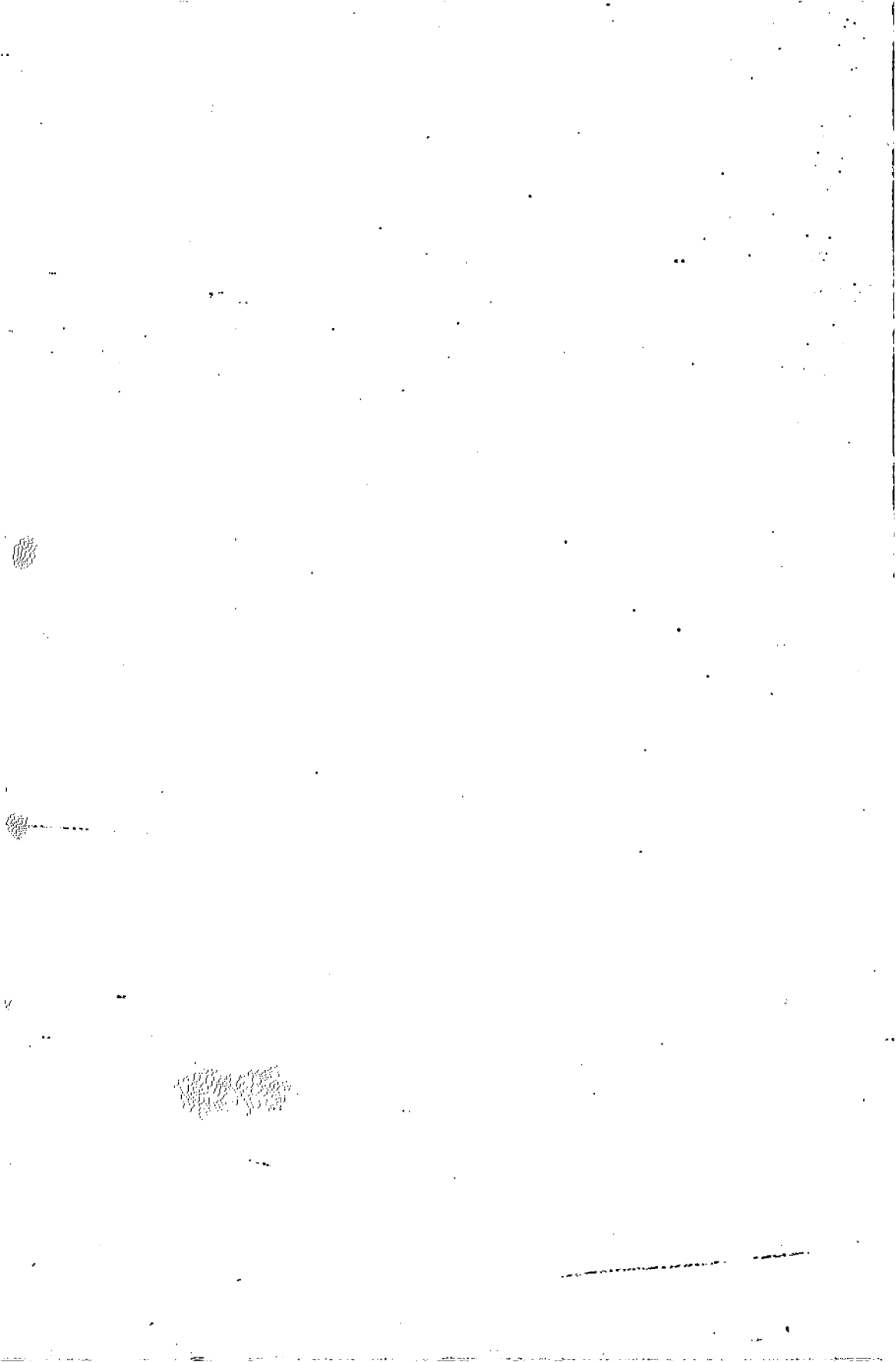


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D. K. Beliaev

CONTEMPORARY SCIENCE AND PROBLEMS
OF THE HUMAN INDIVIDUAL*

The problem of the human individual and the multiple manifestations of the essence of that individual made its appearance along with that of human beings themselves. Having arisen at the dawn of history, as a product of the as-yet-primitive consciousness of the primeval human, this problem, constantly developing and changing in form in accordance with the socio-economic conditions of the life of society, is assuming increasingly pervasive significance. The mandate of the ancients to "Know thyself" today has the ring not only of a troubling need for individual self-awareness, and therefore of a heuristic problem in natural science and philosophy, but also of a categorical social imperative.

The reasons for this are quite comprehensible. We live in an age of unprecedented fundamental changes in the life of humanity as a whole. The tempestuous course of the process of history, the revolutionary reorganization of the world, and the concomitant intensification of class contradictions and class

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struggles, on the one hand, and the stupendous, constantly increasing results of progress in science and technology, on the other, pose sharply for humanity the problem of its own future in the entire, infinitely diverse content of the human being as individual and as a single biological species, Homo sapiens.

In evaluating the significance of this problem we have to begin with the indisputable proposition that, in our time, man has become the real possessor of our planet, with total control over the fate of life thereon. The development of humanity and its intellectual powers have led to the appearance in the earth's biosphere of "a new geological force — scientific thought," previously lacking in the biosphere. (1) As a consequence, humankind itself has become significant as a factor in geology "that, in its possible consequences, exceeds those tectonic displacements that were made the basis — purely empirically, by empirical drawing of conclusions — of the geological divisions of terrestrial space-time." (2)

The many-sidedness of the problem of humankind confronts the researcher with great difficulties in solving it. But the rising potentials of contemporary science also open new prospects for knowledge.

In developing this problem it is important, in principle, not only that there be appropriate knowledge in natural science, i.e., utilization of the analysis of scientific data adequate to the problem, but that there be a clear-cut dialectical materialist research base.

One of the extremely serious complications in cognizing the essence of the human being lies in the fact that, as a biosocial creature, the human being develops under the joint, interacting control of both the social and the biological components of life. The internally contradictory unity and interaction of the biological and social forms of the organization of matter constitute a complex, dynamic picture, manifesting itself in quite distinctive form at different stages of the historical development of humanity and the individual development of each human being.

The Biosocial Nature of Human Beings

No one can doubt that the human individual, as a natural, sensory being, is the product of the evolution of life on our planet. As such, it is endowed with all the attributes of life: self-regulation, metabolism, variability, and heredity. The individual's ontogenetic development and morphophysiological differentiation are subject to the principle of recapitulation and occur under the control of a genetic program coded in 46 chromosomes located in the nucleus of each somatic cell of every normal individual regardless of race, ethnic group, or class. The principles and mechanisms for management of the processes of biosynthesis in humans do not differ from those in other eucaryotic organisms, and the transmission of hereditary information from generation to generation is covered by the general laws of the chromosome theory of heredity.

The human beings populating our planet belong to the single polytypical species Homo sapiens. The racial differentiation of humanity and, even more so, national boundaries have not created mechanisms of reproductive isolation, with the consequence that the exchange of genes extends throughout the entire human race, resulting in a single genetic pool for the species, constituting its basic wealth and the foundation in nature for further progress and flourishing.

Humankind, having come into being in accordance with the laws of organic evolution, retained in its biological organization direct continuity with the class of mammals. The genetic kinship of humans and their animal forebears is quite obvious, as F. Engels observed long ago in a letter to Marx, July 14, 1858: "As one studies comparative physiology, one begins to feel the utmost contempt for the idealists' exaltation of man above all other animals." (3)

Nevertheless, in the course of evolution, humankind has acquired a number of features of biological organization that have enabled vast possibilities of progressive development, not available to other representatives of the animal world, to be realized. At a given stage of evolution, on the basis of man's

distinctively biological organization, there arose the specifically human form of social organization of life — work, production, and relationships of production among human beings — that has determined all of the subsequent course of human history and, in the final analysis, created the civilization of our day.

Ever since the biological evolution of humans gave rise to the social form of their life, the human individual as an object of history and member of a human work group has ceased to be a purely biological being. The biological form of the individual's corporeal and neuromental organization entered into contact with the conditions and requirements of social existence. From that historical moment on, the human individual began to develop under the joint control of inseparably interacting programs: the biological, which arose in the process of the evolution of humans and their forebears, and the social, which took shape on a specific biologically prepared foundation and acquired enormous force, constantly increasing in the course of the development of humanity. Thus, the human being became a product not only of biological but of social existence, thereby acquiring a biosocial nature.

It is quite understandable that the biosocial nature of humans makes it impossible to regard them solely as biological individuals. Criticizing the anthropological materialism of Feuerbach and the principle he affirmed of the religious self-alienation of human beings, Marx formulated his famous thesis according to which "The essence of the human is not an abstraction present in the individual considered alone: in reality it is the totality of all societal relationships." (4)

By means of this remarkable formulation Marx refuted Feuerbach's notion that the essence of humankind might be regarded as some kind of abstract "species" binding together "numerous individuals solely by natural ties." (5)

In fact, Feuerbach's notion of the essence of humankind as an abstraction of the species is erroneous not only in the philosophical sense of methodology but also from the standpoint of natural science, for it takes its point of departure from a typo-

logical concept of the characteristic "species." This concept, belonging to natural science in the past and at the beginning of the present century, is refuted by modern biology, which has established the criterion of statistical type in the description of any feature of each species of organism.

But does Marxism reject natural, biological individuality and the subjective internal world of a person living in society as a system? Does Marx's notion signify the detachment of the human individual from its base in nature? Of course not; and Marxism provides a completely clear and unambiguous answer to this:

Man is directly a natural being. As a natural being — moreover, an animate natural being — he is endowed, on the one hand, with natural forces, vital forces, and is an active natural being. These forces exist in him in the form of gifts and abilities, in the form of inclinations. On the other hand, as a natural, corporeal, sensory, tangible being, he, like animals and plants, is a suffering, conditioned, and limited being, i.e., the objects of his inclinations exist outside him, as objects independent of him; they are objects that are necessary and significant for the manifestation and assertion of the forces that are his essence. (6)

Recognition of the biosocial nature of the human being signifies recognition of the unity of the social and biological in the nature of the individual and of the personality within a system of society. This unity is realized and manifested principally in the fact that the forms and norms of social consciousness, determined totally by the form of societal production and by the ideology (not biology!) of the dominant class, are perceived and realized differently as essential forces in the social practice of each individual, depending on that individual's inherent powers: gifts, capacities, inclinations.

The shaping and development of society naturally proceeded, throughout the entire history of humanity, according to its own

historical laws. But at no stage of history was the human deprived of its native essence, so that, developing as a social being, the individual retained his biosocial individuality. The essence of the human as a being both social and individual and the unity of the social and the individual in this being and in society were described by Marx with exceptional vividness and depth in the following words:

If man is some particular individual and precisely this particularity makes an individual and a truly individual social being of him, then he is to the same degree also a totality, an ideal totality, a subjective being-for-himself in a thinking and perceiving society, just as in reality he exists, on the one hand, as contemplation of societal being and actual utilization thereof and, on the other hand, as the sum total of the human manifestation of life.

Thus, although thought and being are different from each other, they are nevertheless in unity with each other. (7)

Consequently, the biosocial nature of the human individual, historically evolving and realized in distinct ways at different stages in the development of society, has always served, and continues to serve, as a source of immense diversity among individuals in all manifestations of their nonphysical existence, essential powers, and activity in society.

The question of the relationship between the social and the biological has long been the subject of sharp discussion among philosophers and naturalists. This discussion has seen the expression of a broad spectrum of opinions regarding this problem — from complete "biologization" of man to an equally complete "sociologization." The unacceptability of these extreme positions, because of their scientific and methodological error, has been revealed and well supported in Soviet Marxist literature. (8)

Denial of the role of social conditions in the shaping of ideology and of the intellectual and social strivings of human be-

ings and their moral ideals, level of culture, and creative abilities springs from the assumption that these human qualities are exclusively biologically determined. That position, which is untenable as natural science, leads to racism when carried to its ideological extreme. The statements by certain natural scientists (K. Lorenz, for example), very renowned in their professional capacities, who have sought to explain the protests of broad masses of the people, particularly the youth, against the social injustice of capitalist society from an evolutionist, i.e., biological, standpoint strike one as simply absurd. (9)

However, the treatment of human beings as purely sociological, the separation of their inner world, their personal qualities and standards of individual behavior, from their material, biological substrate, the soma, including a highly organized brain, individualized in each person — being just as untenable scientifically as reduction to the purely biological — presents people as a faceless, gray mass, uncomplainingly subject to the despotism of some absolute socium, or as playthings of blind contrariness and accidents of life, having no wills of their own. This viewpoint makes it impossible to understand the greatness of the human spirit, of the high passions and achievements that mark the entire course of the history of human society.

Elevation of the social determinant to an absolute closes the door on study of the genuine nature of humans and their immanent powers as they have naturally taken shape in the course of the historical process. It leads to separation of the specifics of thought and action from the brain as the guiding system of behavior and the genetic system of ontogenesis.

Thus, both the absolute "biologization" and the absolute "sociologization" of the human being as individual and personality are equally unacceptable points of departure for study and understanding of the human essence. They are fundamentally faulty as natural science, and on the philosophical level testify to the "inflation, the exaggeration, of one of the facets of cognition"; and this, as Lenin observed, leads to creating gods. (10)

Embryonic biosocial organization was present even in the hominid forebears of mankind. It came into being on the basis

of their unique biological organization. This organization in turn determined the possibility of that vector or, to be more precise, a whole spectrum of vectors of selection that guided the evolution of the group along the path of the shaping of humankind. Consequently, the roots of the biosocial essence of human beings, the material foundation of their shaping and patterns of development, have to be sought as far back as in the evolutionary past of human beings.

The biological organization of humans was created by the special features of the evolution of their forebears, specifically by the unique interaction of the propelling, stabilizing, and destabilizing effects of selection and the ever-increasing role of stress as an internal factor in evolution and a source of variability in heredity, combined with the process of mutation and gene drift. However, biological organization alone could not have, and did not create, the human being as such.

Factors in the Biosocial Evolution of Humans

The socialization of human beings, their transition to qualitatively different forms of social organization of life from those of their hominid ancestors, was the key stage in the shaping of rational humans as biosocial beings.

The significance of this factor was fully understood and described by Engels: "In order to emerge in a process of development from the animal state, and for the greatest progress known to nature to have occurred, yet another element was required: the inability of the separate individual to defend itself had to be compensated for by the united strength and collective actions of the herd." (11) There is no doubt that this path of social existence was taken by the most biologically advanced groups, primarily those that possessed the art of speech and the elements of labor better than others. At the same time, they were groups whose members had the capacity for everyday mutual contacts, i.e., those elements of behavior without which the existence of any group is impossible.

The founders and members of these groups possessed all the

individual diversity, including vast genetic diversity, that had come into being in the ages before the sociobiological evolution of humans. But the shaping and development of collective forms of existence, the creation and ever greater complexity of the social milieu, signified the rise of a totally new ecological situation, requiring new biological characteristics on the part of socially organized individuals.

In The Origin of the Family, Private Property, and the State, Engels provided an analysis, all-encompassing for its day, of the role of the biological component and the tribal-biological connections in the shaping and development of society and societal relationships. This remarkable work of Engels, employing a vast amount of data on the emergence of the first human collectives, depicts the development of and the historical changes in the social forms of life and the kinship relationships among the members of society as associated phenomena. In this work Engels adduces much evidence of the fact that, at a given stage in the development of societal relationships, the social and the biological were closely interconnected and interacted.

Engels also came to the very definite conclusion that certain most important biological components — elements of behavior characteristic of the forebears of humankind — had to be changed as preconditions for the emergence of human social forms of life. On this subject, he wrote: "Mutual tolerance by adult males and the absence of jealousy were the first condition for the formation of such larger and longer-lasting groups in the milieu of which the transformation of animal to man could alone occur." (12)

The shaping of society and social relationships gave rise to the need for development and strengthening of those properties of the nervous system and behavior that would best adapt the individual specifically to social norms of existence, to the needs of the collective and its diverse traditions, and thus promote the development of collective forms of life. Therefore, the properties of the nervous system on whose basis the ability of man to live in groups developed, became a most important

object of natural selection, starting with the very first stages in the socialization of human beings.

The dialectics of history is such, however, that, while being an object of evolution, these processes, under the conditions of social existence, also become a powerful factor in evolution, in short, a factor of selection, determining the shaping of man as a biosocial being. From this moment in history, and over the course of a very long period of development of primitive society, the fate of the individual and of separate human groups, and the potentials of their contribution to the genetic pool of generations to come, were decided not only by the abiotic conditions of the external environment but, to no less a degree, by the purely biotic as well, primarily the behavioral interrelationships of individuals within the group as a whole. As time went on, it was precisely society that, up to a certain stage in its development, became the selective factor in evolution, constantly shaping the genetic pool of the species of rational humans in light of their needs.

It is quite understandable that humankind entered that phase in its history as a species already possessing a tremendous amount of hereditary diversity with respect to its morphological-physiological, including neuromental, properties. This was a prerequisite for the rapid development of humans as a species of a biosocial nature.

What is of fundamental importance is that neither biosocial evolution in the earliest stages of the shaping of human society nor its subsequent development under its own laws eliminated the interpersonal genetic differences among human individuals. If anything, the opposite: in the early stage of social existence that diversity would appear to have continued to grow stronger. Several factors might have determined this; among them it is necessary to note, of course, the role of individual selection under the conditions of social existence.

Operating with the genetic material controlling the development of different properties of the nervous system and nerve processes and adapting these properties to the conditions of the life of society, selection intensified the variability among

human individuals in the early stages of biosocial evolution and thus created a natural, biological base for creation of the most adequate norms of existence and behavior of primary human groups as integral formations.

Another reason for the heightening of interpersonal genetic variability in the phase of primary human collectives was that, at that stage of evolution, intergroup selection played a larger role than earlier. At the stages of evolution at which intergroup selection was operative, it could not but make use of interpersonal genetic differentiation of humans within the bounds of each group, albeit in mediated form (i.e., through the properties and characteristics of the group).

The disappearance of intergroup selection, which was a result of the increase in numbers of the human race and the ever-greater development and complexity of society, led, in turn, to intensification of processes of migration of genetic material. This process reduced intergroup hereditary variability to zero, but increased the individual variability of human beings within the single species.

What properties of nervous processes and behavior as a whole came under the special control of selection in the early phase of the social existence of humankind?

We note to begin with that, if we are speaking of typology, then this control was exercised, as at the stage of presocietal existence, by such properties of the nervous system as the strength of the process of stimulation and inhibition. It was by means of the forces of stabilizing selection that these properties of the nervous system were retained at a level that optimally adapted the individual to the conditions of the external environment and the forms of life and work activity distinctive to a collective. The lability of nerve processes was a particularly important object of selection under the conditions of social existence, as has been well documented by the distinguished Soviet evolutionist and neuropathologist S. N. Davidenkov. (13)

This property was also of particularly great significance under the conditions of presocietal evolution. But under the conditions of collective existence, of a life of work and utiliza-

tion of language, lability assumed a quite special significance. Davidenkov has rightly emphasized that languages, in particular, as a distinctive attribute of humans — a means of expression of abstract thought and formulated concepts — could not have arisen and have reached its heights without great lability of nerve processes.

The special direction of the evolution of the brain and of properties of nerve processes and their significance as factors in evolution had the result that, starting from the first stages in the biosocial history of man, they fell under the control of selection; and the passage of time strengthened such qualities as the capacity to assimilate instruction, to perceive and transmit the life experience of earlier generations, the capacity for self-regulation, and a tremendous ability to accept the training of behavior. It was on this basis that self-awareness of the individual as member of a collective arose, followed by the gradual appearance of reason as a quality present only in humans and differing, as Engels noted in The Dialectics of Nature, from thinking, which is present in animals as well. (14)

Among the diverse factors shaping these human qualities under the conditions of a social environment we note once again the significance of stress. Its role as an evolutionary, i.e., selective, factor, on the one hand, and on the other, as a factor serving to train the human nervous system increased to an uncommon degree and assumed special significance. One can hardly doubt that language, when it took on a multifaceted burden of meaning, became, at the point at which the nervous organization of man attained its peak, a more powerful agent of stress than the club of Neanderthal man. In order to have a normal life in society, man had to acquire the capacity to resist many products of psychological and emotional stress that, to an ever-increasing degree, began not only to accompany humans throughout their lives but to be an internal condition of them.

At the same time, adequate ability to withstand stress, sometimes very great stress, is a necessary condition for an active social life and for creative activity in human beings. There-

fore, the capacity to sustain a state [of stress] is just as necessary as the ability, inseparably linked with this capacity, to handle overloads of stress and, when burdened by them, not to deviate from the "norms" of behavior tolerable to society. All these qualities of the human nervous system were shaped by natural selection on the basis of interindividual hereditary variability in the earliest stages of society, when still at a primitive level of organization, as properties with an extreme degree of lability and highly susceptible to training. This was in response to the demands of social existence, i.e., of society itself. As the biosocial nature of man progressed and society and its diverse demands on the individual became complicated, these properties of the nervous system developed and were perfected to an ever-greater degree.

Under the conditions of social existence — in other words, at the stage of biosocial evolution — another human quality appeared: altruism, the capacity for self-sacrifice for the sake of someone near and dear, and for society as a whole. Unquestionably, altruism is one of the expressions of the human capacity for self-regulation of behavior, and its social significance is tremendous. The biological preconditions of this property are to be found in the underlying evolutionary history of life, and may be seen in prototype in the behavior of adult animals with respect not only to their own offspring but to members of their herd or flock.

The paths of evolutionary significance and the paths of the shaping of altruism in man, already examined in detail by Charles Darwin (15), subsequently repeatedly attracted the attention of many thinkers and naturalists, among them P. A. Kropotkin, J. B. Haldane, D. P. Filatov, V. P. Efroimson, B. L. Astaurov, and P. Darlington. (16)

The evolutionary and genetic basis for the development of altruism is made clear in all of their writings. What is fundamental here is that, under conditions of intragroup selection, the capacity of certain members of a group to sacrifice their personal interests, even give their lives, for the general good gave the group as a whole major advantages in terms of evolu-

tion. The writings of the cited Soviet scholars demonstrate in detail and emphasize the fundamental proposition that altruism as an individual personality trait is shaped under the determining influence of the conditions of social life, moral norms, and traditions of the social milieu.

In dealing with the question of altruism and its evolutionary sources one must note the objectively contradictory history of the shaping of this property. For example, at the dawn of human history, particularly in periods of severe famines, egotism and its expression as antihumanism acquired adaptive significance for society. Under the severe conditions of life in primitive communal society, the violent extermination of persons useless to society and a burden to it — the aged, the sick, and children of a given age (the literature offers abundant examples of this) (17) — helped to preserve the most active and reproductive part of the community. Under different conditions in the life of an ethically undeveloped society, altruism, like its opposite — egotism and anti-altruism — had different values for adaptation; but inasmuch as the conditions of life were constantly changing, these types of behavior were assimilated into group selection, and the gene systems underlying them were incorporated into the genetic pool of humanity.

The shaping of a highly labile and trainable brain and nervous processes, including an optimal level of ability to withstand and resist stress as the biological basis of the capacity to learn, i.e., perception of the influence of language as a means of transmitting experience, constituted an event of the utmost significance in the history of humanity.

On the basis of these qualities, a fundamentally new path for shaping the behavior of human beings, founded on the transmission, perception, and perfection of the experience of previous generations and of one's contemporaries, revealed itself as early as in primitive society.

In judging the enormous significance of this process, the founder of the chromosome theory of heredity, T. H. Morgan, observed that human beings have "two processes of heredity: one due to material continuity (sex cells) and the other, to

transmitting the experience of one generation to the next by example, speech, and writing." (18) The prominent Soviet geneticist M. E. Lobashev termed the process of connection between human generations by transmission of experience and instruction signal heredity and emphasized that, having arisen on a base prepared by evolution, it had acquired special significance "in the development of human society. All of civilization serves as a vivid example of the transmission of life experience from one human being to another by means of the second signal system." (19)

S. N. Davidenkov, who formulated the notion of continuity, analyzed with elegance the question of the significance of man's capacity to transmit and receive experience. In Davidenkov's view, "Let 'heredity' remain what is transmitted from generation to generation by sexual reproduction, whereas what is transmitted by teaching we shall term 'continuity.' When the question is separated thus there can be little doubt concerning to which of these two basic groups the entire social-labor essence of the primitive human being should be ascribed: it is, of course, wholly within the sphere of continuity." (20)

Academician N. P. Dubinin also ascribes great importance to cultural and social continuity, which he terms "social inheritance." (21)

Ever since humans took the road of societal existence, it has been specifically continuity, based on the plasticity of the brain and its capacity to shape a program of individual behavior in accordance with the conditions of the social environment, that has become the principal natural factor in social progress and the most important component of the development of personality qualities in all the diversity of their manifestations. Since then, realization of the human genetic program has come under the rigorous control of the social milieu, which determines cultural and work traditions and standards of behavior in society.

Therefore, no matter how one understands cultural continuity, it is indisputable that ideology and all the moral work and other traditions of society and the classes constituting it are deter-

mined by the social conditions born of the character of societal production. But the social conditions determining societal self-awareness do not eliminate the hereditary interindividual diversity of human beings. This proposition has been expressed very clearly by P. N. Fedoseev: "In analyzing the behavior of an individual one needs a differentiated approach that takes into consideration both the social and the biological conditions (natural conditions in general) that, interacting with each other, govern that behavior." (22)

It is specifically awareness of the inseparability of the interaction of the social and the biological in the unitary biosocial nature of man, the historical dynamics of that interaction and its concrete manifestations at various stages of human history and in our epoch, that is one of the most important tasks in studying the essence of the human species and the prospects of its future.

Certain Questions of the Genetic Polymorphism of Man

Today human genetics is a highly advanced and rapidly progressing scientific discipline. The genetic systems by which many anatomic-physiological and biochemical characteristics of man are determined have been rather well studied. Much information has been accumulated on the genetic and cytogenetic bases of many pathologies, including those of a mental nature. The genetic foundations of the characteristics of normal human behavior and of higher nervous activity have been studied much less extensively. There is no need to demonstrate the exceptional importance to science and practical life of understanding whether the genetic component influences — and if it does, to what extent and in what situations — the development of such qualities as the norms of human behavior in society, the inclination to accept, reject, or even consciously violate human traditions and ideals of work and ethics; the same is true of the predominance in human behavior of feelings of comradeship and collectivism or, on the contrary, of individualism and egoism, which sometimes assume all but pathological manifesta-

tions of boundless vanity, careerism, and even cruelty toward those in one's milieu, and, finally, of the level of human intellect and its capacity for creative effort.

Genetic analysis of all these human qualities, which do objectively exist, is exceedingly difficult. The reasons for these difficulties vary; but among the principal ones is the fact that, for understandable reasons, humans cannot be the same kind of object of genetic analysis as the customary objects of experimental research.

Another reason, no less important, consists in the fact that the genetic component of all the cited characteristics of humans, and of many others, is considerably camouflaged by the exceptionally great capacity of nervous processes to be trained and by the influence of the conditions of life. The extent of this susceptibility to training and the entire set of conditions that influence humans at all the stages of their individual development are practically beyond the reach of exact quantitative measuring, and this can introduce a high level of indeterminateness into research results.

It must be taken into account that not only the very earliest prenatal influences but the conditions of development of the embryo, determined by the physiological and neuropsychological state of the maternal organism, particularly the extent to which it can deal mentally with stress, affect many aspects of behavior both of animals and of humans. Some stages in ontogenesis, the so-called sensitive periods, have particular importance in the sense of shaping neuropsychological and behavioral characteristics; not without foundation is it held, for example, that although features of the human intellect develop over the entire course of an individual's life, the conditions under which the intellect is cultivated in early childhood exert a particular influence.

Finally, one cannot fail to reckon with the fact that the structure of all human emotional and intellectual characteristics is exceedingly complex, and their real expression is always the result of the interaction of many components. Jean-Jacques Rousseau observed long ago: 'No matter what moralists may

say, human reason owes much to passions; and they, it is generally recognized, owe much to it." (23)

It would be erroneous to hold that the properties of the human psyche and the manifestations of human behavior are exclusively a function of the autonomous activity of the brain. They are determined by conditions of the external environment directly influencing human behavior and by purely somatic organization and physiological conditions, which leave their impression upon the higher manifestations of mind and behavior.

All these components, developing, in turn, under the control of polygenic systems and depending, to one or another degree, on the conditions of a person's individual life, create a very dynamic basis for mental activity, as a highly complex process of many components. From that standpoint, the division of the mind into components of content and of dynamics, accepted, albeit tentatively, by some authors, is hardly justified. Both in its historical and in its individual development the human mind takes shape as a biosocial category, and as such it lacks any dualist base.

Despite all the limitations and shortcomings of the techniques of genetic analysis of the psychological and intellectual properties of man, experimental data are gradually being accumulated that make it possible to examine this problem from a general standpoint, without going into particulars. Such material has been obtained, in most cases, by comparative study of monozygotic and dizygotic twins or non-twins born to a single family (sibs) and reared under identical or different conditions. Use of the twins technique makes it possible to arrive at judgments regarding the share of genetic and environmental differences in the total variation of a characteristic or quality. The share of genetic differences in the total variation of a characteristic has come, in genetics, to be called the hereditability coefficient (h^2). It must be emphasized that this parameter describes only the source of variation of the criterion in a particular group of individuals, but says nothing of the genetic determination of potentials, that is, of the level of abilities of a specific individual.

A great many studies employing the twins method have been devoted to examination of the intellect and of genetic components in variations in intellectual capacities, expressed by the IQ index. This level is determined by carrying out special tests that do not require any particular learning or knowledge on the part of the subjects for solution of the problems presented. As of now the most detailed and informative summary of data on genetic determination of intellect as measured by IQ is a rather dated article by L. Erlenmeyer-Kimling and L. Jarvik summarizing the data of more than fifty pieces of research, in which about 30,000 correlations were calculated. (24) In point of fact, the results of these studies uniformly testify to a very strong influence of heredity on IQ.

Later studies have essentially confirmed the conclusions drawn from the synthesis made by Erlenmeyer-Kimling and Jarvik.

For example, one survey (25) cites data from a study of the intellectual level of children within the content of genetic statistics. According to the author of the survey, environmental conditions account for only 20 percent of the variability in IQ; the influence of additive genes accounts for 39 percent; dominant genes, 10 percent; the interaction between genotype and environment, 9 percent; and other factors, 22 percent.

Similar data have been obtained in the works of Soviet researchers. For instance, S. Kontonistova (26), having studied 57 pairs of identical and 61 pairs of dizygotic twins, aged 7 to 16, found that genotypic differences in intellect were determined chiefly (55 to 60 percent) by the genetic component, in the structure of which the principal role was played by genes of additive action; environmental difference was attributable primarily to intrafamilial factors.

The list of works of this kind could be multiplied manifold, but, in principle, would add nothing new to the data presented. The difference in IQ is significantly influenced by genetics, although as the person gets older, the influence of his environment, particularly if there is extreme variation in it, may increase. It is quite understandable that in different studies the

authors find different values for the genetic component in IQ differences; but even the minimal value of that coefficient, revealed by nonverbal testing, is not under 30 percent. (27)

In forming a judgment on the basis of all these data, it is, of course, necessary to understand clearly that the IQ, which characterizes the ability of individuals tested to solve particular problems at particular moments in time, reflects only certain aspects of the mind. But if one were to understand by intelligence the integrated index of an individual's creative and moral potential, the IQ would not describe that, of course. In any form of creative, i.e., strictly speaking, intellectual, human activity, many properties, not only emotional-psychological but even anatomic-physiological, are involved; and it is this that is responsible for the tremendous complexity of this integral indicator of the human spirit.

The literature contains many data testifying to the hereditary determination of the most diverse properties of the human mind and behavior, or of particularly objectively identified properties of the brain. A detailed survey by N. G. Artobolevskaia, R. F. Mairamian, and V. P. Efroimson (28) synthesized data analyzing the characteristics of components of intelligence (verbal understanding, space perception, and ability to calculate, think, and engage in verbal expression), certain kinds of gifts (musical, mathematical), and the general nature of behavior and temperament.

Much data on the genetic determination of human beings may be found in various collections or monographic surveys that have appeared abroad.

Recent years have also seen a revival of experimental studies of human psychological characteristics in Soviet science. Work done by the Psychology Institute of the USSR Academy of Sciences is very interesting in this regard. These studies show the role of the genetic component in determining a number of properties of the human nervous system and mind: the strength and sensitivity of the nervous system (N. F. Shliakhta, T. A. Panteleeva), lability of nerve processes (T. V. Vasilets), and certain indices of the lability of the nervous system (T. A.

Panteleeva and N. F. Shliakhta). The fact that certain parameters of the human electroencephalogram (EEG), particularly the alpha rhythm, reflecting the state of the most general properties of the brain as the basis for performing its activity, are under substantial genetic control is extremely interesting. It has also been found that the EEG characteristics of different lobes of the brain, controlling different aspects of nervous and mental activity, are subject to genetic control (T. A. Meshkova). (29)

Certain conclusions of fundamental significance obviously follow from the data presented above, and from many others.

In the first place, many properties of the human nervous system and mind, determining the type of higher nervous activity, features and properties of individual behavior, specific personal interests and inclinations, and norms and forms of individual response to every possible kind of external stimulus and irritant, including those determined by the social milieu, are to one degree or another determined by heredity. Consequently, people are different, not equal, even at birth, in their potential qualities and possibilities, i.e., in their natural abilities. The degree of that inequality differs, but it is an objectively existing fact of immense social significance.

Second, virtually all the qualities of the mind and the behavior of normal, i.e., healthy, people are very labile and accessible to training, so that, under the influence of conditions of upbringing and social environment on one and the same basis in heredity, these properties may attain different levels of development in both their quantitative and qualitative expressions.

The tremendous plasticity of the brain and the susceptibility of human beings to training and instruction rule out any inevitability resulting from the genetic program, and therefore matters cannot be understood to mean that the presence or inborn potentials of one kind or another rigidly and fatalistically determine the quality of the person himself. This is more readily understandable because there are no special genes for, let us say, humanism or altruism, or genes for antisocial behavior. But there are genetically determined properties of the mind,

the combination of which, refracted through particular social conditions, are capable of shaping either a person with a great sense of conscience, who is repelled not only by criminal activity but by careerism and money-grubbing, or a person with a poor understanding of the meaning of conscience, with all its consequences.

The degree of rigidity of hereditary determination in human beings varies; and, consequently, the potentials of upbringing also differ. Nevertheless, they are very great, and everyone is familiar with numerous examples of this. The role of social upbringing is particularly powerful. Social ideals are decisive in shaping the social aspirations and behavioral norms of human beings in the work process and in society generally. The nobility and genuine humanism of the ideas of socialist society and their implementation are the chief factor in socializing people, but they do not make up for hereditary qualitative differences.

Although society and its institutions play an enormous role in the shaping of humans, the human beings themselves — their will, their internal purposefulness, capacity to work, and ability to stand up to difficulties and adversity — largely determine their personal destinies. What society, what social milieu, what social ideals pushed M. V. Lomonosov out of an early eighteenth-century village near Arkhangelsk to Moscow to acquire an education? What helped him, already a grown young man, to overcome hunger, cold, and the ridicule of his classmates and study at the Slavic-Greek-Latin Academy? The social determination of fate in the life of that great Russian was negative rather than positive. But his great spirit, ambition, and tremendous capacity for work, combined with brilliant capacities for learning and the acquisition of knowledge, overcame all obstacles and brought him to the peak of worldwide fame.

Under our conditions as well, under which society does everything possible to develop all people's native capacities, one must not forget or, even less, ignore the internal capacities of man himself for self-cultivation and self-development. The

inherited qualitative differences among human beings and their different inclinations and motivations face society with difficult problems in developing measures and programs for nonstandardized socialization and education. These concerns justify themselves fully, however, because, given the enormous diversity of occupations, each individual, having his own degree of genetic determination of his personal qualities, may, under appropriate conditions of life, education, and socialization, attain a high level of social, occupational, and ethical achievement.

The question of the presence or absence of natural inclinations toward different kinds of behavior and demands of the spirit has, as we have previously noted, long been a subject of discussion, among Soviet researchers as well; and some of them adhere to the view that hereditary differences in quality do not extend to the higher manifestations of the human mind, its behavior and intellectual capacities.

The species Homo sapiens is immensely rich in the infinite diversity of capabilities of the spirit, of the intellect, and of creativity, i.e., people's inborn potentials. The laws of social development, making use of that wealth, lead humanity along the path of social progress, the path of the building of communism — a society in which the internally contradictory unity of the social and the biological in man, recognized by science, will find a genuinely humanist resolution. ..

Notes

1) V. I. Vernadskii, Razmyshleniia naturalista. Kniga vtoraia, Moscow, 1977, p. 22.

2) Ibid., p. 42.

3) K. Marx and F. Engels, Soch., vol. 29, p. 276.

4) K. Marx and F. Engels, Soch., vol. 3, p. 3.

5) Ibid.

6) K. Marx and F. Engels, Soch., vol. 42, pp. 162-63.

7) Ibid., p. 119.

8) See, for example, P. N. Fedoseev, "Problema sotsial'nogo i biologicheskogo v filosofii i sotsiologii," in Biologicheskoe i

sotsial'noe v razvitii cheloveka, Moscow, 1977; I. T. Frolov, Perspektivy cheloveka, Moscow, 1979.

9) K. Lorenz, Die acht Todsünden der zivilisierten Menschheit, Munich, 1973.

10) V. I. Lenin, Poln. sobr. soch., vol. 29, p. 322.

11) K. Marx and F. Engels, Soch., vol. 21, pp. 39-40.

12) Ibid., p. 40.

13) S. N. Davidenkov, Evolutsionno-geneticheskie problemy v nevropatologii, Leningrad, 1947.

14) K. Marx and F. Engels, Soch., vol. 20, pp. 537-38.

15) Ch. Darwin, Proishkhozhenie cheloveka i polovoi otbor (Russian ed.), Moscow, 1963.

16) P. A. Kropotkin, Etika. Proiskhozhenie i razvitie npravstvennosti, Petrograd and Moscow, 1922; J. B. Haldane, Factory evoliutsii, Moscow and Leningrad, 1935; D. P. Filatov, "Normy povedeniia, ili Moral' budushchego s estestvennoistoricheskoi tochki zreniia," in Puti v neznaemoe, collection 11, Moscow, 1974; V. P. Efroimson, "Rodoslovnaia al'truizma," Novyi mir, 1971, no. 10; B. L. Astaurov, "Homo sapiens et humanus. Chelovek s bol'shoi bukvy i evoliutsionnaia genetika chelovechnosti," Novyi mir, 1971, no. 10; P. J. Darlington, "Altruism: Its Characteristics and Evolution," Proc. Nat. Acad. Sciences, 1978, 75 (1).

17) See I. I. Mechnikov, Etiudy o prirode cheloveka, Moscow, 1961.

18) T. H. Morgan, Eksperimental'nye osnovy evoliutsii, Moscow and Leningrad, 1936, p. 169.

19) M. E. Lovashev, Genetika, Leningrad, 1963, p. 7.

20) S. N. Davidenkov, Evolutsionno-geneticheskie problemy v nevropatologii, pp. 109-110.

21) N. P. Dubinin and Iu. G. Shevchenko, Nekotorye voprosy biosotsial'noi prirody cheloveka, Moscow, 1976.

22) P. N. Fedoseev, "Problema sotsial'nogo i biologicheskogo v filosofii i sotsiologii," in Biologicheskoe i sotsial'noe v razvitii cheloveka, Moscow, 1977, p. 26.

23) J.-J. Rousseau, Rassuzhdeniia o proishkhozheniia i isnovakh neravenstva mezhdru liud'mi, Moscow, 1969, p. 55.

24) L. Erlenmeyer-Kimling and L. Jarvik, "Genetics and Intelligence: A Review," Science, 1963, 142(3598), 1477-79.

25) Lee Willerman, "Effects of Families in Intellectual Development," Amer. Psychol., 1979.

26) N. S. Kontonistova, "Issledovanie intellektual'noi deiatel'nosti bliznetsov," Soobshchenie 11. Nasledstvennost' i sreda, Genetika, 1980, 16(2), 351-59.

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28) N. G. Artobolevskaia, R. F. Mairamian, and V. P. Efroimson, "Uspekhi genetiki psikhologicheskikh osobennostei," Biulleten' Moskovskogo obshchestva ispytatelei prirody, Otdel biologii, 1970, LXXV (4), 127-42.

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I. S. Narskii

CONTRADICTION AS A CATEGORY
IN HEGEL'S SCIENCE OF LOGIC*

From the Editors [of Voprosy filosofii]: Recently the prominent Soviet philosopher, specialist in problems of dialectics, theory of knowledge, the history of philosophy, and esthetics Igor Sergeevich Narskii marked his sixtieth birthday. The editorial board and staff of Voprosy filosofii wish to extend their congratulations to him and wish him good health, happiness in his personal life, and continued success in his work.

The principal category of Hegel's dialectical theory is contradiction; and a description of that category, its operation and application, constitutes the central section of the Science of Logic. The content of that section is intimately connected with Hegel's notions of sublation [Aufheben] and preservation, leap and continuity, difference and identity, understanding and reason. The functions of "contradiction" extend to the Hegelian

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system as a whole; and inasmuch as Hegel looks upon all reality as the product of the contradictory development of the Absolute, expressed in the development of the system of philosophy from its first to its last category, it turns out that "contradiction" is omnipresent, is the "root of all motion and vitality." (1) It is natural that an enormous amount of literature has come into being about this principal category of Hegel's dialectical logic.

The Marxist philosophical tradition of the study of this Hegelian category takes as point of departure the task of clarifying what Hegel achieved that was new relative to his precursors, the objective of surmounting the idealism and social limitations of his teachings, and then the desirability of utilizing for the construction of dialectical materialist logic in our day the true solutions and profound hypotheses of the great philosopher, deriving from his remarkable dialectical penetration into the lessons of life and scientific knowledge. (2) All these approaches are implicit in V. I. Lenin's statement: "Hegel's logic cannot be applied as given; it cannot be taken as a given. From it one must select the logical (epistemological) nuances, after freeing them from his Ideenmystik: that is still a tremendous task." (3) This statement bears the most direct relation to the category "contradiction." Much has already been done in analyzing this category of Hegel's, particularly with respect to discovering its "rational kernels"; but certain obscurities have not yet disappeared with respect to the question of identifying Hegel's views on the relationship between dialectical contradiction and its resolution (synthesis), and also with respect to the relationship between objective contradictions and those that occur in the course of acquisition of scientific knowledge (those of a formal-logical character included). The clarification of these obscurities has major significance for the development of the theory of knowledge. —In this article these questions are analyzed primarily from the aspect of the logic of the process of cognition.

1. Relationship between Dialectical Contradictions and Contradictions in Formal Logic from the Standpoint of Materialist Dialectics

We know that Hegel regarded the law of contradiction in formal logic as the antipode of the dialectical principle of the universal contradictoriness of things, processes, and phenomena. Criticizing the formal logic of his day, in some cases he reproached the law [of contradiction] for having no content and, in other cases and on the contrary, viewed it ontologically beyond all bounds, i.e., erroneously interpreted it in his teaching on Essence, with no qualifications whatever, as the prohibition of changes and development of things, in other words, as denying the existence of objective dialectical contradictions. He was right, however, in criticizing the Wolffian "ontologization" of the laws of formal logic. Therefore, examining that law when formulated as "A cannot simultaneously be A and not A," Hegel rejected it as false. Today we see that Hegel was wrong in this. For when rigorously employed in two-valued logic, the law of noncontradiction in formal logic rules out only contradictions in formal logic expressed by the devices of that logic. Aristotle earlier had had a sounder view of this question, understanding the law of noncontradiction as follows: It is untrue that A is and is not B (does and does not have B as its predicate) when the words entering into this statement have identical meanings, and under identical relationships. Today we know that the law of noncontradiction rules out contradictions in formal logic in the sense that if these contradictions appear in commonplace but rigorous thinking or in a logical calculus, and are incorporated in a formal system by the means available to this calculus or in a science formalized with the aid of this calculus, though not formal in terms of its subject matter, they are false. Their appearance then tells us that new research is necessary in order to perfect, or at least correct, those theories in whose formal expression these contradictions in formal logic have made their appearance. Insofar as the metalogical principle of noncontradiction is concerned,

it is utilized in the Marxist theory of knowledge, as it expresses the real epistemological opposition (incompatibility) between truth and falsehood, although this incompatibility is relative, for between truth and falsehood there are transitions (which can only very roughly be expressed by multivalued, modal, so-called epistemic, logics). This metalogical principle itself functions on a dialectical basis.

Thus, Hegel did not consider the existence of positive functions in the metaprinciple of noncontradiction. With regard to the law of noncontradiction at the level of purposeful denoting, Hegel's criticism of that law, based on his excessive "ontologization" of its content, also rested upon "ontologization" of the contradictions in formal logic forbidden by that law (true, Hegel criticized Kantian logicians for the emptiness and meaninglessness of the forms in formal logic with which they operated, yet he applied this approach to criticism of the law of identity, but not to criticism of the law of noncontradiction).

Nevertheless, if ontological meaning is given to contradictions in formal logic, i.e., if it is held that their very presence compels the assertion that reality consists of extreme metaphysically invariable opposites incompatible in their very essence, then that law which prohibits these contradictions deserves not condemnation by philosophers, as allegedly "externally reflexive," "nontheoretical," and superficial, but praise. One cannot reject as false the ontological (and consequently antidialectical) law of noncontradiction, which in point of fact negates those relationships that are qualified as falsely ontological (antidialectical). Hegel, however, took an equally negative position in his writings both toward contradictions in formal logic (he held that if they did not exist in real life, then in thought they could be no more than errors in understanding) and toward the law that is aimed at eliminating them from the fabric of rational thinking. This means that a paradoxical situation arose in Hegel's theoretical thinking, i.e., an unexpected result produced, in this case, by a process of reasoning that was less than precise.

Furthermore, Hegel did not take into account the circum-

stance that in the process of thinking, contradictions in formal logic appear not only in the form of random errors, because of limitations in the reasoning of the person engaged in thinking, but also as inevitable, and even useful, self-revelations of real difficulties in the path of cognition. Hegel himself, distinguishing in The Phenomenology of the Spirit between errors and confusions (using the effect of alienation as example), created the methodological preconditions for a profound historical view of the limitations of reason and for discrimination, within the confines of this limitation, between metaphysical degradation, on the one hand, and dialectical inadequacy, which is a necessary step on the road to a fuller and higher dialectical position, on the other hand. In the introductory sections on logic in the Encyclopedia of the Philosophical Sciences, as I demonstrated in my paper at the Tenth International Hegel Congress (1974), Hegel actually operates with two different notions of understanding, in other words, with notions of two kinds of understanding — metaphysical and dialectical — that convert into each other under certain conditions. Both accidental errors and inevitable confusions are to be found, generally speaking, in metaphysical understanding; but they are, nonetheless, non-identical stages in the process of its gradual metamorphosis, which liberates it from the shackles of metaphysics (I deal with this in detail in the book Nineteenth-Century West European Philosophy [Zapadnoevropeiskaia filosofiiia XIX veka], Moscow, 1976, see p. 274). However, in addition to errors and inevitable confusions there are also other kinds of contradictions in formal logic, including some that it is difficult to term "confusions." These are contradictions of cognizing thought in formal logic that have the status of the formal-logical form of a scientific problem dialectically posed. Here we are dealing with a most important case of utilization of contradictions in formal logic in the interests of cognition. (4)

When correctly understood, the law of noncontradiction in formal logic does not cancel out dialectical contradictions, does not deny them, and therefore does not enter into conflict with the law of universal dialectical contradictoriness. Dialec-

tical contradictions are based on the operation of dialectical negations ("sublations"), which differ significantly from the contradictory and contrary negations of formal logic and, by virtue of their enormous richness of content, and consequently variability, cannot be expressed exhaustively and with complete accuracy by any negations (and combinations thereof) in systems of multivalued logic, including those that are termed paraconsistent (A. Arruda, N. da Costa, and others), or by relevant logics. One of the elements in the variability of dialectical negations was demonstrated by K. S. Bakradze, in directing attention to the fact that Hegel usually did not distinguish between "internal" and "external" negations in a proposition, so that negation of one side of a contradiction by its other side is equally expressible in his writing as "is not P" and "is not-P." (5) But this circumstance is precisely associated with the vast "flexibility" and multiformity of content not only of "sublation" but of other operative categories in Hegel's logic, although sometimes they went to the point of a certain unintelligibility. (6) As in many cases in life, here, too, benefits wind up in shortcomings.

Hegel pointed out, correctly, that "the story cannot end in contradiction and sublates itself through itself" (7). This means that contradictions cannot be shelved, that every contradiction must, sooner or later, be resolved dialectically. However, Hegel himself often interpreted the resolution of contradictions as reconciliation of the [opposing] sides. The bourgeois philosopher Habermas virtually saw in this one of Hegel's principal services as a dialectician, and therefore placed in the forefront of his analysis of the Phenomenology of the Spirit the notion of "recognition" (Anerkennung), by the parties to a contradiction, of each other's significance. But the tendency to reconcile contradictions represents not a strength but, on the contrary, a weakness of Hegel's treatment of contradictions.

One can identify four principal kinds of reconciliation of contradictions by Hegel: (1) the transformation of the interaction of the sides of every contradiction into a combination of notions in thought, deriving from Hegel's idealism; (2) the culmination

of the chain of contradictions, owing to the limitations of Hegel's social ideals, in their final merger in the Absolute, with which the development of the world's essence comes to an end. The mission of philosophy "is reconciliation" (8), and its object is to attain "reconciliation of thoughts and notions with reality" (9); (3) but on the way to final merger of everything into the Absolute, to the degree that that path is described and commented upon in Hegel's philosophy of history, now and again a position of social compromise triumphs, for which the rational point of view is reconciliation with what is (10); and finally, (4) a form of reconciliation of opposites sometimes occurs in Hegel in his logic, philosophy of nature, and history of philosophy when he engages in cogitational neutralization of the sides of the contradiction in the distinctive manner that occurs if synthesis (i.e., solution of the contradiction) is erroneously understood as being equivalent to the initial unity of thesis and antithesis (i.e., the sides of the particular contradiction).

This view of the outcome of contradiction is present in principle in Hegel's assertion that "An independent opposite contradicting itself has already been the basis; only determination of the unity with itself has been added. . . ." (11) But we also find in Hegel concrete cases of erroneous interpretation of synthesis — for example, in his analysis of Zeno's "arrow in flight" or of the mathematical differential. In these cases, the joining together of the sides of the contradiction has, in Hegel, the character of a conjunction whose logical sense is not precise; and Hegel violates or beclouds his own profoundly dialectical principle of "sublation" of the contradiction by synthesis at a higher level of development of the contradictory object and, accordingly, at a higher level of its knowledge.

Hegel's tendency to reconcile opposites manifested itself, inter alia, in his striving for rigorous symmetry both in describing the structure of the contradiction and in constructing his system in its entirety.

The overall symmetry of Hegel's philosophical system as well as that of its principal parts, down to minor details, is readily visible, for example, in the reconstruction of the sys-

temic character of The Science of Logic performed by the Polish scholar A. Sinowiecki, who employed the theory of graphs toward that end. The symmetrical nature of the structure of contradiction derives from the premise of the complete equality of value and totally equal role of the two sides of the contradiction in its development and resolution. That is why in Hegel mutually opposite categories are "reflected" in each other. In Hegel the fundamental scheme of dialectical contradictions of each other by the sides of the contradiction and the "sublation" by synthesis of both of these "mutually identical" sides are symmetrical. In a contradiction, "each side is such that it may equally be considered as the positive and the negative." (12) If the sides that interact in the contradiction are absolutely "equipotent" in their relation to synthesis, it is difficult to understand how the triumph of either of the sides over the other is possible, so what remains is for them either to annihilate each other or to become reconciled to each other. The fourth situation in which reconciliation of opposites arises via substitution of dialectical synthesis by conjunction is particularly closely associated, methodologically, with Hegel's elevation of the principle of symmetry to an absolute.

In real life and in cognition, however, the principle of symmetry is never implemented to the full. It would be tempting if, say, the mutual polarity of the positive and the negative in electromagnetic forces permeated the entire structure of matter in strictly symmetrical fashion, but that is not the case. Nor does total symmetry exist between the roles played by positrons and electrons, protons and antiprotons, in the structure of matter. That symmetry is also generally absent between matter and antimatter in our world. Symmetry might win out, it appears, if not in the macro-universe, then in the mega-universe. This would be the case if it were possible to establish the existence in the universe, moreover in adequate numbers, of worlds other than ours consisting entirely of antimatter. But these hopes have not been realized. Neither individual heavy antinuclei nor galaxies of antimatter have been found in the cosmos. In theory, true, there is the possibility

of an anti-universe symmetrical with our universe, one in which time runs in the opposite direction; but here we venture into the sphere of purely theoretical hypotheses. Returning to our own world at the social level of its existence, we also see the absence of symmetricalness in the functions and destinies of the social forces participating in social struggle. Marx and Engels pointed to this unequivocally in their very first joint work, The Holy Family (1844). In cognition, cases of "equal value" of propositions, concepts, and theories contradicting each other are extremely rare. Insofar as philosophy is concerned, it is called upon to reflect the real state of things, and therefore searches for the symmetricalness of its system of categories, "no matter what," are unjustified.

Thus, to assert symmetry in the structure of contradiction means to engage in actual simplification of real relationships. This simplistic tendency found reflection in the dialectical structure of Hegel's system, in which there is postulated the starting point of development of contradictions and their replacement by each other, while development is given a linear character: branches diverging from the trunk of the dialectical tree are mercilessly cut away by this philosopher. In his natural philosophy Hegel ignored the coexistence (13) and interaction in nature of at least four "branches" of the kingdom of life (bacteria, fungi, plants, and animals) that attain their potentials simultaneously at different levels of development, relatively independently of each other, each having its own internal contradictions, while within each there are branchings of their own, and among those branches there are struggle, oppression, cohabitation, etc. In this complex mosaic of living nature it is by no means obligatory that earlier stages die off entirely. Hegel also left out of consideration almost entirely the coexistence in human society of various stages of social development, which also interact; not one of these voluntarily terminates its relatively independent development, although the rates and levels vary greatly from case to case. In the final analysis, however, the lower levels of development in society inevitably die off, being pushed out by higher

stages (socio-economic formations).

Nevertheless, Hegel guessed, brilliantly, that the progressive development of nature and society as a whole proceeds by the "relay principle": a qualitatively new and higher level of development and, consequently, its motivating contradictions, all prepared in the previous stage, become the center and leading force of further development, subsequently — and sometimes very quickly — passing this actualizing role on to a higher level and the contradictions characteristic of it. But by virtue of the fact that Hegel replaced causality with the teleology of the spirit, his understanding of the "relay principle" left out such important elements as consideration of the fact that many lower levels of development are quite capable of existing without higher ones, and the higher ones, after they have arisen as a consequence of transformation of the lower ones, in some cases are capable of existing without the latter; in other cases (for example, in the case of symbiosis of higher organisms and bacteria), however, they cannot, and die off without the lower-level organisms. The further development of contradictions at the higher level makes the lower levels of contradiction their subordinate "organs," but does not require this in all instances.

All in all, the linear system of development of the chain of leading contradictions in Hegel left out of consideration the real fact that in actuality, contradictions at various levels, stages, and forms of development are interconnected with each other in a very complex structure whose links, in some cases, stimulate each other's development or, in other cases, inhibit it, so that the principal links in ascending development have to blaze trails for themselves through struggle, which may be with each other. Significant damage because of the linear scheme is also evident in the treatment of the history of cognition, within the history of philosophy.

But upon analysis of the elementary structures of contradictions, Hegel himself made fundamental corrections in the operation of the principle of symmetry. He saw the asymmetrical nature of the behavior of plus and minus in algebraic operations and the fact that, in the contradiction of the categories

"birth" and "destruction," it is impossible to "consider each of them indifferently" in place of the other; and in many categorical triads, to cause the first and second terms to change places deforms the operation of the law of negation of the negation. Furthermore, the asymmetrical nature of the structure of contradiction is recognized by Hegel in principle, inasmuch as he holds that negation of one pole in a contradiction by the other pole is not identical in nature with negation of the latter by the former.

This accords with the fact that there is a fundamental difference between dialectical negations and those in formal logic inasmuch as, in classic two-valued calculi negation of the negation of the primary assumption (assertion) is not identical with affirmation, because negation of the antithesis by synthesis does not return us to the initial thesis, but leads forward to a higher position. And Hegel demonstrated this beautifully.

2. Five Epistemological Flaws in Hegel's Treatment of Contradictions

Although, in principle, Hegel was convinced of the fact that dialectical negation is not negation as in formal logic, and dialectical contradiction is not contradiction as in formal logic, he sometimes nonetheless substituted formal logical contradiction for dialectical contradiction without distinguishing between them. The danger of such substitution is not eliminated from his major assertion — which, on the whole, deserves to be held in the highest esteem — that the presence and operation of contradictions are universal. That statement of Hegel's is common knowledge: "Contradiction — that is what actually moves the world; and it is ludicrous to say that one cannot think in contradictions." (14) The question arises, In what sense can one, and must one, think in contradictions? If this is to be understood as though dialectical contradictions of the real world are to be thought of in contradictory fashion, the same question arises: In what sense "in contradictory fashion"? Censuring those who said and wrote that "one cannot think" in contradic-

tions, Hegel had in mind above all — and, of course, quite rightly — antidialectical metaphysicians, particularly in the connection in which they, reasoning about contradictions and, consequently, their "sense," thus negated their objective existence, which, moreover, is universal, and demanded adherence solely to the law of noncontradiction, not going beyond a purely abstract understanding of identity. One may assume that Hegel objected completely to formal logicians' demanding that correct thinking observe the logical law of noncontradiction, inasmuch as the impression arises that the operation of the law of noncontradiction in formal logic is directed not only against formal-logical but against dialectical contradictions.

In this text of Hegel's there are no definite propositions that would rule out the possibility of notions to the effect that dialectical contradictions (both in the objective world and in processes of cognitive activity) have precisely that logical structure which is forbidden by the formal logical law of noncontradiction, i.e., have a structure that is contradictory in terms of formal logic. But that is not so. Nevertheless, in believing that "the story cannot end in contradiction . . .," Hegel opens the possibility of avoiding this identification, the more so as in principle he was against it, as is evident from many other passages in The Science of Logic.

The faulty identification of the structure of dialectical contradictions with the structure of contradictions in formal logic, which we have examined, is closely related to four other flaws in Hegel that, in the final analysis, are due to his idealist principle of identity between being and thought. Let us list all five here. First we have the total identification of the structures of objective and epistemological contradictions. Second is sporadic identification of the structure of synthesis with the dialectical but not precisely defined conjunction of thesis and antithesis. Third is the identification, to which we have called attention above and which appears at rare intervals, of dialectical contradictions with the structure of contradictions in formal logic. As a consequence of this, particularly of the third proposition, there arises a fourth, to wit, Hegel's identi-

fication of the special contradictions of the process of cognition that might tentatively be called "antinomy problems" with true judgments about objective contradictions. Finally, the fifth contradiction consists of Hegel's failure to differentiate between the dialectical and the formal-logical "sharpening up" of contradiction. Let us comment upon the foregoing.

To begin with, be it noted that identification of dialectical with formal-logical contradictions is typical, in a much cruder form than in Hegel, of many bourgeois metaphysical philosophers of our day. In Karl Popper's well-known article "What Is Dialectics?" one of his principal reproaches directed at proponents of dialectical thinking in science is that they all supposedly counterpose the structure of dialectical contradiction to the logical law of noncontradictoriness and consequently fundamentally regard dialectical contradiction to be contradictory in the meaning of that word in formal logic. Thus, he holds that "the most important misunderstandings and confusions follow from the inaccurate mode of reasoning that is characteristic of dialecticians in their constructs regarding contradictions." (15) In the opinions of certain superficial philosophers, Popper was apparently right, because they regard sentences in Hegel of the type (a) "S is P and S is not P" and also (b) "S is P and is not-P" (16) to be a completely precise expression of the essence of objective dialectical contradiction, and of it alone, and not requiring further analysis. But Popper himself erroneously identifies dialectical with formal-logical contradictions when he denies the existence of the former by citing the need for rigorous adherence to the law of noncontradiction.

Popper's reference to that law is false not only because that law by no means prohibits dialectical contradictions but also because it promotes correct solution of contradictions of the process of cognition that deal with contradictions in the objective world. We have already noted that the law of noncontradiction and the law of dialectics enunciating the universality of contradictoriness ("the unity and struggle of opposites") of things, processes, and phenomena deal with different matters,

and the former therefore cannot limit the operation of the latter. Nevertheless, when the matter at issue is the process of cognition of objective contradictions, adherence to the law of noncontradiction in thought is an obstacle to the addition of subjective contradictions to the results of cognition.

Hegel himself aptly ridiculed the absurd contradictions that the nonobjectively thinking subject adds to actually existing contradictions that for him proved to be touchstones for sentences of the type "S is and is not P."

Hegel did not undertake to place them in any of the classifications of true propositions in the theory of concepts, and that was a correct solution. It is clear from the very first triad of his logic that the truth of the unity of being and of nothing, i.e., non-being, lies not in literally joining them together, but in the transition to a new category, "becoming." In a number of cases he points to the difference in relations in which a given predicate affirms in one instance and denies in another. Thus, in his lectures on esthetics, Hegel points out that "tragic heroes are just as guilty as they are innocent." (17) And he immediately thereafter explains in what sense the former is true, and in what sense the latter is true. In the empirical world of finite things even greater specificity is required, and here it is already impossible to assert that my house or the air I breathe exists and does not exist: firm and unambiguous answers are required. (18)

But sometimes Hegel takes an entirely different attitude toward assertions of the type "S is and is not P." He regards them to be true sentences within which "S is P" and "S is not P" "in one and the same respect refer negatively to each other." (19) That error of Hegel's is associated with his fifth misapprehension, consisting of the fact that he made no distinction between the usual formal-logical and the dialectical "sharpening up" of contradictions. But this distinction has to be made rigorously, although it is precisely in the case of antinomy problems that it is difficult to grasp; and when the antinomy arises in data of the "formal" sciences, i.e., logic and mathematics, one is unable to detect it. It is precisely in

the analysis of antinomy problems that this difference must not be lost sight of, for without this, correct epistemological and logical understanding is impossible.

The "sharpening up" of a contradiction through formal logic is its complete reduction to the contradictory formula of two-valued propositional calculus ($\alpha \wedge \bar{\alpha}$), which, according to the law of noncontradiction ($\alpha \wedge \bar{\alpha}$), is false. (20) The dialectical "sharpening up" of a contradiction takes its point of departure, as a rule, not from the classic negation in formal logic (the negations characteristic of multivalued logics are also hardly applicable here), but from dialectical negation, i.e., "sublation," which, as we know, includes the following factors (a) negation as such, (b) retention of the rational content of what is negated, and (c) ascent to a more progressive level of development. However, if "sublation" is the point of departure, dialectical "sharpening up" changes it, for it intensifies factor (a) within it, i.e., negation as such, but intensifies it differently depending on whether we are dealing with objective or epistemological contradictions. If it is with objective contradictions, i.e., those existing in actual reality (they appear in the form of conflicting, but at the same time reciprocally conditioned, tendencies toward change in the object), arising out of a single "locus," to "sharpen them up" means to intensify the real mutual negations of the sides of the contradiction, i.e., the strivings, inherent in these aspects, to suppress or even destroy the opposite side. But if the question is one of epistemological contradictions, then to "sharpen them up" resolves to the fact that the mutual negation of their poles assumes the outward form of a contradiction in formal logic.

It is precisely in the case of antinomy problems that this epistemological "sharpening up" occurs in its "purest" form; and Hegel, not seeing the difference between epistemological and objective contradictions and, in the sphere of the epistemological, between the ordinary and the dialectical "sharpening up" of contradictions, naturally was drawn to the mistaken notion that the development of all contradictions always leads to their assuming the structure "S is and is not P." In

so doing he sometimes holds that the "sharpening up" of contradictions is allegedly not overcome in synthesis but, quite the opposite, is intensified. Naturally, in the case of an interim solution of objective contradictions at the stage of a certain preliminary synthesis thereof, that is the case. But when Hegel expresses a very important proposition (directing attention to it, Lenin copied it out twice in his synopsis of The Science of Logic), to wit, that the development of opposites "so sharpens them that only when brought to this extreme sharpness (nur auf dieser Spitze) do they acquire the capacity to be dissolved and pass into their opposites" (21), he does not distinguish between what happens to objective and to epistemological contradictions, does not differentiate in any way among the different cases of their "sharpening up." It is thus that, in the final analysis, there arises Hegel's conclusion, pointed out above, to the effect that synthesis is identical with the "sharpened up" combination of thesis and antithesis (when contradictions are expressed in the form of a conjunction of sentences).

Thus, Hegel asserted: "A thing moves not as though it were here in this 'now,' and there in another 'now,' but only as if in one and the same 'now' it were here and not here, being and not being in this 'here' at one and the same time." (22) No sooner is this sentence accepted as final truth, which Hegel inclines us to do, than the questions arise: (a) What is the physical meaning of a presence simultaneously "here and not here" (S is P and is not-P)? (b) What is the physical meaning of presence and nonpresence simultaneously at "here" (S is P and is not-P)? and (c) What is the relationship to each other of the physical meanings of the two indicated situations (a) and (b), inasmuch as "not here" may denote another "here," i.e., some other place in space different from "there," but may also signify something else? Questions pile up like a snowball rolling downhill: Why, specifically, does "not here" differ from "there," and how is one to understand that geometrically? If "not here" is not some other "here," how is one to understand it physically? We are faced with a set of questions, a problem

in theory; and V. I. Lenin, in his Philosophical Notebooks, demanding that a dialectical description of motion show and contain the presence of "the possibility of motion" (23), had in mind that the essence of real motion has not been grasped so long as that possibility has not been disclosed. That essence remains to be apprehended, inasmuch as at present the real dialectical contradiction of the dynamics of motion "is concealed, moved aside, blocked, curtained from our knowledge." (24)

An analogous situation of identification of the synthesis with combining the thesis and antithesis arose in Hegel in part in the case of the difficult analysis of the essence of the differential, in which, too, he did not carry his investigation to a result that went beyond the bounds of the initial state of the problem. Taking as point of departure that "the limit of the relationship of variables is that it is and is not" (25) and interpreting "is not" as "zero" or "nothing," Hegel inclines to the conclusion that a differential is "something" that at the same time is "nothing" and is a "nothing" that turns out to be some kind of "something." But if that is so, we are again faced with an antinomic "foggy notion" (26), i.e., the problem is still not resolved. The fog was dissipated and the problem solved by Marx, who made it clear in his Mathematical Manuscripts that a differential is not either "something" or "nothing," for it is neither a finite nor an infinite nor an indefinite variable, but is the symbol for a program of mathematical operations.

3. The Antinomy Problem as Category

What is a problem of antinomy? If we understand an antinomy to mean an argument that has, by totally legitimate reasoning processes, given rise to self-contradiction in the sense of an assertion that one and the same proposition is both true and false, then an antinomy problem possesses considerable cognitive content, which is revealed when efforts are made to overcome its antinomic quality, i.e., to eliminate the contradiction in formal logic that it has produced. The structure of an antinomy problem has a considerable dialectical content,

which emerges on analysis as a group of epistemological contradictions "embodied in each other."

Consider this. Inasmuch as the form of antinomy problems is contradiction in formal logic [(S is P) and (S is not-P)], both terms of that contradiction negate each other in totally identical fashion. But in view of the strictly problematic character of an antinomy, it turns out, as a result of resolving it, that the negating relations among its terms were, in fact, considerably more complex and, in any case, different; and the very solution (synthesis), negating both these terms [not (S is P) and not (S is not-P)], pertains identically to both of them, and cases in which this is "nearly" but not quite so are rare. Hegel himself accurately grasped the fundamental pattern of the relationship between an antinomy problem and its solution. We read: "The soul is not only finite and not only infinite but, by its nature, is both the one and the other and, consequently, is neither the one nor the other, meaning that such definitions have no meaning in isolation, but have force only as sublations." (27) The "sublated" description of the soul as something that is both finite and infinite is the solution of the antinomy; and, from the standpoint of that solution, which carries us forward from the posing of the antinomy, it has already been subjected to dialectical negation, and one must thus recognize that the soul in fact "is neither the one nor the other." To this all that must be added is that not only do the identifications "finite" and "infinite" have no significance "in isolation" from each other but their significance is incomplete when they are combined, inasmuch as that was a pointing up of the problem but not yet its solution, which is why the word "consequently" in this piece of reasoning by Hegel signifies not a fruitless, tautological substitution of the expressions united by this word, but specifically a logical advance to solution of the task. Be it noted that it did not prove possible to write all these nuances of relationships, at the level of formalization, in a four-valued calculus of the kind developed by L. Rogowski (28), although it soon became clear that this calculus is not entirely suited to further analyses of Hegel's thoughts about

logic for the reason, among others, that Hegel often reasoned without going outside the confines of two-valued logic.

There are other contradictions in the antinomy problem. It truly is a well of dialectics, and this is clearly evident in the example of Marx's famous antinomy that "Capital does and does not arise in circulation." An antinomy problem, being a contradiction in formal logic in form and in content a dialectical contradiction of the process of cognition in "sharpened up" cognitive situations, is contradictory in the further sense that its dialectical content reveals a tendency toward ever more adequate self-expression by the devices of language, while its evident formal logical structure is an obstacle to that process, "inhibits" it. Furthermore, the dialectical "sharpening" of antinomy problems, being "embodied" in the form of formal-logical "sharpening up," leads to a contradiction between the latter and the quality of being a problem that is inherent in antinomy: the problematic quality serves, as it were, to "repel" the status of logical contradictoriness, for the problem cannot be contradictory in the same sense as a proposition laying claim to being the true answer to a problem, and the presence, as it were, of an affirmative antinomianism "repels" the status of being problematical, for it suggests that the problem should be interpreted as though it had already been solved.

One more dialectical contradiction is sketched out in the antinomy problem as a consequence of what has just been said. It contains some, albeit a very small, particle of the relative truth already attained, because a correctly posed problem, i.e., a truly (properly) performed choice of predicates attached to the subject by the predicate connectives "is" and "is not," helps the investigation to move in the right direction and, in that sense, aims it at the truth. "Sharpening up" the problem means not only introducing a degree of approximation into it but simultaneously orienting it more precisely on the path that leads to a further deepening of knowledge.

The dialectically contradictory nature of an antinomy problem also manifests itself in its dual interpretation — not only epistemologically (methodologically) but also in the objective

sense as such. In this case the principle of identity of thought and being that determined Hegel's combining cognitive and objective contradictions in an indivisible whole acquires a certain justification in its application: a purely objective interpretation of antinomies is possible under certain conditions. If an antinomy problem is interpreted as the recording of a dialectical contradiction possessing objective existence or of a passage to that state, the constants "and" and "not" acquire an entirely different meaning in the formulation [(S is P) and (S is not-P)] than in two-valued calculi in formal logic. This is no longer an ordinary negation or an ordinary conjunction, but relationships under examination in dialectical logic and requiring for their formulation (only approximate!) considerably more powerful means than the classic two-valued calculus of sentences. It is by no means obligatory to have recourse to this formalization, but it is always necessary to remember that, for example, "and," when it joins two elementary propositions that are opposites, denotes a dual dialectical relationship, in which each of them always "sublates" the other in a manner not quite the same as that in which the latter "sublates" the first, which is revealed later in the content of the "synthesis" (used here in the sense of further development) of the given objective contradiction.

The basis for this dual interpretation of an antinomy problem is the fact that expressions of the type "...is ...and is not..." may be formulations of objective dialectical contradictions and, consequently, concrete dialectical identities, containing difference as the embryo of contradiction. Such statements themselves are not entirely concrete, which is already evident from the fact that expressions of the kind "is ...and is not..." in Hegel's texts may express both embryonic and developed states of contradiction, that is, also those in which the dialectical identity has already matured to the point of the "within-without" rupture. But on the level of overcoming abstract identity, these expressions correspond adequately to the purposes for which they are applied. Lenin employed italics for emphasis and also two lines in the margin to call attention to that

passage in Hegel's reasoning on contradiction in which the discussion is specifically of the initial, embryonic stage of development of the objective contradiction: "Abstract identity with itself is not viability; but inasmuch as the positive is negativity within itself, it thus reaches out beyond itself and evokes change in itself." (29)

Hegel's philosophy employed part of the unexhausted experience of human cognition and activity and interpreted it in a manner that suggested both genius and perversity. In any case, Hegel was a great dialectical logician. He accurately grasped the fact that motion (change) and self-contradiction cannot be separated from each other, for the contradictoriness of things and processes is a universal motive force. He also interpreted, in a manner that was true in principle, the circumstance that dialectical contradiction differs significantly from formal-logical contradiction. Dialectical materialism agrees with both these propositions. Development is the action of "contradictory, mutually exclusive, opposing tendencies in all the phenomena and processes of nature (and of the mind and of society inter alia)." (30)

Notes

- 1) G. W. F. Hegel, Nauka logiki, Moscow, 1971, vol. 2, p. 65; G. W. F. Hegel, Sämtliche Werke, Stuttgart, vol. 4, p. 548.
- 2) However, Hegel gave very inadequate study to contradictions that are strictly objective. The question of the structure of contradictions in Hegel's Philosophy of Nature and Philosophy of History requires special examination, which is beyond the purposes of this article and is touched upon here only in passing.
- 3) V. I. Lenin, Poln. sobr. soch., vol. 29, p. 238.
- 4) See Dialektika nauchnogo poznaniia. Ocherk dialekticheskoi logiki, Moscow, 1978, part I, chapter 1, section 2, and part II, chapter 9.
- 5) See K. S. Bakradze, Sistema i metod filosofii Gegelia, Tbilisi, 1958, p. 302.

6) Compare *ibid.*, pp. 315–316.

7) G. W. F. Hegel, *Soch.*, Moscow and Leningrad, 1929–1958, vol. I, p. 206; G. W. F. Hegel, *Sämtliche Werke*, Stuttgart, vol. 8, p. 280.

8) Hegel, *Soch.*, vol. IX, p. 53.

9) *Ibid.*, p. 513.

10) Hegel, *Soch.*, vol. VII, p. 16.

11) Hegel, *Nauka logiki*, vol. 2, p. 60.

12) *Ibid.*, p. 49.

13) And when he recognizes that coexistence, he concludes that development in sensu stricto does not exist in nature. This latter conclusion is associated with the fact that, according to Hegel, it is not contradictions that are operative in alienated nature (the native sphere of their development is logic and the spirit), but only contraries.

14) Hegel, *Soch.*, vol. I, p. 206.

15) K. R. Popper, *Conjectures and Refutations*, London, 1969, p. 316.

16) A detailed analysis of these expressions will be found in the article: I. S. Nar'skii, "Pro strukturu i znachushchist' antinomii-problemi," *Filosofs'ka dumka* (Kiev), 1979, no. 6, pp. 62–70. Hegel did not distinguish between their logical meanings, so that within the confines of his reasoning not $(S \text{ is } P) \equiv S \text{ is not } P \equiv S \text{ is not-}P$. The drawing of this distinction might have made his reasoning on the antinomies of motion through space more exact. On the other hand, often the logical difference between these expressions proves to be totally insignificant (see Marx and Engels, *Soch.*, vol. 23, p. 176, where the discussion is of the application of expressions of the type "S is and is not P" in problems of methodology).

17) Hegel, *Soch.*, vol. XIV, p. 379.

18) See Hegel, *Soch.*, vol. I, p. 132.

19) Hegel, *Nauka logiki*, Moscow, 1970–1972, vol. 2, p. 67.

20) Here we disregard the question of the difference between a contradictory sentence and a contradictory conjunction of two sentences, to which attention has been given by, among others, Peter Ruben (see *Deutsche Zeitschrift für Philosophie*,

Berlin, 1980, no. 3, pp. 294-95).

21) Hegel, Soch., vol. VI, pp. 44-45.

22) Hegel, Nauka logiki, vol. 2, p. 66.

23) V. I. Lenin, Poln. sobr. soch., vol. 29, p. 232.

24) Ibid. We know that Lenin expressed these propositions in connection with criticism addressed to V. M. Chernov. However, they are also very important in terms of revealing the fundamental difference between Lenin's principle of reflection and Hegel's identity of being and thought.

25) Hegel, Nauka logiki, vol. 1, p. 339.

26) Ibid., p. 358. Compare "very indefinite truth" (Marx and Engels, Iz rannikh proizvedenii, Moscow, 1956, p. 199).

27) Hegel, Soch., vol. I, p. 70.

28) L. S. Rogowski, "Logika kierunkowa a Heglowska teza o sprzeczności zmiany," Studia Societatis Scientiarum Torunensis, Torun, 1948, vol. XV, pp. 5-92.

29) V. I. Lenin, Poln. sobr. soch., vol. 29, p. 126.

30) Ibid., p. 317.

K. M. Dolgov

LEONARDO DA VINCI'S PHILOSOPHY
OF CULTURE AND ESTHETICS*

The literature on Leonardo da Vinci is so extensive that a bibliography alone would make many volumes. (1) Most of what has been written about him, however, are studies in history, art criticism, biography, or natural science. The number of writings on his esthetics and philosophy of culture are considerably fewer. And there are very few Marxist studies on these questions. This is particularly true of works devoted specifically to Leonardo alone.

Over the centuries, a rather large number of misconceptions of the most diverse sort and meaning have accumulated with respect to him. They range from the strictly philosophical to those of the man in the street.

Some philosophers, such as Schlosser, deny that Leonardo was a theorist. Others, such as Croce, hold that he had no esthetic system, no integral and genuine theory of art. A third group attempts to interpret his legacy from purely religious positions; a fourth denies that he was philosophical; a fifth denies that he was dialectical; a sixth simply regards him as ignorant, confused, and unclear; a seventh attempts to interpret his work and personality in Freudian categories, or those of

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structuralism — and so on and on.

But his Treatise on Painting alone is sufficiently persuasive proof of the high level of theory of Leonardo's philosophical and esthetic thinking about painting, its differences from poetry, music, and sculpture, about the functions, factors, and categories of art and its relationship to nature, about the place and role of the artist, the methods of investigating reality, and other [subjects]. To deny that Leonardo was theoretical — to deny that to the man who not only provided the foundation for the science of painting but who was the founder of many other new branches of learning — is strange, to say the least.

True, there is one factor that might provide an excuse for asserting that Leonardo da Vinci did not have a philosophical, esthetic, and artistic system. This has to do with the specifics of his creative work. As a universally developed person (researcher, scientist, engineer, and so forth), Leonardo naturally gave preference to the method of research rather than to the formulation of any kind of system. The fact that he placed theory and science on a sound basis of experience and experiment not only did not deprive his scientific and artistic achievements of meaning but, quite the contrary, was solely responsible for Leonardo's being capable of such tremendous achievements in both his theoretical and practical activity.

Another reason why it is not easy to speak of Leonardo's philosophy is that it is, as it were, interwoven with his scientific and artistic investigations. It is precisely this factor, the "openness" of Leonardo's philosophical views and their "being dissolved" in concrete thinking and investigation, that has led some theorists to the conclusion that Leonardo was a complete stranger to philosophy.

And his statement that knowledge must be derived not from bookish wisdom but from the mastery of nature was understood literally: "It is quite doubtful that Leonardo was well read in the philosophical literature, as modern scholars show. In all probability he was, to put it plainly, a person of little education. The fact that in his papers one may find various hints referring to theories and discoveries made at later dates testifies more

to his dilettantism, though combined with stupendous intuition, rather than indicates that he had well-thought-out and finished scientific theories." (2)

It must be stated that Leonardo was, of course, no "book-worm," as Duhem sought to show; but it is even more true that he was not uneducated or a dilettante, inasmuch as the basic currents of his work and his discoveries in art and science would have been totally impossible without the possession of serious knowledge of ancient and medieval culture. "Systematically and diversely educated," Goethe penetratingly observed of the great Italian, "he foreshadowed to humankind the perfected image of man." (3)

It is easy to agree with Paul Valéry, who saw in Leonardo the hero of an intellectual drama. However, the method of analysis proposed by Valéry for penetration into "the phenomenon of Leonardo" can hardly satisfy us. "An author composing a biography may attempt to adapt himself to his hero or construct him. These are two mutually exclusive possibilities. To adapt oneself means to wrap oneself in incompleteness. In this sense, a life is put together entirely out of anecdotes, details, moments. Construction, on the contrary, presumes that there have been a priori conditions for a certain kind of life that might otherwise have turned out entirely differently." (4) Valéry chooses not to adapt himself, but to reconstruct the logical and psychological conditions of Leonardo da Vinci as a kind of universal intelligence who reproduces, before our eyes, his life, his activity, and his immortal creations.

Leonardo, as Paul Valéry conceives of him, is a unique mind with which nothing can compare in breadth and universality. He is a symbolic intelligence, storing within himself the very broadest assemblage of forms, consisting of an infinity of beings and an infinity of recollections, capable of discriminating an improbable set of separate things, and possessing thousands of techniques for arranging them. Everything yields to him: the shapes and colors of nature, human life, faces, the way in which bodies and machines are constructed. He gives life to everything, reorganizes it, creates a universal language and,

by means of that language, transmits his own secret feelings. He utilizes everything we find scattered in the three dimensions of space, which, thanks to the creative work of his thought, is transformed from an empty receptacle into a system of space-time. He knows all the secrets of science and engineering. He makes of the human body something divine and strives to perfect it to the fullest extent, and to construct the same kind of perfect human soul.

In a word, the "symbolic mind" that Valéry credits Leonardo da Vinci with possessing rises before us as a system complete in itself or uninterruptedly moving toward such completion. Its perfection, universality, capability for creating and designing without limit can bring modern people to despair. In that sense the phrase "the phenomenon of Leonardo" expresses not a man of the past, or even a man of the present, but, more aptly, a man of the future. In that perspective the actual distinctiveness of the Leonardo phenomenon would disappear from cultural history. But we are interested above all in Leonardo's place in a certain rather broad cultural historical context.

Leonardo, as one can observe if one makes an attentive study of his works, absorbed in his own way the principal achievements of the culture of classical antiquity and incorporated them into his system. Although Leonardo himself was a radical worshipper of nature, one can find in him traces of the Sophists, who focused their attention not on the study of nature, but on human culture, on the study of concrete phenomena, and even on their relativism. Like the Sophists, Leonardo gave preference to the study of art rather than the study of beauty. He was close to the basic philosophical principle of some of the Sophists: "Man is the measure of all things." He was close to their sensualism and hedonism. Gorgias's notion of illusionism also appealed to him.

Even nearer and dearer to Leonardo were the ideas of Democritus. (5) Sometimes it seems that he simply borrows the basic principles of Democritus's philosophy and esthetics: materialism, determinism, and empirical research techniques. Leonardo appears to have borrowed the idea of imitating nature

from Heraclitus and Democritus. It is possible that even his mechanicism and other tendencies and principles pertaining to art in general and painting in particular stem from Democritus.

Traces of the influence on Leonardo's works of Pythagorean philosophy and esthetics are obvious. Pythagoreans held the principles of mathematics to be the principles of all being. The mathematical basis of harmony (1:2 for an octave, 2:3 for a quint, $1:\frac{2}{3}:\frac{1}{2}$ for harmony) was extended by the Pythagoreans to the entire cosmos, holding that it, too, has a harmony resting upon number, measure, and proportion. Leonardo also saw in mathematics a science that had a universal character, holding that no science can be a science without mathematical knowledge. This pertained particularly to painting: an artist had to know mathematics above all and be its master in order to be able to attain beauty and harmony, which are also based on proportion, measures, and number. (6) What is most important is that Leonardo transformed proportionality into something of a universal principle of epistemology, ethics, and esthetics and demanded that the scientist, the artist, the musician, and the philosopher all adhere to it.

True, Leonardo discards the mysticism and extreme idealism of the Pythagoreans, just as he discards the mystical and idealistic factors in the teachings of Socrates, Plato, and Aristotle, not to speak of the medieval notions of religious idealism and mysticism. These he simply did not accept, although he may actually have borrowed not less but more from medieval culture than from the culture of Greco-Roman times.

Leonardo's attitude toward Plato and Aristotle was the most complex of all. Although their teachings influenced him most strongly of all, because of historical circumstances, he took a very critical attitude toward assimilating their legacy.

Of course, it is very difficult to say precisely what it was that Leonardo borrowed from one thinker or another. Yet one may and must speak of the traces that manifested themselves, albeit only in part, positively or negatively, in Leonardo's views, and how they influenced the shaping of his own views and creations.

If one speaks of Plato's philosophy, including esthetics, its influence was quite strong, despite the fact that Leonardo did not accept Plato's idealist and metaphysical, mystical speculations. But in the latter cases it is quite appropriate to speak of a negative influence. This pertains chiefly to Plato's later works: The Republic, Laws, and others, in which Plato developed his concepts of esthetics and art, according to which art has to originate in the eternal laws controlling the world and must either facilitate the shaping of an ideal state or be eliminated. Leonardo could not agree with this teaching of the later Plato, not only because he rejected idealism, irrationalism, and mysticism but also because this teaching placed art directly at the service of the state. Whereas Plato's model of the ideal state found exceedingly few proponents, the real states in which Leonardo lived and worked produced attitudes either of irony or of revulsion. And whereas the views of the early Plato could impress Leonardo by their breadth and realism, the views of the later Plato were directed essentially against art. Plato's ideal was the archaic art of the ancient Greeks. Consequently, he was calling upon art to move backward, not forward. His idealization and spiritualization of the beautiful essentially laid the foundation for the medieval cult of transcendental, supernatural, divine beauty, thereby denigrating and regarding as valueless beauty that was earthly, real, and natural. It was precisely this that Leonardo fought against, defending with all his strength the rights of beauty in the existing world, the rights of full-blooded art linked to nature, reality, and life.

One might say that Plato's metaphysical and mathematical esthetics was not without its effects on Leonardo. It perhaps directed Leonardo's gaze even more strongly toward reality and toward perceiving it rationally and more precisely in the quantitative and qualitative senses.

The same might be said of the traditional debate between philosophy, on the one side, and poetry and art, on the other. Plato resolved this debate in favor of his philosophy, and Leonardo in favor of art, painting, and science.

What was it that impelled Leonardo da Vinci to construe the meaning, purpose, and functions of art so radically? Why did he not, while rejecting Plato's notion of dethroning the depictive arts, take the position, as might have been expected, of providing justification and reinforcement for the depictive forms of art, painting in particular? And what was it, for example, that stopped Leonardo, having rejected Plato's views, from taking the more realistic and moderate esthetic and artistic standpoint of Aristotle, who impressed many, many generations of artists and art theorists over the course of two-and-a-half millennia? One might pose a number of additional questions concerning the fundamental change in the theory and practice of art effected by Leonardo; but even if we succeeded in answering only those already posed, this would clarify much in the work of the greatest representative of the Renaissance.

Let us recall the basis on which Plato denied to the depictive arts the dignity of free and true arts. His grounds were that "Painting — and depictive art in general — creates works that are far from what is real, on the basis of a principle far from what is rational. That is why such art cannot be the friend and companion of what is healthy and true." (7) Plato, as a philosopher and an individual thinking in terms of statesmanship, judges works of art by how they correspond to truth and by their influence on citizens. Inasmuch as the philosopher regarded the real world and reality to be the world of the eidos, of ideas, the transcendental and supersensory nature of which is inaccessible to sensory cognition, art, which imitates not eidos but things, is only an imitation of an imitation: it leads not to truth, but away from it.

The epistemological untenability of the imitative arts is supplemented, according to Plato, by ethical untenability. That is, not only do these forms of art create works false in content, which do not correspond to truth, but, in addition, from the ethical point of view they are capable only of corrupting citizens and depriving them of civil and human virtues. The great artistic merits of the works of Homer, Aeschylus, Sophocles, Euripides, and other masters only complicate things, for they

exercise an enormous influence on people's minds, traducing the gods, the moral pillars of society and of virtue, and undermining the principles of government. It was for this reason that Plato decided to drive poets, painters, and musicians out of his ideal state: he saw in their works only a negative, nihilistic, destructive force.

Plato states with utmost clarity the divergence and contradiction between the artistic and the philosophical, which meant the supersensory that is accessible only to the intellect, not to the senses; between visible images and that which is invisible but true; between the ideal and the actual, the divine and the human; between the artistic and the moral, the artistic and the governmental, the artistic and the religious. In essence, Plato finds a crisis of art, not only of imitative or depictive art but of art in general, for apperception of the transcendent world of eidos, ideas, is something that only philosophy or religion, or religious philosophy, can accomplish.

In Plato's cosmology, art is incapable of implementing its positive functions, which are esthetic and epistemological, those of moral education, of socialization, and the function it possesses of being a social force.

Plato found no way of solving this problem, for what he was seeking was a way out of a more general crisis: that of religion, philosophy, morality — the crisis of Greek society as a whole. Naturally, neither Plato nor anyone else found a way out of the general crisis that arose from the social and historical conditions of the period.

In short, Plato's development of an ideal model of an ideal state did not provide a way out of the general crisis of a slaveholding society, a crisis of the entire slave-holding socio-economic system.

In the absence of direct quotations from Plato's writings, it is difficult to prove that Leonardo had studied the works of that philosopher; but if one thinks of it, it is even harder to prove the opposite — that Leonardo had not read Plato. For it is difficult to conceive that in a period in which there was so powerful an attraction to classical antiquity, an intellect as great as Leonardo had not read the works of the classical writ-

ers. If one makes the extreme assumption that Leonardo had not read Plato himself, it is unquestionable that he was familiar with the content of his philosophy through commentators on Plato, whose writings were the subject of lively discussion by members of the Platonic Academy of Florence, with whom Leonardo was closely associated. However this may be, scholars find the influence of Plato's philosophy in a number of Leonardo's writings. In the case before us, something else is more important: Leonardo was certainly aware of the basic principles of Plato's philosophy and the basic content of his views on cosmology, religion, philosophy, ethics, art and esthetics, government, and law.

If one employs proof by contraries, Leonardo's views are, as it were, Platonism turned on its feet after having been stood on its head, at least in its most significant aspects. Leonardo replaces Plato's supersensory world of ideas — eidos — with the real world, nature. He replaces the quest for other-worldly entities intelligible only to pure reason with searches for and studies of the laws, qualities, and forms of nature as it actually exists, by studies of human spiritual life and its structure. For the striving to contemplate divine essences Leonardo substitutes the active study of reality, as humanly perceived, and the taking of deliberate initiatives to change it.

For Plato's principle of idealism Leonardo has substituted the principle of naturalism; Plato's rather limited principle of rationalism becomes the full rationalist principle of knowledge and creativity unlimited by anything or anyone; the passive principle of contemplation of other-worldly essences becomes the dynamic principle of knowledge, research, and action.

It must be said that Aristotle's influence on the creativity of Leonardo is no less perceptible than that of Plato. Aristotle tried to make esthetics a science and, in so doing, based himself, as did Leonardo, on the concrete experience of art in his time, particularly on the concrete experience of preceding generations. Whereas Plato focused his attention on studying the essence of beauty, Aristotle directed his to the study of art as a conscious body of knowledge based on scientific principles

and the synthesis of concrete experience. Leonardo was impressed by Aristotle's equable, respectful attitude toward all forms of art, his classification of the arts and definition of them on the basis of the category of imitation, which in Aristotle united the position taken by Plato (reproduction of reality) and that of the Pythagoreans (free depiction thereof).

Unlike Plato, Aristotle defended the autonomy of art both relative to moral laws and to those of nature. This could not but have pleased Leonardo, because he could not conceive of art in general, and painting in particular, outside that freedom.

If for Plato art was play and beauty something to take seriously, for Aristotle art itself was a very serious, important, and necessary matter, as was beauty, which he understood broadly and diversely. Aristotle had a broad understanding of the goals, tasks, and functions of the arts in their many forms.

It seems to have been through Plato that Aristotle perceived the Pythagorean motifs of the beautiful; but he transformed them in such fashion that Leonardo added little to the Aristotelean definition of the beautiful as magnanimity, order, and proportion, inasmuch as the category of correspondence introduced by Aristotle made possible a rather clear and, at the same time, dynamic definition of the content of the beautiful. It is no accident that Leonardo, in his Treatise on Painting, referred repeatedly to the category of correspondence, which played, in his esthetics, no less important a role than the category of proportionality (correspondence of the parts to the whole, of gestures to movements of the soul, and so forth).

One could carry further the parallels and comparisons of Leonardo's views and those of outstanding representatives of classical antiquity, motifs that had one or another kind of influence on the shaping and development of Leonardo's views regarding the philosophy of esthetics and the science of art. But even brief and slight excursions and references to the culture of antiquity demonstrate that the creation of works comparable with those of Leonardo, the development of scientific concepts, the invention of technical solutions similar to those provided by Leonardo presume not only genius and diversity of talent

but the very highest level of education, the very highest culture, and an enormous amount of work. Perhaps the grandeur of Leonardo is to be seen and found in this as well?

* * *

We know that Plato's attitude toward imitative art was largely accepted, with various modifications, by the medieval, religious tradition, the tradition of the Christian religion and the church, the basic task of which in the sphere of art was to move it in the footsteps of God so that it would glorify God, His wisdom, mercy, grace, love: in other words, that it serve the Christian religion and church with faith and truth.

On that level and in that sense, the Renaissance was, to a certain extent, the antipode of Plato's understanding of art and his sharply negative attitude toward imitative forms of art. The effort to overcome the Platonic concept of art is manifested with particular depth, clarity, and definition in Leonardo da Vinci, whose work corresponded most closely to the requirements of the Renaissance in the areas of science, technology, and art. Suffice it to point merely to the fact that the development of the textile industry in Florence demanded of painters not only excellent mastery of the technique of painting but the development of a new technique associated with new materials, dyes, new composition, etc., i.e., a solid knowledge of physics, particularly of optics and other disciplines.

And it was no longer possible to conceive of the development of sculpture without fundamental study of anatomy, which was more and more closely tied to medical research. The development of technology had a favorable influence on the development of architecture, and vice versa.

Thus, the development of industry, agriculture, and commerce and the waging of constant wars advanced new practical and theoretical questions that had to be resolved. Life demanded perfection and the development of social relationships and of productive forces, which determined the quite rapid development of science (both natural and social), of technology,

including military technology, and of art.

It must be borne in mind that Leonardo, perhaps more than anyone else, intimately linked science, technology, and art and in so doing gave universal meaning to each. This is to be explained by a new understanding of the principle of naturalism, a new understanding of human beings and their work activity, a new level of understanding of the freedom of individuals, of their role, place, and significance in the existing world, and the interaction of nature, work, and consciousness. All this also naturally led as well to a new understanding of science, technology, and art and to a new interpretation of their interconnection and interrelationship.

The Italian Marxist philosopher Antonio Banfi observes that "The cosmic nature of his (Leonardo's — K. D.) intuition is also reflected in the form of knowledge, in which the poetic quality anticipates and forecasts scientific perception." (8) In his reasoning about the earth and the universe, Leonardo anticipated the discoveries of Galileo, Copernicus, and Giordano Bruno. (9)

Ascribing great significance to technology and technical knowledge, Leonardo expressed the important demands of his time. In that connection Banfi wrote:

Technical consciousness is presented as a significant problem and, for that reason, recognizing itself as such, it seeks a universal solution in method, defines itself, and acquires greater precision in the course of special studies and solutions. The problem of technology may perhaps be the fundamental problem of the Renaissance: it was put forward by the first researchers into taxes and money in the economic sphere; in the realm of politics the study of technology is a dominant demand on the part of Machiavelli; and in education it defines the first educational experiments and investigations in morality. In all areas of art and in all its aspects, technology is revised and advanced anew; and thought, in the study of the new findings, is satisfied only when a reliable method

is worked out. Finally, technology permeates all of life, individual and collective, in all its forms, and gradually becomes the most pervasive problem of the new civilization. (10)

The development of production demanded, first of all, the creation of new implements of labor, new means of production, new instruments. It was precisely for this reason that technical problems acquired such broad dissemination and exceptional importance. The invention of new machines, looms, weapons, various engineering structures in the most diverse spheres of military and civil construction, the involvement of ever broader social strata in engineering science and practice — outstanding scientists, engineers, technicians — these were but a few of the demands of the rising class of burghers striving to establish and strengthen its political and economic dominance. It felt a fundamental concern for the development of science and technology and created favorable conditions for that development.

Whereas the medieval period made do with more or less uncomplicated technical devices, the Renaissance placed science and technology at the service of production and oriented them toward the development of the forces and relationships of production. That is why science and technology became the most important characteristics of that epoch.

Leonardo held a role of distinction in the development of engineering and of technical knowledge in general. He posed technical problems at the level also of the most important social disciplines, on whose solution the well-being of society and the development of production and of societal relationships depended. In the final analysis, Leonardo placed technology at the service of human beings, [helping them to] gain and strengthen their freedom.

Leonardo da Vinci grasped the problems of his period while that period was still in its embryonic state. In many spheres of human knowledge he was ahead of his time and anticipated the discoveries of the centuries that followed. One of Leonardo's most important services consisted of his effort to achieve,

and his partial achievement, of a distinctive synthesis of science, technology, and art, which presumed and carried out a theoretical synthesis of the practical experience of humankind and constituted the foundation of a new understanding and content of culture as a substantial expression and evaluation of human beings and their world.

In assimilating the achievements of classical antiquity in the most diverse branches of knowledge, Leonardo not only absorbed them but, as it were, passed them through the critical and analytical prism of his intelligence, organizing them into a solid foundation for constructing the firmament of a new culture, with a vividly expressed humanist content and humanist values.

Many of his scientific treatises and artistic works reveal a critical striving to overcome the ancient Platonic and neo-Platonic traditions and various modifications thereof and to develop new principles and a new understanding of the world.

Leonardo da Vinci, like other outstanding figures of the Renaissance, sought a science that would bind into one, man and nature, history and theory, experimentation, practice, and logical thought, sensory contemplation, a sense of the world, a conception of the world, and a view of the world. He found such a universal science in painting, which most deeply perceives nature and all existing reality, particularly the human being, body and soul, and the entire diversity of human life. "A good painter must paint two things, principally: man and the notion of his soul." (11)

In his open polemic against the detractors of painting and depictive art in general, in his polemic against adherents of Platonic and neo-Platonic idealist traditions, in his struggle against medieval obscurantism, Leonardo da Vinci elevated painting to a height that it has perhaps never attained at any other time, either before or since, and gave it a social significance, a universality, that it seems never to have attained since then. He sang hymns to it that it had never heard in the entire history of its existence, either before or after the Renaissance.

If you disdain painting, the foremost imitator among all visible works of art, you will be disdainful of the subtle invention that with penetrating, philosophical insight examines all the qualities of form: the sea, topography, trees, animals, grasses, and flowers — everything that is surrounded by shadow and light. And in truth painting is the science and the legitimate daughter of nature, for it is born of nature. . . ; all visible things were born of nature, and it is from these things that painting was born. Therefore, it will be proper for us to call her the granddaughter of nature and kin to God. (12)

Leonardo da Vinci regarded the human eye as the source of the sciences and arts, a universal means of expression of reason and of human thought. He speaks of the eye with such enthusiasm and with such words that they have the ring of a hymn to humankind, to its cognitive capacities, to its reason:

Do you not see that the eye embraces the beauty of the entire world? It is the master of astrology; it creates cosmography; it counsels and corrects all the human arts and moves man in all the different parts of the world; it is the sovereign of the mathematical sciences, whose knowledge is the most authentic of all; it has measured the altitude and size of the stars, it has found the elements and their places. It has made possible the forecasting of the future by the motion of the stars; it has given birth to architecture and perspective; it has created divine painting. O most lofty, highest of all creations of God! What praises can express your nobility? What peoples, what languages, can fully describe your true activity? It is the window of the human body, through which the soul contemplates the beauty of the world and takes pleasure in it; by its means the soul rejoices in its human dungeon; without it that human dungeon is torture. With its aid human inventiveness has discovered fire, by means of which the eye once again acquires what the

darkness had previously taken from it. It has decorated nature with agriculture and gardens filled with delights.... Is there anything at all that it has not done? It moves people from East to West; it has invented navigation, and surpasses nature in that simple natural things are finite, while the works performed by the hands on the orders of the eye are infinite, as this is proved by the painter in inventing an infinite number of forms of animals and grasses, trees and places. (13)

In these penetrating expressions, Leonardo pours out his joy over the fact that finally he has found what he had so long and persistently sought: the science of painting — the truly universal and authentic means for human cognition: knowledge of truth in nature, humankind, human thought, that most powerful force, with the aid of which — and Leonardo was profoundly convinced of this — it would be possible to transform the corporeal and spiritual organization of man, ambient nature, and all that exists. In painting, Leonardo finds that new social force capable of overturning and reshaping the entire world, above all, human beings themselves and human life.

Speaking out sharply against medieval, scholastic, spiritual, and dualist interpretations of man, Leonardo does not discard the principle of moral perfection and self-perfection of human beings, but attempts to build their spiritual structure on the firm foundation of natural science, the technical sciences, and art, on the foundation of the achievements of material and spiritual culture. Unlike his precursors and contemporaries — and it is important to note this — Leonardo includes nature, together with science, technology, and art, within culture, and simultaneously permeates science, technology, and methodology with cultural significance and cultural value, as cultural humanism or humanist culture. And all this very complex and diverse synthesis of nature, science, art, technology, and culture he places on the foundation of the experimental method, practical experience, so as to work out a truly scientific, humanist, experimental methodology, making possible discoveries, the cre-

ation of new intellectual, cultural, and scientific values, possessing the authenticity of truth. In Leonardo, for the first time in the history of knowledge, we encounter an attempt to develop a new scientific world-view, a new scientifically founded humanism, a new culture, organically including science, technology, and art as component elements.

It is precisely for this reason, in our opinion, that it would be erroneous to hold, as some investigators do, that the world view of Leonardo da Vinci was the world view of a painter. His outlook is equally the world view of a painter, a scientist, an engineer, and a humanist, in the broadest and most complete meaning of that word; it is the world view of a person of a new epoch, a world view oriented toward the building of a new human individual, a new society, a new world.

Leonardo, having created the science of painting, simultaneously created a new world-view, which Engels defined as "exuberant free-thinking," which paved the way for the materialism of the eighteenth century. It is true, of course, that he takes the science of painting as point of departure; but it is painting understood broadly, underlying many sciences, facilitating their development and crowning them, and, in the final analysis, signifying universal human reason.

Leonardo rejoices in the fact that painting "is capable of communicating its end results to all generations in the universe, for its end result is an object capable of being visualized. . . . Unlike writings, it has no need for interpreters of various languages, but directly satisfies the human race, differently from things produced by nature. . . . Painting presents itself to the senses with greater truth and fidelity to the works of nature than do words or letters." (14)

Unlike Plato's concept with its negative attitude toward the depictive arts, Leonardo valued above all else in painting the creation of a full-blooded-image of real objects, actuality as it is. But even when painting depicts things and beings that are unreal, that do not exist, even then it gives them features, properties, and qualities that create the impression that they actually exist. "Of course, you recognize that this is done by

an image that it is impossible for any writing to create, for writing is not capable of depicting divinity visually and with dignity. Therefore, it seems that divinity itself loves that picture, and loves anyone who loves and reverences it, and accepts worship more readily in this than in other guises, and therefore extends mercy and the gift of salvation — in the opinion of those who assemble at such a place" (15), writes Leonardo of paintings depicting divinities.

He persistently promotes the thought that painting is akin to philosophy, differing from it only by virtue of the fact that painting provides an unarguable and more authentic truth than philosophy. "Painting pertains to the surface, color, and shape of all things created by nature, whereas philosophy penetrates within those bodies, examining their own properties within them. But it does not reach the truth that is attained by the painter, who independently embraces the first truth of those bodies, for the eye errs less than does reason." (16)

Here Leonardo anticipates later concepts in philosophy and natural science that would seek truth in the obvious: obviousness as the most important and most reliable criterion of truth.

It is as though Leonardo restores human vision and the human eye to their lawful place. Whereas Plato deflected vision and the eye from the visible, sensory, natural, real world and turned them in the direction of the unreal, supernatural, supersensory, invisible world, so as to contemplate the world of "essences," the world of the eidos, Leonardo restores to human vision and the human eye their legitimate place, their natural functions and domain.

In calling painting the legitimate daughter or granddaughter of nature, Leonardo essentially overturned Plato's concept, which eliminated nature, expelled it from the sphere of philosophical and artistic knowledge, deprived the arts of their principal source and goals — artistic perception, sensation, ideation, and reflection — and thus deprived them of their whole basis — nature — condemning them to empty and meaningless imitation.

Notes

1) The two-volume Izbrannye proizvedeniia of Leonardo da Vinci (Moscow and Leningrad, 1934-1935) contains the following articles: A. Dzhivelegov, "Leonardo i Vozrozhdenie"; V. Zubov, "Leonardo — uchenyi"; A. Efros, "Leonardo — khudozhnik" and "Leonardo — pisatel"; and A. Guber, "Rukopisi Leonardo." In the Izbrannye estestvennonauchnye proizvedeniia of Leonardo da Vinci (Moscow, 1955) there is an extensive article by V. P. Zubov, "Leonardo da Vinchi i ego estestvennonauchnoe nasledie" and a lengthy commentary by him. A. Dzhivelegov's Leonardo da Vinchi has appeared in a third edition, Moscow, 1974. There are sections and chapters devoted to Leonardo in M. V. Alpatov's book Khudozhestvennye problemy Ital'ianskogo Vozrozhdeniia, Moscow, 1976; in E. I. Rotenberg's Iskusstvo Italii, Moscow, 1974, and his Iskusstvo Italii XVI veka; and in the series Pamiatniki mirovogo iskusstva, Moscow, 1967; V. N. Lazarev, Leonardo da Vinchi, Moscow, 1952; and Giorgio Vasari, Zhizneopisaniia naibolee znamenitykh zhivopistsev, vaiatelei i zodchikh, Moscow, 1970, vol. III, pp. 15-33.

Among works published abroad one may note Wladyslaw Tatarkiewicz, Estetyka Nowozutna, Ossolineum, Wroclaw, Warsaw, and Krakow, 1967, vol. III; same author, A History of Six Ideas. An Essay in Aesthetics, The Hague, Boston, and London, 1980; Antonio Banfi, Scritti letterari, Riuniti, Rome, 1970.

For Leonardo's own writings: Leonardo da Vinci, Scritti scelti, UTET, 1980.

2) A. F. Losev, Estetika Vozrozhdeniia, Moscow, 1978, p. 407.

3) J.-W. Goethe, Ob isskustve, Moscow, 1975, p. 286.

4) Paul Valéry, Ob-isskustve, Moscow, 1976, pp. 68-69.

5) See the exceptionally interesting work on Democritus: S. Ia. Lur'e, Demokrit. Teksty, perevod, issledovaniia, Leningrad, 1970. The works of Democritus presented in the book testify to his uncommon universalism, which was revived by

Leonardo at a new stage. See op. cit., pp. 205–206.

6) Leonardo da Vinci, Izbrannye proizvedeniia, Moscow and Leningrad, 1935, vol. 2, pp. 65, 131, 182, 118.

7) Plato, Sochineniia, Moscow, 1971, vol. 3, part I, p. 432.

8) Antonio Banfi, Scritti letterari, Editori Tiuniti, Rome, 1970, p. 62.

9) "That the earth is not in the center of the sun's orbit and not in the center of the world, but in the center of its own elements, which are close to it and connected with it; and to someone who would set foot on the moon when, with the sun, it is beneath us, our earth and its element of water would seem to be playing and would, in fact play the same role as the moon with respect to us" (F, 41 obverse). "Everything you say must lead to the conclusion that the earth is a luminary (stella) virtually identical with the moon, and you would thus demonstrate the renown of our world..." (F, 56). (Leonardo da Vinci, Izbrannye estestvennonauchnye proizvedeniia, Moscow, 1955, p. 753.)

10) Antonio Banfi, Scritti letterari, p. 60.

11) Leonardo da Vinci, Izbrannye proizvedeniia, vol. 2, p. 189.

12) Ibid., p. 57.

13) Ibid., pp. 73–74.

14) See *ibid.*, pp. 53, 54.

15) Ibid., pp. 54–55.

16) Ibid., p. 57.

V. G. Burov

CHINESE PHILOSOPHY AT THE CROSSROADS*

Philosophy in China has undergone a difficult course of development since 1949. During the first period of the existence of the Chinese People's Republic (1949-1957), there was a process of dissemination of the Marxist world-view among Chinese philosophers. A beginning was made in the treatment of current problems in the theory of the building of socialism. Studies in various areas of philosophical knowledge — dialectical and historical materialism, logic, ethics, esthetics, the history of philosophy — got under way. The discussions that occurred in the mid-'50s reflected the fact that Chinese scholars in the realm of philosophy had attained a higher level of achievement.

This fruitful process did not go any further, however, because of changes in the country's ideological and political life. Starting in the spring of 1958, Maoism, which had previously also had a certain strength in China's life of ideas and politics, while it spoke in the name of Marxism-Leninism, began to wage an open fight against the basic precepts of Marxist philosophy. Under the guise of discussions of theory with respect to the relationship between the intellectual and the material, materialism and idealism, the "dialectics" of base and super-

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structure, etc., a persecution of Marxists took place. In the summer of 1966, having launched the so-called "great proletarian cultural revolution," the Mao Zedong group undertook a "general purge" on the philosophical front, among others. In practice this meant punitive actions against Marxist philosophers and the shutting down of scientific philosophical journals, as was the case also with respect to journals in the social sciences generally. Mao Zedong's slogan "Get philosophy out of the classrooms" led to the appearance of a mass of articles and pamphlets on philosophical topics whose authors were either "home-grown," self-taught individuals or half-literate "theorists" from the factories and communes. In place of original theoretical works, publication of pseudopopular works on "Marxist philosophy" began, in which certain positions of the founders were presented in simplified and schematic form — and in a Maoist interpretation at that. A myth was created to the effect that Mao had made a great contribution to Marxist philosophy, and the things offered as theoretical discoveries were either trivial or ratiocinations on a two-dimensional, vulgarized plane. Simultaneously, learned philosophers were subjected to an intensified ideological working over. Only those few professional philosophers who exchanged their convictions for evanescent well-being in the society of the "communism" of the barracks were able to continue their work. The works from their pens astound one with the poverty of their theoretical conclusions. (1)

The destructive activity of the Mao group did damage to the development of professional philosophical thought in China that it will be difficult to repair and produced a profound crisis in the philosophical disciplines.

Mao's death and the struggles among the Chinese leaders that followed are leading to a weakening of the shackles of Leftist extremism. "Changes are now occurring in China's internal politics," observed Comrade L. I. Brezhnev in the Report of the Central Committee to the Twenty-sixth Congress of the CPSU. "Time will reveal their real meaning. It will show to what degree the present Chinese leadership will be

successful in overcoming the Maoist heritage." (2) Changes in internal policy cannot but influence the state of affairs in the social sciences, philosophy included.

Currently a reanimation of Chinese philosophy is to be seen, after long years during which ideological obscurantism and theoretical sterility were dominant. But this process has a definite political coloration, dictated by the strategic interests of the present Chinese leadership, which we shall discuss below. First of all, one cannot but note an increase in the number of publications in philosophy. This is to be seen not only in the principal journals of philosophy — Zhexue Yanjiu (Philosophical Research), which resumed publication in January 1978 (3), Ziran Kexue ji Zhexue wenti congkan (Collection on Philosophical Problems of Natural Science), the first issue of which appeared in January 1979 (4), and Zhongguo Shehui Kexue (Chinese Social Sciences) — but also in the journals of universities and teachers' colleges, which have been springing up like mushrooms after a rain. Articles on philosophical subjects appear regularly in the central and provincial Party journals and newspapers. Much interest is now also being displayed in China in philosophical research being conducted abroad. (5)

There has been a renewal of work in the profession by many prominent scholars, including Yang Xianzhen and Feng Ding, who were punished for their Marxist convictions at the beginning of the "Cultural Revolution." (6) The pages of the Chinese scholarly press again carry the name of the prominent scholar in history and the history of philosophy Hou Wailu, who did much for the study of China's past from the standpoint of Marxist methodology. At the same time, one of the major bourgeois philosophers, He Lin, has begun to publish articles, and so forth.

In conducting a kind of inventory of the results of the development of philosophy in the Chinese People's Republic throughout its existence, the leaders of the ideological front and rank-and-file scholars could not but come to uncomfortable conclusions to the effect that, in this area, over a long period — 20 years, to be precise — "stagnation, confusion,

and retrogression" were to be seen. (7)

Today it is recognized that for many years there was virtually no study of such fundamental problems and notions of dialectical materialism as matter, motion, space, and time, and the relations among them; the objective nature of laws, the limits and conditions within which they function, and the connection between general and particular laws; the nature of consciousness and its material and social foundations; and freedom and necessity in the process of the history of society. (8) With respect to the laws of dialectics, in the words of a reviewer in the journal Zhexue Yanjiu, their "elaboration" in earlier years had boiled down to articles of a general character, in which "essentially there was reiteration of certain basic postulates in Comrade Mao Zedong's article 'On Contradiction,' and its study resolved merely to endless repetition of the notion that 'the struggle of opposites is everything.' Yet for many years the transformation of quantitative changes into qualitative ones and the negation of the negation were eliminated from the list of the basic laws of dialectics. The various categories of dialectical materialism were not studied at all" (9) According to the author of this article, an analogous situation existed in the study of other problems of Marxist philosophy.

The blame for the "retrogression" in Chinese philosophy, as in general for the difficulties being experienced by China in all spheres of the life of society, is placed, as is now the custom, upon Lin Biao and the "Gang of Four." (10) But Chinese propaganda uses every device to shield the individual principally at fault for the calamities that befell Chinese philosophical scholars in the past 20 years: Mao Zedong. On the contrary, he is declared to be a person who allegedly constantly concerned himself with the development of the discipline of philosophy, which was supposedly interfered with by the "intriguers and careerists" — Lin Biao and the "Gang of Four." (11)

One cannot but recognize that the last few years have seen a significant change in the form and content of publications on philosophical themes. They are beginning to assume a scholarly character. They contain valuable, informative material,

One sees signs of a trend toward solving debatable problems by comparing different points of view. Nevertheless, we must immediately note that relapses into the past continue: a tone reminiscent of the third degree, political twaddle, and inability to support one's position by recourse to facts from real life and the data of science. The principal shortcoming of the overwhelming majority of published works, however, is their descriptive nature and the low level at which theoretical problems are solved. Despite this there is a considerable broadening of the subject area in which scientific investigation is conducted. (12)

In seeking to activate the scholarly work of Chinese social scientists, including philosophers, the present Chinese leadership is going all out with propaganda touting the slogan "May 100 flowers bloom, may 100 scholars compete." But taking into consideration the lessons of the implementation of that policy in 1956 and 1957, scholars are in no hurry to state their opinions openly and are displaying extreme caution. Chinese propaganda currently invariably drums away at the need for a creative approach, the importance of studying new problems, and verbally rejects outright the existence of any "forbidden zones" in scholarship. The reason for this is said to be that, inasmuch as theoretical research has "the character of a search," it is necessary to admit the possibility that errors and mistaken tendencies may appear. From this the conclusion is drawn that it is necessary to permit "bold thinking, bold speaking, bold action." (13) In scientific matters there can be but a single criterion — whether or not something accords with objective truth. Theoretical research is subordinate only to the truth, and all are equals before the truth, declares the journal *Zhexue Yanjiu*. (14)

Among the Chinese philosophical public, appeals have begun to appear for the use of bourgeois methodology in scientific research: the ideas of pragmatism and the nonpartisanship of philosophy are preached. At a conference of youthful scholars in the history of philosophy held in Beijing, September 18–19, 1980, one participant, Wu Guang by name, called for abandonment of the notion of "partisanship of philosophy" and for re-

placing it with the term "tendency in philosophy." He argued this on the grounds that improper use of the notion "partisanship in philosophy" allegedly leads to identification of philosophy with politics, philosophical struggle with political struggle, philosophical schools with political groupings. (15) Thus, vulgar sociologizing is replaced by bourgeois objectivism.

In our view, what is of greatest interest in understanding the processes currently occurring in Chinese philosophical thought is analysis of the discussion proceeding in it of the following three themes: practice as the sole criterion for verification of truth, the character of class relations in contemporary Chinese society and under socialism in general, and, finally, interpretation of the formula "the splitting of a single whole."

The very fact that the subject of practice occupies center stage under current conditions in the life of Chinese society is explained principally by political factors. The pragmatically minded component of China's present leadership cannot but recognize that the main reason for the profound crisis that beset Chinese society in the mid-'70s was the carrying out of the socio-economic program of Mao Zedong, which was unrealistic and not in accordance with the conditions of China and the present stage of world development, which is marked by a revolution in science and technology. To overcome that crisis, to turn the attention of Party and government personnel to the solution of urgent political, economic, and cultural problems, a new conception of the country's development was needed. However, the present leadership of China did not wish to return to the path of building socialism that had been proved by the experience of other countries. Instead it advanced the policy, permeated with great-power chauvinism, of "the four modernizations," the general goal of which was to transform China into the dominant force in the world's development, the leading industrial power in the world, on the basis of militarization of the economy and utilization of aid from the imperialist powers. (16)

Nonetheless, it is obvious that implementation of that course requires abandonment of many parameters of Mao Zedong's

model of "barracks communism" and, consequently, an overcoming of the notions of previous years with respect to many questions of theory, especially such questions as the nature of class relations in contemporary Chinese society, the role of economic and political-ideological stimuli to work, the relationship between the subjective factor and objective laws, the general role of ideas in the societal-historical process, the socio-economic content of the present stage of development of China, the nature of a political regime that would accord with the conditions of contemporary Chinese society and the demands of the policy of "the four modernizations," the role of science and technology in the social development of the country, the place of the intelligentsia in society, the forms and methods of political propaganda, the content and ways of implementing cultural policy, and the like. And inasmuch as the notions formerly dominant were, in one way or another, associated with the name of Mao Zedong, because he had taken either a direct or indirect part in shaping them, abandonment of them could not but be accompanied by a certain reexamination of the role of Mao Zedong himself as theorist and political figure. Of course, the present Chinese leadership is not inclined to any genuine "de-Maoization," for that would risk painful upheavals in the political regime it has created, and for them themselves. This is the reason for the incessant appeals in the Chinese press to restore the true face of Mao Zedong and his "ideas," and to free them of "overlays" and "distortions," which are ascribed, naturally, to Lin Biao and the "Gang of Four."

In order to prepare the country's public opinion for certain changes in the socio-economic policy of the leadership and a fundamental change by them in the concept of the development of Chinese society, a campaign was launched throughout China, in which philosophers, among others, took a very active part, to publicize the proposition that "Practice is the sole criterion for verification of truth."

The following are the focus of the attention of the authors of articles on this subject: the content of the notions "practice," "truth," "correct, true theory"; the role of practice in the pro-

cess of cognition as a whole and as a criterion of truth in particular; the relationship between theory and practice; whether the ideas of Marxism-Leninism are true; and so on. The authors of the articles being published prove things that are obvious for Marxists, such as that "Practice is the material activity of human beings in transforming the objective world" (17), that it is both the basis of cognition and the criterion for verification of truth (18); that truth is the "correct reflection in human knowledge of objective phenomena and their essences" (19), and "the correspondence of thought to objective being." (20)

Contrary to notions that were current only a few years ago, Chinese philosophers now recognize the fact that human practice is a continuum. This itself casts doubt on Mao's postulate that human knowledge is merely the result of man's personal, "immediate" experience. As they consider the question of the relationship between theory and practice, the authors of articles in Chinese journals and newspapers invariably emphasize the leading role of practice. In this connection there is extensive quotation of Lenin's well-known statement in the Philosophical Notebooks [Filosofskie tetradi] to the effect that "Practice is higher than (theoretical) knowledge, for it possesses the merit not only of universality but of direct actuality." (21)

For many years Chinese theorists were compelled to publicize absurd assertions to the effect that "the ideas of Mao Zedong are the peak," possess "absolute authority," that "every word of his is truth," "takes the place of 10,000 words" (22), and so forth. Today such assertions are declared to be "deification and making a fetish" of the ideas of Mao Zedong. In support of their present "revolutionary" declarations, Chinese theorists base themselves on the assertion that "Theory rests on practice, not on political power, and the development of theory is the affair of the entire Party, not of a small number of people." (23) In accordance with the "realistic approach" to the theoretical (and political) activity of Mao Zedong now being preached, his "contribution" to the development of Marxist philosophy is also being reexamined. Today it is seen to lie only in the advancing of certain new conclusions, in the en-

richment of a number of the positions of Marx, Engels, and Lenin, but not in the creation of some new level, as was previously the case. (24)

This does not at all mean, however, that Chinese philosophers have ceased to regard Mao as a major Marxist theorist. In the pages of Zhexue Yanjiu the expressions "Mao Zedong emphasized," "Mao Zedong pointed out," and "the thought of Mao Zedong" are still current; and references to his formulations are to be found in many articles on theory. (25)

Nevertheless, one cannot but note that the campaign concerning discussion of the problem of practice is being utilized by the present Chinese leadership to implant, at the level of the mass mind, the idea of the validity of the concept of a "national (Chinese) Marxism." This is testified to by both the point of view chosen by the authors of articles, the priority of problems dealt with, and the emphases in discussing them. Another important factor in understanding the nature of this campaign is not only what the Chinese philosophers discuss but what they keep silent about.

To begin with, it must be observed that they treat the very notions of "truth" and "practice" pragmatically. They essentially identify the truth of a given theoretical proposition with whether it works or not, whether it is suited to the attainment of some particular goal. At the same time, Chinese philosophers introduce a subjective meaning into the notion of "practice," for they have in mind the consequences (favorable or unfavorable) that may follow from implementation of those propositions. This is why abandonment of a whole list of Mao's positions is explained not on the basis of their failure to correspond to generally recognized principles for building socialism, but of their inability to help solve the tasks of the policy of "the four modernizations," which, as we have noted, has a clearly hegemonic and anti-Soviet emphasis.

Today it has become fashionable for Chinese theorists to use the argument that Marxism is a creative theory, that its vitality is to be explained by the ability of its founders always to react to the needs of the development of society as they ma-

ture, their forthright rejection of outdated propositions, their bold posing and solution of new problems. The authors of many articles on problems of practice object forthrightly to the use, as ideological guideline, of abstract speculative schemes. They say that they are in favor of a creative approach to problems of theory born of China's constantly changing reality. (26) It is emphasized that the general truths of Marxism-Leninism are a scientific methodology, but "The method for seeking truth is by no means equivalent to ready-made conclusions with respect to truth, and even less can it replace the objective criterion of verification of truth. Marxism is a guide to action, not a dead dogma." (27)

But the reference to the need for a clear discrimination between the notions "truth" and "the criterion of truth" is employed to deny the universal significance of the general laws of socialist revolution and the building of socialism. For example, one article states:

If we employ the proposition of Marx and Lenin to the effect that the socialist revolution can triumph only if it occurs simultaneously in most of the capitalist countries and make that the criterion for verification of truth, this will cast doubt on Lenin's proposition that the socialist revolution will triumph in one or several countries. If one makes the criterion for verification of truth Lenin's proposition that the Russian Revolution had to begin with armed insurrections in large cities, then the course advanced by Chairman Mao of armed seizure of power in our country solely by creating bases in the countryside, surrounding the cities with the villages, and then seizing the cities would also have to be discarded. (28)

The very elevation to the level of Marxist theory of the petit bourgeois notion of seizure of political power by the exploited masses is in itself quite revealing.

The crisis of the Maoist model for the socio-economic development of society cannot fail to induce interest among the

Chinese people and the learned intelligentsia in the experience of the changes wrought by socialism in the Soviet Union and the countries of Eastern Europe. (29) Under these conditions, the present Chinese leadership has faced its ideologists with the task of casting doubt on the objective truth of the Marxist theory of the building of socialism. Thus, the authors of one article write that just as Marx and Engels could not have known about imperialism, Mao could not have foreseen the specific features of the situation in China that appeared after his death. (30) The meaning of this and other, similar expatiations of Chinese ideologists lies in demonstrating that it is impossible to prove the existence of universal patterns in the building of socialism which are verified in the experience of other countries, including the Soviet Union. Such views are in total accord with the approach to revolutionary practice taken by Mao himself. He primarily reduced it solely to the class struggle of the peasantry, limited to the narrow framework of the experience of a single nation (China).

Of late the term Marxism-Leninism is employed less and less often in China, and Marxism is used more and more, this suggesting that Leninism is no more than the "Russian variant" of Marxism. In China much is being said about the need to "emancipate the mind." But when, in this connection, reference is made to the historical past of the Chinese Communist Party, what is presented as most valuable is Mao's struggle against the internationalist Communists in the late '30s and early '40s. (31) It is no accident that in discussions of the topic "practice as the sole criterion for verifying truth" unjustifiably little attention is given to the question of the relative independence of cognition, that it is capable of running ahead of the immediate requirements of practice, of foreseeing new phenomena and thus of actively influencing all spheres of human life.

In the course of discussion of the problem of practice, the Chinese ideologists shunt aside the question of the unity of relative and absolute truth. They keep completely silent about Lenin's notion concerning the possibility that the socialist rev-

olution might triumph in a single country or in several countries did not imply an abandonment, but rather further development, of Marx's theory of revolution, that it contained within itself such an "element of absolute truth" as the need to establish the working class in political power, without which it is not possible for any genuinely Marxist concept of socialist revolution to exist, either today or in the future. At the same time, speculation about the constant flux of phenomena in the objective world leads Chinese philosophers to elevate the changeability of human knowledge to an absolute.

The Chinese ideologists also ignore the question of the continuity between each previous and subsequent stage in the development of Marxism. It is as though they erect an impenetrable wall between them. At the same time, while ignoring completely the experience of other countries, they disregard the universal laws of the building of socialism. Thus, there is deliberately created an impression of the uniqueness, the distinctive exceptionalism of the Chinese path of social development. Practice, which is talked about so much today in the pages of the Chinese learned and Party press, proves to be the practice of revolutionary struggle and the transformation of society in but one country, interpreted, moreover, in a nationalist spirit. Mao's notions of sociohistorical practice are being resurrected, albeit in a different form. (32) Under the slogan of combating dogmatism, what is actually preached is abandonment of the universal principles of Marxism-Leninism. Preaching the concept of a pluralism of Marxist "models" of socialism, the present Chinese leadership is contributing nothing new compared with the idea of "Chinese communism" advanced by Mao as early as 1938 and then written into the decisions of the Seventh Congress of the Chinese Communist Party in 1945. What we are actually speaking of is a right-wing, nationalist, pragmatic version of Maoism. (33)

A certain revision of earlier theoretical stands is also occurring in discussion of the subject "class struggle and class relations in contemporary Chinese society and under socialism in general." To begin with, Mao's position regarding the fierce

nature of class struggle over the entire course of the existence of socialist society right up to the building of communism is discarded. One article asserts directly that although many class enemies continue to exist in China today, the class struggle has a tendency to become milder and milder, not to grow sharper. (34)

The identification of intra-Party struggle and of the clash of different points of view in the course of discussion of political and theoretical problems as being class struggle was declared not to correspond either to Marxism or to the actual reality of socialism. As we know, for many years the inevitability of fierce class struggle in socialist society was justified in China by referring to the existence in that society of "parasites, speculators, loafers, hooligans, embezzlers of public property, and others." (35) Of late many Chinese theorists have been inclined to regard the struggle against antisocial elements not as a class struggle, but as a "solution of contradictions within the people." For example, in an article that appeared in October 1979 one reads the following: "With respect to persons who commit ordinary criminal offenses that to one or another degree damage the interests of the state and the people principally because they are unable properly to resolve relationships among the state, the enterprise, and the group, their punishment signifies solution of contradictions within the people with the aid of laws." The formulation of class struggle now accepted by Chinese propaganda reads as follows: "class struggle against counterrevolutionaries, spies, and criminal elements seriously violating public order, against degenerates, new bourgeois elements, unreconstructed landlords and kulaks, the remnants of the 'Gang of Four,' and the residues of other exploiting classes." (36)

Along with these, one encounters non-Marxist and outright anti-Marxist statements and conclusions in articles published in China. This is to be explained by the fact that in developing the new concept of relationships among social classes and of class struggle in China there is again recourse to Mao Zedong's propositions, which he presented as far back as 1957, to the ef-

fect that two types of social contradiction exist under socialism: "contradictions between us and our enemies" and "contradictions within the people." In accordance with these propositions, the decision as to whether various social strata or individuals belong to "the people" or to "enemies of the people" is arrived at not on the basis of their objective position in the system of societal production, but from the standpoint of a subjectivist criterion: the drawing of a "clear line" between "truth" and "untruth" in what they say and do.

Such an approach to social class relationships opens up an opportunity for subjectivist arbitrariness in determining what class a person belongs to. Vivid evidence of this is provided by the practices of the "cultural revolution," in which many thousands of Communists, workers and peasants, were declared "enemies of the people" and real members of the capitalist class were protected from all criticism. (37)

It must be emphasized that Mao's understanding of social contradictions under socialism is essentially a revision of the Marxist teaching on nonantagonistic and antagonistic contradictions. Having declared the contradiction between the working class and the toiling peasantry, on the one hand, and the national capitalists, on the other, to be a contradiction within the people, i.e., a contradiction existing under conditions in which the interests of the people are fundamentally one and the same (38), Mao thus distorted the real picture of social class relationships in Chinese society, which in the 1950s was a society of the transitional type (which it continues to be, it is pertinent to note, at the present time). When he proclaimed the "unity of interests" of all classes and strata categorized as of the people, this led to a glossing over of the irreconcilable contradictions between classes pursuing fundamentally different goals in their social policies. The very reality of Chinese society during the first half of the '50s, particularly the economic sabotage engaged in by the capitalists, served as convincing refutation of Mao's assertions, which obscured the situation. (39)

The "socialist transformation" of private capitalist indus-

tries and commerce carried out in fire-brigade style in the spring and summer of 1956 by no means signified the disappearance of the bourgeoisie from the socio-economic structure of Chinese society. They continue to this day to possess certain financial resources, maintain their relations with the old intelligentsia, including engineering and technical personnel, maintain relations with capitalists of other countries, and, finally, exercise influence in the sphere of ideology.

Therefore, the assertions in the pages of the Chinese press to the effect that the contradiction between the proletariat and the national capitalists has allegedly already been resolved, for the overwhelming majority of capitalists have allegedly been converted into toilers living off their own labor, does not accord with the facts. (40) This is asserted under conditions in which members of the national bourgeoisie continue to receive financial returns on their capital nationalized by the state and in which they are permitted to establish companies involving funds from abroad! There is absolutely no justification for understating the scale of the influence of the capitalists and petite bourgeoisie on Chinese society today, as Chinese theorists do. They have now gone from one extreme to the other. Whereas previously class struggle was proclaimed to be the regulator of all societal relationships, today its role is reduced to being only one of the ways of solving the problem of what are termed class enemies (real and imaginary).

The present Chinese leadership needs to use Mao's positions on two types of social contradictions under socialism in order to have a free hand in conducting social policy domestically and abroad. Proceeding from grossly utilitarian, pragmatic considerations, they unjustifiably declare capitalists to be toilers while simultaneously listing as enemies of socialism all dissenters, particularly opponents of Beijing's military adventure in Vietnam. At the same time, imperialist countries are declared to be Beijing's best friends, and the world's first socialist state is proclaimed its chief enemy.

Interpretation of the formula "the splitting of a single whole" also occupies considerable space in the pages of Chinese jour-

nals, as does, in general, interpretation of the law of the unity and struggle of opposites. In this connection one cannot but recall that in 1964–1965 this topic was the subject of an extensive, nationwide campaign against the prominent Chinese Marxist philosopher Yang Xianzhen. (41) Begun on the initiative of Mao himself and conducted under his direction, this campaign was regarded as "a struggle in defense of materialist dialectics" (42), although in fact it was an affirmation of Maoist "dialectics" that was at issue. Formally, the discussion focused on "correct" interpretation of Yang Xianzhen's postulate (subsequently proclaimed to be the concentrated expression of a particular, revisionist theory) signifying "unity of two principles," "the merger, the uniting of two principles in a unity (one)." This proposition was contrasted to another, the literal meaning of which was "the united (one) divides into two." Its Chinese authors were virtually unanimous in declaring it equivalent to Lenin's formulation on "the splitting of a single whole." It must be emphasized that there was but one side participating in that campaign: the opponents of Yang Xianzhen's point of view. He himself was not granted an opportunity to present a justification of his views.

This campaign, in 1964 and 1965, showed that philosophers pursuing Mao's line distorted the Marxist-Leninist teaching on the core of dialectics. This was revealed as soon as the discussion turned to the patterns of development of society, the most important questions of our times — the motive forces of socialism and of the world communist movement. Manipulating Lenin's well-known statement on "the splitting of a single whole," the Maoists distorted its meaning. Basing themselves on Mao, they forced all the phenomena of life into the strait-jacket of "the splitting of a single whole," paying no attention whatever to the fact that its application cannot be reduced to stereotyping. Specifically, the concrete historical case occurring when "the splitting of a single whole" manifests itself in the form of cleavage of a society, based on exploitation, into classes hostile to each other is applied by them to socialism, the world socialist system, the Communist parties, and Marxist-Leninist theory. (43)

In the course of this discussion, a long list of previous judgments and attitudes were reexamined. First of all, the very proposition "the merger of two into a unity" is no longer proclaimed a manifestation of a revisionist line. Its only shortcoming is regarded as being that it is incapable of "scientifically rendering the content of contradiction and struggle, for its central idea is expressed in the word merger." (44) Furthermore, many participants in the discussion, regarding it as possible to make use of both formulas ("merger of two into a unity" and "the splitting of a single whole") for purposes of "lively and imaged clarification" of certain features, sides, and factors of the law of the unity of opposites and for its popularization, express themselves forthrightly against making them "a complete and scientific generalization and presentation of the basic law of dialectics." (45) In their opinion, "Only the idea of the unity of opposites is capable of presenting and expressing in synthetic form all that takes place, that is, the two trends in all contradictions and the two sides of the phenomena cognized by human beings." (46) In essence, such a standpoint is not in conflict with the Marxist understanding of the basic idea of the law of the unity and struggle of opposites.

At the same time, assertions characteristic of the campaign of 1964-1965 were presented in the course of the discussion. First of all, a number of philosophers regard the formulation "the splitting of a single whole" (as interpreted by Mao) to be "a brief and precise scientific statement of the law of the unity of opposites." (47) We cite two instructive examples. The author of one article confirming the "Marxist" character of Mao's understanding of the law of the unity and struggle of opposites quotes the following statement of his: "The splitting of a single whole is to be observed throughout the existing world. That is true of teachings as well. If a revolutionary scientific teaching exists, in the course of its internal development its opposite — a counterrevolutionary, unscientific teaching — will inevitably arise" (48) (Emphasis added — V. B.).

Of course, as it develops in a society of class antagonism, revolutionary theory always experiences a certain pressure

from the ideology of reactionary classes. Therefore, the struggle against revisionism and opportunism of every stripe and nuance is a law of the development of revolutionary theory under the conditions of a society of exploitation or a society still containing deep residues thereof. But "the splitting of a single whole" has a qualitative distinction here. Marxism develops in the struggle against every kind of distortion, but it itself, its own principles, cannot and do not give rise to its opposite, as Mao asserted. The further development of Marxism does not proceed by the splitting of its principles, its fundamental propositions, and it does not give birth within itself to a teaching that is the opposite of it. Of course, contradictions do exist here as well: between various obsolete propositions of science and new questions arising in life, between Marxism as a revolutionary theory and hostile views and theories that seep into it. But the appearance of such contradictions and their solution is not a splitting of the principles of Marxism, but, on the contrary, their further development and enrichment, and therefore a strengthening of those very principles. In a word, Mao sought "splitting" where it does not exist.

Another example. In one of the articles published in the course of discussion of the formulation "the splitting of a single whole," it is asserted: "An important contribution of Comrade Mao Zedong to Marxist philosophy is that he advanced a whole list of methods of thinking and of work, among which one can name the following: 'on the dual nature of things,' 'on the need for a two-sided approach,' etc." (49)

As we know, Mao's method of thought and method of work "on the dual nature of things" was formulated by him in the years 1956-1958. According to this method, any whole consists of a sum of "good" and "bad" sides. There is coexistence of "merits" and "shortcomings" of equal significance in all social phenomena (a cooperative, an educational institution, an industrial enterprise, a Party organization, a family, etc.). In his programmatic work "On the Ten Most Important Interrelationships" (April 1956), Mao asserted, for example: "It must be recognized that there are always two sides - a posi-

tive and a negative. Both these sides will still be present ten years from now. In the future the two sides characteristic of that day will appear; now there are those of today. Each person has his two sides, not one." (50)

In every case, however, he placed his emphasis on the side he needed to justify or validate particular political actions. For example, in examining the Hungarian events of 1956, Mao placed his stress on their allegedly "creative" character: the fact that the unity of the Party was strengthened as a result. In the same way, the "good side" of the Japanese aggression against China was that it "raised the consciousness of the people." Under this "dialectics," Mao's category of "good deeds" included the counterrevolutionary rebellions in socialist countries, the exacerbation of relations between certain Communist parties, and class struggle right up to the time that communism is established.

It is obvious that the concept of a dual nature inevitably leads to a justification of social conflicts, of intra-Party struggle, of the subversive activities of counterrevolutionary elements, and of the aggressive policy of imperialist powers. Therefore, apologia for that concept today testifies that Mao's dialectic continues to have a powerful influence among Chinese philosophers.

In summarizing our examination of the processes now occurring in Chinese philosophy, we cannot but see that a struggle of different currents is evident. Some Chinese scholars reveal a turn toward an analytical approach to problems of theory, and a trend toward authentic utilization of the conceptual apparatus of Marxist philosophy can be detected. That trend is by no means the dominant one, however, because a whole list of Maoist propositions continues to be in use. Attempts are made to turn to advantage the terminological similarity of Mao's positions to statements by the founders of Marxism-Leninism, and a new effort to camouflage anti-Marxist notions as Marxism is to be seen. At the same time, there is the beginning of a rebirth of views characteristic of bourgeois theoretical consciousness. Philosophy in China is at a crossroads.

Notes

1) For example, in the Brief Course in the History of Chinese Philosophy, published in 1973, whose editor was Ren Jiyou, professor at the University of Beijing, previously known for his serious research in the history of philosophy, it was stated that the motive force in the development of philosophy in feudal society was peasant uprisings, and that it was precisely they that led to the appearance of materialism. Here it should be observed that some professional philosophers "adapted" well to the changing conditions of Chinese reality. Professor Yang Yongguo of the University of Guangdong, author of A History of Ancient Chinese Philosophy (translated into Russian and published in Moscow in 1957), became somewhat of a "theoretical" consultant to the Mao group on matters of the history of Chinese philosophy. One of the most prominent bourgeois philosophers of modern China, Professor Feng Youlan, many of whose writings have been translated into European languages, also did not feel ill at ease in that role.

2) Pravda, February 24, 1981.

3) The last previous issue of that journal appeared in May 1966, after which its publication ceased.

4) This journal is a quarterly. A publication of approximately the same title appeared for a number of years in the mid-'50s.

5) For this purpose an index of foreign publications in the social sciences is published every two months. Zhexue Yanjiu has carried a number of articles by foreign authors (from Romania, France, etc.) translated into Chinese, and has published the two-volume Istoriia politicheskikh uchenii, edited by K. A. Mokichev, and the Soviet Kratkii filosofskii slovar'. An article on B. F. Lomov's views on the subject matter of psychology was published in the January, 1980, issue of the Journal of Psychology (Xinli Xuebao), publication of which has resumed.

6) For details on their careers see V. G. Georgiev, "O politicheskom kharaktere filosofskikh diskussii v Kitaei," in

Kritika teoreticheskikh osnov maoizma, Moscow, 1973, pp. 201-226.

10) Precisely they, and only they, it seems, "distorted the basic principles of dialectical materialism," declared the proposition that being and the object are primary and thought and the subject are secondary to be "reactionary metaphysics," and substituted idealism for materialism, and sophistry for dialectics (see Zhexue Yanjiu, 1979, no. 7, p. 3). The counterposing of partisanship to the scientific and the actual abandonment thereof are now ascribed to them (see Zhexue Yanjiu, 1979, no. 10, p. 3). At the same time, the accusation is leveled at them that "arbitrarily distorting the fundamental propositions of Marxist philosophy, they brought confusion to the understanding of certain of its basic notions," "converted popularization into vulgarization, and made cynical pragmatism of the connection between theory and practice" (see Zhexue Yanjiu, 1979, no. 12, p. 8). It should be emphasized that M. L. Altaiskii and V. G. Georgiev pointed out the crisis in Chinese philosophical thought as early as 1969, in their Antimarksistskaia sushchnost' filosofskikh vzgliadov Mao Tseduna, Moscow, 1969.

11) See, for example, Zhexue Yanjiu, 1978, no. 12, pp. 9-12; 1979, no. 3, p. 7; and a long list of other publications.

12) For example, at the China-wide Conference on Planning Work in the Dialectics of Natural Science, there was talk of the need for serious study of methodological problems associated with the development of systems engineering and the creation of an artificial intellect (see Zhexue Yanjiu, 1978, no. 3, p. 65). The centennial of Einstein's birth was marked by a series of articles on the philosophical significance of the theory of relativity (see Zhexue Yanjiu, 1979, nos. 2, 5, 7). Writings on logic, both formal and mathematical, hold an important place in the philosophy journals (see, for example, Zhexue Yanjiu, 1979, no. 10, pp. 70-73). Also widely discussed is the question of the place of sociology in the system of the social sciences and its relationship to historical materialism. In this regard, studies of the sociology of marriage and the family and problems of crime among youth (!) are given pri-

ority (see, for example, Zhexue Yanjiu, 1979, no. 5, pp. 3-6). Articles are being published on the topic of correct understanding of personal and social interests, in which the need for dialectically combining the two is demonstrated (see, for example, Zhexue Yanjiu, 1979, no. 5, pp. 24-32).

There has been a marked revival of research on the history of Western philosophy. Articles have been published on various aspects of the views of Plato, Aristotle, Bacon, Locke, Fichte, Hegel, and others. 1980 saw the publication of the first book on Kant's philosophy, written by Li Zehou, in the history of the Chinese People's Republic. Preparatory work has been begun on a multivolume history of Western philosophy (see Zhexue Yanjiu, 1979, no. 8). Zhexue Yanjiu is also publishing articles, of both an informational and a critical nature, on the latest trends in bourgeois philosophy. In this connection one may note an article on the views of the Frankfurt School (see Zhexue Yanjiu, 1980, no. 4).

13) See Zhexue Yanjiu, 1979, no. 3, p. 4.

14) Zhexue Yanjiu, 1978, no. 2, p. 7; 1979, no. 7, p. 6.

15) See Guangming Ribao, 1/10/1980.

16) Here we refrain from consideration of the content of all the components of that policy, for that does not fall within the purpose of the present article.

17) See Zhexue Yanjiu, 1978, no. 9, p. 28; Beijing Shifan Daxue Xuebao, 1978, no. 5, p. 2.

18) See Zhexue Yanjiu, 1978, no. 8, p. 19.

19) See Beijing Shifan Daxue Xuebao, 1978, no. 5, p. 2.

20) See Zhexue Yanjiu, 1978, no. 9, p. 28.

21) V. I. Lenin, Poln. sobr. soch., vol. 29, p. 195.

22) Zhexue Yanjiu, 1979, no. 3, p. 7.

23) Ibid., p. 6.

24) Thus, in an article by Hu Dajun in the Guangdong journal Xueshu Yanjiu, it is pointed out that "The philosophical thoughts of Mao Zedong do not comprise any independent philosophical system. Therefore, we must not counterpose these ideas to the philosophical system of Marxism," for that would lead "to attempts to replace the philosophical system of Marx-

ism with them or to present them as the 'essence,' 'basis,' or 'root' of the philosophical system of Marxism; and the theory of Marx, Engels, and Lenin would look like something of the order of a part of a preparatory condition for the philosophical thought of Mao Zedong. The result would be a fundamental distortion of the relationship between Marxist philosophy and the philosophical thought of Mao Zedong" (see Xueshu Yanjiu, 1979, no. 1, p. 102).

25) For this it suffices simply to leaf through the issue of Zhexue Yanjiu for August, 1980.

26) See, for example, the article by the prominent philosopher Zhang Enci in Zhexue Yanjiu, 1978, no. 9, pp. 27-30, and others.

27) See Zhexue Yanjiu, 1978, no. 10, p. 15.

28) Beijing Shifan Daxue Xuebao, 1978, no. 5, p. 3.

29) That our views are not without foundation is testified to by dispatches from China (see, for example Literaturnaia gazeta, June 25, 1980) and judgments to be found in certain scholarly articles by Chinese authors.

30) See Zhexue Yanjiu, 1978, no. 10, p. 16.

31) See, for example, Renmin Ribao, May 7, 1979.

32) For fuller detail, see M. L. Altaiskii and V. G. Georgiev, Antimarksistskaia sushchnost' filosofskikh vzgliadov Mao Tszeduna, Moscow, 1969, pp. 116-19; Maoizm — ideinyi i politicheskii protivnik marksizma-leninizma, Moscow, 1974, pp. 51-52.

33) Chinese theorists attempt to employ the authority of the founders of Marxism-Leninism toward these ends. Thus, for example, the authors of the leading articles and materials devoted to the hundred and sixtieth anniversary of Engels's birth essentially present him as a proponent of the notion of "national" Marxism and the idea of the "pluralism" of Marxist philosophy (see Renmin Ribao and Guangming Ribao of November 27, 1980, as well as Hongqi, 1980, no. 21).

34) See Zhexue Yanjiu, 1979, no. 10, p. 18.

35) One might merely cite the assertions in the 25 points of the Proposals on the General Line of the International Com-

munist Movement, of sad renown, Beijing, 1963, pp. 39, 42.

36) Some Chinese theorists do not limit themselves simply to pointing to "criminal elements who seriously violate public order," but, in accordance with the attitudes of earlier years, include among class enemies "all who resell at a profit, all who engage in corruption and stealing" (see, for example, Zhexue Yanjiu, 1979, no. 10, pp. 13, 16-17).

37) The distortions of the principles of socialism in the sphere of societal relationships had the consequence that "the most ferocious feudal-fascist dictatorship" was established in the country, in the words of China's present leaders.

38) See Mao Zedong, K voprosu o pravil'nom razreshenii protivorechii vnutri naroda, Moscow, 1957, p. 5.

39) We grant that under the conditions of China at that time, the possibility existed of resolving contradictions between the proletariat and national capitalists by peaceful means, but the manner in which contradictions are resolved cannot determine whether or not they are objective in nature.

40) See Zhexue Yanjiu, 1979, no. 10, p. 15.

41) Yang Xianren was an early member of the Chinese Communist Party. At its Eighth Congress he was elected a candidate member of its Central Committee, and he worked for many years as pro-rector of the Higher Party School under the Central Committee. He spoke out against the adventurist policy of the "great leap" and against the model of Chinese socio-economic development advanced by Mao, petit bourgeois in character. His views had been criticized (albeit in veiled form) as early as in the course of the so-called discussion on "the identity of thought and being" (1959-1960). In 1966 he was proclaimed "the ideologist of the black gang of Liu Shaoqi, and listed in the category of "counterrevolutionaries" and "enemies of the thought of Mao Zedong." Later he suffered repression.

42) Hongqi, 1964, no. 16, p. 11.

43) For further detail on this, see M. L. Altaiskii and V. G. Georgiev, Antimarksistskaia sushchnost' filosofskikh vzgliadov Mao Tszeduna, Moscow, 1969, pp. 97-105; V. G. Georgiev, O

politicheskome kharaktere filosofskikh diskussii v Kitae. Kritika teoreticheskikh osnov maoizma, Moscow, 1973, pp. 203-214.

44) See Zhexue Yanjiu, 1979, no. 8, p. 26.

45) Ibid., no. 9, p. 12.

46) Ibid., p. 14.

47) Ibid., no. 8, p. 21; no. 9, pp. 17-23; no. 10, pp. 19-27.

48) This statement was specifically added by Mao in 1963 to the report by Zhou Yang "Fighting Tasks of Personnel in the Philosophical and Social Sciences." See Maoizm bez prikras, Moscow, 1980, pp. 58-59.

49) See Zhexue Yanjiu, 1979, no. 8, p. 29.

50) Mao Zedong, Izbrannye proizvedeniia, Peking, 1977, vol. 5, p. 363 (in Russian). In reading these "wise" ratiocinations, one is reminded of the very appropriate words of Marx uttered over a century ago about Proudhon: "Proudhon was inclined to dialectics by nature. But inasmuch as he never understood genuine scientific dialectics, he never went farther than sophistry. Actually, this was related to his petit bourgeois point of view. The petit bourgeois . . . is made up of 'on the one hand' and 'on the other hand.' That's what he's like in his economic interests, and therefore in his politics, in his religious, scientific, and artistic views. That's what he's like in his morality, that's what he's like in everything. He is the embodiment of contradiction" (K. Marx and F. Engels, Soch., vol. 16, p. 31).

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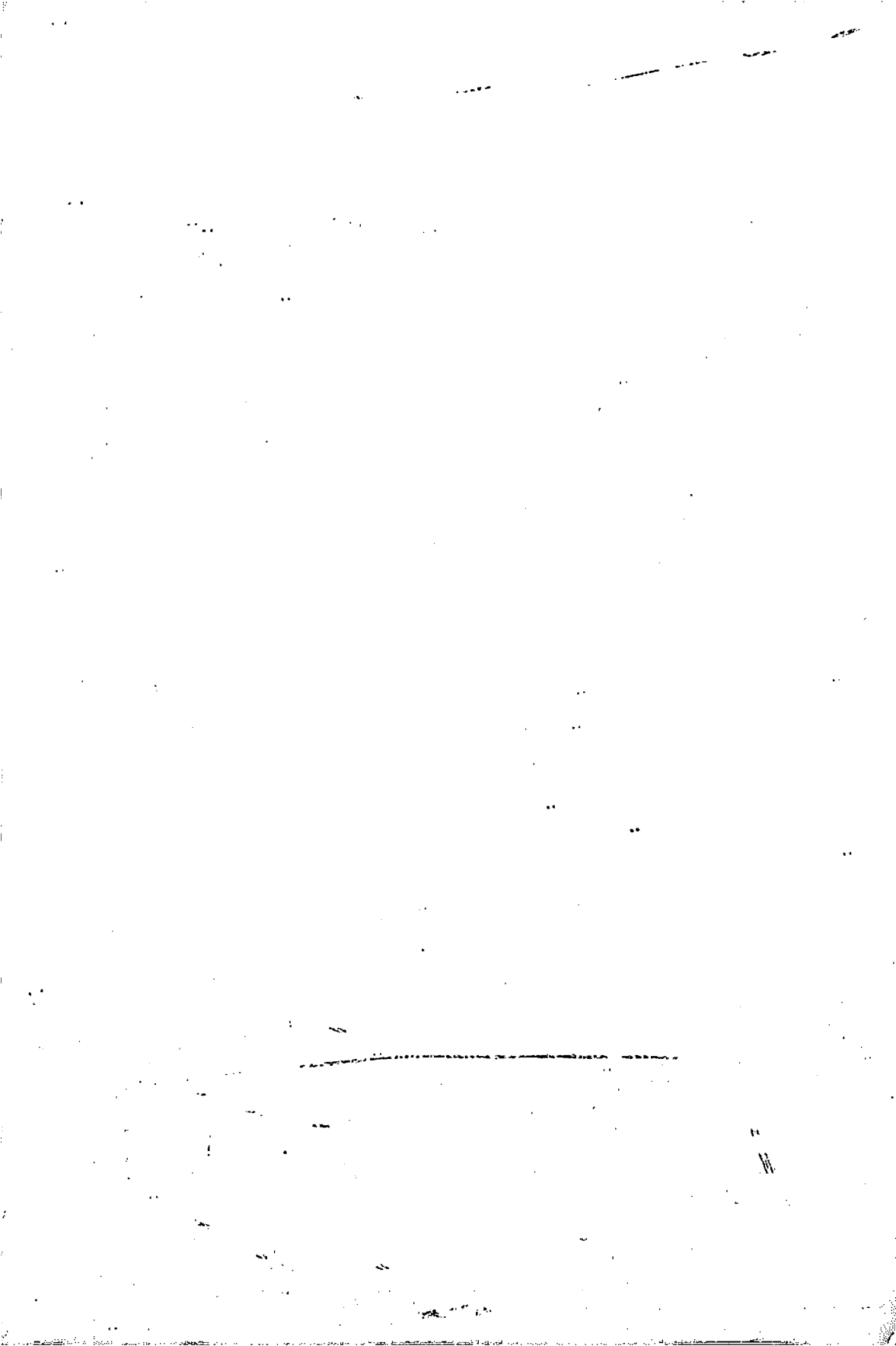
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