may be portrayed in a way that is similar to the portrayal of the mentally retarded. Special research methods are necessary to

discover the true cause of unhealthy symptoms and to distinguish between primitivism and mental retardation. In particular, the methods for analyzing practical, natural intellect (*natuerliche Intelligenz*) may easily reveal primitivism with a completely healthy mind. A. E. Petrova,³² in giving us an excellent study of childhood primitivism and outlining its most important types, demonstrated that primitivism may equally combine with an exceptional, an average, and a pathological child's mind ("Children Are Primitives," in Gurevich (Ed), *Questions of Pedology and Childhood Psycho-neurology*, Moscow, 1925).

Instances in which primitivism combines with certain pathological forms of development are particularly interesting for the study of defects, since such instances occur most frequently in the histories of handicapped children's cultural development. For example, psychological primitivism and delays in cultural development may very often be combined with mental retardation. It would be more accurate to say that delays in the cultural development of a child occur as a result of mental retardation. But in such mixed forms, primitivism and mental retardation remain two *different* natural phenomena. It is in just such a way that congenital or early childhood deafness usually combines with a primitive type of childhood development. But primitivism may occur without a defect. It may even coexist with a highly gifted mind. Similarly, a defect does not necessarily lead to primitivism but may also coexist with a highly cultured type of mind. A defect and psychological primitivism are two different things, and when they are found together, they must be separated and distinguished from one another.

An issue of particular theoretical interest is alleged pathology in a primitive individual. When analyzing a primitive little girl who spoke Tatar and Russian simultaneously and who was acknowledged to be psychologically abnormal, Petrova demonstrated that the entire complex of symptoms, implying illness, stemmed in fact from primitivism, which, in turn, was conditioned by the lack of command of either language. "Our numerous observations prove," Petrova says, "that complete substitution of one poorly grasped language for another, equally lacking in fluency, does not occur without psychological repercussions. This substitution of one form of thought for another diminishes mental activity particularly when it is already not abundant" (ibid., p. 85). This conclusion permits us to establish *precisely* what constitutes cultural development from a psychological point of view and what, if missing, causes primitivism in a child. In the given example, primitivism is created by an imperfect command of language. But more generally, the process of cultural development basically depends on acquiring cultural psychological tools, which were created by mankind during its historical development and which are analogous to language from a psychological perspective. Primitiveness boils down to the inability to use such tools and to the natural forms in which psychological operations appear. Like all other higher psychological operations, all the higher forms of intellectual activity become possible only when given the use of similar kinds of cultural tools. "Language," says Stern, "becomes a tool of great power in the development of his [the child's—L.V.] life, his ideas, emotions and will: it alone ultimately makes possible any real thought, generalization and comparison, synthesis and comprehension" (W. Stern, 1923, p. 73).

These artificial devices, which by analogy with technology are sometimes called psychological tools, are directed toward mastering behavioral processes—someone else's or one's own—in the same way that technology attempts to control the processes of nature. In this sense, T. Ribot³³ (1892) has called reflex attention natural and conscious attention artificial, seeing in it a product of historical development. The use of psychological tools modifies the whole course and structure of psychological function, giving them a new form.

During childhood, the development (attention) either are not observed in equal quantities. There is no way, therefore, to account for the enormous differences in the process of development. In the process of development, a child in the more advanced stages of development is from a child—not only in the degree and character of cultural preparation, but also in the means he has of controlling these processes. They are distinguished from the young children, and normal children are distinguished not only by a more advanced degree, but also differently, in different manners and to a different degree.

The inability to use natural tools, in the most basic sense determines the degree to which an individual can attain. Mastering a psychological tool, which generates an artificial tool, increases and develops the significance of making use of artificial tools. The memory of individuals with a high degree of development, an individual with an average memory, and an individual with a low memory, in many respects, superior to that of a child. This phenomenon a simulated education can be simulated," he says. "It is not to them in externals alone, but in the internal given case a difference was demonstrated in mnemonic memory, that is, a difference in Binet's opinion, possesses itself. Technical mnemonics should be distinguished from stenography—not in order to distinguish memory (ibid., p. 164). It is easy to see the use of some functions as tools for the development of other functions.

There are three fundamental conditions for an abnormal child: *the degree of development, the adoption of cultural and psychological tools, and the use of own psychological functions*. The degree of development, accumulated experience, but by the use of tools, it is possible to combat primitivism. The degree is accessible to the child. Braille's methods of overcoming primitivism have been found to have not only a normal degree, but also always remains at the lowest level of development, and the degree of its use is always low.

The first experimental research on the development of children was recently carried out by a method for analyzing functional

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During childhood, the development of many natural psychological functions (memory, attention) either are not observable to any significant degree or take place in insignificant quantities. There is no way, therefore, that the development of these functions alone can account for the enormous difference in the corresponding activities of children and adults. In the process of development, a child is armed and rearmed with the most varied of tools. A child in the more advanced stages is as different from a child in the younger stages as an adult is from a child—not only in the greater development of functions, but also in the degree and character of cultural preparedness, in the tools at his disposal, that is, in the degree and means he has of controlling the activity of his psychological functions. Thus, older children are distinguished from the younger ones in the same way adults are distinguished from children, and normal children are distinguished from the handicapped ones. They are distinguished not only by a more developed memory, but also by the fact that they remember *differently*, in different manners, by different methods; they use memory to a different degree.

The inability to use natural psychological functions and to master psychological tools in the most basic sense determines the kind of cultural development a handicapped child will attain. Mastering a psychological tool and, by means of it, one's own natural psychological functions generates an *artificial development*, as it were; that is, it raises a given function to a higher level, increases and expands its activity. Binet explained experimentally the significance of making use of a psychological function with the help of a tool. In analyzing the memory of individuals with exceptional computational skills, he happened upon one individual with an average memory, but armed with a *skill in remembering* equal to and, in many respects, superior to that of those with exceptional computational skills. Binet called this phenomenon a simulated exceptional memory. "The majority of psychological operations can be simulated," he says, "that is, they can be replaced by others, which are similar to them in externals alone, but which are different in nature" (A. Binet, 1894, p. 155). In the given case a difference was discovered between natural memory and artificial or technical-mnemonic memory, that is, a difference between two ways of *using* memory. Each of them, in Binet's opinion, possesses its own kind of rudimentary and instinctive technical mnemonics. Technical mnemonics should be introduced in schools along with mental arithmetic and stenography—not in order to develop the intellect, but to make available a way of using memory (*ibid.*, p. 164). It is easy to see in this example how natural development and the use of some functions as tools may not coincide.

There are three fundamental points which define the problem of cultural development for an abnormal child: *the degree of primitivism in the childhood mind; the nature of his adoption of cultural and psychological tools; and the means by which he makes use of his own psychological functions.* The primitive child is differentiated not by a lesser degree of accumulated experience, but by the different (natural) way in which it was accumulated. It is possible to combat primitivism by creating new cultural tools, whose use makes culture accessible to the child. Braille's script³⁴ and finger spelling (dactylology) are most powerful methods of overcoming primitivism. We know how often mentally retarded children are found to have not only a normal, but a highly developed, memory. Its use, however, almost always remains at the lowest level. Evidently, the degree of development of memory is one thing, and the degree of its use quite another.

The first experimental research into the use of psychological tools in handicapped children was recently carried out by followers of N. Ach.³⁵ Ach himself, having created a method for analyzing functional word use as a means, or as a tool, for elaborating concep-

tualization, pointed out the fundamental similarity between this process and the process by which the deaf acquire language (1932 [sic], but probably 1921). Bacher³⁶ (1925) applied this method to an investigation of learning disabled children (*debiles*) and showed that this is the best method for analyzing mental retardation qualitatively. The correlation between theoretical and practical intellect turned out to be insignificant, and mentally retarded children (to the extent of their debilitation) could apply their practical intellect much better than their theoretical intellect. The author sees in this a correspondence with similar results achieved by Ach in his experiments with brain-damaged individuals. Because the mentally retarded do not use words as tools for working out ideas, higher forms of intellectual activity based on the use of abstract concepts are impossible for them (*ibid.*). How the mastering of one's own psychological activity influences the execution of intellectual operations was discovered at the time of Bacher's research. But this is precisely the problem. Stern considers these two means of using language as different stages in speech development. He said: "...But subsequently a decisive turnabout in speech development occurs again, *a vague awareness of the meaning of language and the will to conquer it awakens*" (1922, p. 89). The child makes the most important discovery of his life, that *"everything has a name"* (*ibid.*); that *words are signs*—they are the means of naming and communicating. It is this *full*, conscious, voluntary use of speech that a mentally retarded child apparently does not attain. As a result, higher intellectual activity remains inaccessible to him. F. Rimat³⁷ was completely justified in selecting this method as a test for examining mental ability; the ability or inability to use words is a decisive criterion of intellectual development (F. Rimat, 1925). The fate of all cultural development depends on whether children themselves make the discovery about which Stern speaks. Do they master words as fundamental psychological tools?

Studies of primitive children reveal *literally the same thing*. "How do a tree and a log differ?" Petrova asks one such child. "I haven't seen a tree, I swear I haven't seen one" (There is a linden tree growing in front of the window). In response to the question (while pointing to the linden tree) "And what is this?" comes the answer: "It's a linden." This is a primitive answer, in the spirit of those primitive people whose language has no word for "tree;" it is too abstract for the concrete nature of the boy's mind. The boy was correct: none of us has seen a tree. We've seen birches, willows, pines and so forth, that is, specific species of trees (A.E. Petrova, in Gurevich (Ed.), 1925, p. 64). Or take another example. A girl "with two languages" was asked: "In one school some children write well, and some draw well. Do all the children in this school write and draw well?" "How should I know? *What I haven't seen with my own eyes, I cannot explain it as if I had seen with my own eyes...*" (a primitive visual response) (*ibid.*, p. 86). This nine-year old girl is absolutely normal, but she is primitive. She is totally unable to use words as a means of solving mental tasks, although she *talks*; she knows how to use words as a means of communication. She can explain only what she has seen with her own eyes. In the very same way, a "debile" draws conclusions from concrete object to concrete object. His inadequacy for higher forms of abstract thought is not a direct result of an intellectual defect; he is completely capable of other forms of logical thinking, of operations governed by common sense and so forth. He simply has not mastered the use of words as tools for abstract thinking. This incapacity is a result and a symptom of his primitivism, but not of his mental retardation.

Kruenegel (1926) is fully justified when he states that G. Kerschensteiner's³⁸ basic axiom does not apply to cultural development in a mentally retarded child. That axiom says that the congruence of one or another cultural form with the psychological structures of a child's personality lies at the base of cultural development: the emotional structure of cultural

forms should be entirely or partially congruent (Kerschensteiner, 1924). The fundamental condition for development is inadequacy, the inadequacy of the structure of cultural forms. What is suitable to the psychological malformation is achieved with the help of special pedagogical means (*condition of cultural development preserved in such children*). The child, in the use of artificial means (*Hilfsmittel*), perceived a symptom which is due to a transition (*demenz*) from aphasia (W. Elias, 1924). The most essential aspect of a child's development is retarded.

We have taken a theoretical approach to the defectology noted above because it is comprehensive, the most concrete, and the most fundamental question. In fact, however, each and every concrete and concrete-methodological problem poses concrete questions. In order to solve these questions, it would have been necessary, by the way, to pose the following problems, we will concisely name them: the problem of the questions of physical training, the problem of the questions of practical training, and with practical experience in the life of handicapped children. The problem of the questions of academic instruction. The problem of the questions of speech to the deaf, which is part of the following question: Should the deaf be taught speech skills, in the same fashion as the hearing children first and foremost be taught the functional use of words as "tools" for compensation in a handicapped child? This development includes a transition in this development includes a transition in the life of children, in a children's social environment, and so forth.

Our account of the basic problem of the transition is an essential point if we did not attain it, it inevitably derives from this transition in theory as the transition from the primary to the secondary, completely with the primary functions of tasks confronting special school children, simply a limited version of the

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forms should be entirely or partially adequate to the emotional structure of individuality (G. Kerschensteiner, 1924). The fundamental problem in a handicapped child's cultural development is inadequacy, the incongruence between his psychological structure and the structure of cultural forms. What remains is the necessity of creating special cultural tools suitable to the psychological make-up of such a child, or of mastering common cultural forms with the help of special pedagogical methods, *because the most important and decisive condition of cultural development—precisely the ability to use psychological tools—is preserved in such children*. Their cultural development is, in principle, completely possible. In the use of artificial means (*Hilfer*) aimed at overcoming a defect, W. Eliasberg³⁹ justifiably perceived a symptom which is differential, which allows us to distinguish mental retardation (*demenz*) from aphasia (W. Eliasberg, 1925). The use of psychological tools is, indeed, the most essential aspect of a child's cultural behavior. It is totally lacking only in the mentally retarded.

7

We have taken a theoretical cross section of the most important problems of modern defectology noted above because a theoretical approach to the problem provides the most comprehensive, the most concise view, exposing the very essence, the nucleus, of the question. In fact, however, each of the issues merges with a series of practical-pedagogical, and concrete-methodological problems or, more precisely, boils down to a series of separate concrete questions. In order to tackle these issues, special considerations of each question would have been necessary. By limiting ourselves to the most general formulation of the problems, we will concisely indicate the presence of concrete, practical tasks in each problem. Thus, the problem of motor skills and motor deficiency is directly connected to the questions of physical training, and vocational and professional education for handicapped children. The problem of practical intellect is as closely connected with vocational training and with practical experience in acquiring daily living skills, the crux of all education for handicapped children. The problem of cultural development embraces all major questions of academic instruction. The problem of the analytical and artificial methods used in teaching speech to the deaf, which is particularly worrisome to defectologists, can be formulated with the following question: Should children be mechanically drilled in the simplest elements of speech skills, in the same fashion in which fine motor skills are cultivated? Or should children first and foremost be taught the ability to use speech, in other words, be taught the functional use of words as "intellectual tools?" as J. Dewey⁴⁰ put it. The problem of compensation in a handicapped child's development and the problem of social conditioning in this development includes all the issues involved in organizing communal living for children, in a children's social movement, in sociopolitical education, in personality formation, and so forth.

Our account of the basic problems of being handicapped would stop short of its most essential point if we did not attempt to project a base line in practical defectology, which inevitably derives from this formulation of theoretical problems. What we have designated in theory as the transition from a quantitative understanding of a disability corresponds completely with the primary feature of practical defectology; the formulation of positive tasks confronting special schools. In special schools we can no longer be satisfied with simply a limited version of the public school curriculum or with the use of modified and

simplified methods. The special schools confront the task of positive activity, of creating forms of work which meet the special needs and character of its pupils. Among those who have written on this question, A. S. Griboedov has expressed this thought most concisely, as we have already observed. If we reject the idea that a handicapped child is a lesser likeness of a normal child, then, unavoidably, we must also reject the view that special schools are prolonged versions of public schools. Of course, it is extremely important to establish with the greatest possible accuracy the qualitative differences between handicapped and normal children, but we cannot stop here. For example, we learn from numerous contemporary observations of the mentally retarded that these children have smaller cranial circumferences, smaller stature, smaller chest size, less muscle strength, reduced motor ability, lowered resistance to negative influences, delayed associations, and decreased attention and memory span, and that they are more prone to fatigue and exhaustion, less able to exert their will, and so forth (A. S. Griboedov, 1926). But we still know nothing about positive characteristics, about the children's uniqueness: such is the research of the future. It is only half true to characterize such children as developmentally delayed in physical and psychological terms, weakened, and so forth; such negative characteristics in no way exhaust these children's positive and unique features. It is not the individual fault of one researcher or another that positive material is lacking. Rather, it is a calamity shared by all of defectology, which is just beginning to reorganize its principal bases and thus to give new direction to pedagogical research. In any case, Griboedov's basic conclusion formulates precisely this view: "In studying the pedology of retarded children, we can clearly see that the differences between them and normal children are not only quantitative, but also qualitative, and that consequently they need not stay longer in school, nor attend smaller classes, nor even associate with those who have similar levels and tempo of psychological development. Rather, they need to attend special schools, with their own programs, with unique methodologies and special pedagogical personnel" (1927, p. 19).

There is, however, a serious danger in formulating the question this way. It would be a theoretical mistake to make an absolute concept out of the developmental uniqueness of a child with one kind of defect or another, while forgetting that there are limits to this uniqueness prescribed by the social conditioning of the development. It is equally inaccurate to forget that the parameters of the special school's uniqueness are described by the common social goals and tasks confronting both public and special schools. Indeed, as has already been said, children with a defect do not constitute "a special breed of people," in K. Buerklen's phrase. Instead, we discover that all developmental uniqueness tends to approximate determined, normal, social types. And, the school must play a decisive role in this "approximation." The special school can set a general goal for itself; after all, its pupils will live and function not as "a special breed of people," but as workers, craftspeople, and so forth, that is, as specific social units. *The greatest difficulty and profoundest uniqueness of the special schools (and of all practical defectology) is precisely to achieve these common goals, while using unusual means to reach them.* Similarly, the most important feature for the handicapped child is the final point, one held in common with normal children, but attained through unique developmental processes. If special means (a special school) were used to attain special goals, this would not warrant being called a problem: the entire issue stems from the apparent contradiction of special means to achieve precisely the same goals, which the public schools also set themselves. This contradiction is really only an apparent one: it is *precisely in order that* handicapped children achieve the same things as normal children, that we must employ utterly different means.

"The goal of unified vocational principles," says Griboedov. "Mentally retarded, although they are different from them, and armed with the means we demand from them only through the formulation of the practical program of socio-pedagogical and psychological

Can pedagogy, in fact, base itself on building")? Such problems require different means. An educational program is possible; similarly, one cannot admire a child for his role in social life to staying close to himself (1926), more than 90% of the children with an education are capable of working in the labor. Can it be that a conscientious worker is also a builder, or a creator of new things through collective social effort, in which he participates from German and American studies? Griboedov tells us that those who are mentally retarded are not all doomed to the role of "consumers." From this perspective, it is equally false to say that the mentally retarded children. Retarded children have lower productivity, but in the intensity of their work in order to accomplish the same thing as normal children, greater creativity. For example, the special school process for the mentally retarded child, which first introduces Krueenegel's method, is primarily to (1) the exercise of the child's own compensatory operations (ibid., p. 19). The principle of compensation, i.e., the child's own (in general) should be reevaluated. The principle of compensation in mentally retarded children. The principle of compensation upon all the work in the school. The principle of compensation with the common view of a method.

Still, P. Ia. Troshin⁴¹ cautions against the view of a disease, forgetting that, in addition to the disease (p. 2). Therefore, the principles of the People's Commissariat of Enlightenment are: "tasks, confronting any single child, should be carried out in an auxiliary school" (*Programs of the People's Commissariat of Enlightenment on the same basis as the public school's fundamental goal: the*

* The People's Commissariat of Enlightenment was founded November 9, 1917. It was replaced by the People's Commissariat of Education in 1934.

** GUS stands for Gosudarstvennyi Uchebno-Pedagogicheskiy Institut. PROS existed from 1919 to 1933.

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"The goal of unified vocational schools is to create builders of a new life of communist principles," says Griboedov. "The goal of the auxiliary school cannot be the same since the mentally retarded, although they have been educated and molded to fit the society around them, and armed with the means of survival, cannot be builders, or creators of a new life; we demand from them only that they not keep others from building" (1926, p. 99). Such a formulation of the practical problems of therapeutic pedagogy seems to us unsound from a sociopedagogical and psychological point of view.

Can pedagogy, in fact, base its work on such a purely negative goal ("not hinder others from building")? Such problems are solved not through pedagogy, but by completely different means. An educational system without definite, positive societal goals is impossible; similarly, one cannot admit that a child, on completion of an auxiliary school, must limit his role in social life to staying out of the way! According to the data introduced by Griboedov himself (1926), more than 90 percent of the mentally retarded children who have received an education are capable of working and undertaking craft-related, industrial or agricultural labor. Can it be that a conscientious worker—in industry, agriculture or handicrafts—is not also a builder, or a creator of new life? After all, one must understand this "building" as a collective social effort, in which each worker participates according to his strengths. Data from German and American statistics about occupational distribution among the mentally retarded tells us that those who have completed an auxiliary school may be builders and are not all doomed to the role of "not hindering others as they build." From a psychological perspective, it is equally false to deny that there are creative processes present in mentally retarded children. Retarded children often register higher than normal children, not in productivity, but in the intensity with which these creative processes run their course. In order to accomplish the same things that a normal child does, the retarded child must display greater creativity. For example, to master the four arithmetic operations is a more creative process for the mentally retarded than for the normal school child. Griboedov sympathetically introduces Kruegel's opinion of therapeutic pedagogy, which can be reduced primarily to (1) the exercise of residual psychological functions and (2) the development of compensatory operations (*ibid.*). But after all, this really means basing pedagogy on the principle of compensation, i.e., constructive development. This view suggests that illness (in general) should be reevaluated on the basis of our overall understanding of development in mentally retarded children. "The therapeutic factor must saturate and leave its imprint upon all the work in the school," Griboedov demands (*ibid.*, p. 98), agreeing completely with the common view of a mentally retarded child as a *sick child*.

Still, P. Ia. Troshin⁴¹ cautioned against the view which "sees in abnormal children only disease, forgetting that, in addition to illness, they have normal psychological lives" (1915, p. 2). Therefore, the principles embodied in the auxiliary school program of the People's Commissariat of Enlightenment* seems to us to be more correct: "The common goals and tasks, confronting any single vocational school also represent the goals and tasks of the auxiliary school" (*Programs of the Auxiliary School*, 1927, p. 7). Actual formation of programs on the same basis as the GUS** program for public schools is an expression of the school's fundamental goal: the closest possible approach of the retarded child to the norm.

* The People's Commissariat of Enlightenment (NARKOMPROS), the equivalent of a "ministry of education," was founded November 9, 1917. The first Commissar of Enlightenment was A. Lunacharskii. [Transl.]

** GUS stands for Gosudarstvennyi Uchenyi Soviet, or State Council of Scholars. This division of NARKOMPROS existed from 1919 to 1933. Its first chair, Pokrovskii, was Lunacharskii's second in command. [Transl.]

To construct a plan for an auxiliary school "independently of the plans for the common vocational schools," as Griboedov demands (1926, p. 99), means, in essence, to exclude the practice of therapeutic pedagogy from the sphere of social education. After all, even foreign schools are coming around to the idea of complexes* (combined programs), as Griboedov himself indicated (*ibid.*). R. Guertler's "Lesson with a Handkerchief" represents an incidental and primitive "complex," whereas what is basically proposed by the GUS "complex" is "a reflection of connections between fundamental, vital phenomena (nature, labor, society)" (*Programs of the Auxiliary School*, 1927, p. 8).

The mentally retarded child needs to have these links disclosed in the process of academic instruction *more than a normal child does*. Circumstances where this "complex" is more difficult than the "handkerchief" should be a positive strength in such programs, because raising surmountable obstacles also means carrying out the creative goals of education with respect to development. The statement of Eliasberg, who has worked so hard on problems of the psychology and pathology of abstraction and against the exclusive dominance of visual aids in auxiliary schools, we consider to be both sympathetic and profoundly just. Precisely because the retarded child is so dependent on his experience with visual, concrete impressions and develops abstract thinking to such a small degree when left to his own devices, the school must free itself from the abundant use of visual aids, which serve as an obstacle to the development of abstract thought. In other words, a school must not only adapt to the disabilities of such a child but also must fight these disabilities and overcome them. This constitutes the third fundamental characteristic of practical problems in defectology. There are, first, common goals, which confront both normal and special schools, and, second, the special features and uniqueness of means used in special schools. But apart from both of these, there exists the creative character of the entire school, which makes it a school of social compensation, of socialization, and not "a school for the weakminded," and which forces it not to conform to a defect, but to conquer it. That creative character emerges as the necessary feature in issues of practical defectology. These three points define the parameters of practical defectology.

As has been mentioned above, we have limited ourselves here to posing problems in their most general form. We have indicated that these are problems for which defectology is only beginning to approach solutions. They are aimed toward the future more than toward the past or the present of our discipline. We have tried to demonstrate that defectology studies development—a development which has its own laws, its own tempo, its own cycles, its own imbalances, its own metamorphoses, its own shifts from the center, its own structure—and that this is a special and relatively independent area of knowledge about a profoundly unique subject. In practical terms and in education, as we have attempted to show, defectology faces tasks the solution of which demands creative work and the introduction of special forms. To solve these and other problems of defectology it is necessary to find a solid foundation for both theory and practice. In order not to build on sand, to avoid the eclectic and superficial empiricism which characterized it in the past, in order to shift from a clinical-therapeutic approach to a positive, creative pedagogy, defectology must rest on the same philosophical dialectics and materialistic foundation and be guided by our pedagogy

* Vygotsky referred here to Soviet reforms which made broad curriculum changes. The reformed curriculum rejected the division of schoolwork into "subjects," instead it taught pupils to work together under a single broad theme.

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