Introduction

This small theoretical book was long in preparation, and even now I cannot consider it finished – quite a bit in it is still only noted and not explicated. Why did I decide to publish it in spite of this? I will admit at once that it was not from a love for theorizing.

Attempts to investigate methodological problems of psychology always evoke the constant need for theoretical reference points without which concrete investigation is doomed to remain shortsighted.

It is almost a hundred years since world psychology has been developing under conditions of crisis in its methodology. Having split in this time into humanistic and natural science, descriptive and explanatory, the system of psychological knowledge discloses ever new crevices into which it seems the very subject of psychology disappears. The subject is sometimes also reduced under the guise of the necessity of developing interdisciplinary research. Sometimes there even are voices heard openly inviting "Varangians" into psychology: "Come and rule over us." The paradox consists in this that in spite of the theoretical difficulties, in the whole world there is now an exceptional impetus toward the development of psychological research under direct pressure of the requirements of life itself. As a result the contradiction between the mass of factual material that psychology has scrupulously accumulated in excellently equipped laboratories and the pitiful condition of its theoretical and methodological bases has become even sharper. Negligence and skepticism in relation to the general theory of the psyche, and the spreading of factologism and scientism characteristic for contemporary American psychology (and not only for it) have become a barrier blocking the road to investigating the principal psychological problems.

It is not difficult to see the connection between this development and the disillusionment resulting from unfounded claims of the major Western European and American trends that they would effect a long-awaited theo-

retical revolution in psychology. When behaviorism came into being, they spoke of it as a match about to light and set off a keg of dynamite; after that it seemed that not behaviorism but Gestalt psychology discovered a general principle capable of leading psychological science out of the blind alley into which it was led by rudimentary, "atomistic" analysis; finally, very many had their heads turned by Freudism, as if in subconsciousness he had found a fulcrum that would make it possible to turn psychology right side up and make it really alive. Other bourgeois psychological directions were admittedly less pretentious, but the same fate awaited them; they all found themselves in the general eclectic soup that is now being cooked by psychologists — each according to his own recipe — who have reputations of "broadmindedness."

The development of Soviet psychological science, on the other hand, took an entirely different path.

Soviet scientists countered methodological pluralism with a unified Marxist-Leninist methodology that allowed a penetration into the real nature of the psyche, the consciousness of man. A persistent search for resolutions of the principal theoretical problems of psychology on the basis of Marxism began. Simultaneously, work continued on the critical interpretation based on positive achievements of foreign psychologists, and specific investigations of a wide range of problems began. New approaches were worked out, as was a new conceptual apparatus that made it possible to bring Soviet psychology to a scientific levelvery rapidly, a level incomparably higher than the level of that psychology that was given official recognition in prerevolutionary Russia. New names appeared in psychology: Blonskii and Kornilova, then Vygotskii, Uznadze, Rubinshtein, and others.

The main point was that this was the way of continuous purposeful battle — a battle for the creative mastery of Marxism-Leninism, a battle against idealistic and mechanistic biologizing concepts appearing in one guise or another. While developing a line that would withstand these concepts, it was necessary also to avoid scientific isolationism as much as being identified as a psychological school existing side-by-side with other schools. We all understood that Marxist psychology is not just a different direction or school but a new historical stage presenting in itself the beginnings of an authentically scientific, consistently materialistic psychology. We also understood something else, and that is that in the modem world psychology fulfills an ideological function and serves class interests; it is impossible not to reckon with this.

Methodological and ideological questions remained in the center of attention of Soviet psychology, particularly in the initial period of its development, which was marked by the publication of such books, fundamental in their ideas, as L. S. Vygotskii's ***Thought and Speech*** and S. L. Rubinshtein's ***Fundamentals of General Psychology.*** It is necessary, however, to acknowledge that in the following years the attention of psychological science to

methodological problems weakened somewhat. This, of course, does not mean in any way that theoretical questions became of less concern, or that less was written about them. I have something else in mind: the acknowledged carelessness in methodology of many concrete psychological investigations, including those in applied psychology.

This phenomenon may be explained by a series of circumstances. One was that there gradually came about a breakdown in internal connections between the working out of philosophical problems of psychology and the actual methodology of those conducting investigations. About the philosophical questions of psychology (and about the philosophical criticism of foreign, non-Marxist tendencies) not a few voluminous books were written, but questions pertaining to concrete means of investigating broad psychological problems have hardly been touched in them. They almost leave an impression of dichotomy: On the one hand there is the sphere of philosophical, psychological problematics, and on the other, the sphere of specific psychological, methodological questions arising in the course of concrete investigation. Of course the working out of strictly philosophical problems in one area or another of scientific knowledge is indispensable. Here, however, we are concerned with something else: with the working out on a Marxist philosophical basis of the special problems of the methodology of psychology as a concrete science. This requires penetration into the "internal economics," so to speak, of theoretical thought.

I will explain my idea using an example from one of the more difficult problems which has confronted psychological investigation for a long time, that is, the problem of the connection between psychological processes and physiological processes in the brain. It is scarcely necessary to convince psychologists now that the psyche is a function of the brain and that psychic phenomena and processes must be studied in conjunction with physiological processes. But what does it mean to study them in conjunction? For concrete psychological investigation this question is extremely complex. The fact is that no direct correlation between psychic and physiological brain processes has solved the problem. Theoretical alternatives that arise with such direct approach are well known: It is either a hypothesis of parallelism, a fatal picture leading to an understanding of the psyche as an epiphenomenon; or it is a position of naive physiological determinism with a resultant reduction of psychology to physiology; or finally, it is a dualistic hypothesis of psychophysiological interaction which allows the nonmaterial psyche to affect material processes occurring in the brain. For metaphysical thinking there is simply no other solution; only the terminology covering all these alternatives changes.

In addition to this, the psychophysiological problem has an entirely concrete and a very real meaning in the highest degree for psychology because the psychologist must constantly keep in mind the work of morphophysio-

logical mechanisms. He must not, for instance, make judgments about the processes of perception without considering the data of morphology and physiology. The form of perception as a psychological reality is, however, something altogether different from the brain processes and their constellations of which it appears to be a function. It is apparent that we have here a matter with various forms of movement, and this necessarily presents a further problem about those underlying transitions that connect these forms of movement. Although this problem appears to be more than anything a methodological problem, its resolution requires analysis penetrating, as I have said, into the results accumulated by concrete investigations at psychological and.physiological levels.

On the other hand, in the sphere of special psychological problematics, attention has been focused more and more on the careful working out of separate problems, on increasing the technical arsenal of the experimental laboratory, on refining the statistical apparatus, and on using the formal languages. Without this, of course, progress in psychology would now be simply impossible. But it is evident that somethingis still lacking. It is imperative that specific questions should not override general questions, that methods of research should not conceal methodology.

The fact is that a psychologist-research worker involved in the study of specific questions inevitably continues to be confronted by fundamental methodological problems of psychological science. They appear before him, however, in a cryptic form so that the resolution of specific questions seems not to be dependent on them and requires only the proliferation and refinement of empirical data. An illusion of "demythologizing" of the sphere of concrete research results, which increases even more the impression of a breaking up of the internal connections between fundamental theoretical Marxist bases for psychological science and its accumulation of facts. As a result, a peculiar vacuum is formed in the system of psychological concepts into which concepts generated by views that are essentially foreign to Marxism are spontaneously drawn.

Theoretical and methodological carelessness also appears sometimes in the approach to solving certain purely applied psychological problems. Most often it appears in attempts to use methods that have no scientific basis uncritically for pragmatic purposes. Making attempts of this kind, investigators frequently speculate on the necessity of linking psychology more closely with actual problems that are disclosed by the contemporary level of development of society and the scientific-technical revolution. The most flagrant expression of such attempts is the practice of mindless use of psychological tests, most often imported from the United States. I am speaking here about this only because the growing practice of testing exposes one of the "mechanisms" that generate empty methodological directions in psychology.

Tests, as is known, are short questionnaires, the purpose of which is a disclosure (and sometimes measurement) of one or another preliminarily scientifically determined property or process. When, for example, the reaction of litmus to acid became known, then the "litmus paper" tests appeared – a change in color served as a simple indicator of acidity or alkalinity of a liquid that touched the paper; the study of specific properties of the color change led to the formation of the well-known Stilling tables, which, according to the difference of the figures shown on them, make it possible with sufficient precision to make judgments about the presence or absence of a color anomaly or its character. Tests of this nature are widely used in the most varied areas of knowledge and may be called "well founded" in the sense that they are supported by cogent concepts of the interdependences that connect the results of the testing with the properties being tested, the conditions, or the processes. Tests are not emancipated from science and are no substitute for more thorough research.

Those tests that serve to circumvent the difficulties of acquiring truly scientific psychological knowledge have a fundamentally different character. A typical example of such tests are the tests of mental development. They are based on the following procedure: First, the existence of any kind of "psychological phlogiston," so-called intellectual endowment, is denied; next, a series of questions-problems is devised from which are selected those that have the greatest differentiating capability, and from these a "test battery" is made up; finally, on the basis of statistical analysis of the results of a large number of trials, the number of properly solved problems included in such a battery is correlated with age, race, or social class of the persons being tested. An empirically determined fixed percentage of solutions is used as a unit, and a deviation from this unit is recorded as a fraction that expresses the "intelligence quotient" of the given individual or group.

The weakness in the methodology of such tests is obvious. The only criterion for the test problems is item ***validity,*** that is, the degree of correlation between the results of the problems being solved and one or another indirect expression of the psychological properties being tested. This brought into being a special psychological discipline, the so-called testology. It is not difficult to see that behind such a transformation of methodology into an independent discipline lurks nothing but a substitution of flagrant pragmatism for theoretical investigation.

Am I saying here that we must forgo psychological testing? No, not necessarily. I have given an example of a long-since-discredited test for giftedness in order to emphasize once again the need for a serious theoretical analysis even in deciding such questions, which at first glance seem narrowly methodical.

I have given consideration to those difficulties that scientific psychology is experiencing, and I have said nothing about its unquestionable and very

Widespread is the view of the nature of the needs and appetites of man that the needs and appetites themselves determine the activity of the personality, its tendencies; correspondingly, the principal task of psychology is the study of which needs are natural to man and which experiences (appetites, wishes, feelings) they evoke. The second view, as distinct from the first, is to understand how the development of human activity itself, its motives arii means, transforms man's needs and gives rise to new needs so that the hierarchy of the needs changes to the extent that the satisfaction of some of them is reduced to the status only of conditions necessary for man's activity and his existence as a personality.

It must be said that the defenders of the first anthropological or, better said, naturalistic point of view bring forth many arguments, among them those that can metaphorically be called arguments "from the gut." Of course, filling the stomach with food is an indispensable condition for any subjective activity, but the psychological problem is composed of something else: What will that activity be? how will its development proceed? And, in conjunction with this there is the problem of the transformation of the needs themselves.

If I have isolated the given question here, it is because in this question opposite views confront each other in the perspective of the study of personality. One of them leads to the construction of a psychology of the personality based on the primacy, in the broad sense of the word, of needs (in the language of behaviorists, "reinforcement"); the other, toward the structure of a psychology of the primacy of activity in which man confirms his human personality.

The second question — the question of the personality of man and his physical characteristics — becomes acute in connection with the position that a psychological theory of personality cannot be constructed principally on the basis of the difference in man's constitution. In the theory of personality, how is it possible to get along without the usual references to Sheldon's ***constitution,*** Eising's ***factors,*** and finally Pavlov's ***types of higher nervous activity?*** This question also arises from the methodological misunderstandings that in many instances stem from the ambiguity of the concept of "personality." This ambiguity, however, disappears if we adopt the well-known Marxist position that personality is a particular *quality* that a natural individual commands in a system of social relations. The problem then inevitably changes: Anthropological properties of the individual appear not as determining personality, or as entering into its structure, but as genetically assigned conditions of formation of personality and, in addition, as that which determines not its psychological traits but only the form and means of their expression. For example, aggressiveness as a trait of personality will, of course, be manifested in a choleric in a different way from the way it is manifested in a phlegmatic, but to explain aggressiveness as a property of temperament is as scientifically absurd as to look for an explanation of wars in the instinct

for pugnacity that is natural to people. Thus, the problem of temperament, properties of the nervous system, etc., is not "banished" from the theory of personality but appears in a different, nontraditional way as a question of use, if it can be so expressed, by the personality of inborn, individual traits and capabilities. And this is a very important problem for concrete characterology, which, like a number of other problems, has not been considered in this book.

Slips that occurred in this preface (and they might have been more numerous) are due to the fact that the author saw his problem not so much as a confirmation of one or another concrete psychological position as a search for a method of extracting them as they flow out of the historical-materialistic study of the nature of man, his activity, consciousness, and personality.

In conclusion, I must say a few words about the composition of the book. The thoughts contained in it were already expressed in earlier publications of the author, a list of which is given in notes to the chapters. Here they are presented systematically for the first time.

In its composition the book is divided into three parts. The first part contains Chapters 1 and 2, which analyze the concept of reflection and the total contribution that Marxism has made to scientific psychology. These chapters serve as an introduction to the book's central part in which the problems of activity, consciousness, and personality are considered. The last part of the book has a completely different place: It does not seem to be a continuation of the foregoing chapters but is one of the earlier works of the author on the psychology of consciousness. Since the publication of the first edition, which has now become rare, more than 20 years have passed, and much in it has become outdated. It contains, however, certain psychological-pedagogical aspects of the problem of consciousness which are not touched on at all in other parts of this book, although these aspects remain even now close to the heart of the author. This inspired their inclusion in the book.

CHAPTER I

Marxism and Psychological Science

1.1. The General Bases of Marxist Psychology

The teachings of Karl Marx caused a revolution in social sciences: in philosophy, in political economy, in the theory of socialism. As is known, psychology remained isolated from the influence of Marxism for many years. Marxism was not admitted into the official centers of scientific psychology, and the name of Karl Marx remained almost unmentioned in the works of psychologists for more than 50 years after the publication of his basic work.

Only at the beginning of the 1920s did scientists of our country recognize for the first time the need to consciously structure psychology on the basis of Marxism.[1] Thus it was that Soviet scientists discovered Marx for world psychological science.

Originally the task of creating Marxist psychology was understood as a task of criticizing ideological, philosophic views entertained in psychology and introducing into it certain positions of Marxist dialectics. Characteristic in this respect was the title of a new textbook of psychology by K. N. Kornilov published in 1926. It was called, ***A Textbook of Psychology from the Point of View of Dialectic Materialism.*** In it, as in other works of this period, many ideas and understandings of Marxism and Leninism basic for psychology, including the concept of reflection, were still undiscovered, although Kornilov and other authors of that time stressed their position on the social nature of man's psychology; it was, however, usually interpreted in the spirit of naive representations about biosocial conditioning of human behavior.

Only after the work of L. S. Vygotskii,[2] and somewhat later, S. L. Rubinshtein,[3] did the meaning of Marxism become more fully understood.

[1] K. N. Kornilov, Contemporary ***Psychology and Marxism,*** Leningrad, 1923.

[2] L. S. Vygotskii, "Consciousness as a problem of the psychology of behavior," in: ***Psychology and Marxism, Moscow, 1924; also, Thought and Speech,*** Moscow, 1934.

[3] S. L. Rubinshtein, "Problems in psychology and the works of Karl Marx," ***Soviet Psychotechnology, No.*** 1, 1934; also, ***Fundamentals of General Psychology, Moscow, 1940.***

The historical approach to human psychology, a concrete psychological science of consciousness as a higher form of the reflection of reality, and the study of activity and its structure were developed. The process of gradually reviewing the significance of the classics of Marxism created a broad theory that disclosed the nature and general laws of psychology and consciousness, and that the contribution of Marxism to psychological science will not suffer in significance in comparison with the very greatest theoretical discoveries during the pre-Marxist period of its development as well as since Marx.

This was realized as a result of major theoretical work of many psychologists-Marxists, including those of other countries.[4] But even now it must not be said that psychology has exhausted the treasure chest of Marxist–Leninist ideas. For this reason we turn again and again to the works of Karl Marx, which resolve even the most profound and complex theoretical problems of psychological science.

In the theory of Marxism the teaching about human activity, about its development and its forms, has decisively important significance for psychology.

As is known, Marx begins his remarkable theses on Feuerbach with the indication of the "principal inadequacy of everything that preceded materialism." He believes that reality was taken by Feuerbach only in the form of an object, in the form of contemplation, and not as a human activity, not subjectively.[5]

Speaking of the contemplation of old materialism, Marx had in mind the fact that cognition was considered then only as the result of the effect of objects on the recognizing subject, on his sense organs, and not as a product of the development of his activity in an objective world. Thus, the old materialism isolated cognition from sensory activity, from the living, practical ties of man-with the world that surrounded him.

Introducing the concept of activity into the theory of cognition, Marx gave it a strictly materialistic sense: For Marx, activity in its primary and basic form was sensory, practical activity in which people enter into a practical contact with objects of the surrounding world, test their resistance, and act on them, acknowledging their objective properties. This is the radical difference of Marxist teaching about activity as distinguished from the idealistic teaching that recognizes activity only in its abstract, speculative form.

A profound revolution brought about by Marx in the theory of cognition is the idea that human practice is the basis for human cognition; practice is that process in the course of whose development cognitive problems arise, human perceptions and thoughts originate and develop, and which at the

[4] One of the first foreign authors who recognized the need to structure psychology on a Marxist basis was G. Politzer (C. Politzer, *Revue de Psychologie Concréte*, No. 1, 1929).

[5] K. Marx and F. Engels, Works, Vol. 3, p. 1.

same time contains in itself criteria of the adequacy and truth of knowledge: Marx says that man must prove truth, activity and power, and the universality of his thought through practice.[6]

In light of these well-known theses of Marx, it must be particularly emphasized that not one of them can be taken in isolation, apart from Marxist teaching as a whole. This refers especially to the position on the role of practice – a position that certain contemporary perverters of Marxism try to treat as if it expressed and provided a basis for the pragmatic point of view.

In reality the philosophic discovery of Marx consists not in identifying practice with cognition but in recognizing that cognition does not exist outside the life process that in its very nature is a material, practical process. The reflection of reality arises and develops in the process of the development of real ties of cognitive people with the human world surrounding them; it is defined by these ties and, in its turn, has an effect on their development.

"The prerequisites with which we begin," we read in ***German Ideology, "are*** not arbitrary, they are not dogmas; they are genuine prerequisites from which we can escape only in imagination. They are the actual individuals, their activity and the material conditions of their lives. ..."[7] These prerequisites also make up three indispensable features, three links, dialectical ties that form a single, self-developing system.

Even the bodily organization of individuals incorporates the need that they participate in an active relationship with the external world; in order to exist they must act, produce the necessary means of life. Acting on the external world, they change it; at the same time they also change themselves. This is because what they themselves represent is determined by their activity, conditioned by the already attained level of development, by its means and the form of its organization.

Only in the course of the development of these relations does psychological reflection of reality by people also develop. "People, developing their material production and their own material contacts, change their own activity and their own thinking and the products of their own thoughts at the same time."[8] In other words, thought and consciousness are determined by real life, the life of people, and exist only as ***their*** consciousness as a product of the development of the system of objective relationships indicated. In its own self-development this system forms various infrastructures, relations, and processes that may become the objects of study of separate sciences. The Marxist approach, however, requires that these be observed within a general system and not isolated from it. This requirement, it is understood, refers also to the psychological study of people and to psychological science.

[6] Translator's note: The word ***practice*** is used here in the sense in which it occurs in the phrase "theory and practice."

[7] K. Marx and F. Engels, Works, Vol. 3, p. 18.

[8] K. Marx and F. Engels, Works, Vol. 3, p. 25.

The old metaphysical psychology knew only abstract individuals being subjected to the action of an environment that resisted them, who on their part exhibited characteristic psychic capabilities: perception, thought, will, feelings. Indifferently the individual under these circumstances was thought of as some kind of reactive machine (if even a very complexly programmed machine), or he was ascribed innately developed spiritual strength. Like St. Sancho, who naively believed that with a blow of steel we will chop out fire that is hidden in rock and who was derided by Marx,[9] the psychologist–metaphysician thinks that the psyche can be extracted from the subject himself, from his head. Like Sancho, he does not suspect that the fiery sparks are cast off not by the rock but by the steel, and what is most important, that the whole point is that in the white heat the sparks are the interaction of the rock and the steel. The psychologist-metaphysician also drops the main link – the processes that mediate the ties of the subject with the real world, the only processes in which their psychic reflection of reality takes place, the transition of the material into the ideal. And these are the very processes of the activity of the subject that always are external and practical first and then assume the form of internal activity, the activity of consciousness.

The analysis of activity also comprises the decisive point and principal method of scientific cognition of psychic reflection, consciousness. In the study of the forms of social consciousness it is the analysis of social life, characteristic means of production, and systems of social relationships; in the study of the individual psyche it is the analysis of the activity of individuals in given social conditions and concrete circumstances that are the lot of each of them.

1.2. The Theory of Consciousness

Karl Marx laid the foundation for a concrete psychological theory of consciousness that opened completely new perspectives for psychological science.

Although the former subjective-empirical psychology readily called itself a science of consciousness, actually it was never that. The phenomena of consciousness were studied in either a plan that was purely descriptive, with epiphenomenology and parallel positions, or a plan that completely excluded scientific psychological knowledge, as was required by the most radical representatives of the so-called subjective psychology." The coherent system of psychological knowledge, however, cannot be constructed outside the concrete, scientific theory of consciousness. This is especially borne out by

[9] K. Marx and F. Engels, Works, Vol. 3, p. 423.

[10] J. Watson, "Psychology as the behaviorist views it," in: *Psychological Review,* Vol. 20, 1913. Even earlier, the necessity of complete rejection of psychological concepts and terms was promulgated by a group of zoopsychologists (T. Beer, J. v. Uexiill Vorschläge zu einer objektive Nomenklatur, *Biologisches Zentralblatt,* 1899, Vol. XIX.

the theoretical crises that constantly arise in psychology in proportion to the accumulation of concrete psychological information, the volume of which increased rapidly beginning with the second half of the last century.

The central secret of the human psyche, which the scientific psychological investigation stopped short of, already comprised the existence of internal psychological phenomena, the very fact of ***presentability*** to the subject of a picture of the world. This psychological secret could not have been discovered in pre-Marxist psychology; it remains undiscovered even in contemporary psychology developing ***outside Marxism.***

Consciousness invariably appeared in psychology as something extraneous to the principal concern, only as a condition for the taking place of psychological processes. Particularly such was the position of Wundt. Consciousness, he wrote, is whatever kind of psychic condition we find in ourselves, and for this reason we cannot experience the essence of consciousness. "All attempts to define consciousness... lead only to tautology or to defining activities which take place in consciousness, which for this reason are not really consciousness since consciousness is a prerequisite for them.[11]" The same idea is even more clearly expressed by Natorp: Consciousness does not have its own structure; it is only a condition of psychology, not its subject. Although its existence is a basic and fully credible psychological fact, it cannot be defined, and is inferred only from itself. [12]

Consciousness is nonqualitative because it is in itself a quality – the quality of psychic phenomena and processes; this quality is expressed in their "presentability" (*predstavlennost'*) to the subject (Stout). This quality cannot be discovered; it can only be or not be.[13]

The idea of the nonessential nature of consciousness is included also in the well-known comparison of consciousness to a stage on which the events of a mental life are played out. A stage is necessary for these events to take place, but the stage itself does not participate in them.

Thus consciousness is somewhat extraneous to psychology, psychologically nonqualitative. Although this idea is not always expressed directly, it is always understood. It is not contradicted by a single experiment in the past, which attempted a psychological description of consciousness that was most directly expressed by Ledd: Consciousness is that which can shrink or grow, which is partially lost in sleep, and completely lost in fainting.[14]

It is a unique "luminiscence," a shifting light reflection, or better yet, a projector, the beam of which illuminates the external or internal field. Its shifting over this field is expressed in the phenomena of attention through

[11] W. Wundt, ***Fundamentals of Physiological Psychology, Moscow,*** 1880, p. 138.

[12] P. Natorp, ***Einleitung in die Psychologie,*** Berlin, 1888, S. 14,112.

[13] "Stout, ***Analytical Psychology, Moscow, 1920.***

[14] ***In*** our psychological literature this idea found its original expression in the attempt to systematize psychology proposed by P. P. Blonsky (P. P. Blonskii, ***Psychological Notes, Moscow,*** 1927).

which alone consciousness gets its psychological character, but still it is only quantitative and spatial. "The field of consciousness" (or "the field of attention," which is the same thing) may be narrower and more concentrated or wider and dispersed; it may be more or less stable, fluctuating, but granted all this, the description of the "field of consciousness" itself remains nonqualitative, nonstructured. Accordingly, the "laws of consciousness" that had been worked out had a purely formal character; the same can be said of the laws of the relative clarity of consciousness, continuity of consciousness, and stream of consciousness.

To the laws of consciousness are sometimes also referred such laws as the law of ***association*** or the laws of ***wholeness*** and ***ofpregnance,*** and so forth, developed by Gestalt psychology. These laws, however, refer to phenomena in consciousness, and not to consciousness as a separate form of the psyche, and therefore they are just as applicable to its "field" as to the phenomena that occur outside this "field" – at the human level as well as at the animal level.

The theory of consciousness leading to the French sociological school (Durkheim, De Roberti, Halbwax, et al.)[15] holds a somewhat different position. As is known, the main idea of this school refers to the psychological problem of consciousness and holds that individual consciousness is the result of the action on man of the consciousness of society under the influence of which his psyche becomes ***socialized*** and intellectualized; this socialization and intellectualization of the psyche of man ***is*** his consciousness. But even in this conception the psychological nonqualitativeness of consciousness is still retained; only now consciousness presents itself as some kind of plane on which ideas and concepts are projected, which constitute the content of social consciousness. Thus consciousness is identified with knowledge: Consciousness is a "knowing with," a product of contact between one consciousness and another.

Other attempts to describe consciousness psychologically consisted of representing it as a condition of unifying internal psychic life.

A unification of psychic functions, capabilities, and properties is also consciousness; for this reason, wrote Lipps, it is at one and the same time self-consciousness.[16] More simply than anyone, James expressed this idea in a letter to K. Stumpf: Consciousness is "the general master of all psychic functions." But precisely on the basis of James's example it is particularly clear that this understanding of consciousness is completely absent in the teaching about its nonqualitative, indeterminable nature. It is James who said about himself: "It is already 20 years since I have doubted the existence

[15] S. L. Rubinshtein, *Principles and Trends of Development in Psychology*, Moscow, 1959, pp. 308-330.
[16] G. Lipps, "Trends in psychology," a paper presented at the Fifth International Psychological Congress, 1905.

of a real, so-called consciousness. ... It seems to me the time has come for everybody to renounce it openly."[17]

Neither the experimental introspection of the Wurzburgians nor the phenomenology of Husserl nor existentialism was in a condition to penetrate the structure of consciousness. On the contrary, understanding its phenomenological state with its internal ideal relations as consciousness, they insist on the "depsychologizing," if that can be said, of these internal relations. The psychology of consciousness completely dissolves in phenomenology. It is interesting to note that authors who have set themselves the goal of seeing "beyond" consciousness and who are spreading teaching about the nonconscious sphere of the psyche preserve the same understanding of consciousness as a "messenger of the organization of psychic processes" (Freud). Like other representatives of depth psychology, Freud brings the problem of consciousness out of the sphere of psychology proper. Of course the principal instance representing consciousness, "superego," is essentially metapsychic.

Metaphysical positions on consciousness could not bring psychology to any other kind of understanding of consciousness. Although the idea of development penetrated even pre-Marxist psychological thought, particularly during the post-Spencerian period, it was not widely used for the solution of problems about the nature of the human psyche so that the psyche continued to be considered as something preexisting and only "being filled" with new content. These were the metaphysical positions that were also destroyed by the dialectical-materialistic view, which opened completely new perspectives before the psychology of consciousness.

The basic position of Marxism on consciousness is that it represents a quality of a special form of the psyche. Although consciousness also has its own long prehistory in the evolution of the animal world, it first appears in man in the process of the organization of work and social relations. Consciousness from the very beginning is a social product.[18]

The Marxist position on the indispensability and the real function of consciousness completely excludes the possibility in psychology of considering the phenomena of consciousness only as epiphenomena accompanying brain processes and the activity that they realize. In addition, psychology cannot simply postulate the activity of consciousness. The task of psychological science consists in explaining scientifically the actual role of consciousness; this is possible only under the conditions of a radical change in the very approach to the problem, and more than anything, under conditions that reject the limited anthropological view of consciousness that looks for its explanation in processes taking place within the head of the individual

[17] W. James, "Does consciousness exist?" in: New *Ideas in Philosophy, No. 4, Moscow, 1910.*
[18] K. Marx and F. Engels, Works, Vol. 3, p. 29.

under the influence of stimuli acting on him, views that inevitably return psychology to the parallelistic position.

The real explanation of consciousness lies not in those processes but in social conditions and modes of that activity which makes up its indispensability – in work activity. This activity is characterized by the fact that its materialization, its "extinction," according to Marx's expression, results in a product.

Marx writes in *Capital,* "That which appeared on the part of the worker in the form of activity (*Unruhe*), now appears on the part of the product in the form of a resting property (*ruhende Eigenschaft*), in the form of existence."[19] "During the process of work," we read further, "work constantly changes from the form of activity to the form of existence, from the form of movement to the form of material."[20]

In this process there also takes place an objectification of those ideas that evoke, direct, and regulate the activity of the subject. As a result of this activity they find a new form of existence as external objects perceived by the senses. Now in their external, exteriorized, or exoteric form the products themselves are objects of reflections. Also correlating with initial ideas is the process of their perception by the subject – a process that results in their own reduplication, their own theoretical existence in his head.

Such a description of the process of perception appears to be incomplete, however. In order for this process to take place, the object must appear before a man precisely as registering the psychic content of activity, that is, its theoretical side. Isolated activity, however, cannot be understood apart from social ties or from the contacts that inevitably bind those participating in work. Entering into contact with each other, people also formulate a language that serves to represent the objects, the means, and the very process of work itself. The acts of signifying are in essence nothing but acts of isolating the theoretical side of objects, and the acquisition by individuals of language is the acquisition of their signification in the form of perception. "Language," note Marx and Engels, "is practical, existing for other people as well as for me alone, a real consciousness. ..."[21]

This position, however, can by no means be interpreted as meaning that consciousness has its origin in language. Language is not its demiurge, but a form of its existence. Moreover, words, the language signs, are not simply replacements for things, their conditional substitutes. Behind philological meanings is hidden social practice, activity transformed and crystallized in them; only in the process of this activity is objective reality revealed to man.

Of course, the development of consciousness in every individual does not repeat the social-historical process of the formation of consciousness. Neither

[19] K. Marx and F. Engels, Works, Vol. 23, p. 192.
[20] *Ibid.*, p. 200.
[21] K. Marx and F. Engels, Works, Vol. 3, p. 29.

does *a* conscious reflection of the world spring up in the individual as a result of a direct projection on his brain of the ideas and concepts worked out by preceding generations. His consciousness too is a product of his activity in an object world. In this activity, mediated by contact with other people, is realized the process of the individual's acquisition (*Aneignung*) of the spiritual riches accumulated by the human race (*Menschengattung*) and embodied in an objective, sensible form.** Thus, the objective existence of human activity itself (Marx says *industry,* explaining that up to this time work – that is, industry – was *the* whole of human activity) appears as "human psychology appearing sensually before us."[23]

Thus, this discovery of Marx, radical for psychological theory, consists in the idea that consciousness is not a manifestation of some kind of mystical capability of the human brain to generate a "light of consciousness" under the influence of things impinging on it – stimuli – but a product of those special – that is, social – relations into which people enter and which are realized only by means of their brains, their organs of feeling, and their organs of action. The processes evoked by these relations also lead to the acceptance of objects in the form of their subjective images in the head of man, in the form of consciousness.

In addition to this theory of consciousness, Marx also developed the bases for the scientific history of human consciousness. The importance of this for psychological science can hardly be exaggerated.

Notwithstanding that in psychology there is much material about the historic development of thought, memory, and other psychic processes, collected mainly by historians of culture and ethnographers, the central problem, the problem of historical stages of the formation of consciousness, remained unresolved.

Marx and Engels not only formulated a general method of historical investigation of consciousness, they disclosed also those fundamental changes that human consciousness undergoes in the course of the development of society. We are speaking here mainly about the stage of the original formation of consciousness and of language and about the stage of transformation of consciousness into a universal form of specifically human psyche when reflection in the form of consciousness encompasses the whole range of phenomena of the world surrounding man – his own activity and man himself.[24] Of particularly great significance is the teaching of Marx about those changes in consciousness that it undergoes during the development of division of work in society, a separation of the majority of producers from the means of production, and an isolation of theoretical activity from practical activity. Engendered by the development of private property, economic alienation

[22] *Ibid.*
[23] K. Marx and F. Engels, *From Their Early Works, Moscow,* 1956, p. 594.
[24] K. Marx and F. Engels, *Works,* Vol. 3, p. 29.

leads to alienation and to disintegration of human consciousness. This disintegration is expressed in the inadequacy of that sense that gives objective significance to man, to his activity, and to its products. This disintegration of consciousness is eliminated only when the attitudes toward private property that gave rise to it are eliminated with the transition from a class society to communism. Marx wrote, "Communism already considers itself as a reintegration or a return of man to himself, as an elimination of man's alienation. ..."[25]

These theoretical positions of Marx have a particularly real sense in our time. They orient scientific psychology in its approach to complex problems of changing the consciousness of man in a socialistic-communistic society, in resolving those concrete psychological tasks that appear now not only in the sphere of education of the younger generation but also in the area of organization of work, human contacts, and other spheres where the human personality is evident.

1.3. The Psychology of Cognitive Processes

Marxist teaching about the nature of consciousness produced a general theory of the human psyche. At the same time it found its embodiment in the theoretical resolution of such large problems as the problem of perception and thought. In each of these areas, Marx introduced ideas that are basic for scientific psychology. These ideas anticipated by many years the principal direction of their development in the area of the psychological study of perception and thought activity of man.

Marxism considers perception, that is, direct sensual reflection of activity, as a degree, as well as a basic form of cognition, which reaches a high degree of perfection in the process of the historical development of man.

It is understood that the potentials of perception depend on the structure of the sense organs of man, his sensory capabilities, or, using the language of Marx' early works, correspond to his essential powers. However, in order for a sensible, visual, or aural image of an object to appear in a man's head, it is necessary that an active ***relationship*** be established between the man and this object. The adequacy and degree of completeness of the image also depend on processes in which this relationship is realized. This means that in order to explain scientifically the appearance and features of a subjective, sensual image, it is not enough to study the structure and work of sensory organs on the one hand, and the physical nature of the effect an object has on them on the other. It is necessary also to penetrate into the activity of the subject that mediates his ties with the objective world.

[25] K. Marx and F. Engels, *From Their Early Works, p. 588*

Altogether different is the maturation-sensualistic approach to perception that was entertained by pre-Marxist psychologists. This approach found its expression in the seemingly self-evident position that was formulated by psychologists-sensualists: In order that an image of an object be formed in the consciousness of man, it is sufficient to have that image before the eyes.

Knowing man from his morphophysiological properties on the one hand, and the world of things confronting him on the other, psychological investigation of perception was confronted by unsolvable theoretical difficulties. In particular, it was impossible to explain the main point: the adequacy of a subjective image of objective reality. For this reason the psychology of perception appeared to be incapable in fact of escaping the limits of interpretation in the spirit of physiological idealism and hieroglyphism, and was forced to appeal to such ideas as capacity for structuring, for the formation of "Gestalts." Thus many facts in the area of perception were left entirely unexplained. Prominent among these is the abolutely fundamental fact that effects elicited in our organs through the action of external objects are perceived not as our own unique condition but as something that exists outside us – a fact that was opportunely used by Marx to explain one of the features of conversion in human consciousness of human relations into relations with things found outside.[26]

Only under the pressure of ever newer facts, accumulated recently, especially, so to speak, during the "post-Gestalt" years, were the efforts of investigators directed to the study of that activity of the subject during which images of perception were formed. A great number of works appeared that investigated the genesis of structure and content of perceptive actions – tactile, visual, and, finally, aural. Thus a whole century was necessary for psychology to free itself from the approach that viewed perception as the result of a one-sided action of external things on a passive, world-contemplating subject, and for the introduction of a new approach to the perceptive processes.

Of course, in the center of this new approach opposite philosophical lines continue to confront each other: lines of materialism and idealism. The first requires an understanding of the activity of perception as a process included in the living and practical ties of man with objective reality, as a process in which the material is only "translated," according to the expression of Marx, into the ideal. The second approach, the idealistic line, treats this activity of perception as if it were forming the world of things.

To what has been said we must add that data of contemporary individual experimental investigation of perceptive actions and operations do not in themselves give a theoretical solution to the problem of human perception. Their real significance may be understood only in the wider

[26] K. Marx and F. Engels, *Works*, Vol. 23, p. 82.

context of the study of the unity of the subject and object, of the social–historical nature of the connections between man and the object world.

Although the activity of perception is an activity that is special in the sense that in its developed forms it is not directly connected with practical action of man on the object, and has as its product a subjective image of the object (that is, an ideal product), it is nevertheless an authentic objective activity submitting to its object as embodying in itself the entirety of human social custom. "The eye," says Marx, "became a ***human eye*** precisely when its ***object*** became a social, ***human*** object, made by man for man. For this reason the ***feelings*** directly in their working became ***theorists.***" And further, "The ***education*** of the five external senses — this is the work of all the history of the world that has passed to this time."[27]

The positions cited have social man, man as a social being, and his social activity directly in view, that is, the social-historical process. But a separate individual does not exist as a man outside society. He becomes a man only as a result of the process of carrying out human activity. The activity of perception also is one of the forms in which this process takes place.

To all former empirical psychology similar ideas remained deeply alien. Only a few of the most perspicacious thinkers approached the understanding that behind perception there lies, as if rolled up, practice, and that the touching hand or eye is not lost in its object only because it has learned to do the perceptive actions and operations that have been formulated in practice. These ideas especially bring us close to an understanding of the actual nature of human perception.

Together with theoretical bases for the scientific psychology of perception, Marx also set down the bases for the scientific psychology of thought processes. Only Marxist teaching allows us to surmount the idealistic view of thought that places it above feeling, and the limits of metaphysical materialism that reduce thought to the elementary process of analysis and generalization of sensory impressions and the formation of associations between them. In opposition to this, Marxism, as is known, considers human thought as a product of social-historical development, as a special theoretical form of human activity that is nothing else but a derivative of practical activity. Even with this degree of development, when thought becomes relatively independent, practice remains its basis and a criterion for its truths.

As a function of the human brain, thought represents a natural process, but thought does not exist outside society, outside accumulated human knowledge and the methods of thought activity worked out by the human race. Thus, every separate person becomes a subject of thought if only controlling the language, understanding, and logic, which represent generalized

[27] K. Marx and F. Engels, ***From Their Early Works, pp.*** 592,594.

reflections of the experience of social practice: Even those tasks that he sets for himself in thought originate in the social conditions of his life. In other words, human thought like human perception has a social-historical nature.

Marxism especially emphasizes the primordial tie of thought with practical activity. "The production of ideas," we read in ***German Ideology,*** "originally was directly incorporated into material activity and into material contacts of people in the language of real life. The formation of ideas, thought and spiritual contacts of people appear here still as a direct result of material relationships of people."[28] Engels expressed this in a more general way wher he wrote, "A more real and closer basis for human thought appears to be the way ***man changes*** nature, and not nature alone as such. ..."[29]

These positions have a fundamental significance not only for the theory of cognition but also for the psychology of thought. They not only destroy the naive, naturalistic, and idealistic views of thought that were entertained in the old psychology but formulate a basis for adequate consideration of th numerous scientific facts and concepts that appeared as a result of the psychological study of thought processes in the last decades.

Analysis of the psychological theory of thought originating in bourgeois philosophical views shows that they are not in a condition to give genuine scientific answers even to the most fundamental questions; the fact that these questions have not been answered slows further development of concrete research on this real problem.

Among such fundamental questions, foremost is the question of how, having sensory perceptions as its only source, thought penetrates the surface of phenomena that act on our sensory organs. Marxist teaching gives the only true solution to this problem of the origin and essence of human thought.

Work is the instrument that places man not only ahead of material objects but also ahead of their interaction, which he himself controls and reproduces. In this process man's cognition of the objects takes place, exceeding the possibilities of direct sensory reflection. If in direct action, "subject–object," the latter discloses its properties only within limits conditioned by the kind and degree of subtlety that the subject can sense, then in the process of interaction mediated by an instrument, cognition goes beyond these limits. Thus, in mechanical processing of an object made of one material with an object made of another, we carry out an unmistakable test of their relative hardness within limits completely inaccessible to our organs of skin-muscle sensitivity: On the basis of the change of form of one of the objects, we draw a conclusion about the greater hardness of the other. In this sense the instrument is the first real abstraction. Only by going further along this line can

[28] K. Marx and F. Engels, Works, Vol. 3, p. 24.
[29] K. Marx and F. Engels, Works, Vol. 20, p. 545.

we isolate objective units, the use of which makes cognition of a given property of objects possible with adequate precision, and, what is most important, independently of the fluctuating thresholds of sensitivity.

Initially, cognition of the properties of the object world that are beyond the limits of direct sensory cognition is the unpremeditated result of actions directed to a practical purpose, that is, actions included in work activity of people. Subsequently, it begins to adapt to special tasks, for example, the task of evaluating the suitability of the original material by means of preliminary practical testing, a simple experiment. Actions of this kind, serving conscious, cognitive goals, already represent in themselves real thinking, although it preserves the form of external processes. The recognizable results of these actions, generalized and fixed by means of language, differ essentially from the results of direct sensory reflection, which are generalized in respective sensory formations. They differ from the latter not only in that they include properties, connections, and relations inaccessible to direct sensory evaluation but also in that, transmitted in the process of verbal communication with other people, they form a system of knowledge that comprises the content of the consciousness of the collective, society. Owing to this the concepts, understanding, and ideas that are generated in separate people are formed, enriched, and subject to selection not only in the course of their individual use (unavoidably narrowly limited, and subject to chance) but also on the basis of the immeasurably wider experience that they attain in social use.

In addition, the expression in language of what is initially an external object form of cognitive activity formulates a condition that allows a subsequent carrying out of its separate processes on the plane of speech alone. Inasmuch as speech loses its communicative function here and fulfills only a function of cognition, then its pronouncing, sound facet is gradually reduced and corresponding processes take on all the more a character of internal processes carried out for themselves "in the mind." Between the initial conditions and the practical carrying out of the action, there is now an ever longer and longer chain of internal processes of thought, comparison, analysis, etc., which finally assume relative independence and the capacity to be separated from practical activity.

Such separation of thought from practical activity takes place historically, however, not through itself and not only through the force of its own logic of development, but is engendered by a division of labor that results in mental activity and practical, material activity being assigned to different people. When private ownership of means of production develops and society is differentiated into antagonistic social classes, the activity of thought is tom from physical work and contrasted with practical activity. It now seems completely independent from the latter, which has a different source and a different nature. Such representations of thought activity are also found in the idealistic theory of thought.

The separation of thought activity from practical activity and their opposition are not, however, permanent. With the destruction of private ownership of means of production and of antagonistic classes, the chasm between them will gradually disappear. In a developed communistic society the transition from one form of activity to the other will become a natural means of their existence and development. For this reason Marx noted that there is no need now for any kind of "complex focuses of reflection."[30]

Of course, such union of thought activity and practical activity does not mean that the qualitative difference between them will disappear. Thought activity, losing certain traits that it assumed as a result of its separation from practical activity, still preserves its special features, but these features lose their mystification. They are determined mostly by the fact that in their developed form, the form of theoretical thought, thought activity continues without direct contact with objects of the material world. Theoretical thought of the individual man at the outset does not even require a subject-sense basis; it may be represented in his head in a reflected, ideal form: as already accumulated knowledge and abstract ideas, For this reason, in distinction from thought that is objectified in the form of work activity or in an experiment and that is sharply limited because of this by real objective conditions, theoretical thought has essentially unlimited possibilities of entering into reality, including a reality quite inaccessible to our influence.

Inasmuch as abstract thinking takes place outside direct contacts with the objective world, then, because of its relation to it and the problem of practice as a basis and criterion for the truth of cognition, yet another problem arises. This concerns the fact that testing the truth of theoretical results of thought can seldom be realized immediately after these results are obtained. It may be separated from them by many decades and cannot always be direct, which makes it necessary that the experience of social practice should be a part of the thought activity itself. Such a requirement is met by the fact that thought is subordinated to a logical (and mathematical) system of laws, rules, and regulations. An analysis of their nature shows how the experience of social practice enters into the very *course* of the process of human thought.

In contrast to the views of the laws of logic as if they arise from the principles of the working of the mind (or as if they express immanent laws of a thinking spirit, or finally as if they are evoked by the development of the language of science itself), the Marxist view considers logical laws as representing a generalized reflection of those objective relations of activity that practical human activity produces and to which it is subject. "The ***practical activity of man,"*** notes V. I. Lenin, ***"must have brought the consciousness of man a million times to the repetition of various logical figures in order that these figures might acquire the significance of axioms."***[31] Thus, practical ac-

[30] K. Marx and F. Engels, Works, Vol. 3, p. 253.
[31] V. I. Lenin, *Complete Collected Works,* Vol. 29, p. 172.

tivity, practice, is like a guiding thread for theoretical thought that prevents theoretical thought from losing the way leading to adequate knowledge.

Such, in the most general sense, are the basic positions of Marxist-Leninist teachings about thought; they decisively change not only the general theoretical representations about the nature of thought but also our understanding of concrete psychological problems. For this reason the view that Marxist teaching is important only for the general theory of thought and special experimental psychological investigation should somehow remain on purely empirical ground is a great mistake. The problem that confronts scientific psychology even today is that it not be limited by general dialectic, materialistic positions on the essence of human thought, but that it define those positions concretely in conformity with the actual questions involved in the study of the processes of development of man's thought activity, different forms of this activity, mutual transitions between them, and the influence on it of new social conditions and phenomena such as rapid scientific, technical progress, wider distribution, and changes of means and form of communication, etc.

At present great changes have taken place in the psychology of thought. Development of this area of psychological knowledge led to the fact that many Marxist ideas objectively found their concrete embodiment and development in it inasmuch as some psychologists, even those who are far removed in their own philosophical views from Marxism, have begun to cite Marx, but not without a certain coquetry.

In our time almost no one accepts the long-discredited positions of subjective-empirical psychology that portray thought as a movement in consciousness of concepts and ideas as if they were a product in individual human experience of sensory impressions and their generalization — movements that are directed by the laws of association and perseveration. It became evident that an understanding of thought processes corresponding only to the accumulated facts is understanding them as bringing about special types of goal-directed activities and operations adequate to cognitive tasks.

We have also left in the past those psychological theories that knew thinking simply in one form only — in the form of internal discursive thought. Contemporary genetic research has disclosed the incontestable fact of the existence of thought processes taking place also in the form of external activity with material objects. Moreover, it has been demonstrated that internal thought processes are nothing other than the result of interiorization and specification of transformation of external practical activity, and that stable forms of transition from one form to the other exist. Under conditions of highly developed thought these transitions appear particularly distinctly in investigations of so-called technical thought — the thought of a worker-adjuster of complex technical apparatus, the thought of a scientific experimenter — in studies that were necessitated by the requirements of the contemporary level of technological development.

Together with these and other indisputable achievements of psychology of thought, however, many of its radical problems worked out apart from general Marxist theory have received a one-sided and, for this reason, distorted interpretation in contemporary psychology. Even the concept of activity introduced into the psychology of thought is treated by psychologists—positivists in a sense very far from that with which Marx imbued the concept of objective human activity. In most of the foreign investigations, the activity of thought is presented from the point of view of its adaptive function, and not as one of the forms through which man comprehends reality and changes it. For this reason the operations that form its structure are put forward first. Actually this means nothing else but a return to an identification in thought of the logical and the psychological, and to a peculiar panlogism.

From this comes an "autonomization" of logical operation that is deeply alien to Marxistic teaching about thought, which requires that thought be considered as a living, human activity having the same basic structure as does practical activity. Like practical activity, thought activity answers one need or motive or another and correspondingly calls forth the regulating effect of emotions. Just as practical activity does, thought activity consists of action subordinated to conscious purposes. Finally, like practical activity, thought is realized by some means, that is, with the help of determined conditions in the given instant — logical or mathematical. But any operations — regardless of whether they are outward-directed or inward, mental — represent in their genesis only the product of the development of corresponding actions in which are fixed, abstracted, and generalized the objective relationships characterizing objective conditions of action. They therefore have a relatively independent existence and are capable of being embodied in one material form or another — in the form of instruments, machines, multiplication tables, simple arithmetic, or complex calculator-computer apparatus. Nevertheless, they do not cease to be only a means of human activity and its objects. For this reason thought activity of man is no more reduced to a system of one kind or another of logical, mathematical, or other operations than production, for example, is reduced to the technological processes that realize it.

Ignoring these indisputable positions creates those illusionary representations of thought in which everything appears upside down: Symbolic thought operations resulting from the development of cognitive activity of man seem to give rise to his thought. These representations find their expression particularly in the ascribing to contemporary "thinking" machines (which like any other machines, in the words of Marx, are only "created by man's hand as organs of man's mind"[32]) the properties of genuine thinking subjects. It seems that it is not they who serve the thinking of man, but quite the contrary, man serves them.[33]

[32] K. Marx and F. Engels, Works, Vol. 46, Chap. II, p. 215.
[33] A. N. Leont'ev, "Automation and man," *Psychological Research,* 2nd ed., Moscow, 1970, pp. 3-12.

It is not difficult to see that ascribing to machines the intellectual capabilities of man expresses once again the same alienation of thinking from sensory activity only in a new form: Now the operations of thought in their exteriorized forms are separated from human activity and transferred to machines. But the operations in essence are only ways and means of thinking, and not thinking itself. For this reason the psychological consequences of the scientific-technological revolution that objectively gives rise to an intellectualization of human work, a uniting in it of mental and practical activity, are apparently dependent not on technological automation in itself but on that social system in which this technology will function. Under conditions of materialism, under conditions of alienation of the means of production, it will only move the line of fracture into the sphere of intellectual activity, separating the elite – the creators of automation – from those who serve this automation; under conditions of a socialistic-communistic society informing human thought, it will, on the other hand, ensure the development of a creative and intellectual character of work in all of its units and forms.

Of course, this is a completely separate problem, which requires special consideration. If I mention it here, it is only to stress once again the indivisibility of thought from the real conditions of its functioning in man's life. The investigation of thought processes, not in isolation from the variety and forms in which they exist in human activity but as a means of this activity, represents only one of the most important tasks confronting Soviet psychologists, confronting all psychologists-Marxists.

In this chapter only certain problems were touched on; a more detailed explication will be the task of further work. More than anything we must consider the ***problem of understanding the psyche as a reflection of reality.***