



\$1.95
£.80

An Introduction to the
**Logic of
Marxism**
George Novack

An Introduction to the Logic of Marxism

AN INTRODUCTION TO THE LOGIC OF MARXISM

GEORGE NOVACK

PATHFINDER PRESS, NEW YORK

Copyright © 1971 by Pathfinder Press, Inc.

Copyright © 1969 by Merit Publishers

All rights reserved

Manufactured in the United States of America

Library of Congress Catalog Card Number 76-87909

ISBN: cloth 0-87348-019-8; paper 0-87348-018-X

Fifth Edition

First Printing, 1969

Second Printing, 1971

Third Printing, 1973

Fourth Printing, 1975

Pathfinder Press, Inc.

410 West Street

New York, N.Y. 10014

Preface to the Third Edition

The kind of logic discussed in this book is so different from the logic presented in school courses that they may seem to be two virtually unconnected subjects. There is a profound reason for this contradiction. It is rooted in the opposite positions taken by the academic and the Marxist schools of logic on the relations between thought and reality, more specifically, between logic and the external world. Formal logicians, despite other differences amongst themselves, assume or assert that logic is essentially sealed up in the mind and has no necessary and unbreakable connections with society and nature. At the very best they are ambiguous and evasive on this central philosophical question.

Marxist logic on the other hand takes an unambiguous stand on the relations between the laws and the forms of thought and the rest of reality. It affirms that what goes on in the minds of men, both in substance and structure, is inseparable from what happens in their social relations and the physical world and that the evolution of thought is part of the total process of organic evolution. Thus a materialistic logic seems strange in its approach and content to anyone trained in the conceptions of a logic supposedly divorced from roots in the world around us. Yet it is precisely this feature of Marxist logic, so alien and unacceptable to the prevailing currents of logical theory,

which gives exceptional value, power, and usefulness to the dialectical method of materialist thought.

What value has a logic which does not have its roots in the continually developing material world, does not remain in constant communion with it, and cannot be applied to the processes and problems in which we are involved? As against the insulated logic of the professors, the logic of Marxism endeavors to come to grips with the realities we face and succeeds better than any other in providing a rational guide to practical action.

These lectures were originally given in New York City during 1942 shortly after the opposition headed by James Burnham and Max Shachtman had split from the Socialist Workers Party. During that inner-party controversy, Burnham had denied the validity of dialectical logic while Shachtman questioned its usefulness in solving sociological and political problems.

In the last year of his life, Trotsky conducted a sharp polemic, recorded in his *In Defense of Marxism*, against these anti-dialecticians. He urged the party members, especially the youth, to spurn the skepticism regarding dialectics inculcated by the pragmatists and logical positivists and to undertake serious study of the theoretical method of scientific socialism.

The subsequent evolution of Burnham and Shachtman has involuntarily testified to the pertinence of the dialectic they so lightly discarded. They represent two stages of switching sides in the class struggle. Upon rejecting Trotskyism, Burnham swung rapidly to the far right and is today in the front rank of the anti-Communist cold warriors. After a fruitless experiment with his own political group, Shachtman now sojourns in that wing of the Socialist Party which seeks a realignment of forces within the Democratic Party. The one went all the way over to capitalist reaction; the other shifted from revolutionary Marxism to a reformism indistinguishable from liberalism. Total or partial, their change from one political position into its opposite illustrates what is meant by a dialectical transformation.

Still more startling reversals have taken place in international affairs over these same twenty years. Consider the alliances among the Great Powers. Hitler had just torn up his pact with Stalin and invaded the Soviet Union. Germany, Italy and Japan were beating back the United States, England and the Soviet Union. Three years later the Axis lay shattered.

The victorious Allies had talked of extending their collaboration into the postwar world. But no sooner were their common opponents smashed than the temporary coalition of contradictory social forces in the Allied camp fell apart. In the ensuing Cold War yesterday's partners became adversaries while the former Axis enemies were realigned in the anti-Soviet front.

These turnabouts demonstrated that the dialectic operated as strongly in the arena of world politics as within American radicalism. Now the logic implicit in the Sino-Soviet breach indicates that more drastic reshufflings in state relations are in the cards.

These shifts are linked with the mighty resurgence of world revolution since the end of the Second World War. At the beginning of the twentieth century, ascending capitalism had the whole planet securely in its grip. Already in the second half of this century one-third of humanity has moved beyond it.

This erosion of international capitalism by the forces of socialism is the most momentous overturn of social relations in modern times. Its material basis is in the class struggle between capital and labor. Its logical explanation will be found in the laws of dialectics which assert that everything changes because of the contention of opposites within itself and keeps on changing until, by way of a qualitative leap of an essentially revolutionary character, the old formation is shattered and a new one steps forth in the proving of its superior power.

As developments in this age of permanent revolution proceed in accordance with the laws of dialectics, defenders of the *status quo* belittle Marxist logic in order to quarantine its ideas. They say dialectics is mystical nonsense

that no sensible person can comprehend or apply. This hardly explains why so many keen minds over the past century have accepted Marxist philosophy as valid nor why it is taken as a guide by entire peoples with brilliant achievements to their credit in science, technology, education and industry.

Unable to dismiss these facts, the Sovietologists seek to discredit dialectics in another way by coupling it with Stalinism. It is, they contend, one of the prime sources and ideological supports of totalitarianism and thought control.

To be sure, Stalin's regime did claim to be disseminating Marxism, just as it misrepresented itself as "socialist." There is nothing beneficial, from fire to nuclear energy, and nothing progressive, from democracy to socialism, which has not been perverted for reactionary purposes. Imperialism often uses the slogans of democracy to cover its villainies. So Stalinism debased the teachings of materialist dialectics into scholasticism and sophistry to serve the needs of the Soviet bureaucracy.

But genuine dialectics has taken ironic revenge upon the dictator who abused it. The very disciples who officially idolized him for thirty years were driven to expose his pretensions and crimes after his death. But his successors have started a process of de-Stalinization which they dare not carry through because that involves the surrender of their own bureaucratic domination. This means that, in the next stages of the struggle for workers' democracy, the Khrushchev tendency will also feel the whip of the dialectic. Only the total eradication of the heritage of Stalinism in all fields, from philosophy and art to economics and politics, can restore an emancipated and unfalsified Marxist dialectic to Soviet thought.

Nowhere is dialectics held in so little esteem as in the United States, the homeland of pragmatism. It shares the same unpopularity here as do the other ideas of socialism.

The majestic rulers of America scorn the dialectics of history. They confidently expect to enjoy the riches acquired through the work of others and occupy the seats

of sovereignty forever. The multi-millionaires and their minions cannot conceive that they might some day follow the earlier master classes, the British overlords and Southern slaveholders, who were deposed by the revolutionary upthrust of the American people once their usefulness was outlived. Even the abolition of capitalist property and power in countries ranging from Russia to Cuba since 1917 has not upset this complacency. They view the anti-capitalist movement as a purely external threat that will never rise up and find a broad base within their private domain.

It is true that presently the foreign problems besetting the U. S. imperialists are more acute and troublesome than domestic ones. However, the upsurge of the Freedom Now movement of the American Negroes signifies that even this strongest sector of capitalism is not immune to the virus of revolt. And although this has not yet spread to the mass of white workers, it can be infectious.

The multiple contradictions of American capitalism are too deep-seated and potentially explosive to be indefinitely repressed or evaded. Their further unfolding must lead to some surprising consequences.

Who, twenty years ago, could have foreseen the current stalemate in the "strategy of terror"? As these talks were being delivered in the New York of 1942, the first tests of atomic fission were being performed in Chicago. The perfecting of nuclear warheads and guided missiles has since revolutionized military technology and the whole world outlook. Bristling with "overkill" capabilities, the White House and Pentagon today face the following dilemma: What is the worth of a war that will not only annihilate the enemy but oneself and all mankind as well? Such a "victory" would be the most catastrophic of defeats.

This most excruciating of contradictions concerns the American people even more than the militarists. Washington was ready to launch the H-bombs during the October 1962 confrontation with Moscow. The question still stands: Will the atomaniacs in high places be permitted to menace our lives with these death-dealing devices—or will an

aroused people organize themselves to displace and disarm the reckless warmakers and save the world for humanity? Our future depends upon which way this crisis will be resolved.

These grave political issues may appear completely irrelevant to the study of logic. But such is the real objective logic of the course of imperialist policy. We are in a race against time to prevent the fanatics of private property from dooming us all in an insane effort to preserve their doomed system.

The dialectical method of Marxism can help us understand how we got into such an irrational situation—and how to find a rational and realistic way out of it through the struggle for socialism. That is the practical justification for a theoretical work of this kind.

November 1, 1963

Postscript for the Fifth Edition

Throughout the Cold War period the United States has been an anomaly in world ideological development. While hundreds of millions on other continents were adopting one or another form of Marxism as a guide to thought and action, and educated people abroad regarded a knowledge of its ideas as an indispensable part of contemporary culture and politics, Americans disdained to take much notice of them.

Marxism and its conclusions seemed to run completely counter to the actual course of our national life and to be irrelevant either to its theoretical or its practical problems.

This complacent parochialism has started to break down under the impact of the resurgent radicalism of the late nineteen-sixties brought on by the black struggle for liberation, the student dissidence, and mass opposition to the disastrous U.S. imperialist intervention in Vietnam. The new atmosphere in the country has intensified interest in the fundamental principles of scientific socialism.

The issuance of a fifth edition of this work is one token of the increased demand for an exposition of the elementary ideas of materialist dialectics, the logical method of Marxism.

Two other books by the author, *The Origins of Materialism* (1965) and *Empiricism and Its Evolution* (1968), published by Pathfinder, can serve as useful supplements to this one in acquiring a deeper understanding of Marxist philosophy and its relations with rival schools of thought.

The present printing contains an added chapter on the categories of dialectical thought, delivered in the original series of lectures but omitted from earlier editions for lack of space.

September 15, 1968

Contents

Preface to the Third Edition	5
Postscript for the Fifth Edition	11
Lecture	
I. Formal Logic and Dialectics	15
II. The Limitations of Formal Logic	31
III. Once Again on the Limitations of Formal Logic	40
IV. Hegel's Revolution in Logic	54
V. The Dialectical Method: I	69
VI. The Dialectical Method: II	84
VII. The Marxist Revolution in Logic	97
VIII. The Categories of Dialectical Logic	111
IX. From Capitalist Ignorance to Socialist Enlightenment	127
Index	142

Lecture I

Formal Logic and Dialectics

These lectures deal with the ideas of materialist dialectics, the logic of Marxism.

Has it struck you how exceptional a project this is? Here are members and sympathizers of a revolutionary political party under government persecution in the midst of World War II, the biggest war in world history. These industrial workers, these professional revolutionists, have come together, not to discuss matters and decide upon measures requiring immediate action, but for the purpose of studying a science which seems to be as remote as higher mathematics from everyday political struggle.

What a contrast to the malicious caricature of the Marxist movement deliberately drawn by capitalist hands! The possessing classes depict revolutionary socialists as demented individuals who delude themselves and others by fantastic visions of a workers' world. The capitalist rulers are like children who can't picture a world in which they don't exist and in which they aren't the central figures.

They claim to be guided by logic and by reason. Yet it takes only one look at the world today to determine who is irrational and who is sane: the capitalists or their revolutionary opponents. The present monarchs of society have run amok and are behaving like maniacs. They have plunged the world into mass murder for the second time in a quarter of a century; put the torch to civilization; and threaten to destroy along with themselves the rest

of humanity. And the spokesmen for these unbalanced people presume to call us "crazy" and our struggle for socialism evidence of "unrealism."

No, the shoe is on the other foot. In fighting against the mad chaos of capitalism for a socialist system free from class exploitation and oppression, wars, crises, imperialist enslavement and barbarism, we Marxists are the most reasonable individuals alive. That is why, unlike all other social and political groupings, we take the science of logic so very seriously. Our logic is the indispensable instrument for prosecuting the struggle against capitalism and for socialism.

The logic of the materialist dialectic is, to be sure, quite different from the prevailing logic of the bourgeois world. Our method, like our ideas, is, as we propose to prove, more scientific, far more practical, and also far more "logical" than any other logic. We maintain with greater comprehension and comprehensiveness the fundamental principle of science that there exists an inner logic of relations throughout all reality and that the laws of this logic can be known and transmitted to others. The social world around us is only superficially senseless. There is method even in the madness of the capitalist class. Our task is to find out what the most general laws of that inner logic of nature, society, and the human mind are. While the bourgeoisie are losing their heads, we shall try to improve and to clarify ours.

We have excellent precedents for this kind of enterprise. During the early months of the First World War, Lenin, in exile at Berne, Switzerland, resumed his study of Hegel's logic simultaneously with developing his Bolshevik program of struggle against imperialist war. The impress of this theoretical work can be discerned in all his subsequent thinking, writing, and acting. Lenin prepared himself and his party for the coming revolutionary events by mastering dialectics. In the first months of the Second World War, while conducting the fight against the petty-bourgeois opposition in the Socialist Workers Party, Trotsky stressed time and again the crucial importance of the method of

materialist dialectics in revolutionary socialist politics. His book, *In Defense of Marxism*, revolves around this theoretical axis.

Here, as in all our activities, we are guided by the leaders of scientific socialism who taught the dialectical truth that there is nothing so practical in proletarian politics as the right method of thought. That method can be only the method of materialist dialectics we are going to study.

1. Preliminary Definition of Logic

Logic is a science. Every science studies a particular kind of motion in its connections with other modes of material motion and seeks to discover the general laws and specific modes of that movement. Logic is the science of the thought process. Logicians investigate the activities of the thought process which goes on in human heads and formulate the laws, forms and interrelations of those mental processes.

Two main types of logic have arisen out of the two main stages in the development of the science of logic: formal logic and dialectics. These are the most highly developed forms of mental motion. They have as their function the conscious understanding of all forms of motion, including their own.

Although we are primarily interested in materialist dialectics, we shall not proceed at once to consider the dialectical method of reasoning. We shall approach dialectics indirectly by first examining the fundamental ideas of another kind of reasoning: the method of formal logic. As a method of thought, formal logic is the polar opposite of materialist dialectics.

Why, then, do we begin our study of the dialectical method by studying its opposite in logical science?

2. The Development of Logic

There are excellent reasons for such a procedure. First of all, dialectics has grown out of formal logic in the

course of historical development. Formal logic was the first great system of the scientific knowledge of the thought processes. It was the consummation of the philosophical work of the ancient Greeks, the crowning glory of Greek thought. The early Greek thinkers made many important discoveries about the nature of the thought process and its products. The synthesizer of Greek thought, Aristotle, collected, classified, criticized and systematized these positive results of thinking about thought and thereby created formal logic. Euclid did the same for elementary geometry; Archimedes for elementary mechanics; Ptolemy of Alexandria later for astronomy and geography; Galen for anatomy.

Aristotle's logic held sovereign sway in the realm of thought for over two thousand years. It had no rival until it was challenged, overthrown and superseded by dialectics, the second great system of logical science. Dialectics was likewise the outcome of a revolutionary scientific movement covering centuries of intellectual labor. It came as the consummation of the brainwork of the outstanding philosophers of the bourgeois-democratic revolution in Western Europe from the sixteenth to the nineteenth centuries. Hegel, the titan of the revolutionary German bourgeois school of idealist philosophy, was the mastermind who transformed the science of logic by being the first, as Marx pointed out, to "expound the general forms of movement (of the dialectic) in a comprehensive and fully conscious way."

Marx and Engels were Hegel's disciples in the field of logic. They in turn effected a revolution in the Hegelian revolution of logical science by purging his dialectics of its mystical elements and placing his idealist dialectics on a consistent materialist foundation.

If, therefore, we approach materialist dialectics by way of formal logic, we shall be retracing the steps of the actual historical progress of the science of logic which developed through formal logic to dialectics.

It would be wrong to assume from this brief sketch of the history of logic either that the Greeks knew nothing

whatsoever about dialectics or that Hegel and Marx utterly rejected the ideas of formal logic. As Engels remarked: "The ancient Greek philosophers were all natural-born dialecticians and Aristotle, the most encyclopedic intellect among them, had even already analyzed the most essential forms of dialectical thought." Nevertheless dialectics remained an embryonic element in Greek thinking. The Greek philosophers did not and could not succeed in developing their scattered acute insights into systematic scientific shape. They bequeathed to posterity in finished form Aristotle's formal logic. At the same time, their dialectical observations, their criticisms of formal thinking, and their paradoxes first posed the problems and exposed the limitations of formal logic which the science of logic wrestled with in the succeeding centuries and which the Hegelian and then the Marxist dialectics eventually solved.

These modern dialecticians did not look upon formal logic as worthless. Quite the contrary. They pointed out that formal logic was not only a historically necessary method of thought but also quite indispensable even now for correct thinking. But in itself formal logic was clearly deficient. Its valid elements became a constituent part of dialectics. The relations between formal logic and dialectics were reversed. Whereas among the classical Greek philosophers the formal side of logic became predominant and the dialectical aspects receded in importance, in the modern school dialectics occupies the front rank and the purely formal side of logic becomes subordinated to it.

Since these two opposing types of thought have so many points in common and formal logic enters as structural material into the framework of dialectical logic, it will be worth while to occupy ourselves first with formal logic. In studying formal logic we are already on the way to dialectics. By grasping the shortcomings, or rather the limits, of formal logic, we shall in fact already be over the threshold separating formal logic from dialectics. Hegel expressed this same thought in his *Logic* as follows: "It is immanent in the limit to be a contradiction which sends something beyond itself."

Finally, from this procedure we can derive an important lesson in dialectical thinking. Hegel somewhere remarks that something is not truly known until it is known through its opposite. You cannot, for example, really understand the nature of a wageworker until you know what his socio-economic opposite, the capitalist, is. You cannot know what Trotskyism is until you have plumbed to the depths the essence of its political antithesis, Stalinism. So you cannot grasp the innermost nature of dialectics without first obtaining a thorough understanding of its historical predecessor and theoretical antithesis, formal logic.

3. The Three Basic Laws of Formal Logic

There are three fundamental laws of formal logic. First and most important is the law of identity. This law can be stated in various ways such as: A thing is always equal to or identical with itself. In algebraic terms: A equals A.

The particular formulation of this law is not so important as the idea involved. The essential thought contained in the law of identity is this. To say that a thing is always equal to itself is equivalent to asserting that under all conditions it remains one and the same. A given thing exists absolutely at any given moment. As physicists used to state: "Matter cannot be created or destroyed," i.e., matter always remains matter.

This unconditional assertion of the absolute identity of a thing with itself excludes difference from the essence of things and of thought. If a thing is always and under all conditions equal to or identical with itself, it can never be unequal to or different from itself. This conclusion follows logically and inevitably from the law of identity. If A always equals A, it can never equal non-A.

This conclusion is made explicit in the second law of formal logic: the law of contradiction. The law of contradiction states: A is not non-A. This is no more than the negative formulation of the positive assertion expressed in the first law of formal logic. If A is A, it follows, according to formal thinking, that A cannot be non-A. Thus

the second law of formal logic, the law of contradiction, forms the essential supplement to the first law.

Some examples: a man cannot be inhuman; a democracy cannot be undemocratic; a wageworker cannot be a non-wageworker.

The law of contradiction signifies the exclusion of difference from the essence of things and of thought about things. If A is necessarily always identical with itself, it cannot be different from itself. Difference and identity are, according to these two rules of logic, completely different, utterly disconnected, mutually exclusive characteristics of both things and thoughts.

This mutually exclusive quality of things is expressly taken note of in the third law of formal logic. This is the law of the excluded middle. According to this law, everything is and must be either one of two mutually exclusive things. If A equals A, it cannot equal non-A. A cannot be part of two opposing classes at one and the same time. Wherever two opposing statements or state of affairs confront each other, both cannot be true or false. A is either B or it is not B. The correctness of one judgment invariably implies the incorrectness of its contrary and vice versa.

This third law is a combination of the first two and flows logically from them.

These three laws comprise the basis of formal logic. All formal reasoning proceeds in accordance with these propositions. For some two thousand years they were the unquestioned axioms of Aristotle's system of thought, just as the law of the exchange of equivalent values forms the foundation of commodity-producing societies.

Let me cite an interesting example of this kind of thinking from Aristotle's writings. In his *Posterior Analytics* (Book I; ch. 33, p. 158), Aristotle says that a man cannot simultaneously apprehend first, that man is essentially animal, i.e., cannot be other than animal—and second, that man is not essentially animal, that is, may assume that he is other than animal. That is to say, a man is essentially a man and can never be or be thought of as not being a man.

This must certainly be so according to the dictates of the laws of formal logic. Yet we all know that it is contrary to fact. The theory of natural evolution teaches that man is essentially animal and cannot be other than animal. Logically speaking, man is an animal. But we know also from the theory of social evolution, which is a continuation and development of purely animal evolution, that man is more than and is other than an animal. That is to say, he is not essentially an animal but man, which is a species of being quite different from all other animals. We are, and we know that we are, two different and mutually exclusive things at one and the same time, Aristotle and the laws of formal logic to the contrary notwithstanding.

4. The Material Content and Objective Reality of These Laws

You can see from this example how speedily and spontaneously the dialectical character of things and thoughts emerges from a critical consideration of formal thinking. Despite good intentions to restrict my view to formal logic, you will observe that I was compelled to step beyond the limits of that logic the moment I wanted to get at the truth of things. Now let us return to the province of formal logic.

I stated before that modern dialecticians do not deny all truth to the laws of formal logic. Such an attitude would be contrary to the spirit of dialectics which sees some element of truth in all assertions. At the same time dialectics enables us to detect the limitations and errors in formalized thinking about things.

The laws of formal logic contain important and undeniable elements of truth. They are reasonable generalizations, not purely arbitrary ideas which have been concocted out of nowhere and out of nothing. They were not imposed upon the thought process and upon the real world by Aristotle and his followers and then slavishly imitated for thousands of years thereafter. Billions of people who

never heard of Aristotle or thought about logic have thought and still think in obedience to the laws he first formulated. In like fashion all bodies fall more or less in accordance with Newton's laws of motion although, except for human bodies, they are incapable of comprehending his theories. Why do people think and things act in the objective world in line with the theoretical generalizations of Aristotle and Newton? Because the essential nature of reality constrains them to think or act that way. Aristotle's laws of thought have as much material content and as much of a basis in the objective world as Newton's laws of mechanical motion. ". . . our methods of thought, both formal logic and the dialectic, are not arbitrary constructions of our reason but rather expressions of the actual interrelationships in nature itself." (Trotsky, *In Defense of Marxism*, p. 84.)

What characteristics of material reality are reflected and conceptually reproduced in these formal laws of thought?

The law of identity formulates the material fact that definite things, and traits of things, persist and maintain recognizable similarity amidst all their phenomenal changes. Wherever essential continuity exists in reality, the law of identity is applicable.

We could neither act nor think correctly without consciously or unconsciously obeying this law. If we couldn't recognize ourselves as the same person from moment to moment and from day to day—and there are people who cannot, who through amnesia or some other mental disturbance have lost their consciousness of self-identity—we would be lost. But the law of identity is no less valid for the rest of the universe than for human consciousness. It applies every day and everywhere to social life. If we couldn't recognize the same piece of metal through all its various operations, we couldn't get very far with production. If a farmer couldn't follow the corn he sows from the seed to the ear and then on to the meal, agriculture would be impossible.

The infant takes a great step forward in understanding the nature of the world when he grasps for the first time

the fact that the mother who feeds him remains the same person throughout various acts of feeding. The recognition of this truth is nothing but a particular instance of the recognition of the law of identity.

If we couldn't tell what a workers' state was through all its changes, we could easily go astray in the complicated circumstances of the contemporary class struggle. In fact, the petty-bourgeois oppositionists went wrong in regard to the Russian question, not only because they opposed dialectics, but especially because they couldn't correctly apply the law of identity in the process of the development of the Soviet Union. They couldn't see that, despite all the changes in the USSR produced by its degeneration under the Stalinist political regime, the Soviet Union retained the socio-economic foundations of the workers' state created by the Russian workers and peasants through the October revolution.

Correct classification, arising from the comparison of likenesses with unlikenesses, is the necessary basis and the first stage in all scientific investigations. Classification, the inclusion of things in the same classes and the exclusion of other things and their grouping in different classes, would be impossible without the law of identity. Darwin's theory of organic evolution originated in and depends upon the recognition of the essential identity of all the diverse creatures on this earth. Newton's laws of mechanical motion brought under a single head all the movements of masses, from the falling stone to the whirling planets in the solar system. All science as well as all intelligent behavior rests in part upon this law of identity.

The law of identity directs us to recognize likenesses amidst diversity, permanence amidst changes, to single out the basic similarities between separated and apparently different instances and entities, to uncover the real bonds of unity between them, to trace the connections between different and consecutive phases of the same phenomena. That is why the discovery and amplification of this law was so epoch-making in the history of scientific thought and why we continue to honor Aristotle for grasping its

extraordinary significance. That is also why mankind continues to act and to think in accordance with this basic law of formal logic.

"What is so remarkable in this law of identity?" you may ask. It says nothing more than the obvious fact that "a thing is a thing," or "this is this."

Nevertheless this law is not so self-evident nor so trivial as it may appear at first glance. It is extremely important that the momentous law be properly appraised and the historical significance of its discovery be understood.

It was a great advance in the knowledge of the universe when mankind discovered that clouds, steam, rain, ice were all water or that the heavens and the earth—hitherto conceived as different and opposing substances—were really one and the same. Biology was revolutionized with the discovery that all grades of living beings between unicellular organisms and mankind consisted of the self-same substance. Physical science was revolutionized by the demonstration that all forms of material motion were convertible into one another and therefore essentially identical.

Isn't it an enormous step forward in social and political understanding when a worker discovers on the one hand that a wageworker is a wageworker, and on the other hand that a capitalist is a capitalist? And that workers everywhere have common class interests that transcend all craft, national and racial boundaries? Thus a recognition of the truth contained in the law of identity is a necessary condition for becoming a revolutionary socialist.

It is one thing, however, to obey a law and to use it and quite a different thing to understand and to formulate it in a scientific manner. Everybody eats according to definite physiological laws, but they do not know what the laws of digestion are and how they operate. It is the same with the laws of logic. Everybody thinks, but not everyone knows what kind of laws regulate his thinking activity. It was one of Aristotle's outstanding merits that he made explicit and expressed in logical terms this law of identity which runs through our thought processes.

The law of contradiction formulates the material fact that co-existing things and kinds of things, or consecutive states of the same thing, differ from and exclude each other. Obviously I am not the same kind of human being as you; I am quite different. Nor am I the same person I was yesterday; I am different. The Soviet Union is not the same as other states, nor is it the same as it was twenty years ago. It is different.

The formal law of contradiction, or the discerning of difference, is as necessary for correct classification as the law of identity. Indeed, without the existence of differences there would be no need for classification, just as without identity there would be no possibility of classification.

The law of the excluded middle expresses the fact that things oppose and mutually exclude each other in reality. I must be either myself or somebody else; today I must either be the same or be different from what I was yesterday. The Soviet Union must either be the same or be different from other states; it cannot be both at the same time. I must be either a man or an animal; I can't be both simultaneously and in the same sense.

Thus the laws of formal logic express representative features of the real world. They have a material content and an objective basis. They are at one and the same time laws of thought, of society, and of nature. This three-fold root gives them a universal character.

The three laws we have concentrated upon do not constitute the whole of formal logic. They simply form its foundations. Upon this basis and out of it there has arisen a complex structure of logical science which examines in detail the elements and mechanisms of the forms of thought. But we shall not enter into a discussion of the various categories, forms of propositions, judgments, syllogisms, etc., which make up the content of this body of formal logic. These can be found in any textbook of elementary logic and are not germane to our present purpose. We are principally concerned with understanding the essential ideas of formal logic, not their detailed developments.

5. Formal Logic and Common Sense

In bourgeois intellectual circles common sense is held in high esteem as a method of thought and as a guide to action. Only science stands above it in the hierarchy of value. It is in the name of common sense and science, for example, that Max Eastman calls upon Marxists to discard "metaphysical" and "mystical" dialectics. Unfortunately, the bourgeois and petty-bourgeois ideologists rarely inform us what the logical content of common sense consists of and what relations exist between common sense and their "science."

We shall here have to do that job for them, for in fact the anti-dialecticians not only don't know what dialectics is. They don't even know what formal logic really is. This is not surprising. Do the capitalists know what capitalism is, what its laws are, how these laws necessarily operate? If they did, they would not be taken unawares by its crises and its wars, nor be so confident of the permanence of their cherished system. Surely the Stalinists don't know what Stalinism really is and what it necessarily leads to. If they did, they would no longer be Stalinists but would be on their way to becoming something else.

Insofar as common sense has systematic, logical characteristics, they are molded upon the laws of formal logic. Common sense may be defined as an unsystematized or semi-conscious version of the science of formal logic. The ideas and methods of formal logic have been in use now for so many centuries and have become so interwoven into our processes of thought and into the fabric of our civilization that to most people they seem the exclusive, normal, natural mode of thought. The conceptions and the mechanisms of formal logic, like the syllogism, are tools of thought as familiar and universal as knives and other tools.

You know that the bourgeoisie believes that capitalist society is eternal because, they say, it conforms to unchangeable human nature. Socialism, they say, is impossible or inconceivable because human beings will always

divide into opposing classes, the rich and the poor, the strong and the weak, the rulers and ruled, the propertied and unpropertied, and these classes will always fight to the death for the good things of life. A form of social organization in which there are no classes, in which planning reigns instead of anarchy, in which the weak are protected against the strong, in which solidarity rules instead of savage struggle, appears the height of absurdity to them. They dismiss such socialist ideas as Utopian fantasies, idle wishes.

Yet we know that socialism is not a dream but a historical necessity, the inevitable next stage in social evolution. We know that capitalism is not eternal but a special historical form of material production which has been preceded by less developed forms of social production and is destined to be superseded by the superior form of socialist production.

Now let us consider the science of thought from the same standpoint as we consider the science of society. Bourgeois and petty-bourgeois thinkers believe that formal thinking is the ultimate form of logic, fixed and final. They dismiss as ridiculous the claim that materialist dialectics is a higher form of thought.

Do you remember that when someone first questioned the permanence of capitalism or urged the necessity of socialism, you were inclined to doubt these new revolutionary ideas? Why? Because your minds were still enslaved by the ruling ideas of our epoch which, as Marx declared, are the ideas of the ruling class. The ruling ideas of the ruling class in logical science today are the ideas of formal logic lowered to the level of common sense. All the opponents and critics of dialectics stand upon the ground of formal logic, whether or not they are fully aware of their position or will honestly admit it.

Indeed, the ideas of formal logic constitute the most tenacious of all theoretical prejudices in our society. Even after individuals have cast off their faith in capitalism and have become revolutionary socialists, they cannot entirely rid their minds of the habits of formal thinking which

they absorbed in bourgeois life and which they continue to receive from their environment. The keenest of dialecticians can relapse at times into formalism, if they are not extremely careful and conscious in their thinking.

Just as Marxism denies the eternal reality of capitalism, so does it deny eternal validity to the forms of thought most characteristic of such class societies as capitalism. Human thought has changed and developed along with human society and to the same degree. The laws of thought are no more eternal than the laws of society. Just as capitalism is only one link in the chain of historical forms of social organization of production, so formal logic is simply one link in the chain of historical forms of intellectual production. Just as the forces of socialism are fighting to replace the obsolete capitalist form of social production with a more developed system, so the advocates of materialist dialectics, the logic of scientific socialism, are struggling against the outworn formal logic. The theoretical struggle and the practical political struggle are integral parts of one and the same revolutionary process.

Before the rise of modern astronomy, people believed that the sun and other planets revolved around the earth. They uncritically trusted in the "common sense" evidence presented by their eyes. Aristotle taught that the earth was fixed and the perfect and invariable heavenly spheres revolved about it. This year marks the 400th anniversary of the publication of Copernicus' book, *On the Revolutions of the Heavenly Bodies*, which revolutionized the prevailing notion of a static universe with the earth at its center.

A century later Galileo demonstrated that the Copernican theory of the revolution of the earth and other planets about the sun was true. The learned professors of Galileo's day ridiculed his ideas and turned their backs upon them. Galileo complained: "As I wished to show the satellites of Jupiter to the Professors in Florence, they would see neither them nor the telescope." The professors invoked the traditional authority of Aristotle and finally the power of the Index and the Inquisition against Galileo to force him to recant his views. These servants of official authority

sought to silence the arguments, ban the books, terrorize and even kill their scientific opponents because their ideas were revolutionary, threatened the ideas of the ruling order, and thereby the power of the ruling class.

It is the same with dialectics, particularly materialist dialectics. The ideas and method of dialectics are even more revolutionary in the science of logic than were Copernicus' ideas in astronomy. One turned the heavens upside down. The other, harnessed to the only progressive class in modern society, will help turn capitalist society upside down. That is why its ideas are so strongly opposed by all the adherents of formal logic and apostles of common sense. Today, under capitalism, dialectics is not common but "uncommon" sense. It is understood and consciously employed only by the socialist vanguard of humanity. Tomorrow, with the socialist revolution, dialectics will become "common sense" while formal logic will take its proper and subordinate place as an aid to thought, instead of acting, as it does now, to dominate thought, to mislead thought and to obstruct its advance.

Lecture II

The Limitations of Formal Logic

In the first lecture we dealt with three questions.

1. What is logic? We defined logic as the science of the thought process in its connections with all other processes in the universe. We learned that there were two main systems of logic: formal logic and dialectics.

2. What is formal logic? We stated that formal logic was thinking dominated by the laws of identity, of contradiction, and of the excluded middle. We pointed out that these three fundamental laws of formal logic have a material content and an objective basis; that they are explicit formulations of the instinctive logic of common sense; that they constitute the prevailing rules of thought in the bourgeois world.

3. What are the relations between formal logic and dialectics? These two systems of logic grew out of and correspond to two different stages in the development of the science of thought. Formal logic preceded dialectics in the historical evolution of logic as it usually does in the intellectual development of individuals. Then dialectics arose out of the criticism of formal logic, overthrew and replaced it as its revolutionary opponent, successor and superior.

In this second lecture we propose to uncover the limitations of formal logic and indicate how dialectics neces-

sarily emerges from a critical examination of its fundamental ideas. Now that we have grasped what the basic laws of formal logic are, what they reflect in reality, why they are necessary and valuable instruments of thought, we must proceed a step further and find out what the laws of formal logic are not: what features of reality they neglect and distort, and where their usefulness ends and their uselessness begins.

This next step in our investigation will not produce purely negative results or culminate in a skeptical denial or dismissal of all logic. It will on the contrary lead to the most positive results. As the deficiencies of formal logic are exposed, there will be simultaneously disclosed the necessity and the main characteristics of the new logical ideas destined to replace them. Thus in the very process of dissecting elementary logic and separating the valid elements in it from the false, we shall be laying the basis for dialectical logic. The acts of criticism and creation, negation and affirmation, go hand in hand as two sides of the same process.

This dual movement of destruction and creation occurs not only in the evolution of logic but in all processes. Every leap forward, every creative act, involves the destruction of outgrown and intolerably restrictive conditions. In order to be born the chicken must peck through and smash the eggshell which had sheltered and nourished it in its embryonic stage. So, in order to obtain room for its freer and further development, the science of logic had to break through and smash the petrified shell of formal logic.

* * *

Formal logic starts from the proposition that A is always equal to A. We know that this law of identity contains some measure of truth, since it serves as an indispensable function in all scientific thought and is constantly used by all of us in everyday activity. But how true is this law? Is it always a thoroughly reliable guide

through the complicated processes of reality? That is the question.

We prove that any proposition is true or false by going to objective reality and seeing in practice whether or not, and to what degree, the concrete content asserted in the proposition is exemplified. If the content corresponding to the assertion can be produced in reality, then the proposition has truth in it; if it cannot be produced, it is untrue.

Now what do we find when we go to reality and look for evidence of the truth of the proposition: A equals A? We discover that nothing in reality corresponds perfectly to the content of this proposition. On the contrary, we find that the opposite of this axiom is far closer to the truth.

Wherever we encounter some really existing thing and examine its character, we find that A is never equal to A. Says Trotsky: ". . . if we observe these two letters under a lens, they are quite different from each other. But, one can object, the question is not of the size or the form of the letters, since they are only symbols for equal quantities, for instance, a pound of sugar. The objection is beside the point; in reality a pound of sugar is never equal to a pound of sugar—a more delicate scale always discloses a difference. Again one can object: but a pound of sugar is equal to itself. Neither is this true—all bodies change uninterruptedly in size, weight, color, etc. They are never equal to themselves. A sophist will respond that a pound of sugar is equal to itself' at any given moment.'

"Aside from the extremely dubious practical value of this 'axiom,' it does not withstand theoretical criticism either. How should we really conceive the word 'moment'? If it is an infinitesimal interval of time, then a pound of sugar is subjected during the course of that 'moment' to inevitable changes. Or is the 'moment' a purely mathematical abstraction, that is, a zero of time? But everything exists in time; . . . time is consequently a fundamental element of existence. Thus the axiom 'A is equal to A' signifies that a thing is equal to itself if it does not change, that is, if it does not exist." (*In Defense of Marxism*, p. 49.)

Driven into this corner, some defenders of formal logic try to extricate themselves by saying: While it is true that the laws of formal logic never can be applied with absolute exactitude to any existing things, that does not nullify the worth of these regulating principles. Although they do not directly and wholly correspond to reality, these ideal generalizations are true "in themselves" without reference to reality and therefore serve to direct thinking along the right lines. This position does not remove the contradiction; it accentuates it. If, as they contend, the law of identity remains wholly true only so long as it is not applied, then it follows that the moment it is applied to any real thing, it becomes the source of error.

As Trotsky remarks: "The axiom 'A' is equal to 'A' appears on one hand to be the point of departure for all our knowledge, on the other hand the point of departure for all the errors in our knowledge." (*In Defense of Marxism*, p. 49.) How can one and the same law be both the source of knowledge and the source of error? This contradiction can be explained by the fact that the law of identity has a two-sided character. It is in itself both true and false. It holds true of things insofar as they can be regarded as fixed and immutable, or insofar as the amount of change in them can be disregarded or discounted as negligible. That is to say: the law of identity gives correct results only within certain limits. These limits are given by the essential characteristics exhibited by the actual development of the object in question, on the one hand, and by the practical purpose in view, on the other.

Once these specific limits have been transgressed, the law of identity no longer suffices and turns into a source of error. The farther beyond these limits the process of development goes, the farther from the truth does the law of identity take us. Other laws must then be invoked and employed in order to correct the errors emanating from this rudimentary law and to cope with the new and more complex state of affairs.

Let us give some examples. From Albany to New York the Hudson River is clearly equal to itself and to no other

body of water. A always equals A. But beyond these limits it becomes increasingly difficult to distinguish the Hudson River from other bodies of water. At its mouth beyond New York harbor the Hudson loses its identity and becomes more and more one with the Atlantic Ocean. At its source the Hudson disintegrates into separate streams and springs, which, although they go to make up the Hudson, nevertheless have each a specific identity and material existence of their own, different from the river itself. Thus at both ends of its course the identity of the Hudson River tends to disappear and to pass over into non-identity.

A similar loss of identity occurs constantly along the course of the river. The spatial identity of the river is usually defined and maintained by the banks between which it flows. But, as the river becomes higher or lower, or as erosion takes place, these banks change. Rains and floods change existing limits permanently or provisionally for miles at a stretch. Even where the river remains spatially the same, it never contains the same water. Every drop is different. Thus the Hudson River keeps changing its identity all the time.

Or let us take the example of the dollar cited by Trotsky. We ordinarily assume, and act correctly upon the assumption, that a dollar bill is a dollar. A equals A. But we are beginning to realize that nowadays a dollar is no longer the same dollar it was. It is becoming less and less of a dollar in value. The 1942 dollar can buy only three-quarters as much as the 1929 dollar bought. (In 1963 the dollar was worth 40.8 cents in 1939 terms.)

It looks like the same dollar—the law of identity is still applicable—but at the same time the dollar is beginning to alter its identity by diminishing in value.

In 1923 the German people found that the mark, which since 1875 had been equal to 23 cents in gold, had, as a result of inflation, become equal to zero, was valueless. A, which for almost half a century had been equal to A, had suddenly become equal to non-A! In the course of the inflationary process, A had turned into its opposite.

The certificate of value had no value.

"Every worker knows that it is impossible to make two completely equal objects. In the elaboration of bearing-brass into cone bearings, a certain deviation is allowed for the cones which should not, however, go beyond certain limits (this is called tolerance). By observing the norms of tolerance, the cones are considered as being equal. ("A" is equal to "A.") When the tolerance is exceeded the quantity goes over into quality; in other words the cone bearings become inferior or completely worthless.

"Our scientific thinking is only a part of our general practice, including techniques. For concepts there also exists 'tolerance,' which is established not by formal logic issuing from the axiom 'A' is equal to 'A,' but by dialectical logic issuing from the axiom that everything is always changing. 'Common sense' is characterized by the fact that it systematically exceeds dialectical 'tolerance.'"

(*In Defense of Marxism*, p. 50.)

In the machine shop, grades of tolerance usually range from one one-hundredth to one ten-thousandth of an inch, depending upon the class of work to be done. It is the same with brainwork and the concepts which are its tools. Where the permissible margin of error is considerable, the laws of formal logic suffice; but when finer tolerances are demanded, new tools must be created and used. In the field of intellectual production, these tools are the ideas of dialectical logic.

The law of identity can exceed dialectical tolerance in two opposite directions. Just as tolerances usually have not one but two limits, a maximum and a minimum, so the law of identity continually exceeds dialectical tolerance by becoming either more or less valid. If, for example, as a result of deflation, a dollar doubles in value, then A is no longer equal to A but is greater than A. If, during inflation, the dollar dwindle to half its value, A again is not equal to A, but to less than A. In either case the law of identity is no longer strictly true, but becomes more and more untrue, according to the amount and specific character of the change in value. Instead of A equaling

A, we now have A equaling either 2A or 1/2 A.

Notice that we started, quite correctly, with the law of identity. We had A and nothing more.

And then we inevitably come to this contradiction: it is true that A equals A; it is likewise true that A does not equal A. In addition to equaling A, it equals 2A and 1/2 A.

This gives us a clue to the true nature of A. A is not the simple fellow, the fixed, unchangeable category the formal logicians make him out to be. That is only one of the appearances of A. In reality A is extremely complex and contradictory. It is not only A but also at the same time something else. That makes A very elusive and slippery. We can never quite catch hold of A because the minute we try to pin A down, it begins to change into something more or less different.

What then, you may ask in exasperation, is A, if it's not simply and solely A? The dialectical answer is that A is both A and non-A. If you take A as simply A and nothing more, as the formal logician does, you see only one side of A and not its other side, its negative side. A, taken by itself as simply A and nothing more, is an abstraction that can never be fully realized or found in actuality. It is a useful abstraction so long as you understand its limits and do not take it or, better, mistake it, for the full and final truth about any given thing. This elementary law of identity holds good for most of the ordinary acts of everyday life and thinking, but it must be replaced by more deep-going and complex laws where more complicated and long-drawn-out processes are involved.

Any machinist should easily comprehend why this law of thought can have only a limited value. Isn't this true of all tools and machines? Each is useful only under certain conditions and for certain definite operations: a saw for cutting, a lathe for turning, a boring mill for boring. At each stage in the process of industrial production, the workers run up against the intrinsic limitations of each and every tool and machine tool. They overcome the

limitations of the tools at their disposal in two ways: either by using a different tool or else by combining different tools in the same continuous process of production. Operations on a turret lathe provide an excellent example of this.

Thinking is essentially a process of intellectual production—and the limitations of the tools of thought can be overcome in the same manner. Whenever we strike a snag with the law of identity, we either have to resort to a different logical law or else we have to combine old laws in new ways in order to get at the truth. Here is where dialectical logic comes in. Just as we bring in a more developed machine or set of machines in industrial production, so, when we want more correct and exact results in intellectual production, we apply the more developed ideas of dialectics.

If we return now to our original abstract equation, A equals A, we observe that it has developed in a very contradictory fashion. A has differentiated itself. In other words, A is always changing—and changing in different directions. A is always becoming more or less itself, always approaching or receding from itself.

Now there comes a point, in this process of realizing or losing its identity, at which A becomes something other than the self it started with. If we subtract enough from A or add enough to A, it changes its specific quality and turns into something else, into a new quality. At this critical point where A loses its identity, the law of identity, which has hitherto retained some validity, becomes utterly false.

The Hudson River loses its identity and becomes part of the Atlantic Ocean; the German mark becomes no longer a mark but a slip of printed paper; the cone bearing, instead of being an integral part of a machine, turns into worthless scrap metal. In algebraic terms, A becomes -A. In dialectical language, quantitative changes destroy the old and bring about a new quality. "To determine at the right moment the critical point where quantity changes into quality is one of the most important and difficult

tasks in all the spheres of knowledge including sociology."
(*In Defense of Marxism*, p. 50.)

One of the central problems of the science of logic consists in recognizing and formulating this law. We have to understand how and why at a certain point quantitative changes give rise to new qualities, and vice versa.

We arrive then at this conclusion. While the law of identity correctly reflects certain features of reality, it either distorts or fails to reflect others. Moreover, the aspects which it falsifies and cannot express are far more pervasive and fundamental than those it more faithfully depicts. Intermixed with its particles of fact, this elementary generalization of logic contains a serious infusion of fiction. As a result this instrument of truth becomes in turn a generator of error.

Lecture III

Once Again on the Limitations Of Formal Logic

In the first two lectures we learned what the basic laws of formal logic are; how and why they came into existence; what relations they have with dialectics; and the limits of their usefulness. We now want to make a comprehensive survey of the limitations of formal logic in order to clear the ground for an exposition of the evolution and the principal laws of dialectics in the succeeding lectures.

We can single out five basic errors, or elements of fiction, inherent in the laws of formal logic.

1. Formal Logic Demands a Static Universe

First and foremost is the fact that these laws exclude movement, change, development from themselves and thereby from the rest of reality. They do not explicitly deny the real existence or the rational significance of motion. But they are compelled to do so indirectly by the necessary implication of their own internal logic.

If, as the law of identity states, everything is always equal to itself, then, as the law of contradiction asserts, nothing can ever be unequal to itself. But inequality is

a manifestation of difference—and difference indicates the operation and presence of change. Where all difference is logically excluded, there can be no real motion or change, and therefore no reason for anything to become other than it originally is. What is forever identical, and nothing more, can never undergo alteration and must by definition be immutable.

If formal logic wants to remain true to itself, to abide by its own laws, it can never admit the real existence or rationality of motion. There is no place for change in the universe pictured or presumed by formal logic. There is no self-movement, no springs of motion within any of its laws or between them. There is no logical impulsion for these laws to pass over and into the world beyond themselves. There is no dynamism within this external world which keeps forcing things out of their present conditions and drives them onward into new formations. Motion can neither be drawn out of nor introduced into this static realm of rigid forms, where everything is frozen into its proper place and drawn up in perfectly ordered ranks side by side, like the traditional Prussian regiment.

Why does this formalism shy away from and turn its back upon so central a feature of reality as motion? Because motion has such a self-contradictory character. As Engels remarks: ". . . even simple mechanical change of place can only come about through a body at one and the same moment of time being both in one place and in another place, being in one and the same place and also not in it." (*Anti-Dühring*, p. 137.) Everything in motion is continually bringing forth this contradiction of being in two different places at the same time, and also overcoming this contradiction by proceeding from one place to the next.

More developed and complex forms of movement, such as the growth of trees and plants, the evolution of species, the development of society in history and the evolution of philosophical ideas, present even greater difficulties for formal logic. Here the successive stages in the process of development negate one another, with the result that the

unified process is a series of contradictions. In the growth of a plant, for example, the bud is negated by the blossom, the blossom by the fruit.

Whenever they are confronted with such real contradictions, the formal logicians are hopelessly baffled. What do they do? Children, upon encountering some strange, horrifying phenomenon they do not understand and cannot cope with, close their eyes, clasp their hands to their faces, and hope thereby to get rid of the bogie. Formal logicians reacted—and still react—in the same infantile way to the presence of contradiction. Since they do not comprehend its real nature and do not know what to do with this terrible thing that upsets the foundations of their logical world, they proceed to decree the expulsion of contradiction from their logic and their world of ideas.

Whenever reactionary authorities are threatened by subversive forces, they seek to suppress, imprison, or exile them from their regime. The formalists treat contradiction that way. They thunder like Sir Anthony Absolute to his son in Sheridan's comedy, "The Rivals." Sir Anthony laid down the following conditions to his son if the latter did not agree "without any condition" to his views: ". . . don't enter the same hemisphere with me! don't dare to breathe the same air or use the same light with me; but get an atmosphere and a sun of your own!"

The so-called law of contradiction in formal logic does not, as it claims, express the true nature of contradiction. It is an edict excommunicating it from logic and ordering it to "get an atmosphere and a sun of its own!"

This law asserts that A is never non-A. This is not an expression of real contradiction, which would read: A is non-A or A is both itself and its other. It is the opposite of contradiction, identity. The Gilbert-Sullivan song goes: "Things are seldom what they seem, skim milk masquerades as cream." In this instance, in the so-called law of contradiction, identity masquerades as difference. This law is an imposter which pretends to be contradiction, but is nothing but identity in a negative form.

Formal logic cannot tolerate actual contradiction within

its own system. It suppresses, nullifies, banishes it—or so it thinks. For a ukase decreeing the expulsion of contradiction from their world of ideas still does not eradicate the existence of contradiction in the real world. In their effort to free themselves of contradiction, the formalists fasten absolute contradictions upon objective reality. In the world represented by formal logic everything stands in absolute opposition to everything else. A is A; B is B; C is C. Logically they have nothing in common. Contradiction is king!

Contradiction eliminated from the system of formal logic thus becomes elevated to supremacy in the real world. Contradiction is dead, long live contradiction. The formalists avoid contradiction within their system only at the cost of restoring it to supremacy outside their system.

Real contradiction must include both identity and difference within itself. This formalism cannot do. In all the laws of formal logic there is actually nothing but identity in various versions or disguises. There is not an ounce of real difference in them or between them.

That is why the laws of fixed categories of formal logic are incapable of explaining the essence of motion. Motion is so utterly, explicitly, even rudely contradictory. It contains within itself two diametrically different moments, elements, phases, at one and the same time. A moving thing is both here and there simultaneously. Otherwise it is not in motion but at rest. A is not simply equal to A but likewise to non-A. Rest is arrested motion; motion a continuous interruption of rest.

Formal logic cannot acknowledge or analyze this real contradictory nature of motion without violating its own self, without overthrowing its own laws and passing over and into something other than itself. This is tantamount to expecting and demanding that formalism be or become explicitly dialectical. This is precisely what happened to logic in the course of its evolution. But formal logic, in itself and by itself, cannot take this revolutionary jump out of its own skin. All consistent formal thinkers remain riveted to the original basis of the omnipotence and uni-

versality of identity, and continue to deny—quite logically according to their logic but quite illogically according to reality—the real objective existence of self-difference, or contradiction.

The category of abstract identity contained and repeated in the laws of formal logic is the direct conceptual expression and logical equivalent of immobility in objective existence. That is why formal logic is essentially the logic of lifelessness, of rigid relations, of fixed things, of eternal repetition and repose. "So long as we consider things as static and lifeless, each one by itself, alongside of and after each other, it is true that we do not run up against any contradictions in them. We find certain qualities which are partly common to, partly diverse from, and even contradictory to each other, but which in this case [i.e., in the system of formal logic] are distributed among different objects and therefore contain no contradiction." (*Anti-Dühring*, p. 137.)

Observe what happens in the other case when things begin to move, not only in relation to each other but in relation to themselves, not only externally but also internally. They begin to lose their identity and tend to transform themselves into something else. The Hudson River rises, flows on, and merges with the Atlantic Ocean; the German mark withers into a worthless scrap of paper; even perfectly machined cone bearings wear out and eventually become scrap metal. The utmost these things can do is to postpone the date of their loss of identity; they cannot escape it in the end. These results of the internal and external movement of real things are manifestly contradictory—but they are no less obviously true, that is, in correspondence with reality.

Nothing is permanent. Reality is never resting, ever changeable, always in flux. This unquestionable universal process forms the material foundation of the theory which, in Engels' words, teaches that ". . . the whole of nature, from the smallest element to the greatest, from grains of sand to suns, from protista [unicellular organisms] to men, has its existence in eternal coming into

being and passing away, in ceaseless flux, in unresting motion and change. . . ." (*Dialectics of Nature*, p. 13.) No generalization of modern science is more securely based upon experimentally demonstrated facts than this theory of universal development, which was the outstanding achievement of human thought in the nineteenth century.

The laws of formal logic, which outlaw contradiction, stand in stark contradiction to this theory and reality of universal development. The law of abstract identity asserts that nothing changes; the dialectic states that everything is constantly changing. Which of these two opposing propositions is true, which false? Which should we hold onto and which discard? That is the question materialist dialecticians, who base their logic upon processes in nature, address to the diehard formalists. That is the question scientific thought itself posed to formal logic not merely in the last century but long before. That is the question formal logic dreads to hear or to consider, for it exposes the emptiness of its claims and sounds the death knell of its two-thousand-year rule over the realm of thought.

2. *Formal Logic Erects Impassable Barriers Between Things*

Formal logic is false and defective because it erects impassable barriers between one thing and another, between successive phases in the development of the same thing, and in the reflections of objective reality in our minds. To all questions it answers with either a flat yes or unqualified no. Between truth and falsehood there is no intermediary, no transitional stages or connecting links.

Hegel says on this point in the preface to his *Phenomenology of Mind* (p. 68): "The more the ordinary mind takes the opposition between true and false to be fixed, the more is it accustomed to expect either agreement or contradiction with a given philosophical system, and only to see reason for the one or the other in any explanatory statement concerning such a system. It does not conceive

the diversity of philosophical systems as the progressive evolution of truth; rather, it sees only contradiction in that variety.

"The bud disappears when the blossom breaks through, and we might say that the former is negated by the latter; in the same way when the fruit comes, the blossom may be explained to be a false form of the plant's existence, for the fruit appears as its true nature in place of the blossom. These stages are not merely differentiated; they supplant one another as being incompatible with one another. But the ceaseless activity of their own inherent nature makes them at the same time moments of an organic unity, where they not merely do not contradict one another, but where one is as necessary as the other; and this equal necessity of all moments constitutes alone and thereby the life of the whole. But contradiction as between philosophical systems is not wont to be conceived in this way; on the other hand, the mind perceiving the contradiction does not commonly know how to relieve it or keep it free from its one-sidedness, and to recognize in what seems conflicting and inherently antagonistic the presence of mutually necessary moments."

If we take the laws of formal logic at face value, we have to assume that any and every single thing, or every single state of any thing, is absolutely independent of any or every other thing or state. A world is presupposed in which everything exists in perfect solitude, apart from every other thing.

The philosophical position that draws this logic to its ultimate conclusion is the philosophy of subjective idealism, which arises out of the assumption that nothing really exists save one's self. This is known as solipsism, from the Latin *solus ipse* (I alone).

It does not take much reflection to see how absurd and untenable such a position is. Whatever his theory, every sane person proceeds in practice upon the basis that nothing exists by itself. Moreover, if we think a bit, we see that every single thing, no matter how isolated and independent it may seem to be, really needs every other thing

in order to exist and to become itself. If we couldn't relate one thing to another, and these in turn with the rest of reality, we would be in a hopeless fix.

Moreover, any one thing is always passing over into and transforming itself into some other thing. To do this, it must necessarily break down and efface the boundaries which formerly separated it from that other thing. So far as we know, there are no immovable and insurmountable partitions between things.

"The fundamental proposition of Marxian dialectics is that all boundaries in nature and society are conventional and mobile, that there is *not a single* phenomenon which cannot under certain conditions be transformed into its opposite," remarked Lenin. (*Collected Works*, vol. 19, p. 203.)

On the broad historical scale, Trotsky noted: "Consciousness grew out of the unconscious, psychology out of physiology, the organic world out of the inorganic, the solar system out of nebulae." (*In Defense of Marxism*, p. 51.)

This breaking down of boundaries, this passage of one thing into another, this mutual dependence of one thing upon another has not merely occurred over extended stretches of historical development; it goes on all the time in us and around us. Thoughts keep shuttling back and forth between the unconscious and conscious mind. When we act upon the basis of an idea, this idea loses its predominantly mental character and becomes a materially active force in the world at large through ourselves. Marx pointed out that a system of ideas, like socialism, becomes a material power when it takes possession of the minds of the working masses and they go ahead to realize these ideas in social action.

Everything has definite lines of demarcation which set it off from all other things. Otherwise it would not be a distinct entity with a unique identity. We have to discover these boundaries in practice and take them into account in our thinking.

But these boundaries do not remain unaltered under all

conditions; nor are they the same at all times. They fluctuate according to changing circumstances. This relative, mobile, fluid character of boundaries is ignored and denied by the laws of formal logic. These laws assert that everything has definite limits—but they overlook the far more important fact that these limits themselves have limitations.

3. Formal Logic Excludes Difference from Identity

We have already noted that formal logic draws the sharpest dividing line between identity and difference. They are placed in absolute opposition to each other, staring into each other's face like complete strangers. Insofar as they are admitted to have relations with each other, these are purely external and accidental and do not affect their simple undivided inner being.

The formalists consider it a logical contradiction, a monstrosity, to say as the dialecticians do that identity is (or becomes) difference and difference identity. They insist: identity is identity; difference is difference; they cannot be the same as each other. Let us compare these assertions with the facts of experience, which is the test of the truth of all laws and ideas.

In *Dialectics of Nature* Engels states: "The plant, the animal, every cell is at every moment of its life identical with itself and yet becoming distinct from itself, by absorption and excretion of substances, by respiration, by cell formation and death of cells, by the process of circulation taking place, in short by a sum of incessant molecular changes which make up life and the sum total of whose results are evident to our eyes in the phases of life—embryonic life, youth, sexual maturity, process of reproduction, old age, death. This is *apart, moreover, from the evolution of species*. The further physiology develops, the more important for it become these incessant, infinitely small changes, and hence the more important for it also the consideration of difference *within* identity, and the old abstract standpoint of formal identity,

that an organic being is to be treated as something simply identical with itself, as something constant, becomes out of date.

"Nevertheless, the mode of thought based thereon, together with its categories, persists. But even in inorganic nature identity as such is non-existent in reality. Every body is continually exposed to mechanical, physical, and chemical influences, which are always changing it and modifying its identity."

The insuperable barriers erected by formal logic between these two interpenetrating traits of reality are continually being washed away in the process of development. What is different becomes identical. We were all in different parts of New York before we came together tonight in this hall. What is identical becomes different. After this lecture is over, we shall disperse to different places again. This transformation of difference into identity and identity into difference takes place not only in simple spatial relations but in all relations. The bud becomes the flower, the flower becomes the fruit— yet all these different phases of growth belong to the same plant.

Thus, despite the laws of formal logic, real material identity does not exclude difference from itself but contains it as an essential part of itself. Real difference likewise does not exclude identity but includes it as an essential element within itself. These two features of reality can be separated from each other by making distinctions in thought. But that does not mean, as formal logic implies, that they can be disjoined in reality.

4. The Laws of Formal Logic Are Presented as Absolute

The fourth defect in the laws of formal logic is that they present themselves as absolute, final, unconditional laws. Exception to them is impossible. They rule the world of thought in totalitarian fashion, exacting unquestionable obedience from all things, claiming unlimited authority for their sovereign sway. A always equals A—and woe

unto those who do not acknowledge this dogma or dare assert otherwise.

Unfortunately for the formalists, nothing in the universe corresponds to such specifications. Everything real originates and presents itself to us under specific historical and material conditions, in indissoluble connection with other things, and at all times in definite and measurable proportions. Human society, for example, came into existence at a definite, materially determined turning point in the evolution of man from the higher animals; it is inseparable from the rest of organic and inorganic nature; it has developed by degrees and has far from attained its full quantitative and qualitative growth. Each stage of this social development has its own laws growing out of and corresponding to its special characteristics.

Absolute laws can no longer find any foothold in the physical world. At various stages in the development of the physical sciences, chemical elements, molecules, atoms, electrons were considered by metaphysical-minded thinkers to be unchanging substances. Beyond and behind these mankind could not go. With the further advance of the natural sciences, each one of these eternal absolutes has been in turn overthrown. Each of these constituent parts of material formations has been experimentally demonstrated to be conditioned, limited and relative. All their pretensions to be absolute, unlimited and unchanging have been proven false.

At the close of the nineteenth century, while scientists were harping on the immutability of this or that element, the social scientists of the United States were insisting that bourgeois democracy was the crowning form of government for civilized mankind. Historical experience since 1917, which has witnessed bourgeois democracy undermined and overthrown from two opposite directions by fascism and Bolshevism, has proven how historically limited, how inadequate and conditional, this particular form of capitalist government really is.

If everything comes into existence under definite material and historical limitations, develops, diversifies itself, alters,

and then disappears, how can any absolute law be applied to anything in the same way, to the same degree, at all times and under all conditions? Yet this is precisely the claim put forward by the laws of formal logic and the demand they make upon reality. And in their search for laws that hold at all times and under all conditions, scientists fell into this blind alley of formal logic.

In the last analysis God is the only being that can completely meet the standards of formal logic. God is supposedly absolute, boundless, perfect, independent of everything except himself. But God, too, has a slight imperfection. Outside of the imaginations of devoutly religious people, he doesn't exist.

5. Formal Logic Can Presumably Account for Everything—But Itself

Finally, the laws of formal logic, which are supposed to provide a rational explanation for everything, have this serious flaw. Formal logic cannot account for itself. According to the theory of Marxism, everything comes into being as the result of material causes, develops through successive phases, and finally perishes.

What about formal logic and its laws? Where, when, why did they originate; how have they developed; are they eternal? The formal logicians imply, where they do not dare assert outright, that their logic did not have earthly roots but is the product of divine revelation; that its laws are invariant laws of reason; that their logic is the only possible system of logic, and therefore eternal.

If you challenge the formal logicians and ask: By what right do you elevate the laws of logic above history, exempt them from the universal rule that nothing is invariable? they can answer only in the same way that absolute monarchs did. We do so by divine right.

We see how much truth there is in the identification of dialectics with religion made by professors like James Burnham and Sidney Hook. In reality, formal logic goes hand in hand with religion and dogmatism. Eternal laws

of logic stand in the same position as eternal principles of morality, of which Trotsky remarked: "Heaven remains the only fortified position for military operations against dialectic materialism." (*Their Morals and Ours*, p. 16.)

As a matter of fact, formal logic appeared in human society at a definite stage of its development and at a definite point in man's conquest over the operations of nature; it has developed along with the growth of society and its productive forces, and has been incorporated into and supplanted by the more developed logic of dialectics. This places logic on a par with everything else—but it required a revolution in human thought to put it in its proper place.

One of the superior features of materialist dialectics over formal logic consists in the fact that, unlike formal logic, dialectics can not only account for the existence of formal logic but can also tell why it supersedes formal logic. Dialectics can explain itself to itself and to others. That is why it is incomparably more logical than formal thinking.

* * *

Observe how our criticism of formal logic has progressed. We started out by affirming the truth in the laws of formal logic. Then we went on to point out the limits of that truth and the tendency of these laws to generate error once they were pushed beyond definite boundaries. That led us to deny the unconditional truth of what we had previously affirmed.

The laws of formalism were seen to have two sides, one true, the other false. They were shown to be complex and contradictory, capable of development and change by reason of opposing tendencies constantly at work within them. We analyzed the two opposing poles of their contradictory character, unfolded their interrelations, and indicated how and why they become transformed into each other.

That is the dialectical method of thinking about thought. As a result we have arrived at the frontier of dialectics by a genuinely dialectical route. That is also the way humani-

ty arrived at dialectics as a formulated system of thought. Men found out the limitations of formal logic in practice and then overcame these limitations in theory by creating a higher form of logic. Dialectics proves its truth by applying its own method of thought to explain itself and its origins.

Dialectics came into existence as the result of a colossal social revolution pervading all departments of life. In politics the representatives of the aroused masses, unconsciously guided by a dialectical understanding of events, knocked at the doors of the unlimited monarchies and thundered: Times have changed; we demand equality. In the spirit of formalism, the defenders of absolutism replied: You are wrong, you are subversive; things do not change or cannot change that much. The king is always and everywhere king; A equals A; sovereignty cannot equal the people, who are non-A. Such formal reasoning did not halt the march of progress, the triumph of the popular bourgeois-democratic revolutions, the dethronement and destruction of the monarchies. Revolutionary dialectics, and not formal logic, prevailed in political practice.

In the sphere of knowledge, formalism was plunged into the same revolutionary crisis as absolutism in politics. The new forces of knowledge arising out of the development of the natural and social sciences came into collision with the forms of logic which had reigned for over two thousand years, sought self-expression, demanded their rights. How that revolution in logic came about and what it led to will be the topic of our next lecture.

Lecture IV

Hegel's Revolution in Logic

In this lecture we are going to discuss the historical origins, achievements and significance of a revolution. This particular revolution did not occur in politics or economics but in the domain of ideas. The author of this revolution was a German professor, Georg Hegel, who lived from 1770 to 1831. He revolutionized the science of the thought process by demonstrating the limitations of the basic laws of formal logic and setting forth on new principled foundations a superior system of logic known as dialectics.

Hegel's revolution in logic was connected with other revolutionary events. It was an integral part of that colossal social revolutionary movement which swept over the Western world from the sixteenth to the nineteenth centuries and culminated in the replacement by the bourgeois system of feudalism and of long-standing pre-capitalist forms and forces in all departments of social life. Every genuine social revolution is an all-inclusive and profoundly penetrating process which reaches into the recesses of the whole social order and reconstructs everything from its material foundations of production to the cultural superstructure and its philosophical heights. Thus the bourgeois-democratic revolutionary movements engendered by the growth and expansion of capitalism radically transformed not only men's methods of production, their political relationships and their morals, but also their minds.

Profound changes in their conditions of life and work

produced no less thoroughgoing changes in men's habits of thought. New ways of thought in industrial and scientific practice led in turn to the demand for a more developed form of logic and for a superior theory of knowledge to deal with the freshly accumulated materials of knowledge.

Hegel, together with Kant and the rest of the revolutionary German school of philosophy, was fully conscious of the crying need of modern knowledge for a proper method of thought and of the inability of the ancient logic to fill the requirements. In the preface to his *Logic* he wrote: "The form and content of Logic has remained the same as that inherited by long tradition—a tradition which in being handed down had become ever more meager and attenuated; there are no traces in Logic of the new spirit which has arisen both in Learning and in Life. It is, however, (let us say it once for all), quite vain to try to retain the forms of an earlier stage of development when the inner structure of spirit has become transformed; these earlier forms are like withered leaves which are pushed off by the new buds already being generated at the roots." "The new spirit" Hegel refers to is his way of denominating the consequences of the bourgeois-democratic revolution.

Hegel set about to devise a logic "adequate to the lofty development of the sciences" and necessary "for securing scientific progress." This new method of thought was dialectics. As the systematizer of the dialectical method, Hegel must be regarded as the founder of modern logic, just as Copernicus was the father of modern astronomy, Harvey of physiology, and Dalton of chemistry. As a matter of fact, since Hegel, not a single new law of dialectics has been discovered in addition to those listed by him.

1. The Contradictory Nature of Hegel's Thought

Hegel once said: "The condemnation which a great man lays upon the world is to force it to explain him." This is certainly true of Hegel himself. Hegel has always presented

a most perplexing problem. How could this peaceful professor, a civil servant of the Prussian government, whose political views became increasingly conservative as he grew older and more celebrated, bear a revolution inside his mind and give birth to it?

A similar contradiction can be observed in the reactions provoked by Hegel's ideas. During his lifetime and for a decade after his death he was at one and the same time the darling of orthodox circles and the intellectual inspiration of the most radical.

In any case, whatever attitude was assumed toward Hegel, whether you accepted or rejected his ideas and method, whatever you took from him, you could not remain indifferent to him. This testified to the explosive force of his ideas. People can and generally do remain indifferent to ideas that do not threaten the *status quo* or the established body of knowledge. But they are instantly galvanized into attention and action when some genuinely new ideas and vital influences appear on the scene. Nobody nowadays can remain indifferent to Marxism because its ideas have demonstrated themselves as revolutionary powers. No psychologist dares ignore the findings of Freud.

Real revolutionists in all fields of thought and deed call forth stormy controversies and conflicting estimates. You could hate John Brown and hang him, as the reactionaries did in 1859, or you could hail him as a martyr to the cause of human emancipation. But you could not ignore John Brown's body, his spirit and his deeds. It is the same with Lenin and Trotsky in our generation, with Freud and Einstein today as with Darwin yesterday, and with Bruno and Galileo in the sixteenth and seventeenth centuries.

Hegel's thought swept like a tornado through the dust-laden halls of philosophy, unsettling everything and compelling everyone to come to terms with the powerful ideas he had unloosed. The world of thought has never been the same since Hegel passed through. The controversies that raged around him have not ceased to the present day.

Here we are defending Hegel against his detractors over a hundred years after his death.

Academicians have tried to tame Hegel, to emasculate and mutilate his thought, to transform him into a harmless icon, as they do with all dead revolutionists, including Marx. In vain. Hegel's real revolutionary ideas keep breaking through their conventionalized versions, just as they forced their way out of his own idealistic system.

Reactions to Hegel are as extreme today as in his own time. He calls forth enraged, venomous hostility from all hardened formalists, all anti-dialecticians. James Burnham in his flight from Marxism called Hegel "the century-dead arch-muddler of human thought." (*In Defense of Marxism*, p. 190.) Max Eastman pays him the ambiguous compliment of being "the most ingenious of all disguised theologians." (*Marxism: Is It Science?* p. 38.)

This is the prevailing opinion of Hegel in official academic circles of the United States. William James, the father of pragmatism, never wearied of assailing Hegel for his absolutism and his "block universe." John Dewey and Santayana republished books implying that Hegel was responsible for Hitlerism, seeking to identify him with the worst reaction. Vice-President Wallace declared on March 8, 1942: "Hegel laid broad and deep the philosophy of the totalitarian state."

The attitude of Dewey is especially significant, since Dewey began his philosophical career as a Hegelian—and with leftist shadings at that—and is well-versed in Hegel's thought. Yet in his conscious mind he completely turned away from Hegel. This ex-disciple of Hegel does not even mention his former teacher or his ideas in his own work, *Logic*, published in 1938.

While Dewey was preparing his *Logic* for the press, I asked, even urged, him to deal with Hegel's logic in his own treatise. His answer indicated that in the field of logic Hegel was today of no account, a "dead dog." And indeed, so he has become for the main school of thought of American liberalism.

Marxists have an altogether different estimate of Hegel

and his work. We honor him as a titan of thought, "a genius" (Trotsky), who made an imperishable contribution to human thought in his dialectical method. Hegel has other admirers in the academic dovecotes. But the fossilized professional philosophers honor Hegel for reasons diametrically different from those of Marxists. The academic Hegelians fasten themselves to the conservative sides of Hegel, on everything that is dead: to his system, to his idealism, to his apology for religion. Following his death a similar division among Hegel's disciples took place in Germany between Old and Young Hegelians, between conservatives and radicals, between religious devotees and atheist critics of religion.

Hegel must obviously be a most complex historical phenomenon, if we judge by these objective consequences of his thought. In truth, the philosopher of contradiction was himself a contradictory philosopher. That makes him a hard nut to crack. His enemies say there's no use trying to crack open his system of ideas; you'll find nothing inside but the decayed substance of religious and metaphysical ideas. We say, on the contrary, there's a rich treasury of thought concealed under its outer shell of idealism.

Hegel, like all other great figures of the capitalist epoch, had both revolutionary and reactionary sides. In this lecture we shall consider only the first and examine the second later. Newton was a pious, even superstitious, Protestant; yet that did not prevent him from revolutionizing the science of physics. Hobbes, the ruthless materialist, was nonetheless a supporter of absolutism against the Cromwellians. Faraday, the discoverer of the induction of electrical currents, was a member of the small sect of Sandemanians. The physicist, Sir Oliver Lodge, believed in communication with the dead.

All figures must be judged in connection with the conditions of their time, and not by some timeless absolute standards. "The truth is always concrete." Robespierre is the outstanding revolutionary leader of the plebeian democracy even though he sought to revive the worship of the

Supreme Being at the height of the French Revolution. John Brown cannot be thrown out of the pantheon of revolutionists because this petty-bourgeois revolutionist believed in God and private property. You cannot apply the same inflexible set of standards to Toussaint L'Ouverture, the leader of rebellious black slaves on the island of Haiti at the end of the nineteenth century, and to a proletarian revolutionary leader of today. Dialecticians must learn to see everyone and everything in their proper historical place, their correct proportions, in their necessary contradictions.

Burnham and his colleagues can no more grasp the contradictory nature of Hegel and his thought than they can the contradictory character of the USSR. Just as they see only the abominations of Stalinism in the Soviet Union today, so they see nothing but outmoded metaphysics in Hegel's work. Burnham wrote in "Science and Style": "During the 125 years since Hegel wrote, science has progressed more than during the entire preceding history of mankind. During the same period, after 2,300 years of stability, logic has undergone a revolutionary transformation . . . in which Hegel and his ideas have had an influence of exactly zero." (*In Defense of Marxism*, p. 190.)

This is exactly 100 per cent wrong. As in other questions, Burnham reverses the real relations and stands everything on its head. Logic has undergone a revolutionary transformation—but it was precisely "Hegel and his ideas" which initiated that revolution. Let us try to explain this enigma which so baffles Burnham and all formalists when they run up against Hegel's thought.

2. *The Historical Origins of Hegel's Thought*

Hegel knew that he had revolutionized philosophy but he explained the origins and essence of that revolution one-sidedly and therefore incorrectly. He wrote: "All revolutions, in the sciences, no less than in general history, originate only in this, that the spirit of man, for the understanding and comprehending of himself, has now al-

tered his categories, uniting himself in a truer, deeper, more inner and intimate relation with himself." Misled by his idealist standpoint and outlook, Hegel conceived the revolution he had wrought as arising within the minds of men by means of a change in their categories of thought. It was an event belonging essentially to the world of "spirit" or ideas, involving transformations of men's conceptual relations. It was not a necessary outgrowth of the social environment at a specific stage of its evolution, arising primarily from changes in the material relations of men.

Dialectical materialists give an entirely different explanation of Hegel's work. If it were asked: Why and how did this change of ideas come about? Hegel would answer, By reason of the contradictory factors within each system of ideas, their contention, and their resolution. We materialists answer: This begs the question. It explains changes in ideas by changes in ideas. This type of explanation is far too superficial and restricted.

Revolutionary developments in the world of ideas have to be explained as the result of a preceding overturn in the material world. In fact this intellectual revolution had its real roots and its ultimate driving force in the central social revolutionary movement of the epoch: the rise and world conquest of capitalism. Note, however, that we derived the principle of this explanation from no one other than Hegel himself, who taught that any thing cannot be explained by itself and through itself, as the formalists who base themselves on the law of identity thought, but only by another and through another. And not any other, but its own other. Here we turn Hegel's method against his own conclusion—and that is precisely what Marxist materialism has done on a broad scale.

We understand the peculiar nature of capitalism through the social system it grew out of, feudalism, as well as through the social formation it gives birth to, socialism. In order to comprehend anything we have to know not only what it is but also what it is not, that is to say, what it came out of, what it is part of, and what it must become.

From the sixteenth century to Hegel's advent, the rising forces of capitalism had placed in question, challenged or overthrown virtually all stable and anciently honored institutions and relations. The productive foundations of the old social order (feudalism, slavery) had been undermined or overturned by the growth of capitalist relations, competition, large-scale industry, and the world market. The English, American and French revolutions had destroyed absolute monarchies and placed new forms of government in their stead.

The history of the eighteenth century was marked by continual warfare between the great powers all over the world, by colonial revolts (the American revolution), and finally by the great civil and national wars emanating from the French revolution. The whole of civilized society was racked by contradictory forces and turned upside down. These colossal, catastrophic conflicts impressed themselves upon men's minds and turned them upside down too. Men could not work, live or think in the old ways. They were torn out of their ruts and routines and compelled by the force of events to act and think differently, in revolutionary or counter-revolutionary ways.

Historical conditions urgently demanded the creation of a new method of thought. Hegel's audacious speculations, his revolutionary leaps, which bridged the old world of thought and the new, reflected and expressed these revolutionary impulses vibrating throughout European society. In the course of development, the science of logic ran up against the same predicament as the science of society. The productive techniques and forces of capitalism had outgrown the feudal forms of production. A prolonged conflict took place between the exponents of these irreconcilable social forces. The reactionaries tried their utmost to push the developing forces of capitalist production back into the straitjacket of feudalism. The revolutionary bourgeois elements strove to free them from these fetters and to create more suitable, freer forms of productive relations.

Philosophers were confronted with a similar problem in the field of thought. Should they keep the new forces

of intellectual production, which had grown out of and even anticipated the fresh material forces of capitalist production, within the framework of the laws of elementary logic, no matter how false, inadequate, scholasticized these had become? This was the procedure recommended and practiced by conservative thinkers. Or should they release the new intellectual forces from their bondage to formal logic and create a new system of logic in closer conformity to the demands of the development of scientific thought?

This was the course taken by the most progressive philosophers from the time of Bacon and Descartes. They worked to reshape logic along with the reconstruction of society and the other sciences. Instead of endeavoring to make their scientific knowledge more formally logical, they tried to make their logic more scientific. It was Hegel who succeeded in consummating this revolution in logic.

3. Hegel and the French Revolution

The revolutionary forces of the age were concentrated around the great French revolution of 1789. The French revolution meant to the people of the eighteenth and nineteenth centuries what the Russian revolution means to us. It divided the civilized world into two opposing camps: for or against the revolution. It kindled revolutionary ideas and trends in politics, in the arts, music, sculpture, poetry ("Then it was bliss to be alive, but to be young was very heaven"—Wordsworth), and in philosophy.

The French revolution was no remote historical event to Hegel. He was its contemporary, being 23 years old when it reached its climax (1793). It was the most active force in his life and thought. He was immersed in its vicissitudes, which directly affected him. Hegel was compelled to finish his first great work, *The Phenomenology of Mind*, on the very eve of the decisive battle of Jena, in which Napoleon broke the Prussian armies and dismembered the kingdom. French soldiers entered Hegel's house and set it afire just after he had stuffed the last pages of

the *Phenomenology* in his pocket and taken refuge in the house of a high official of the town.

Despite these personal discomforts, Hegel always spoke of the French revolution with enthusiasm. In the *Phenomenology* he seeks to justify in his idealistic way the revolutionary terror of the Jacobins, which was condemned by all the reactionaries and counter-revolutionists of that time in the same spirit that the Bolshevik terror against the enemies of the Russian revolution is condemned today. This required more than intellectual and moral courage of a high order. This required a revolutionary outlook.

A few days before he was driven from his lodgings, Hegel wrote in a letter to a friend: "I saw the Emperor [Napoleon], that world-soul, riding through the city to reconnoitre. It is in truth a strange feeling to see such an individual before one, who here, from one point, as he rides on his horse, is reaching over the world, and remoulding it . . . All now wish good fortune to the French army, which cannot fail in the immense difference between its leaders and soldiers, and those of its enemies." (Caird: *Hegel*, p. 66-67.) The equivalent today would be a rapturous response of an intellectual—in Germany—hailing the advance of the Soviet Army.

In another letter Hegel wrote: "The French nation, by the bath of its revolution, has been freed from many institutions which the spirit of man has left behind like its baby shoes, and which therefore weighed upon it, as they still weigh upon others, as lifeless fetters. What, however, is more, the individuals of that nation have, in the shock of revolution, cast off the fear of death and the life of custom, which in the change of scene has now ceased to have any meaning in itself. It is this that gives them the prevailing force which they are showing against other nations. Hence especially comes their preponderance over the cloudy and undeveloped spirit of the Germans, who, however, if they are once forced to cast off their inertia, will rouse themselves to action, and *preserving in their contact with outward things the intensity of their inner life, will perchance surpass their teachers.*" (Caird: *Hegel*, p. 68.)

Hegel's complaint about "the cloudy and undeveloped spirit of the Germans" refers to the sharp difference between France and Germany. In France the bourgeois-democratic revolution was energetically and openly carried through. It had been ushered in by a seething ferment in the world of ideas. The progressive French writers and ideologists carried on continuous warfare with the Church, the State, and recognized authorities in the sciences; they suffered persecution, imprisonment, exile—all the punishments accorded to these so-called subversive activities.

Owing to the social backwardness of conditions in Germany, there the bourgeois-democratic revolutionary movement and its reflections in the domain of ideas experienced quite a different development and produced different results. In the first part of the nineteenth century, when Hegel came to maturity, the German bourgeoisie proved incapable of launching or completing a genuine revolution in industrial or political life. At the same time the energies diverted from these more material spheres of existence flowed all the more abundantly into the channels of philosophy and there found concentrated and rich expression.

The ideologists of the German bourgeoisie compensated for the economic inferiority, political feebleness and narrow aims of their class by extraordinary boldness and piercing vision in the world of thought. They carried through a revolution in the world of ideas where their more practical kindred failed to carry through their revolution in the world of practical reality. Marx characterized the philosophy of Kant, the founder of the classical German school of philosophy, as "the German theory of the French revolution." Hegel developed this "German theory" to its highest point in his dialectics.

4. Hegel and the Revolution in the Sciences

New and revolutionary ideas in the sciences preceded, accompanied, and issued from the rise of capitalist economy and the ferment of bourgeois-democratic revolution-

ary politics. The natural sciences—mathematics, mechanics, astronomy—were beginning to move forward with rapid strides and were placed on new foundations.

Later these and other sciences—geology, paleontology, chemistry, geography, biology, botany, physiology, anatomy—advanced and were one by one revolutionized. Goethe, Treviranus, Lamarck brought the conception of development into botany and biology.

The social sciences, too, were revived and transformed. Political economy was created. Political science together with political parties came into existence. The perplexing problems presented by the English and French revolution gave a powerful impulse to the science of history. Men pondered on the motive forces of history and began to seek the motive forces of historical evolution elsewhere than in divine Providence. Hegel, for example, sought in his *Philosophy of History* to explain the dynamics of historical development. He failed, but his magnificent failure led to the correct solution provided by Marx's method of historical materialism.

The scientific workers in these various fields tried to cram the new materials of knowledge they had collected or the new laws they had discovered into the old categories of thought they had inherited. They revolutionized their scientific practices long before they consciously and completely revolutionized their habits and method of thought. Most of them tried, for example, to reconcile their discoveries with established religious ideas with which they were obviously incompatible, or at least to avoid direct conflict with ecclesiastical authorities.

Even after many had set aside religious fears or prepossessions, scientists continued to regard nature as fundamentally unchanging and unchangeable; the laws they set forth as eternal; motion as purely and simply mechanical. They lacked, in a phrase, the conception of universal development.

5. *The Role of Philosophy*

"The first breach in this petrified outlook on nature was

made not by a natural scientist but by a philosopher," points out Engels in *Dialectics of Nature* (p. 8). "In 1755 appeared Kant's *General Natural History and Theory of the Heavens*." Kant's discovery that "the earth and the whole solar system . . . had come into being in the course of time . . . contained the point of departure for all further progress. If the earth were something that had come into being, then its present geological, geographical and climatic state, and its plants and animals likewise, must be something that had come into being; it must have had a history not only of co-existence in space but also of succession in time."

This revolutionary idea of Kant, which was to be developed far more comprehensively and profoundly by Hegel, was the outcome of a prolonged process of philosophical labor extending over several centuries. The revolution in philosophy burst forth not all at once but unfolded by degrees. Just as the bourgeois merchants, bankers, industrialists and their agents attacked and sapped the foundations and institutions of feudalism from below in economic, political and military affairs, so the ideologists of the bourgeoisie assailed and undermined feudalism from on high in the more rarefied realms of theory. They challenged the basic ideas of Christianity, first through the Protestant reform, and eventually in a revolutionary atheistic spirit. They undertook a fierce warfare against the ideas and method of scholasticism, the ideological buttresses of Catholicism and the feudal order. They re-created materialism.

The Hegelians, and after them the Marxists, were not the first or only philosophical schools to feel the inadequacy of Aristotle's logic petrified by the scholastics or to seek a better logic. Bourgeois thinkers had begun to rebel against the restraints of formal logic, which had grown intolerable in their dead scholasticized versions, as early as the sixteenth century. Bacon opened the struggle in England, Descartes in France. From that time until Hegel, one after another of the outstanding European philosophers sought to formulate a method of their own to super-

sede formal logic and to cope with the problems posed by the growth of the other sciences. Bacon's *Novum Organum*, Descartes' *Discourse on Method*, Hobbes' mechanical method, Spinoza's geometrical method, Locke's *An Essay concerning Human Understanding* represent milestones along this road. Locke, for example, concludes his essay as follows: "The consideration, then, of ideas and words as the great instruments of knowledge, makes no despicable part of their contemplation—who would take a view of human knowledge to the whole extent of it. And, perhaps, if they were distinctly weighed and duly considered, they would afford us another logic and critic than what we have been acquainted with." (p. 608.)

The most sustained and successful attempt along this line was made by the classical German philosophers beginning with Kant, continuing through Fichte and Schelling, and culminating in Hegel. What his precursors had sought, Hegel found; where they failed, he succeeded. But Hegel would never have succeeded in developing his dialectic without the failures of his predecessors. Their failures provided the preconditions and were necessary elements in his success. In the end, through Hegel and Marx, their failures became successful.

This dialectical lesson from the history of logic should not be lost on revolutionists. Success is not simply success, nor failure simply failure, as the formalists think and say. Every success has some failure; every failure some success in it—and they can be transformed one into the other under certain conditions. Witness the development and degeneration of the Russian revolution—and now its prospective regeneration!

Hegel's thought and especially his dialectical method represented the consummation of German classical philosophy and of the great Greek philosophy of antiquity. It was the theoretical outcome of the philosophical progress of Western civilization for four centuries. Hegel explicitly stated that his philosophy was the crown of the preceding two thousand years of philosophical thought and that the principal achievements of thought since the

Greeks had been incorporated into his work. This was no boastful exaggeration but the sober truth.

This gives Hegel's work its world-historical significance. He stands at the highest peak of a gigantic social-revolutionary movement, the greatest in history before socialism. His work embraces and summarizes in concentrated theoretical form the results of centuries of intellectual labor by the greatest of human minds. Hegel's philosophy not only expressed the results of these vast movements in society and science but itself gave an impulse in many fields to movements which are still changing the world. Among these is our own Marxist movement.

"The German workers," said Engels, "are the heirs of the classical German philosophy." This is equally true of the entire international working class. That is why we honor Hegel. The best way to honor this great thinker is to study his work and to understand his ideas. This we shall do in more detail in the next lecture.

Lecture V

The Dialectical Method: I

In the last lecture we pointed out that the broad advance of knowledge on many fronts since the sixteenth century dictated a radical reconstruction of the science of logic, just as the expanding forces of capitalist production required a radical transformation of the economic and political order. In his philosophical work Hegel accomplished this revolution in logic no less boldly than the plebeian revolutionists, the Jacobins, remodeled the French state and society. Hegel's dialectical method is an achievement in the history of thought comparable only to Aristotle's.

In this lecture we propose to discuss the chief conceptions of the dialectical method. When we considered the main ideas of formal logic in the first lecture, we began by singling out its three fundamental laws, setting them down in formula fashion, and then proceeded to analyze their applicable features and their defects.

We are obliged to deal with the ideas of the dialectical method in another way. We shall not begin by setting down one or more fundamental laws of dialectics around which the whole system of logic revolves, as we did in the case of formal logic. We shall approach dialectics not as a closed system. On the contrary it is an open system and therefore our approach is elastic, concrete, more informal.

1. Difference in Approach to Reality Between Formal and Dialectical Logic

It is important to grasp the motive for this procedure because it arises out of a profound difference in character between formal and dialectical thinking. The basic laws and ideas of formal logic are easily expressible in simple formulas and even equations, because such one-sided generalizations do bring out the inner nature, the true being, of formal thinking. As we have explained, the basic laws of formal logic contain nothing but restatements of one selfsame fixed conception of identity.

Formal logic is no misnomer. Formalism is the very breath of its life—and formalism everywhere tends to breed unconditional and unchanging formulas on the model of the three laws of formal logic, laws which profess to contain the complete content of the reality they deal with. Formalism takes specific and episodic forms manifested in nature, society, and the human mind and regards them as completely hard-and-fast, eternally fixed, unchanging and unconditional.

Dialectics bases itself upon an entirely different standpoint and has a different outlook upon reality and upon its changing forms. Dialectics is the logic of movement, of evolution, of change. Reality is too full of contradictions, too elusive, too manifold, too mutable to be snared in any single form or formula or set of formulas. Each particular phase of reality has its own laws and its own peculiar categories and constellation of categories which are interwoven with those it shares with other phases of reality. These laws and categories have to be discovered by direct investigation of the concrete whole; they cannot be excogitated by mind alone before the material reality is analyzed. Moreover, all reality is constantly changing, disclosing ever new aspects of itself which have to be taken into account and which cannot be encompassed in the old formulas, because they are not only different from but often contradictory to them.

The dialectical method seeks to accommodate itself to

these fundamental features of reality. It must take them as the starting point and basis of its own procedure. If reality is ever changing, concrete, full of novelty, fluent as a river, torn by oppositional forces, then dialectics, which strives to be a true reflection of reality in logical terms, must share the same characteristics. Dialectical thought too must be concrete, changeable, ever fresh and flowing like a sparkling stream of thought, ready to detect and catch the contradictions in its path.

Dialecticians recognize that all formulas must be provisional, limited, approximate, because all forms of existence are transient and limited. This must also apply to the science of dialectics and to the formulations of its laws and ideas. Since dialectics deals with an ever changing, complex and contradictory reality, its formulas have intrinsic limitations. In its interactions with objective reality and in its own process of self-development connected with that activity, dialectical thinking creates, maintains and then casts aside formulas at each stage of its growth. Dialectics itself grows and changes, often in contradictory fashion, in accordance with the specific material and intellectual conditions governing its development. It has already passed through two crucial stages of development in the idealist version of Hegel and the materialist form of Marxism.

Dialectical thinking, therefore, cannot be completely comprised in any fixed set of formulas, nor can dialectics be codified in the same way and to the same extent as formal logic. To address such a demand to dialectics, to seek to impose perfect formulas upon its processes, betrays a captivity to the method of formal thinking. It is alien to the essential nature, to the living spirit of dialectics as a method of thought. "Theory, my friends, is gray, but green is the eternal tree of life." (Goethe)

But this does not at all mean that dialectics is subject to no laws or that these laws cannot be stated in lucid terms. Every logic must be capable of categorical determination and expression. If this were not so, these lectures of mine would be a senseless enterprise and a science of

logic would be impossible. Otherwise logical thinking would dissolve into skepticism or into mysticism, which is the outcome of skepticism. Everything that happens is not the result of arbitrary forces but the result of definite and regularly operating laws. This is true of the mental processes with which logic directly concerns itself. The laws of mental processes exist. They can be discovered, known, used.

Dialectics incorporates within its own system and uses the apparatus of formal logic: strict definition, classification, coordination of categories, syllogism, judgment, etc. But it makes these tools of thought its servants and the servants, not the master, of the thought process. These elements of logical thought must adapt themselves to the process of reality and to the reality of thought. They cannot be permitted to overstep the bounds of their usefulness and force both objective reality and thought to adapt themselves to its mechanisms, as the hidebound formalists do and demand.

In the machine shop tools are subordinated and adapted to the needs of the process of production and the product, not the other way around. So must it be with the tools of thought fashioned by formal logic and dialectics. They must each find their proper place in the process of mental production and cooperate with other tools and operations to create the desired result—a correct conceptual reproduction of material reality.

Trotsky remarked in reference to the formalistic theorizing of a German professor, Stammler, author of a treatise on "Economics and the Law," which influenced certain European Socialist intellectuals much like the ideas of the philosopher Morris Cohen swayed certain American intellectuals. "It was just another of the innumerable attempts to force the great stream of natural and human history, from the amoeba to present-day man and beyond, through the closed rings of the eternal categories—rings which have reality only as imprints on the brain of a pedant." (*My Life*, p. 119.)

The mental habits instilled by pedants are difficult to

shake off, especially when they have been ingrained into the mind by training in bourgeois universities. To insist that dialectics provide an expression of its laws and ideas, good for all times, for all purposes, in all spheres, is to ask the impossible of dialectics. Dialectics cannot fulfill it. Any attempt to do so would violate its own inner nature and dialectics would slip back into formalism.

The laws and ideas of dialectics, however precise and finely drawn, can never be more than approximately correct. They cannot be all-embracing and eternal. It is noteworthy that such a demand is made most often and most insistently by petty-bourgeois migrants to the Marxist movement who are still enslaved to the formalism of academic life and thought. Engels has said: "A system of natural and historical knowledge which is all-embracing and final for all time is in contradiction to the fundamental laws of dialectical thinking; which, however, far from excluding, on the contrary includes the idea that the systematic knowledge of the external universe can make grand strides from generation to generation." (*Anti-Dühring*, p. 31.)

The critics of dialectics ask disapprovingly what the student of dialectics sometimes asks anxiously: "Where is the authoritative treatise on dialectics?" When we direct them to the works of the outstanding Marxists—Marx, Engels, Mehring, Plekhanov, Lenin, Trotsky, etc.—they recoil in horror and cry out: "These books are not like the textbooks we are accustomed to in the schools and universities. The ideas are not tabulated, enumerated, cut-and-dried. They are polemical from the first page to the last; they deal with concrete problems of one kind or another; they do not set down their laws and conclusions each with fixed rank and proper title, like officers in the army hierarchy. Here one idea is put forward as first, there another. What is a decent citizen to think about such behavior?"

Just so, we answer. What you find in these Marxist writings is no accident. We can and we shall give all the textbooks and treatises on dialectics and its laws that you

desire. Marx himself hoped, as he wrote to Engels in 1858: "If there should ever be time for such work again, I should greatly like to make accessible to the ordinary human intelligence, in two or three printer's sheets [32 or 48 printed pages], what is *rational* in the method which Hegel discovered but at the same time enveloped in mysticism." (Marx-Engels, *Selected Correspondence*, p. 102.) Such a treatise would have been of inestimable use to all students of dialectics. In his works *Ludwig Feuerbach and the Outcome of Classical German Philosophy* and *Anti-Dühring*, Engels later carried out this assignment.

Even such a systematic presentation as Marx could have written would not, I believe, have satisfied the formalists. They have a thirst for formalism, for fixed and final absolute expressions, which dialectics cannot quench. According to dialectics, the truth is always concrete. That is why, for example, dialectics best exhibits itself in connection with and through the analysis of concrete questions in specific fields of experience. That is why it naturally and inevitably assumes a contradictory, that is, polemical character. It is no accident that dialectics had one of its finest literary expressions in the dialogues of Plato, which are controversial in form as well as dialectical in content. Aristotle, too, continually polemicizes against the views of his predecessors and contemporaries.

Progressive and revolutionary thought in the sciences spontaneously assumes a more or less polemical character. Read Galileo's *Dialogue Concerning the Two Chief World Systems*, in which he counterposes the Copernican to the Ptolemaic schemes of astronomy and for which he was banished. Or Bacon's *Advancement of Learning* which inaugurated the new era in modern thought. "This whole volume is one long argument," remarks Darwin in his last chapter of *The Origin of Species*. These world-shaking and thought-quickeners works are polemical in form and dialectical in content because they had to destroy the old in order to make way for the new ideas forcing their way into social consciousness.

In his famous speech, "On the Essence of Constitutions,"

reprinted in the January, 1942 *Fourth International*, Lassalle points out how the written constitution of a state is the juridical expression of the material constitution of the specific social structure and how it changes in accordance with shifts in the relationships of class forces. Formal definitions of constitutions cannot explain their origin, development, and disappearance. For this we must go to the real class relations and class struggles in society, which necessarily underlie the constitutional forms, create, alter and destroy them.

It is no great task to draft a written constitution. This could be done and has been done in a few days. The Bolshevik leaders, Lenin in particular, wrote a constitution for the Soviet Republic in 1917 almost in passing, in obedience to the needs of the revolutionary struggle at that particular stage. The Bolsheviks were not formalists. They understood the subordinate role of all formal documents and the predominant place that must be accorded in constitutional questions, as in all others, to the living struggle and actual relationships of the forces involved.

It is the same with a written "constitution" of dialectical logic. This would reflect the state of the dialectic at a given moment and from a specific and limited point of view. Such a codification is important, necessary and useful. But it does not and cannot replace the most careful and direct attention to the material realities and conflicting forces upon which dialectics bases itself, which determine its characteristics and also the changes in its characteristics.

The true relationship between matter and the forms it assumes must be understood. They are always interdependent and arise one out of the other. But for materialist dialecticians it is the movement of matter, now expressed in natural science as mass-energy, that is decisive, not the transient or particular forms which that material movement has at any given stage and in any specific formation. Formalism is abhorrent to dialectical materialism.

In discussing this and related questions with Comrade Vincent Dunne, he pointed out how this request for a hard-and-fast statement of dialectics resembles requests from

people new to the mass movement for rigid instructions on how to negotiate a contract, how to lead a strike, how to organize a branch and even, I suppose, "how to win friends and influence people." Such handbooks and directives are very helpful, as everyone knows who receives a letter from the party center. But they have definite inherent limitations. They cannot substitute for a concrete appreciation of the situation, based upon an analysis of all the complex circumstances, including the given relationship of forces and the direction of their development. For the solution of any specific problem something else is needed. What is that essential ingredient?

Comrade Cannon has often expressed it in the pointed remark: "There's no substitute for intelligence." The highest form of intelligence is that guided by the method of the materialist dialectic. How can this Marxist intelligence be acquired? By experience within the mass movement, by study, by critical thinking, by immersion in working-class life and struggles so that the movements, moods and mind of the masses become familiar and known. It is this social movement which has given life to materialist dialectics and which continues to inspire and promote its development by wedding it to concrete reality.

During the struggle with the petty-bourgeois oppositionists, they demanded immediate and all-inclusive answers to all kinds of abstract questions. What will you do and say if this happens, if that happens? Trotsky answered these panic-stricken people: "For answers to 'concrete' questions, the oppositionists want recipes from a cookbook for the epoch of imperialist wars. I don't intend to write such a cookbook. But from our principled approach to the fundamental questions we shall always be able to arrive at a correct solution for any concrete problem, complicated though it might be." (*In Defense of Marxism*, p. 42.)

No one can provide you with a cookbook of the dialectics. But its main ideas can be set forth in such a fashion that the method can be understood and used for the solution of concrete problems. Engels once wrote: "From the

moment we accept the theory of evolution all our concepts of organic life correspond only approximately to reality. Otherwise there would be no change: on the day when concepts and reality completely coincide in the organic world, development comes to an end. The concept fish includes a life in water and breathing through gills: how are you going to get from fish to amphibian without breaking through this concept? And it has been broken through and we know a whole series of fish which have developed their air bladders further into lungs and can breathe air. How, without bringing one or both concepts into conflict with reality, are you going to get from the egg-laying reptile to the mammal, which gives birth to living young? And in reality we have in the monotremata a whole sub-class of egg-laying mammals—in 1843, I saw the eggs of the duck-bill in Manchester and with arrogant narrow-mindedness mocked at such stupidity—as if a mammal could lay eggs—and now it has been proved! So do not behave to the conception of value in the way I had later to beg the duck-bill's pardon for!" (*Marx-Engels, Selected Correspondence*, p. 530.)

The laws of dialectics are in the same boat with the law of value in political economy—and with all other laws. They have reality only as approximations, tendencies, averages. They do not and cannot immediately, directly and completely coincide with reality. If they did so, they would not be conceptual reflections of reality, but that objective reality itself. Although thought and being are interdependent, they are not identical.

2. The Lawfulness of Reality—And Its Necessity

With formal logic we began by stating what it is. With dialectics, on the other hand, we started by explaining what it is not. Now we propose to discuss what dialectics is, what its positive content consists of.

Hegel drew from his philosophy and his logic the premise, "All that is real is rational." Although this proposition is rarely made explicit in conscious terms, it guides all

our practice and all our theorizing. We conduct ourselves in everyday life and in our work upon the basis of the fact that there are material things with stable relations around us, that there are regular occurrences in nature, that things change in accordance with definite laws—and that these things and their connections, these objectively recurring events and laws can be known and correctly, or as the academicians say, rationally, accounted for.

The same rule regarding the rationality of the real prevails in the domain of theory. Indeed theory would be impossible without its direction. All scientific investigation proceeds upon the basis that things are connected with each other in definite ways, that their changes exhibit a certain uniformity, regularity and lawfulness—and that therefore their interrelations, transitions into one another and laws of development can be ascertained and explained. There have been skeptical and religious thinkers who denied that the real world was rational. That is the prime postulate of existentialism. But even those philosophers who asserted that reality was irrational, and therefore unknowable by the mind of man, arrived at that conclusion by rational methods. Their rational method of procedure gave the lie to their irrational conclusion and remained in stark contradiction to it.

The science of logic must take as its starting point the unity of the subjective processes of thought with the processes of the external world. Nature cannot be unreasonable or reason contrary to nature. Everything that exists must have a necessary and sufficient reason for existence—and that reason can be discovered and communicated to others. This conception was formulated in 1646 by Leibnitz, the great German logician, mathematician and philosopher, as "the principle of sufficient reason" by virtue of which, he says, "we know that no fact can be found real, no proposition true, without a sufficient reason why it is as it is rather than otherwise."

The material basis of this law lies in the actual interdependence of all things and in their reciprocal interactions. These features of the material world secure conceptual

determination and logical expression in such categories as cause and effect, determinism and freedom, etc. If everything that exists has a necessary and sufficient reason for existence, that means it had to come into being. It was pushed into existence and forced its own way into existence by natural necessity. It had to struggle against all kinds of opposing forces to make room for itself in the actual world. Reality proves itself by virtue of its necessity. Reality, rationality and necessity are intimately associated at all times.

Let us consider the movement for socialism in the light of these ideas. Before Marx's day socialism was a Utopia, an age-old dream of humanity, which could not achieve reality because the necessary material preconditions were lacking. Socialism was neither real nor necessary for humanity at that stage of its development—and was therefore irrational, a daydream, an anticipation of reality.

With the development of capitalism, socialism became for the first time a real prospect within men's reach. Marx and Engels demonstrated this in their scientific socialism. They disclosed in theoretical form the reality, rationality and necessity of socialism and the proletarian struggle for its realization. But this was by and large a theoretical anticipation of reality, not an immediate practical prospect. Socialism was predominantly a program and a goal, compared to the social reality of capitalism.

But with the growth of the proletarian mass movement and the expansion of socialist ideas, socialism began to acquire more and more reality, more and more necessity, more and more reasonableness. Why? Because, as Marx and Engels pointed out, ideas become forces when the masses accept them. The first great leap from ideality to reality occurred in the Bolshevik revolution of 1917, which made socialism far more real than capitalism over one-sixth of the earth's surface.

Thus the reality of socialism has manifested itself by the acquisition of more and more material existence. This also proves its rationality, that is to say, its correspondence with the real and pressing needs of humanity, and espe-

cially its most progressive section, the working class. Socialism proves itself to be the rational outcome of men's strivings to better their conditions. It becomes actual because it is rational, that is, in harmony with the trends of social progress. It is rational because it becomes more and more real, that is, an active force in the lives and struggles of humanity. Its rationality and its reality react upon and reinforce each other.

At the same time and in the same way that socialism proves its rationality and its reality, it also proves its necessity. If socialism were not necessary, if the requisite conditions for its production and reproduction on an extended basis were not present, it could not become a reality, endure for any length of time, or flourish.

A similar situation prevails in regard to the origin and evolution of species through the struggle for existence within organic nature. Species endure because they are adapted to the conditions of their environment. Species change because variations within the same species lead to the natural selection of individuals better suited to the changing environment and eventually to the creation of new species. There exists a real, reasonable and necessary relationship between the species of plants or animals and their environment, whether species come into existence, endure, change or disappear.

If everything actual is necessarily rational, this means that every item of the real world has sufficient reason for existing and must find a rational explanation. All kinds of people have gone wrong by ignoring the existence or denying the rational significance of some portion of reality. The Greeks declared that such numbers as the square root of 2 were "irrational," and therefore were not numbers and not worthy of attention. Yet the study and development of such "irrational" numbers have given birth to a fruitful branch of mathematics.

The Greek philosophers deprecated in principle the value of practice as an element of knowledge. We, on the other hand, place practice at the foundation of real knowledge.

Until Freud psychologists dismissed dreams, acts of forgetfulness, slips of the tongue as trivial and meaningless mental phenomena. Freud has shown how they disclose the veiled operations of unconscious thought.

Just as modern oil refineries have recovered by-products from distillation and cracking more valuable than the original petroleum, so out of the junk heaps of history priceless treasures have been recovered by more penetrating processes of thought and work. The materialist conception of history, for example, based itself, as Engels remarked, upon "the simple fact, previously hidden under ideological growths, that human beings must first of all eat, drink, shelter and clothe themselves before they can turn their attention to politics, science, art and religion . . ."

The most terrible events of our epoch, economic crises, imperialist and civil wars, fascism, seem irrational, incredible, unnecessary to the philistine mentalities of petty-bourgeois democrats. Yet they are not only real but necessary—and thereby find a rational explanation. They are the most important and decisive processes in contemporary life. They express the inner nature and convulsive movements of capitalism in its death agony. They are rational manifestations of a highly irrational system of social relations.

Moreover, what appears rational and necessary to the members of one class (for workers, higher wages in view of excessive taxes and the soaring costs of living) appears no less unreasonable and unnecessary to the opposite class (the employers whose profits will be cut). What is rational from one social standpoint appears to be the height of folly from the other. Yet this apparent irrationality finds its real and its rational explanation in the contradictory interests of the two classes engaged in struggle over the division of the national income.

To the petty-bourgeois liberals our movement, too, appears unreal, too insignificant for them to take seriously or for powerful governments to prosecute us. They "defend" us on such grounds. But we loom as significant forces to Stalin, Hitler, Roosevelt, because of our reality,

because of the social and political power latent in our ideas. Thus their seemingly irrational persecution of the Trotskyists can be rationally explained. And we shall become more and more significant as the revolutionary impulses of the workers and colonial peoples obtain more powerful expression.

Why has our party and our international movement come into existence? What has drawn such different individuals in so many countries into a tight political bond and disciplined unity? We have been born and continue to grow stronger because our existence is a rational necessity under present social conditions. The Trotskyist movement is no accident, no trivial force. Our movement has been created to meet the need of the working class for revolutionary leadership. We derive our political reality and our political rationality from that political necessity.

That is also why we take our method and our ideas so seriously. The principles and traditions upon which the selection of our cadres has taken place are not unimportant but vital to our existence. That's also why we take ideas as a whole so very seriously, because for us they are literally a matter of political life and death. And we have engaged in many life-and-death battles against powerful and disguised adversaries to protect, preserve and disseminate them.

We are the most rational of all political movements because we are, in the historical sense, the most real and the most necessary. We have to be rational in order to become real. That's also why we can put so much life into our logic and so much logic into our life. The two are for us inseparable.

People have come up to me and said: "You make logic so lively." That is no personal merit on my part. Our logic, the materialist dialectics, is itself the logic of life. It brims over with movement, with vitality, with force. The logic of the bourgeois and petty-bourgeois professors is deadening to study and to teach because it is the logic of a static universe and of dead things. Their logic has less and less connection with the current realities of social and

scientific life. It belongs to the dying past, not to the living present and the creative future. Indeed, a formalized logic has become so useless, so sterile, that its professors go so far as to make a virtue out of necessity and say, like Burnham, that logic itself has little or no practical use or application to the real world. This is a confession of theoretical bankruptcy.

Thus reality, rationality, and necessity go hand in hand.

* * *

This proposition seems to justify everything that exists, good, bad and indifferent. In one sense it does precisely that—and properly so. For everything that exists stands in need of theoretical justification because the very fact of its actuality gives it a valid claim upon rationality, reality and necessity.

The conservatives and reactionaries who lean upon Hegel see only this side of his doctrines: its justification for what exists. This is the conservative side of Hegel's thought and also, if you choose, of the dialectical method in general. It constitutes an indispensable element of all dialectics, including the materialist. For things do exist and endure for a definite time. Moreover, everything that ever existed is to some degree conserved as well as destroyed by what comes out of it and after it. The past serves as the raw material for the new generations to work upon and in this way to prepare the future.

But this is not the ultimate truth of our knowledge about reality. It is only the beginning of wisdom. What the other side of reality and its dialectic consists of will be the theme of the next lecture.

Lecture VI

The Dialectical Method: II

In the last lecture we considered the meaning of Hegel's two propositions: that the truth is concrete, and further that all that is real is rational. We found that everything comes into existence and remains there, not by accident, but as the result of determinate conditions and necessary causes. There are threads of lawfulness running through the processes of reality and exhibited in the existence and persistence of its products. There is reason in the real world—and therefore the real world is rationally reflected and translated in our mind.

In this discussion we want to examine what appears to be the other side of this proposition but which, as we shall see, is an inseparable aspect of reality. Let us turn our previous affirmation around on its axis and view its negative aspect.

We have already seen what great measure of truth there is in the proposition that the real is rational. We have ascertained that all things come into existence and endure in a lawful and necessary way. But this is not the whole and final truth about things. It is one-sided, relative, and a passing truth. The real truth about things is that they not only exist, persist, but they also develop and pass away. This passing away of things, eventuating in death, is expressed in logical terminology by the term "negation."

The whole truth about things can be expressed only if we take into account this opposite and negative aspect. In other words, unless we introduce the negation of our first affirmation, we shall obtain only a superficial and abstract inspection of reality.

All things are limited and changing. They not only force their way and are forced into existence and maintain themselves there. They also develop, disintegrate and are pushed out of existence and eventually disappear. In logical terms, they not only affirm themselves. They likewise negate themselves and are negated by other things. By coming into existence, they say: "Yes! Here I am!" to reality and to thought engaged in understanding reality. By developing and eventually going out of existence, they say on the contrary: "No, I no longer am; I cannot stay real." If everything that comes into existence must pass out of existence, as all of reality pounds constantly into our brains, then every affirmation must inexorably express its negation in logical thought. Such a movement of things and of thought is called a dialectical movement.

"All things . . . meet their doom; and in saying so, we have a perception that Dialectic is the universal and irresistible power, before which nothing can stay, however secure and stable it may deem itself," writes Hegel. (*Encyclopedie of the Philosophical Sciences*, p. 128.)

There is a fable in *The Arabian Nights* about an Oriental monarch who, early in life, asked his wise men for the sum and substance of all learning, for the truth that would apply to everything at all times and under all conditions, a truth which would be as absolutely sovereign as he thought himself to be. Finally, over the king's deathbed, his wise men supplied the following answer: "Oh, mighty king, this one truth will always apply to all things: 'And this too shall pass away.'" If justice prevailed, the king should have bequeathed a rich reward to his wise men, for they had disclosed to him the secret of the dialectic. This is the power, the omnipotence of the negative side of existence, which is forever emerging from, annihilating and transcending the affirmative aspect of things.

This "powerful unrest," as Leibnitz called it, this quickening force and destructive action of life—the negative—is everywhere at work: in the movement of things, in the growth of living beings, in the transformations of substances, in the evolution of society, and in the human mind which reflects all these objective processes.

From this dialectical essence of reality Hegel drew the conclusion that constitutes an indispensable part of his famous aphorism: All that is rational is real. But for Hegel all that is real is not without exception and qualification worthy of existence. "Existence is in part mere appearance, and only in part reality." (Introduction to the *Encyclopedia of the Philosophical Sciences*, p. 9.) Existence elementally and necessarily divides itself, and the investigating mind finds it to be so divided, into opposing aspects of appearance and essence. This disjunction between appearance and essence is no more mysterious than the disjunction between the inside and outside of an object.

What distinguishes essence or essential reality from mere appearance? A thing is truly real if it is necessary, if its appearance truly corresponds to its essence, and only so long as it proves itself to be necessary. Hegel, being the most consistent idealist, sought the source of this necessity in the movement of the universal mind, in the Absolute Idea. Materialists, on the other hand, locate the roots of necessity in the objective world, in the material conditions and conflicting forces which create, sustain and destroy all things. But, from the purely logical standpoint, both schools of philosophy agree in connecting reality with necessity.

Something acquires reality because the necessary conditions for its production and reproduction are objectively present and operative. It becomes more or less real in accordance with the changes in the external and internal circumstances of its development. It remains truly real only so long and insofar as it is necessary under the given conditions. Then, as conditions change, it loses its necessity and its reality and dissolves into mere appearance.

Let us consider a few illustrations of this process, this

contradiction between essence and appearance, resulting from the different forms assumed by matter in its motion. In the production of the plant, seed, bud, flower and fruit are all equally necessary phases or forms of its existence. Taken separately, each by itself, they are all equally real, equally necessary, equally rational phases of the plant's development.

Yet each in turn becomes supplanted by the other and thereby becomes no less unnecessary and non-real. Each phase of the plant's manifestation appears as a reality and then is transformed in the course of development into an unreality or an appearance. This movement, triadic in this particular case, from unreality into reality and then back again to unreality, constitutes the essence, the inner movement behind all appearance. Appearance cannot be understood without an understanding of this process. It is this that determines whether any appearance in nature, society or in the mind is rational or non-rational.

Writes Engels: "The Roman Republic was real, but so was the Roman Empire which superseded it. In 1789 the French monarchy had become so unreal, that is to say, it had been so robbed of all necessity, so non-rational, that it had to be destroyed by the Great [French] Revolution—of which Hegel always speaks with the greatest enthusiasm. In this case the monarchy was the unreal and the revolution was the real. And so, in the course of development, all that was previously real becomes unreal, loses its necessity, its right of existence, its rationality.

"And in the place of moribund reality comes a new reality capable of living—peacefully if the old has enough intelligence to go to its death without a struggle; forcibly if it resists this necessity. Thus the Hegelian proposition turns into its opposite through Hegelian dialectics itself: All that is real in the sphere of human history becomes irrational in the process of time and is therefore irrational already by its destination, is tainted beforehand with irrationality, and everything which is rational in the minds of men is destined to become real, however much it may contradict the apparent reality of existing conditions. In

accordance with all the rules of the Hegelian method of thought, the proposition of the rationality of everything which is real resolves itself into the other proposition: All that exists deserves to perish." (*Ludwig Feuerbach and the Outcome of Classical German Philosophy*, pp. 10-11.)

Capitalism was once a real and necessary social system. It had to come into being by virtue of the prevailing social conditions and the growth of man's productive forces. It did come into existence and proceeded to spread throughout the world, overthrowing, subordinating to itself, or supplanting all earlier social relations in its triumphal march. Capitalism therewith proved its necessity, its inevitability in historical practice, by establishing its reality and rationality and exerting its power in society.

There is a measure of truth in the assertion that so horrifies the philistines, "Might makes right." But the philistine, lacking dialectics, doesn't understand that the contrary of this proposition holds equally true. "Right makes might." Today capitalism has come to the end of its rope and is more than ready for hanging. This antiquated system of production is no less unnecessary, unreal, irrational in the twentieth century as it was just the opposite from its rise in the fifteenth century and throughout the eighteenth and nineteenth centuries. It has to be abolished or negated if mankind is to live and progress. It will be negated the world over by a social force within capitalism itself which is far more real and powerful, far more necessary and rational than imperialist capitalism: the socialist proletariat and its allies, the colonial oppressed.

The working class has historical reason and therefore historical right on its side. This will prove more effective in the struggle of the contending classes than all the might possessed right now by capitalist reaction or the might accumulated from the past by it. That this reason and this right can become mighty enough to overturn capitalism has been already demonstrated in practice by the October revolution of 1917. This negation of capitalist power was the strongest possible affirmation of the social

and political right of the industrial workers to rule and to reconstruct the social order.

Thus we see that negation is not something barren or self-destroying. It is also its own opposite. It is the most positive and powerful of affirmations. Just as affirmation transforms itself of necessity into negation, so in turn negation exhibits its positive character, as the negation of the negation, that is, an entirely new affirmation which, in its turn, contains the seed of its own negation. This is the dialectic of development, the necessary transformation of processes into other processes.

In the formative stage of the Trotskyist movement, it was necessary and correct that we should strive to remain attached to the degenerating Third International, try to reform its backsliding course, and win over the masses of revolutionary workers in its sections to the Bolshevik program of Lenin. After the surrender to Hitlerism in Germany in 1933 took place without serious repercussions in the ranks, it became evident that the process of degeneration had reached the point of death. Quantitative changes had brought about a new quality. The Third International was beyond cure—it was dead. It had become, like the Second International, a "stinking corpse." It was buried by Stalin in 1943.

Our former policy in relation to the Comintern thereby became unnecessary, incorrect, outworn, unrealistic. The new stage of development demanded a new policy and a new course adjusted to new conditions. The Trotskyists had to break all ties with the Stalinized Third International and start building a new and completely independent Fourth International. We turned from the reform of the Third International to its replacement by a genuine revolutionary international organization of the working class.

Some people saw—and indeed still see—an insoluble contradiction in this sequence of events. "How can you be for reforming the Comintern at one time and then favor its overthrow at another?" they expostulated. They were formalistic to the point of pedantry and not dialectical in their thinking as well as in their political activity. They do

not understand that it is necessary and rational to change policy and strategy with changes in objective reality. They do not comprehend that different and even contradictory policies can and do serve to promote one and the same strategic aim. In logical terms they do not grasp how what is different in appearance can remain identical in essence; or, to put it more generally, that what may seem different can yet be identical. They reason according to the law of identity in formal logic: What is identical must always remain the same both in appearance and essence regardless of circumstances. But dialectics teaches that what is identical not only may but must change.

This same problem has arisen at each new stage in the development of our movement. Each turn in our political tactics, necessitated by the changing conditions of the radical labor movement, has witnessed a struggle between formalists and dialecticians. In the 1934 merger with the American Workers Party, the Oehlerite sectarians, in reality opposed to the fusion, wanted to lay down formal stipulations and barriers to the Musteite centrists which would have resulted in preventing this fruitful marriage of two different political groups. Unable to reconcile their formalism with the necessities of building a revolutionary party in this country, they drove toward a split.

The proposal to enter the Socialist Party in 1935 encountered opposition from formalists who wanted to maintain the previous form of party organization, regardless of the pressing political needs of the process of building the proletarian party. They thought our party had attained a finished organizational structure when it was actually just at the beginning of party building. The exit from the Socialist Party in its turn encountered opposition from other formalists who had begun to accommodate themselves to cohabitation with the centrist milieu, although political necessity dictated that the struggle with centrism be carried through to the end. It may be not unimportant to recall that some of the same individuals who opposed our entry into the Socialist Party were most reluctant to leave it (Martin Abern). The more things change, the more

formalism remains true to itself—and thereby is false to reality.

All these different actions, which appeared so absolutely contradictory and therefore incomprehensible to the formalists and sectarians, were equally necessary and rational stages in the dialectical process of assembling our forces. Tactical formulas, like all formulas, must adapt themselves to the changing course, the flux of real events.

We could cite many other instances of such dialectical shifts in our party history: the turn to the transitional program, our change in attitude toward the formation of a Labor Party, etc. All these confirm in their fashion the dialectical truth that all real development proceeds in a contradictory manner by reason of the conflict of opposing forces within and around all existing things. Nothing is unalterably fixed and absolutely final. Everything passes away in the course of development. Necessity becomes transformed into lack of necessity, or contingency and chance; reality becomes transformed into unreality or appearance; rationality becomes irrationality; yesterday's truth becomes today's half-truth and tomorrow's error, and, finally, utter falsehood.

Hegel generalized this fundamental feature of reality in his logical law that everything necessarily, naturally and reasonably turns into its opposite during the course of its existence. According to the laws of formal logic, this is impossible, illogical, absurd, because it is self-contradictory. In formal logic contradiction and especially self-contradiction are impossible in reality as well as illegitimate in thought.

By introducing the dialectic, Hegel turned this basic law of formal logic inside out and upside down and thereby revolutionized the science of logic. Instead of eliminating contradiction from reality and logic, Hegel made it the keystone of his conception of reality and his system of logic. Hegel's entire logical structure proceeds from the proposition of the identity, unity and interpenetration of opposites. A thing is not only itself but another. A is not

merely equal to A; it is also more profoundly equal to non-A.

If, as we have stated, it was Aristotle's great and profound achievement to have fully appreciated the profound discovery of his predecessors in Greece that A equals A and to have made this law of identity the basis for a systematic exposition of the science of logic, it was no less epoch-making to systematize the discovery, as Hegel did, that A not only equals A but also equals non-A. Hegel made this law of the identity, unity and interpenetration of opposites the basis of his dialectical system of logic.

This law of the unity of opposites, which so perplexes and horrifies addicts of formal logic, can be easily understood, not only when it is applied to actual processes of development and interrelations of events, but also when it is contrasted with the formal law of identity. It is logically true that A equals A; that John is John; and that five plus one equals six. But it is far more profoundly true that A is also non-A. John is not simply John: John is a man. This correct proposition is not an affirmation of abstract identity but an identification of opposites. The logical category or material class, mankind, with which John is one and the same is far more and other than John, the individual. Mankind is at the same time identical with, yet different from, John.

Formal logic had no more use for opposition, let alone contradiction, than the American Indians had for petroleum or the totalitarians have for democracy. They either ignored it or threw it on the junk heap. Hegel retrieved this jewel, cut and polished its facets and thus made a world-historic contribution to logic. He demonstrated that opposition and contradiction, instead of being meaningless or valueless, were the most important factors in nature, society and thought. Only by fully grasping this can one grasp the impulse, the motive force in reality, in life—and for this reason Hegel made it the foundation of his logic.

"Instead of speaking by the maxim of Excluded Middle (which is the maxim of abstract understanding), we should

rather say: Everything is opposite. Neither in heaven nor in earth, neither in the world of mind nor of nature, is there anywhere such an abstract 'either-or' as common-sense thought maintains. All that is, is concrete, with difference and opposition within itself. The finitude of things lies in the want of correspondence between their immediate being here and now, and what they virtually are by themselves." (*Encyclopedia*, p. 192.)

Consider, for example, the two propositions we have been analyzing. The second, "All that is rational is real," does assert the opposite of the first and, in fact, contradicts it: All that is real is rational. Hegel was not at all bothered by this contradiction. On the contrary, as a dialectician, he seized upon this contradiction as a clue to the essence or gist of reality. He understood that it was a genuine contradiction and accepted it and operated with it, because both opposition and contradiction are genuinely real and rational. This particular contradiction expresses the inherent nature of things and arises from the contradictory character of reality itself.

The formal logician lays down his law of identity in the same manner that the absolute monarch lays down the law to his subjects. This is the law; don't dare violate it. Just as the subjects keep rebelling against political absolutism, so the forces of reality keep upsetting and violating the laws of formal logic. Processes in nature are forever contradicting themselves as they develop. The bud negates the seed, the blossom negates the bud, the fruit the blossom. The same is true in society. Capitalism negates feudalism; socialism, capitalism. "Contradiction, above all things, is what moves the world: and it is ridiculous to say that contradiction is unthinkable. The correct point in that statement is that contradiction is not the end of the matter but cancels itself." (*Encyclopedia*, p. 192.)

The blossom that negates the bud becomes itself negated by the fruit. Capitalism which overthrows feudalism becomes itself overthrown by socialism. This process is known in logic as the law of the negation of the negation.

In this dialectical movement, in this passage out of and

into opposition, resides the secret to the movement of all real things. Therefore here also is the mainspring of the dialectical method of logic, which is a correct conceptual translation of the processes of development in reality. Dialectics is the logic of matter in motion and thereby the logic of contradictions, because development is inherently self-contradictory. Everything generates within itself that force which leads to its negation, its passing away into some other and higher form of being.

"Wherever there is movement, wherever there is life, wherever anything is carried into effect in the actual world, there dialectic is at work. It is also the soul of all knowledge which is truly scientific. In the popular way of looking at things, the refusal to abide by any one abstract form of the understanding is considered only justice. As the proverb has it: Live and let live. Each must have its turn; we admit the one, but we admit the other also.

"But when we look more closely, we find that the limitations of the finite [as well as of the infinite—G. N.] do not merely come from without; that (in each case and in its own way) its own nature is the cause of its abrogation and that by its own means it passes into its opposite. We say, for instance, that man is mortal, and seem to think that the ground of his death is in external circumstances only: so that if this way of looking were correct, man would have two special properties, vitality and mortality. But the true view of the matter is, that life, as life, involves (from the outset) the germ of death, and that the finite, being at war within itself, causes its own dissolution." (*Encyclopedia*, p. 126.) Locke, among others, expounded this same idea by stating that every existing thing is in the process of "perpetually perishing."

This dialectical activity is universal. There is no escape from its unremitting and relentless embrace. "Dialectics gives expression to a law which is felt in all grades of consciousness and in general experience. Everything that surrounds us may be viewed as an instance of dialectic. We are aware that everything finite, instead of being inflexible and ultimate, is rather changeable and transient;

and this is exactly what we mean by the dialectic of the finite, by which the finite, as implicitly other than it is, is forced to surrender its own immediate or natural being, and to turn suddenly into its opposite." (*Encyclopedia*, p. 128.)

The civilian is the opposite of the soldier. Yet conscription teaches many a civilian that his status as a civilian is not "inflexible and ultimate but changeable and transient," and that he is forced to surrender his own immediate and conventional being and to turn suddenly into his opposite. He may not know that this is a commonplace dialectical transformation, any more than he may know that the war itself is imperialist in character, but the ignorance of the individual does not alter the dialectical character of the process.

This dialectic is the revolutionary side of Hegel's doctrine.

"But precisely here lay the true significance and the revolutionary character of the Hegelian philosophy . . . that it once and for all dealt the deathblow to the finality of all products of human thought and action. Truth, the cognition of which is the business of philosophy, became in the hands of Hegel no longer an aggregate of finished dogmatic statements, which once discovered had merely to be learned by heart. Truth lay now in the process of cognition itself, in the long historical development of science, which mounts from lower to ever higher levels of knowledge without ever reaching, by discovering so-called absolute truth, a point at which it can proceed no further and where it would have nothing more to do than to fold its hands and admire the absolute truth to which it had attained.

"And what holds good for the realm of philosophic knowledge holds good also for that of every other kind of knowledge and also for practical affairs. Just as knowledge is unable to reach a perfected termination in a perfect, ideal condition of humanity, so is history unable to do so; a perfect society, a perfect 'state,' are things which can exist only in imagination. On the contrary, all suc-

cessive historical situations are only transitory stages in the endless course of development of human society from the lower to the higher.

"Each stage is necessary, therefore justified for the time and conditions to which it owes its origin. But in the newer and higher conditions which gradually develop in its own womb, each loses its validity and justification. It must give way to a higher form which will also in its turn decay and perish. Just as the bourgeoisie by large-scale industry, competition and the world market dissolves in practice all stable, time-honored institutions, so this dialectical world outlook dissolves all conceptions of final absolute truth and of a final absolute state of humanity corresponding to it. For it, nothing is final, absolute, sacred. It reveals the transitory character of everything and in everything; nothing can endure before it except the uninterrupted process of becoming and of passing away, of endless ascendancy from the lower to the higher.

"And the dialectical world-outlook itself is nothing more than the mere reflection of this process in the thinking brain. It has, of course, also a conservative side: it recognizes that definite stages of knowledge and society are justified for their time and circumstances; but only within certain limits. The conservatism of this mode of outlook is relative; its revolutionary character is absolute—the only absolute it admits." (Engels, *Ludwig Feuerbach and the Outcome of Classical German Philosophy*, pp. 11-12.)

Lecture VII

The Marxist Revolution in Logic

In the introduction to his *Logic*, Hegel wrote: "I could not of course imagine that the method which in this system of Logic I have followed—or rather which this system follows of itself—is not capable of much improvement, of much elaboration in detail, but at the same time I know that it is the only true method." (p. 65.)

Hegel could not, naturally, anticipate how great a transformation his dialectical method was to undergo at the hands of his socialist successors, Marx and Engels. These revolutionary thinkers did not limit themselves to "improving" or "elaborating in detail" Hegel's dialectics, any more than they stopped short at introducing only amendments to the theories of classical bourgeois economy or to the political system of bourgeois democracy. In the course of their critical work, Marx and Engels passed beyond idealist dialectics and revolutionized it by creating an entirely new instrument of logic: the materialist dialectics. As Aristotle synthesized the major conquests of Greek thought, and Hegel those of the German philosophers, so we find the highest synthesis of both these schools of philosophy in the work of Marx and Engels.

Hegel had revolutionized the old formal logic and reconstructed it on new theoretical foundations. Marx and Engels lifted this revolution in the science of logic to a

still higher level by separating the rational substance within Hegel's thought from its irrational idealist shell and placing dialectics upon a solid materialist basis. They made dialectics materialist and materialism dialectical. This twofold transmutation was an epoch-making event in the history of thought.

Marx and Engels treated Hegelian dialectics much as they did the ideas of their socialist forerunners. Just as they cast aside the false Utopian and idealist sides of Saint-Simon's, Fourier's and Owen's social criticism and incorporated their socialist doctrines and outlook into a consistently materialist framework, so they divorced Hegel's dialectics from its mystical idealist shell and absorbed its valid content and vital ideas into their new world outlook.

Thus modern dialectics has itself passed through a dialectical development. From the one-sided, distorted shape which it first assumed in Hegel's philosophy, dialectics became transformed into its opposite in the materialist system of Marxism. The Hegelian idealist and the Marxist materialist are the two polar types of modern dialectical logic. The first is the false and fetishistic expression of dialectics; the second is its true revolutionary form.

Just as Russia experienced a twofold revolutionary process in 1917, passing through both a bourgeois-democratic and a proletarian revolution, so the science of logic in the first half of the nineteenth century underwent a double revolution as it emerged from the creative minds of the great German bourgeois philosophers and then passed through the criticism of the founders of scientific socialism. In a certain sense this is one of the most striking examples of combined development in the history of human thought.

1. How Marx and Engels Departed from Hegelianism

Marx and Engels pointed out that their doctrines arose out of a critical reconstruction of German classical philosophy, French socialism, and English political economy.

"Without German philosophy, particularly that of Hegel," Engels wrote, "German scientific socialism (the only scientific socialism extant) would never have come into existence." That is one reason why we hold this philosophy in such esteem and are obliged to study and to master it.

Marx and Engels had two chief immediate predecessors in philosophy: one was Hegel, the foremost representative of the idealist school in Germany; the other was Feuerbach, the head of the materialist tendency. These two thinkers provided Marx and Engels with the essential ingredients for the construction of their own world-view. Marx and Engels adopted a critical attitude toward the ideas they received from their teachers. They not only retained certain elements of their thought; they also transmuted others, while at the same time they rejected leading ideas of each. It is important to know precisely what these were in both cases.

Marx and Engels, like many of the brilliant university youth of their day in Germany, began their intellectual careers as disciples of Hegel. Hegel's thought, as we have noted, suffered from an acute contradiction: its essentially revolutionary dialectics was amalgamated with a reactionary idealism which disguised and distorted its real character and from which it clamored to be set free.

The Hegelian school, which after Hegel's death dominated advanced German thinking in the thirties and forties of a century ago, broke up into two opposing trends emanating from and corresponding to these antagonistic sides of Hegel's thought. The so-called Old Hegelians clung fast to the more reactionary aspects of his system, drawing the most conservative conclusions in various fields. The Young Hegelians of the Left, on the other hand, emphasized and developed the more radical implications of Hegel's ideas along the lines of his dialectical method. This led them, under the impulse of the developing bourgeois-democratic revolutionary movement, first to a criticism of religion, then of society and of the state, and finally on to anarchist, socialist and communist ideas.

Marx and Engels, who stood at the extreme left of the

Young Hegelians and never actually identified themselves with the so-called Left Hegelians, soon came in collision with the mistaken ideas and conclusions of all its leading figures (Bauer, Hess, Stirner, etc.) and evolved a new standpoint of their own. The steps in their emancipation from Hegelian and all other forms of idealism on the one hand, as well as from one-sided materialism on the other, are clearly delineated in their writings of the eighteen-forties. They wrote a remarkable series of critical works, among them *The Holy Family* and *The German Ideology*, in which they settled accounts with their philosophical predecessors and rivals. In these writings we can trace with unusual clarity and definiteness the successive stages in the evolution of the logic of Marxism. This record is far clearer and more concrete than the genesis of any other school of thought. Just as socialism is being brought into existence far more consciously than any previous social system, so the theory of socialism has been created far more consciously than any earlier philosophy.

2. *The Role of Feuerbach*

The philosophical progress of Marx and Engels was made possible and accelerated by Feuerbach's materialist criticism of Hegel. Feuerbach is the bridge over which Marx and Engels crossed in their evolution from Hegelian idealism to dialectical materialism. Feuerbach is the catalytic agent which engendered and then speeded the precipitation of dialectical materialism from the contact of Marx and Engels with Hegelianism.

From Hegel, Marx and Engels derived their logical method. From Feuerbach they received a materialist criticism of Hegel and a reaffirmation of the fundamental position of materialism which had fallen into degradation and disfavor in Germany, as elsewhere in Europe. Hegel had brought the idealist speculations of the German school, beginning with Kant and continuing through Fichte and Schelling, to their ultimate expression. His orthodox epi-

gones had pushed them to the point of absurdity and sterility.

Feuerbach exposed the unreality and errors of Hegel's speculative excesses from a materialist point of view. He replaced the fetishistic speculations of the Hegelians with the sober truth of materialism. Thanks to Feuerbach, whose writings aroused their enthusiasm, Marx and Engels were helped to liberate their minds from the idealism with which Hegel's thought was supersaturated.

But Marx and Engels could no more rest at Feuerbach's standpoint than they could at Hegel's. Feuerbach's thought, they pointed out, had two serious errors. It was non-dialectical and it was incompletely materialist. Feuerbach mistakenly rejected Hegel's dialectical logic along with Hegel's idealist aberrations. Just as the great idealists, in their over-anxiety to do justice to the processes and products of thought, suppressed the truth of materialism, so this materialist thinker slighted the achievements of the great idealists in the science of logic.

Contemporary anti-dialecticians repeat Feuerbach's mistake with regard to Hegel—but with far less excuse and incomparably less progressive effect. Their rejection or indifference to dialectics leads backward to obsolete pre-Hegelian ideas and methods; Feuerbach's led forward to Marxism.

Secondly, Feuerbach was a materialist in his general outlook—but not in the specific application of materialism to history and society. In this field he had not purged his thought of all vestiges of idealism. "As far as Feuerbach is a materialist, he does not deal with history, and as far as he considers history he is not a materialist," remark Marx and Engels in their *German Ideology*, p. 38. He believed, for example, that love was the cement and the motive force of human society.

Marx and Engels detected these deficiencies in Feuerbach's materialism and overcame them. They became historical materialists of the most profound and consistent kind precisely because they retained and applied the dialectical method Feuerbach had tossed aside. For dia-

lectics is the logic of evolution and revolution, that is, of slow and gradual molecular processes, which at a certain stage produce a leap into a new molar quality. Feuerbach's materialism was more akin to the mechanical and metaphysical materialism of the seventeenth-century English and the eighteenth-century French materialists than to dialectical materialism.

3. The Defects of Hegel's Thought

Hegel himself did not—and could not—draw all the necessary conclusions from his revolutionary method of thought. Serious limitations in his understanding and in the application of the dialectical logic he had systematized marred his work and prevented him from developing to the full its real and rich content. Hegel broke the ground and sowed the seeds for the renovation of logic and gathered the first harvest: the first and thus far the only systematic exposition of the laws of the dialectic. Marx and Engels continued the cultivation and harvested the second and richer crop—the structure of dialectical materialism.

Hegel erred in the first place by constructing a completed and closed system of philosophy in which the entire flux of reality was once and for all to be channeled and beyond which it could not pass. This vain attempt to construct a totally definitive system, inherited from the metaphysicians of the past, contradicted the key conception of Hegel's dialectics that everything is limited, perishable and bound to pass into its opposite. Hegel's thought was smitten by this inherent and incurable opposition between its claim to be a system of absolute truth and its dialectical method, which asserted that all truths were relative. Thus it was, said Engels, that "the revolutionary side becomes smothered beneath the overgrowth of the conservative side." (*Feuerbach*, p. 13.)

Moreover, Hegel's system was an idealist one. It tended to disguise and distort the essentially revolutionary character of the dialectic embedded within it. Indeed, Hegel drove idealism to its most consistent and extreme expres-

sion. He believed that ideas constituted the essence of all reality and that it was the development of ideas that urged the rest of reality forward. He reduced all processes in nature to the single process of the Absolute Idea. The historical process of evolution in nature, society and the mind was at bottom a reflection and replica of the evolution of men's ideas. "Spirit . . . is the cause of the world," remarks Hegel in the Introduction to his *Encyclopedia*, p. 21.

External reality was no more than an imperfect copy of the unfolding of thought as it progressed toward perfection in the Absolute Idea, which is Hegel's pseudonym for God. Hegel's idea of history was the history of the realization of this Absolute Idea. As Trotsky phrased it: "Hegel operated with ideological shadows as the ultimate reality. Marx demonstrated that the movement of these ideological shadows reflected nothing but the movement of material bodies." (*In Defense of Marxism*, p. 51.)

In Hegel's idealist version of the historical process, there was in the last analysis no genuine development from the old to the new, but rather a circular movement from the original pre-existing abstract idea through nature and society to its ultimate fulfillment in the "concrete" Absolute Idea. Owing to the retarded state of scientific knowledge in his day, nature itself for Hegel experienced no fundamental historical development but remained more or less the same. The evolution of society, too, stopped short for Hegel with its capitalist mode. He had an exclusively bourgeois horizon. In politics, in his old age, he could not visualize a more perfect state than a constitutional monarchy. (His model here was the firstborn of capitalism—Britain.) Finally, he held that human thought had attained the apex of its development in his own system of Absolute Idealism.

But all these errors in Hegel's thought, which betrayed him into wrong and conservative conclusions in a number of practical and theoretical directions, do not detract from the worth of his logical discoveries or the riches contained in his writings. Just as shadows reflect the figure and move-

ment of real bodies, so Hegel's absolute idealist philosophy reflected the many-sided concrete content of history and the development of scientific thought.

4. The Marxist Criticism of Hegelianism

Marx and Engels never failed to acknowledge the historical significance and enduring achievements of the philosophic titans, and their indebtedness to Hegel and Feuerbach, from whom they took their departure. The Hegelian system, wrote Engels, covers "an incomparably greater domain than any earlier system" and develops "a wealth of thought which is astounding even today . . . And as he [Hegel] was not only a creative genius but also a man of encyclopedic erudition, he played an epoch-making role in every sphere." (*Feuerbach*, p. 14.)

Feuerbach's rupture with Hegel's idealism and his return to materialism they recognized as the decisive intellectual influence in liberating themselves from the spell of idealist philosophy. But neither Feuerbach nor any other of their contemporaries had made a thorough criticism of Hegel's ideas. Feuerbach had simply set aside Hegel's idealist standpoint in favor of materialism without recognizing the decisive importance of the dialectical method. The progress of philosophy required, however, not only a materialist but also a dialectical criticism of and development beyond Hegelian philosophy. This genuinely dialectical-and-materialist criticism of Hegelianism was given by Marx and Engels in their philosophical works. And by them alone.

Together with Feuerbach, Marx and Engels totally repudiated Hegel's idealism. They opposed an uncompromising materialism to Hegel's equally thoroughgoing idealism. "That means it was resolved to comprehend the real world—nature and history—just as it presents itself to everyone who approaches it free from preconceived idealist fancies. It was decided relentlessly to sacrifice every idealist fancy which could not be brought into harmony with the facts conceived in their own and not in a fantas-

tic connection. And materialism means nothing more than this. But here the materialistic world outlook was taken really seriously for the first time and carried through consistently—at least in its basic features—in all domains of knowledge concerned." (*Feuerbach*, p. 43.)

This also meant that dialectics, which, according to Hegel, was essentially "the self-development of the concept," had to be detached from its false idealist form and placed upon correct materialist foundations. Hegel had reversed the real relations between ideas and things. He maintained that real things were but imperfect realizations of the Absolute Idea and its manifestations. Marx and Engels pointed out that the true state of affairs was the exact opposite. "We comprehended the concepts in our heads once more materialistically—as images of real things instead of regarding the real things as images of this or that stage of development of the Absolute Idea." (*Feuerbach*, p. 44.)

Thanks to this materialist reversal, dialectics itself became transformed into its opposite. "Thus dialectics reduced itself to the science of the general laws of motion—both of the external world and of human thought—two sets of laws which are identical in substance, but differ in their expression insofar as the human mind can apply them consciously, while in nature and also up to now for the most part in human history, these laws assert themselves unconsciously in the form of external necessity in the midst of an endless series of apparent accidents. Thereby the dialectic of the concept itself became merely the conscious reflex of the dialectical motion of the real world and the dialectic of Hegel was placed upon its head; or rather, turned off its head, on which it was standing before, and placed upon its feet again." (*Feuerbach*, p. 44.)

We can see from these facts and quotations how utterly false and foolish are the accusations made by Eastman, Hook, Edmund Wilson, and others that Marx and Engels were concealed imitators of Hegelian idealism. In reality Marx and Engels were infinitely more rigorous, well-informed, and consistent adversaries of Hegelian idealism

than these opponents of scientific socialism and its method. And they were also far more uncompromising materialists, who would have scornfully laughed at Eastman's "common sense" and Wilson's moralizing politics as fit for the nursery but not for the arena of adult controversy. Read the philosophical works of the young Marx and Engels, while they were engaged in working out their world-view, together with the ripe observations of their later years, and you will find a criticism of idealism and an exposition of materialism which have never been surpassed.

But Marx and Engels combed the productions of their predecessors like dialectical materialists, picking out and preserving whatever was of value. Unlike the shallow snobs who see nothing but useless nonsense in Hegel, they saw that Hegel's thought contained seeds capable of further development; that intermingled with the inevitable superstitions, prejudices and errors was a true, enduring, revolutionary element worthy of preservation and capable of further development. This was Hegel's dialectics.

Despite the fundamental opposition between the materialist standpoint of Marxism and the idealism of Hegel, these two schools of thought have one extremely important element in common: their logical method. The dialectical method and its laws were the principal features of Hegel's thought which Marx retained and developed. This logical bond unites them, despite all their other and decisive differences.

This affinity and this antagonism to Hegel's work has been set forth in the most authoritative manner by Marx himself in the preface to the second edition of *Capital*. "My own dialectical method is not only fundamentally different from the Hegelian dialectical method, but is its direct opposite. For Hegel, the thought process (which he actually transforms into an independent subject, giving to it the name of "idea") is the creator of the real; and for him the real is only the outward manifestation of the idea. In my view, on the other hand, the ideal is nothing other than the material when it has been transposed and translated inside the human head . . .

"Although in Hegel's hands dialectic underwent a mystification, this does not obviate the fact that he was the first to expound the general forms of its movement in a comprehensive and fully conscious way. In Hegel's writings, dialectic stands on its head. You must turn it right way up again if you want to discover the rational kernel that is hidden away within its mystical shell."

Notice that Marx and Engels unambiguously assert that dialectics arises out of and applies to the processes of nature. Marx and I, says Engels, "were pretty well the only people to rescue conscious dialectics from German philosophy and apply it in the materialist conception of nature and history." Those revisionists who claim that dialectics does not apply to nature but only to society or to the mind contradict the plain words of Marx and Engels. They are either ignorant or willful deceivers.

It takes dialectics to understand the historical evolution of dialectical materialism. As we indicated, Hegelianism and Marxism possess certain common features, but these are less decisive than their fundamental opposition. The Soviet government under Stalin had many political characteristics in common with fascist totalitarianism. This led many superficial thinkers to identify the two. But they are basically different and antagonistic, as the Soviet-Nazi war demonstrated in reality. In the same way petty-bourgeois revisionists seek to identify Stalinism with Bolshevism because the former is historically interconnected with the latter and has certain superficial features in common with its revolutionary opposite.

Those critics who identify Marxism with Hegelianism not only lack dialectics; they even violate the rules of formal logic. Two things having certain characteristics in common are not necessarily the same, even according to the reasoning of formal logic. The fact that the goose is an animal doesn't mean that all animals are geese. The fact that Marxism derives historically from Hegel and that Marxism and Hegelianism use the dialectical method does not prove that they are essentially the same. It is

precisely through this kind of false reasoning that Eastman and Wilson seek to classify Marxism as a branch of Hegelianism and idealism. Astronomy came out of astrology and chemistry out of alchemy. Are these sciences, therefore, to be considered identical with their pre-scientific forerunners?

Marx's materialist dialectics issued out of Hegelianism just as astronomy came out of astrology and chemistry out of alchemy, not as a duplication of it, but as its opposite, its revolutionary negation. From one standpoint—the standpoint of pure logical development—they constitute a unity. But they are a unity of opposites. In the course of its historical development, modern logic has already assumed two different and contradictory forms: first, the idealist dialectics of Hegel, and second, the materialist dialectics of Marxism.

Confronted with the two opposing philosophies of Hegel and Feuerbach, Marx and Engels exposed the shortcomings of each, at the same time explaining their historical necessity. They then proceeded to combine the valid ideas of both thinkers into a new system of thought. The rejection of the limitations and errors of both their idealist teachers and their materialist precursors was followed by the merger of their opposing conceptions into a unity on a new and higher basis. Such is the real dialectical derivation of dialectical materialism itself.

To achieve their unification of the dialectic method with the materialist standpoint, Marx and Engels had to bring together these two separate movements which had hitherto existed in absolute antagonism to each other. On the one hand, they had to sunder dialectics from the idealism which had brought it into being and with which it had become exclusively identified. On the other hand, they had to dissolve the connections between materialism and the mechanical and metaphysical forms with which it too had previously been exclusively bound.

Idealist dialectics gave a more correct delineation of the forms of the thought process. Materialism had correctly insisted upon the primacy of the material content of ob-

jective reality. Dialectical materialism combined the essential truths of these two branches of thought into a new and higher system of philosophy.

Thus Marx and Engels created their method of thought by radically transforming both Feuerbach's and Hegel's thought. Hegelianism, that supreme negation of materialism, begot its own negation in dialectical materialism. Feuerbach's halfhearted materialism, which absolutely opposed itself to German idealism, also begot its negation in dialectical materialism. This movement of two opposing trends of thought into their dissolution and then their resolution into a new synthesis was genuinely dialectical. Thus the evolution of dialectical materialism provides proof of the truth of its own ideas.

It is sometimes asked: Is dialectics the highest possible form of thought? Will logic assume new forms in the future? The materialist dialectic is the highest actual form of scientific thought known or available to us. Our present task is to develop that system of thought, to disseminate its ideas, in other words, to socialize dialectics which Engels defined as "our best working tool and our sharpest weapon." (*Feuerbach*, p. 44.)

This does not mean that the science of the thought process, or the thought process itself, has reached its uttermost limits. On the contrary: We have not yet really begun to think. Further social advances will inevitably produce tremendous advances in human thought and practice and in the knowledge of human thought.

Before Marx and Engels, logic, the science of the thought process, played a subordinate role in the historical process. As these scientific socialists taught, neither thought nor the self-consciousness of thought has determined the development of society, but the blind play of natural and social forces. But now mankind has begun to understand the logical course of natural processes and to master and use them. With the socialist movement we have also begun to comprehend the logic of the historical thought processes themselves. With the growth of socialism, logic will and must become a greater and greater power in shaping the

course of social development. As natural and social forces are brought increasingly under the sway of planned and collectively organized human action, thought and the science of thought will undoubtedly expand its content, develop new forms, exhibit new properties and powers. Dialectical logic is the indispensable instrument for promoting the progress of scientific thought to this superior level. Materialist dialectics opens out limitless perspectives for the future of human thought.

Lecture VIII

The Categories of Dialectical Logic

"Hegel, in his *Logic*," wrote Trotsky, "established a series of laws: change of quantity into quality, development through contradictions, conflict of content and form, interruption of continuity [discontinuity], change of possibility into inevitability, etc., which are just as important for theoretical thought as is the simple syllogism for more elementary tasks." (*In Defense of Marxism*, p. 51.)

Every one of these logical laws is organically connected with the others. Not, as Hegel believed, because each one is a specification of the Absolute Idea, *i.e.*, a product of thinking, which he identified with the ultimate being of things, but because each one corresponds to some particular phase or aspect of the material reality of the universe. It is therefore possible to approach these laws as a whole through consideration of any of them, just as it is possible to discover much about the general conditions of the earth through study of a particular area.

In this discussion we shall approach the laws of dialectics through a consideration of the relations between essence and appearance. Like quantity and quality, form and content, and similar pairs of ideas, these categories of thought are consciously or unconsciously used all the time by all of us. They are indispensable instruments of knowledge and action. That is why it is so important to have a correct conception of these logical categories.

Let us begin by examining the category of essence. Formal and metaphysical thinkers maintain that the essence of a thing is distinguished from its appearance by the fact that the inner nature of an object is utterly different from and absolutely opposed to its outer appearance. The essence of a thing, they claim, must be something absolute, fixed and finished, while its diverse appearances are relative, fluctuating, fundamentally incomplete, mutable. They cut essence off from appearance by an impassable boundary, an insurmountable opposition. What is essential is not apparent; what is apparent is nonessential. Such is the line of their reasoning.

There is a contemporary current of philosophy, of which George Santayana is a good representative, which even transmogrifies each and every appearance into an essence of this type. They picture essences as "eternal objects" existing in a supernatural realm of their own, apart from and opposed to the ordinary world of human activities. These essences have the attributes of spirits. "Essence has no genesis," writes Santayana in *Skepticism and Animal Faith*. "Essences are absolutely immutable in their nature." In themselves they have no real historical development and therefore cannot arise, be altered or perish. It is only our fugitive attempts to obtain an intuitive grasp of these "eternal objects" that produces the illusory appearance of change in the procession of essences.

This part of Santayana's theory of knowledge (his full position is highly eclectic) is actually a re-edition of Platonism. Its underlying aim is to save by metaphysics as much as possible of the teachings of idealism from the march of modern science and materialism.

Although Santayana does not make any original contribution to philosophical thought, his viewpoint on this matter has the merit of rendering explicit in regard to essence what less consistent thinkers leave muddled and unclear. Moreover, Santayana's erroneous conception of essence is shared, not only by idealist philosophers, but also by many people who lack philosophical knowledge and dialectical training.

This problem of essence especially puzzles those whose minds have become somewhat sophisticated or adulterated by contact with philosophy as taught in the colleges. They too think of the essence of a thing as something absolutely permanent, fixed and final, as radically different from the appearances of the same thing. Incidentally, that is one reason why these two particular categories have been chosen for analysis; the problems they present have been and remain today of the highest philosophical importance.

In reality, the essence of any thing does not and cannot come into existence all at once and remain there in immutable form, like Minerva who sprang from the forehead of Jove, fully armed, and remained a goddess thereafter. Such a notion is mythological, even if it is garbed in glittering philosophical terms. The essence of a thing develops and is realized along with the process of development of the material thing itself. It is an integral and inseparable aspect of the object, sharing all the vicissitudes of its history.

Consequently, essence in general, and each particular essence, has, like everything else in this world, a material and historical character. It comes into being under specific conditions, develops into and through various forms, and eventually goes out of existence, together with the perishing of the thing itself.

Moreover, its course of development has a dialectical or contradictory character. The essence of a thing never comes into existence by itself and as itself alone. It always manifests itself along with and by means of its own opposite. This opposite is what we designate by the logical term *appearance*. It is through a series of relatively accidental appearances that essence unfolds its inner content and acquires more and more reality until it exhibits itself as fully and perfectly as it can under the given material conditions.

The essence of a thing is what is necessary for its appearance, the totality of qualities without which it could not exist.

At the start of a thing's development, its essence may

be almost wholly submerged in that particular appearance, and superficial people will tend to identify the two as an indivisible whole. In natural science, electricity was identified with the property of magnetism, in connection with which it was first detected and studied. In the political development of the working class, the leadership of the international socialist movement was identified with the First, Second or Third Internationals.

But with its subsequent development, the thing sloughs off its original form and assumes new, different, and even contradictory appearances. Here the necessity for distinguishing between essence and appearance, the relatively permanent core and changing surface of things, becomes a theoretical and practical problem. Here also is the source of the error of metaphysicians. They see the need for distinguishing essence from appearance and separating them from each other. But they are blind to the equally urgent need to see their unity, their interconnections, and their conversion—under certain conditions—into one another.

Hegel expressed this in an unforgettable formulation: "In essence everything is relative." Whereas, in appearance, regarded in abstraction from essence, everything is immediate or absolute.

Let us take, as an example, the human being. The human being first appeared, not in its fully developed essence, but as an animal hardly distinguishable from its immediate ancestor—a man-ape. In the further course of biological and social evolution, the man-ape turned into an ape-man. Since then the human species has more and more discarded its apelike characteristics and acquired its own distinctive ones. We are in many respects different from the Neanderthal cave-dwellers.

Where, then, is the essence of humanity to be found? It is present and operative in differing degrees in all the past stages of human growth as well as in its prevailing form. And yet its essence is still in the midst of realization. In fact, we are only at the beginning of that process. We display in class society only a small and stunted fragment of man's essence. This can burgeon only under the more

favorable conditions of the future communist society. Possibly even mankind, as the highest prevailing form of earthly life, will evolve into something still higher.

Essence and appearance are identified with as well as opposed to each other at every stage in the development of a given material movement. But their respective relations can become reversed in the course of development. In the initial phase of a thing, the appearance usually tends to subordinate the essence to itself. Along the way, the two diverge to the point of opposition; and then, at the height of a thing's development, its essential nature most transparently shines forth in triumph over its various appearances. Essence and appearance commingle at the peak as they did at the beginning. But in the latter stage essence dominates appearance.

Marxism, for instance, was relatively realized in each of the first three internationals, realized with ascending grades of perfection. It is being more thoroughly realized through the Fourth International, which is being created at a higher stage of working-class struggle and bases itself upon the enduring achievements and a critical appraisal of its predecessors. Will the Fourth International be the final and essential form of the international socialist party? We shall strive to make it so.

But the consummate embodiment of an essence is by no means the end of the matter. It is in fact but the middle of the process. For no sooner does the essence of a thing manifest itself most directly and coincide as fully as possible with its appearance, than the thing itself, having realized its possibilities, having unfolded its inner content to the utmost, begins to move toward and to pass over into something else. In other words, the essential starts upon a descending path to be transformed again into the less essential and eventually into the nonessential. Such is the dialectic of any essence.

* * *

In the light of these considerations, let us consider the concrete example of the evolution of money, a thing which is so essential, as we well know, to the operations of the

capitalist system. Money is not an accident but a necessity under capitalism. We are every day reminded that without it we cannot live.

There was a time when money did not exist. In primitive societies, where all production is for the use of the community and none of the products of labor enters into exchange, money is unnecessary and unknown. It came into existence only with the regular exchange of a diverse multitude of commodities and the extensive development of trade relations, when the need arose for a general equivalent through which all other commodities could express their exchange value.

Money originated, not in a form appropriate to its essence, but in a disguised form imposed by the conditions of its birth. Money made its first appearance as one commodity among others, as a money-commodity, just as man first emerged as an ape-man. That commodity which was singled out and elevated to serve as a medium of circulation and a measure of value for other commodities has assumed many different concrete guises in the historical development of commodity producing and exchanging societies, of which capitalism is the supreme expression. Cattle, iron, slaves, furs, wheat, rice and many other material substances have acted as money-commodities.

The commodity passed through three stages to achieve the essence of money and to make its form coincide best with its content. So long as exchange relations were restricted and the market was small, all sorts of commodities could play the role of general equivalent.

The qualitative jump from the commodity to the genuine money form of value occurred when the precious metals took over the money functions. Money-commodities such as cattle maintained their natural uses while serving as general equivalent; their functions in the process of circulation were subsidiary to these other uses. The cattle which were a measure of value could be slaughtered, their meat eaten, and hides dressed for various purposes.

The precious metals had a different status. Once they were stamped as coins by some public authority, their

sole use was to serve as general equivalent for the mass of commodities. At this point the general equivalent became a universal equivalent and the essence of money in the shape of coins and ingots asserted itself in its own right.

The development did not stop there. Ultimately gold became the supreme embodiment of the universal equivalent.

It may be asked: Which of these diverse appearances of money is really and truly money in itself? In logical terms, where is the essence of money to be found among all these diverse manifestations of the money-relation? The first answer is that in a certain measure and under certain circumstances of economic development, all of these various material appearances have been and can be money. They have each proved in practice, which is the ultimate test of truth, that they can perform the basic functions of the money-commodity.

This then means that each of these historical incarnations of money contains to some extent its qualitative essence. Money in general is relative to each of its various concrete manifestations. Cattle, shells, furs, precious metals, and so on, must have partaken of the essence of money or else they could not have appeared or functioned as media of circulation. Else they would either be simply the material objects or the particular kind of commodity they happen to be. They could not have served as money without really being in essence the kind of economic relation which money is.

But that is only one side of the matter. It is obvious that, if each and every one of these forms of money contained some part of the essence of that economic relation, no one of them contained the entire essence of money. Each, taken by itself, embodied no more than a share in the essence of money, just as each stockholder holds only a given portion of a corporation's stock. Each individual money-commodity is essentially, of necessity, no better than a defective, superficial, episodic representative of the

economic relations and functions exhibited in and through the money form.

On the other hand, since each in its own way and according to its capacity incorporated and carried on some of the essence of money, we must recognize that all the constituent members of this series of money forms have contributed to the realization, the clarification and perfection of the essential money form. They constitute transitional forms in which the essence of money makes its appearance, the accidents which go to make up its necessity.

So we see that essence, instead of being something fixed and simple in nature, is composed of various grades, which constitute a hierarchy of essence. We can proceed, and things in their evolution progress, from the less essential to the more essential. In other terms, the quality of a given essence can become quantitatively greater or smaller. It can grow in extent and in content; it can, step by step, become defined or determine itself into different grades or forms of its being.

The essence of a thing always manifests itself inextricably intermingled with its opposite, which is one or another of its appearances. In general, the more essence, the less appearance; the more appearance, the less essence at hand. These two united determinations of reality and thought appear together—but in inverse ratio to each other.

Money in the shape of cattle, for example, had only begun to differentiate itself from and oppose itself to the mass of other commodities. It is little more than one commodity standing slightly above other commodities. The essence of money makes only a feeble appearance in this embryonic form of money in uncivilized societies. It is not until money assumes the form of coin, and finds a material embodiment in the precious metals, that its essence begins to predominate over its appearance and the general equivalent graduates to a universal equivalent.

How clearly and thoroughly can essence show itself, detach itself from mere appearance? The purity and per-

fection of the realization of any given essence depends upon the material circumstances governing the development of the thing in question. In the case of money, its essence has succeeded in disclosing itself with great clarity and definition, thanks to the evolution of commodity-producing societies into capitalism.

As a result of the development of commodity production and exchange, one particular kind of money has shown itself to be the most essential or necessary embodiment of money. That is gold. This is one of Marx's important discoveries, sneered at as "Hegelianism." Gold has established its superiority over all earlier forms of money in practice, as the outcome of the most severe competition covering hundreds of centuries of commerce and industry.

No person and no political power arbitrarily selected gold as best suited to embody and exercise the functions of money. That status was fundamentally determined by an extensive series of economic processes and causes, whose result political authorities had to ratify in their legal codes and everyone else had to recognize in everyday economic relations. Gold has deposed all rival monies because it has proved itself to be a more powerful, more real, more essential physical form of the money relation.

The example of gold demonstrates that, for all its absoluteness, essence remains relative to the less essential, or nonessential, forms of money. Gold, the most essential money form, arose historically out of less essential forms and maintains today definable relations to them as well as to the whole world of commodities. Silver exchanges, for example, in specific amounts with gold.

What is or appears essential at one stage in the development of a relation—and every single thing is either a relation or a constellation of relations—becomes nonessential or less essential at another stage of development. Earlier in economic evolution it looked as though silver might be the money commodity par excellence and that gold would have to take second place. Silver was then more valuable than gold. But with subsequent changes in technological and economic conditions this relationship be-

tween silver and gold became conclusively reversed. During the nineteenth century it was proved that not silver but gold was supreme. Silver turned out to be but a passing and subordinate representative of the money relation and receded into the background with its obsolete predecessors.

Today gold is absolute monarch, not only in respect to money forms, but also in respect to the entire world of commodities under capitalism. Every other commodity is inferior to gold and must bow down before it. Gold is Value Incarnate. Gold will hold this high and mighty position for the historical epoch of the transition from capitalism to socialism. "In the transitional economy, as also under capitalism, the sole authentic money is that based on gold," wrote Trotsky in *The Revolution Betrayed*.

But this position of absolute economic power held by the money form, which spans so many different organizations of society, is likewise relative and limited. It too will endure for no more than a passing stretch of historical evolution. In socialist society money will begin to lose its magic powers and tend to disappear. "The death blow to money fetishism will be struck only upon that stage when the steady growth of social wealth has made us bipeds forget our miserly attitude toward every excess minute of labor, and our humiliating fear about the size of our ration. Having lost its ability to bring happiness or trample men in the dust, money will turn into mere bookkeeping receipts for the convenience of statisticians and for planning purposes. In the still more distant future, probably these receipts will not be needed. But we can leave this question entirely to posterity, who will be more intelligent than we are," Trotsky observed.

Then, as Sir Thomas More predicted and Lenin hoped, men will use the gold which has been identified with so much happiness and misery in the past as trimming for bathroom fixtures.

The precious metals, and gold par excellence, were especially suited to monopolize the role of money because of their physical properties. They were malleable, ductile,

highly divisible, homogeneous, durable, readily portable and easily recognizable. Even more, because of their relative rarity, they represented a large amount of exchange value in a small volume. They incorporated a great deal of labor in highly condensed form.

Many people mistakenly believe that such conspicuous physical properties by themselves make these metals into precious objects with miraculous powers. That is the appearance, not the reality, of the matter. Money is a highly developed form of value which exists only in commodity-producing societies. Thus, in the last analysis, money is a thing which represents specific economic relations between people. These relations constitute the essence of money. And when an economy of abundance and equality will fundamentally transform the relations of men, the need for money will dwindle and disappear, while all the physical properties of gold and silver will endure.

Is essence something abstract or concrete? The example of money shows that it is both. Money always exhibits itself in some one specific form. But no one of these concrete manifestations of money contains its entire essence. The essence of money is therefore both present and not present in any of its particular forms.

Without the serial development of the various concrete forms of money, it would have been impossible to realize in social economy the essence of money in its purest form of gold bullion. It would likewise have been impossible for the economists to have conceived through their scientific investigations a correct understanding of the inner nature of money.

Thus we see that the essence of a thing is an abstraction from its diverse concrete material forms conceptually expressed in a generalization taken from its particular instances. The abstract and the concrete, the general and the particular, the essence and the appearance, are essentially interrelated and interconvertible categories. The one is never found without the other. "In essence," as Hegel says, "all things are relative."

These opposites are continually becoming transformed

into each other. This coin, for example, looks extremely concrete and so it is from the standpoint of its material composition. But from the economic standpoint it is not at the moment so concrete. As it now exists, it is only partially and potentially money. It is money in the abstract. It can be used under normal circumstances as a medium of circulation. This coin really and truly becomes money and realizes itself as such when I buy some commodity with it. In that transaction it loses its abstract, *i.e.*, ideal, money character and becomes money in the concrete. When it comes into the hands of the commodity-seller, it once again assumes its more abstract character.

This transmutation of predominant features goes on perpetually in the process of commodity circulation. It is the same with all other categories in all other domains of existence.

Let us examine the relations between the categories of quantity and quality through this example. Money has as its starting point, not money (it is its destination to become money), but something other than money, its own opposite, commodities. The "ground" of money, as Hegel calls it, is its own opposite, commodities. Without commodities, that is, labor products which are exchanged, money cannot begin to become itself, cannot realize its peculiar essence.

How does a commodity transform itself into money, which is the opposite of the commodity form? A multitude of acts of exchange of goods must take place before the need for a particular commodity to serve as a medium of circulation makes itself felt. This need is satisfied by selecting one commodity to serve as this medium. This is usually, as Marx points out, the most important commodity, such as cattle, grain, or furs.

A specific quantitative development of exchanges is therefore the prerequisite for the qualitative generation of money as a new economic property. The new quality of money appears as the necessary result of the quantitative accumulation of acts of exchange. The production of this new economic quality occurs in a revolutionary way and

has revolutionary results. It more and more splits the world of commodities into two opposed poles: into particular commodities on the one hand and the money-commodity, which is their universal equivalent, on the other. The ultimate result of this split is exhibited in the crises of capitalism where commodities cannot be exchanged for money on a world scale.

This leap from quantity into quality is no fiction but a true logical expression of what actually occurs in real processes. The germ of the money relation is latent in the existence of commodities. As soon as men begin to say in the market place, "This is worth that," and exchange the products of their labor on equivalent terms, the pre-conditions for the production of money are generated. This possibility becomes transformed into necessity with the increasing quantity of such transactions. The social need for an independent measure of value, a standard of price and a means of reckoning brings money into existence.

Given a sufficient quantity of different commodities and number of acts of exchange, it is eventually necessary to find one commodity among the many to serve as money. When men say, "This is worth that," then they soon find that they must have something of which it can be said, "All things are worth that." This commodity becomes the money commodity. When national paper currencies became valueless during the Second World War, cigarettes temporarily acquired the functions of money.

The dialectical process of development does not end with the transformation of quantity into quality. That is only one of its lawful manifestations. The process continues in the opposite direction and converts the new quality into a new quantity. Once the quality of money makes its appearance in society, it tends to spread indefinitely, to penetrate everywhere, and to transform all other economic relations. This quantification of the money quality reaches its high point under capitalism where every product of labor and, above all, labor power itself, necessarily becomes exchangeable for money.

This quantification in turn leads to the production of a new economic quality. Money transforms itself into capital, which is a higher form of money. This new quality of money, its capital form, also grows and assumes diverse forms: usurious, commercial, manufacturing, industrial and finance capital.

With the socialist revolution this capital form of money will wither away, as will many other forms and functions of money, in the course of time. As Trotsky pointed out, with the establishment of socialist relations, money will become transformed into mere bookkeeping receipts.

Thus we see that there is a ceaseless process, a never ending round, of the transformation of quantity into quality and quality into quantity, of possibility into inevitability and inevitability into possibility. Money which is inevitable under our economic system was not possible under primitive tribal collectivism which preceded commodity production and will no longer be necessary under the communism of the future.

This path of development is extremely contradictory. Money comes out of commodities and always remains a commodity, just as man came out of the animal species and always remains an animal. Yet money is more than and is other than a commodity, just as man is more than and other than his fellow mammals. Money develops its contradictory characteristics to the point that, under capitalism, money, which is the sole means of unifying and realizing the value of commodities, stands in absolute opposition to the world of commodities. Without money, no commodity can realize itself as a commodity; conversely, without commodities, money cannot realize itself as money.

This contradiction most conspicuously manifests itself in capitalist crises, when the money which originated and functions as the sole medium of circulation becomes the principal and insuperable barrier to the circulation of commodities. This is one of the inherent contradictions of capitalism which will bring about its downfall.



The evolution of money from its origins to its prospective dying away exemplifies the dialectical nature of appearance and essence, quantity and quality, possibility and inevitability, content and form, relative and absolute, accident and necessity, the abstract and the concrete. Such correlative categories make up the content of dialectical logic. They are indispensable conceptual tools for analyzing the contradictory characteristics of reality and its modes of development.

This dialectical and materialist view of appearance and reality clashes with the conceptions of other philosophical schools such as the agnostics and the empiricists. The agnostic theory of knowledge, as put forward by Kant, makes an absolute disjunction between subjective appearances and inner substance, things "for us" and things "in themselves." It asserts that men can experience only phenomena and cannot penetrate to the essence of things. Therefore reality is unknowable through either the senses or reason, though it may be intuited by faith.

Empiricism tends to subordinate essential relations to the sensuous or subjective appearances of things and to take, or mistake, their superficial aspects and immediate manifestations for their fundamental content.

Both theories of knowledge err in divorcing phenomena from essence and disregarding or denying their necessary interconnection as opposing poles of a unified whole.

The divergence and coincidence of appearance and reality are especially important in understanding how knowledge progresses from everyday experience to scientific insight and foresight. Things as they are first manifested to us have contradictory and confusing characteristics which are both leading and misleading. Their immediate presentation can conflict with their real state. At the same time these phenomena provide clues which can expose the deceptiveness of the outward show and open the way to a grasp of their basic content, since essence presents itself in and through diverse appearances.

One familiar instance of this divergence between appearance and reality is the relation of the earth to the solar

system. The sun seems to be revolving around the earth whereas we now know that the earth, like the other planets, is orbiting around the sun. The discovery by Copernicus of the rotation of the earth on its axis and its motion around a fixed sun opened the modern epoch in astronomy.

At the same time it is understandable why the other celestial bodies seem to be moving around the observer situated on earth. In the scientific picture of the solar system, both the apparent and the real motions are interconnected and explicable.

One of the main aims of science is to resolve the conflicts between the outward forms and the inner reality of things by demonstrating their dialectical unity. Knowledge advances by probing beneath, behind and beyond appearances to ever deeper levels of real existence.

Lecture IX

From Capitalist Ignorance To Socialist Enlightenment

The elements of dialectical logic can be learned by anyone with a determination to study them. The acquisition of any science requires the expenditure of considerable labor-time and mental energy. It was long ago pointed out that there is no royal road to knowledge. Capitalists acquire profits without personal labor. But do workers who earn a living and strain to learn the operation of a new and complex machine need to be told that they must also exert effort to learn something new or to acquire knowledge of a new instrument of thought?

Since thinking deals with obscure events and complex processes studied by natural and social scientists, there are fields in which logic requires specialized knowledge and training. But we all think about matters close at hand and perfectly familiar to everyone. By the same token dialectics as a science of thought, as a logic, also deals with the most commonplace affairs.

To be sure, dialectical logic approaches these affairs in a somewhat unusual way. We propose to show how dialectics arises out of the everyday life and struggles of the workers; how it reflects the workings of their minds in the various aspects and successive phases of their class experience; and finally, how any thinking worker can verify the origin of these logical ideas and the operations of the

laws of dialectics by reflecting upon and analyzing his own intellectual and political development from a "working stiff," or even "scissor-bill," to a revolutionary-minded worker.

In order to become a Marxist every worker has to revolutionize his political mentality. This change in his thinking does not and cannot take place all at once. It comes as the climax of a protracted process of development that includes manifold experiences in the class struggle and passing through various stages of political understanding. The worker begins, as a rule, with complete ignorance of the real nature of capitalist society and of his position and prospects within it. He has gradually to extend and deepen his insight into the capitalist system until he clearly comprehends the mainsprings of its operations and the necessity for the proletarian struggle against it.

We propose to analyze this process of political development, this passage from a lack of class consciousness to a scientific understanding of capitalism and a revolutionary attitude toward it, in order to disclose its logical, that is, its essentially dialectical characteristics.

For purposes of illustration, let us trace the career of a worker named John. John enters a Detroit auto plant at 18 with the ideas of an average middle-class American, implanted in his mind by his family, school or church and carefully cultivated by the press, radio, television, pulpit, movies, etc. Chief among them is the axiom that there is and should be perfect harmony between his employer and himself, between the working and capitalist classes. If he works hard and honestly enough, John is told, he in turn may some day become a multimillionaire like Ford or Chrysler, or at least a highly paid director of production, like Knudsen.

John as a wage-worker and the corporation that buys his labor-power are bound together by the social tie of exploitation. Nevertheless this economic relationship and all the other relations of class rule based upon it seem to John natural, inevitable, even beneficial. The worker who

so unquestioningly and wholeheartedly accepts this bourgeois view of society and conducts himself accordingly has as yet no glimmer of class consciousness. He is objectively a proletarian by virtue of his economic status. But subjectively, *i.e.*, in his mind, he is completely dominated by capitalist ideas. John is nothing but raw material for capitalist exploitation.

John does not yet realize what a contradiction there is between his class position as a proletarian and his complete enslavement to capitalist ideas. This contradiction flows from the opposition between his interests as a wage-worker and his employer's interests as a capitalist. Nor, so long as he remains satisfied with things as they are, does he suspect how deep and irreconcilable is the latent antagonism arising out of their contradictory class relations. This underlying reality can be brought out into the open, rendered explicit, only as a result of their subsequent dealings with each other. These objective contradictions remain hidden from John's sight. What is in reality divided and opposed appears to John unified and identical; what is in constant movement, change and conflict seems to him fixed, harmonious and unalterable; the appearance of their relationship at this most primitive stage of its evolution seems to correspond to its actual substance.

Such is the egg out of which the revolutionist is, and is to be, hatched. To use Hegel's terms, in this state of undeveloped being the worker exists in himself but not yet for himself. He does not have a self-dependent existence but lives and works for the sake of another, his exploiter. He is utterly ignorant of the true conditions of his existence, the victim of illusions and lies disseminated by the capitalists and their agents. The practical consequence of this lack of class consciousness is absolute subservience to the boss. The worker is a wage-slave pure and simple at the mercy of the capitalist monarch. Such was the state, and the state of mind, of many Ford workers before the CIO victory. The worker submits, knowing no better, to the employer in the factory and to capitalist influences elsewhere. He votes for capitalist candidates

and parties at elections and thinks uncritically and acts automatically along capitalist lines.

But this primitive condition of class "harmony" cannot be indefinitely sustained. The underlying socio-economic antagonisms are stronger than the goodwill of individuals on either side of the class line which really separates the worker from his boss. Their original unity based on a seeming identity of interests must sooner or later be disrupted by the normal course of capitalist production. That event occurs when John and his boss clash over an important issue involving the material interests of both sides: an attempted wage-cut by the corporation, resistance to speed-up by John and his shopmates, etc. In the ensuing controversy the formerly benevolent employer, either directly or through his underlings, shows himself to be hostile, brutal, selfish, denying the just claims and flouting the grievances of the workers.

This friction generates not only indignation in John but some illumination in his mind about the real state of affairs. The shock of conflict dispels his blindness and makes him realize for the first time that there is an opposition of interests leading to sharp conflict between himself and his employer. He discovers for himself part of the contradiction within their mutual relations. John finds that his employer is not what he thought him to be, a friend, but something quite different, an enemy.

John himself then begins to change into a different person. He is ready to take his first step toward class consciousness. His ignorance begins to be transformed into knowledge. As a thoughtful man, he generalizes from his experience. This can be done only in a logical way. The line of his logic follows and is determined by the facts of his vital struggle. He forms a judgment upon the basis of what has just happened. He concludes: this boss of mine is an oppressive exploiter of myself and my fellow workers.

In logic this kind of conclusion is called a singular judgment. A singular judgment is one that applies only to a single thing. This is the simplest form of judgment. Some singular thing is identified with a general group,

some general property ascribed to a thing. In this instance the employer is identified with the class of exploiters. We make similar judgments when we note, "This grass is green," or "The Democratic Party is a capitalist party."

The singular judgment John has made is only an isolated one. Yet it suffices to initiate the process of conscious differentiation between himself and his boss and to give an impulse to his self-determination as a worker. This judgment provides John and his fellow workers with the theoretical basis for practical action. It serves as a logical guide to their unified class action. The negation of their original relation of submission to the boss becomes quickly transformed into a positive policy for independent class action in opposition to him.

The workers in the shop immediately feel the need for an organization of their own to protect and promote their common interests. They apply for a CIO charter and present the boss with demands for higher wages and better working conditions. Their demands are denied; their union representatives given the runaround. The most militant stewards are fired. The split deepens. The judgment is confirmed and tends to become a conviction. John, elected an officer of his local, attends a conference of delegates from all the organized shops in Detroit to consider strike action. John discovers that workers throughout the industry have the same grievances as himself.

At this point John is ready to draw a further conclusion: All heads of the auto corporations exploit their workers. This is an extension, a development of his previous judgment, arising out of the extension, development and confirmation of his experiences in the class struggle and his understanding of them. In logical science such a judgment is called a special or particular judgment. A particular judgment is one that applies to a group of things or individuals bearing the same general characteristic. This group may embrace a few, a large number, or all of a given kind.

But a particular judgment does not necessarily apply to all members of a given class. It may be an accidental

and passing rather than an essential and permanent feature. Some may possess it and not others, or all may possess it at some stage because of specific causes and later divest themselves of it. In this case exploitation may not be an essential and defining, a necessary and universal characteristic of the capitalist class. Under other circumstances, thinks John, and at another time when things become better for the capitalists, they may act differently toward their employees.

The highest form of special or particular judgment is a general judgment which does apply to all members of a given class. John is ready to arrive at this stage of understanding the nature of the capitalist class when his union votes to strike. During the strike he sees all the auto magnates and their hirelings line up against the workers, combine to break their strike, and try to force the men back to work with their demands unsatisfied.

From these events John decides that the auto bosses as a class are in league against the workers. He makes the general judgment: All auto bosses are exploiters. But this judgment, although unconditional and universal in form, remains restricted in content. It rests upon too narrow and empirical a basis. John as yet knows no compelling, incontrovertible reason why all bosses, as well as the auto barons, must be exploiters. Nor, on the other hand, does he know why they cannot sometimes act otherwise than as exploiters. For this kind of categorical and necessary judgment, John needs a broader and deeper view of social relations. This can come only from a wider range of experiences and a more penetrating and comprehensive body of generalizations drawn from experience.

The trade unions are the elementary schools of the working masses. Here workers like John learn their first lessons about the nature of capitalism, begin to clarify their class consciousness, take the first steps toward class organization. Here for the first time John and his fellow workers feel their opposition to the capitalists and act upon it. But they do not yet realize that this is a polar opposition

arising out of an irreconcilable contradiction in their class interests. The various compromises and agreements of the unions with the employers serve to mask the depth and extent of that contradiction, to mitigate its severity and sharpness, and prevent it from developing to the full.

All contradictions take time to assert and to reveal themselves fully. They must pass through various stages before they unfold the full content of their determinations and the breaking point between their conflicting tendencies is reached. Singular and particular judgments arise out of the initial phases; general judgments in form reflect and reveal the subsequent intermediate and transitional stages in the process of the development and intensification of the unity of opposites which constitutes the original contradictory state of being. But none of these are yet full-fledged judgments which disclose the essential and necessary character of the phenomenon in question. They are partial truths, based upon partial evidence. They are not yet the whole or the fundamental truth. The full truth, or innermost reality of any phenomenon, cannot be known until its essential contradictions are completely exposed, comprehended in their broadest scope, and developed to the breaking point.

To the average trade unionist or union-minded worker the class conflict appears to be located or concentrated in the economic arena, or confined to a single industry or country, or to this particular time or place. They oppose the bosses in industry, but not yet in political or cultural life. The worker's comprehension of the class struggle is limited to those times and places where it first and most forcibly manifests itself and impresses its truths upon the workers' minds. This is natural.

In all sciences it is known that the place of manifestation is not necessarily or even usually the place of causation. These episodic manifestations of the class struggle have to be traced back to their roots and the intermediate levels between the various consequences and their basic causes uncovered before the worker becomes a conscious socialist revolutionist.

At this stage of his class consciousness the worker still mistakenly believes that while his interests are opposed and even irreconcilable on the elementary economic plane, they can be reconciled on some higher level of society in the political, fraternal or religious realms. He sees the need for his class economic organizations but not for an independent labor party. This is the state of mind which the bulk of industrial workers have attained today in the United States. They know and they feel that they cannot get along without their trade unions. Yet they illogically believe that they can get along without a militant labor party. They place their political trust, not in their own elected representatives, but in capitalist politicians big and little.

Workers in this stage of their march toward revolutionary class consciousness seek salvation from the evils of capitalism primarily by economic means. The most persistent and powerful form of this phase in the United States was the policy of pure-and-simple trade unionism pursued by the Gompers school of the AFL. Anarcho-syndicalism, of which the IWW was the native branch in America, was essentially a more radical expression of this same anti-political position.

These two apparently irreconcilable movements were fundamentally the opposing poles in the same general anti-political tendency proper to that particular phase in the evolution of the mentality of the mass of American workers.

Although workers then engage in organized struggle in the economic arena, they fail to generalize that class struggle by extending it to other spheres of social life. Industry however does not operate in a vacuum. It is interlinked with the rest of national life as well as with world conditions. The trade unions discover that their advances along purely economic lines become more and more restricted as they run up against political, cultural and world conditions which circumscribe their economic activities and gains. Pure-and-simple trade unionism is too narrow in its basis and outlook to cope in theory or in practice with

these environing forces which hem in the trade unions on all sides and which, at bottom, determine the extent and direction of their development.

This becomes most manifest in times of economic and political crisis, such as the world crisis of 1929-1933, which exposed the bankruptcy of the traditional AFL policies and led to the rise of a new trade unionism. It is even more conspicuous during wartime when all trade union activities are dominated by governmental agencies and international conditions. It is equally evident in the helplessness of trade unionism by itself to repel the menace of fascism and less virulent types of capitalist reaction.

To preserve and advance what they conquered in the economic field, the workers are obliged to lift themselves above pure-and-simple trade unionism (which was never pure and never simple in the first place!) and climb to a higher level of class understanding, class action and class organization. Above economics stands politics, above politics stands class theory and class culture. These are the heights the mass of workers are driven by objective conditions to aim and aspire towards.

By demarcating themselves from their bosses, by establishing their trade unions, by participating in strikes, the workers have considerably changed themselves and their outlook. But they have not yet politicalized, much less revolutionized, themselves and their ideas. At this juncture of their development, there exists an underlying contradiction and continuous conflict in each worker as well as in the ranks of the working class between their trade union mentality and the objective conditions of their struggle. This manifests itself in the trade union movement by a continual conflict between the more backward and progressive sections. The bureaucrats lean upon the first while the revolutionists seek support and strive to clear the road for the second.

Every contradiction presents an opportunity, no less than an obstacle, if it is properly understood and handled. The crying objective contradiction between the organization of the workers for independent action on the industrial

arena and their political subordination to capitalist parties and policies provides the motive force for the next stage of their development. How is this great contradiction to be overcome? That is the theoretical question, posed in and by practice, which confronts the mass of American workers today.

Thanks to a series of practical experiences, John and his fellow workers become convinced that their problems cannot be solved by economic organization and action alone. They try to supplement this by political action and through political organization. In conformance with their original, *i.e.*, primitive outlook on life, they first turn toward the capitalist parties for help. They attach themselves to the Republicans who sell them out, as in 1929-1932. They conclude: This party is no good. And upon the basis of this particular judgment the majority of the workers swing over to the Democratic Party.

They have still to generalize their disillusion with and opposition to capitalist parties and politics. It requires far more experience and far more profound experiences to come to the conclusion that both capitalist parties and all boss politics are bad for us.

The preliminary expression of this new attitude takes the negative form of theoretical disillusion and political passivity. The disappointed workers think: All politics are bad; all politicians are lousy betrayers; to hell with politics.

But this negative attitude toward capitalist politics has within its shell a progressive kernel. A break with the capitalist parties is the prerequisite for a different kind of party and politics. It is a negative indication of the positive fact that the workers are driven to realize that they need and want their own class party. They are beginning to move toward a declaration of political independence.

At this stage the most militant workers return to action on the political field but upon a higher level of class consciousness. They demand, create, establish their own class labor parties, as they have done in England and Europe. Just as previously they broke their economic bondage to

the capitalists by organizing independent trade unions, they now emancipate themselves from company-union politics by launching their mass labor party.

That is the stage American workers are approaching. But the evolution, the heightening of their class consciousness does not stop at this point. On the contrary, the formation of their own class party speeds up the expansion of their class thinking and radicalizes their class action all along the line. The dialectical development which led the workers from capitalist political organizations to their opposite, labor political organizations, reasserts itself at the subsequent stage, not upon the organizational plane, but upon the far higher plane of class policy and perspectives.

In the initial phase of independent labor politics the mass labor parties may have organizational autonomy but pursue class collaborationist policies, like the American Labor Party in New York. This is inescapable under the given conditions of development. Here we find that labor politics have an independent form but no essential independence because they identify themselves with or yoke themselves to capitalist parties, just as the ALP was the tail to Roosevelt's kite.

At the next stage of struggle, a break must occur on this question, though not yet a decisive and irreconcilable break. This is the stage of the predominance of centrist politics and politicians who waver between the reformist and revolutionary roads.

In the final stage of the struggle there comes a complete break with capitalist parties and politics. The working masses have already made the judgment: Every class struggle is a political struggle. On top of that they make the further judgment: Our political struggle must be revolutionary, directed to the conquest of supreme power by the workers. At this point the workers, individually and collectively, have revolutionized their mentalities. They are ready to join the revolutionary socialist vanguard.

Their development does not, of course, end here. Thor-

oughly class-conscious workers then actively intervene in the class struggle on a national and world scale, striving to lift the international revolutionary movement to ever higher levels.

The actual development of any individual worker from capitalist darkness to socialist enlightenment, or the political evolution of the working masses, does not, of course, proceed in strict conformity to this abstract logical scheme. Living reality is full of countless combinations, zigzags and contradictions. Every case has its peculiarities, since the path of development is determined by material conditions and not by logical patterns.

But each individual instance, however peculiar its features, represents only a different and more complex combination of these basic laws and distinct stages of dialectical development.

A timetable enables us to follow the route, arrival and departure of trains, even though some are late, others arrive ahead of schedule, and some never reach their destination. Just so does such an abstract outline enable us to follow the general course of development. Adjustments must be made in unusual cases to fit specific circumstances.

Let us note some of the important aspects of this process from the standpoint of logic.

1. The process developed by way of contradictions, as a whole and in each separate phase. The entire process was a contradictory passage from complete identity of interests to absolute opposition, and from ignorance to scientific knowledge. The mentality of the workers became transformed into its opposite through the objective unfolding and the corresponding intellectual recognition of the existence of opposing and irreconcilable class interests.

2. The various forms of judgment reflected successive stages in the comprehension of the real facts formulated in the logical categories and represented a widening and deepening of real social relations together with the knowledge of them. They were both objective and subjective in nature.

3. These forms of judgment, which reflected the succes-

sive stages of social and mental development, issued out of one another in a reasonable manner according to the extent and depth of the experience involved. From an isolated case, to a group of cases, then on to the whole class, then from the whole class inward to a grasp of the social basis and material interests of that class. Such was the process taken on the plane of social development.

This objective social process had its logical expressions in the singular, the particular, and the universal, and ultimately the crowning judgment of the necessary and universal law. The serial phases of social development of the class and its consciousness has its corresponding reflections in the process of logical thought. These two processes are essentially interlinked with each other.

4. These judgments provide the basis for practical activity. "Theory is a guide to action." There can be no revolutionary practice without revolutionary theory.

5. Dialectics is the highest type of scientific knowledge of real processes. On the practical side it is the consummation and condensation of the rich and ripe experience of the working-class movement, embracing the widest range of forms and phases of the concrete struggles and experiments. On its theoretical side it is the highest product of scientific brainwork and investigation. Such knowledge comes as the reward of struggle and of labor.

The process of social and mental evolution which has here been ascribed to an individual worker likewise occurs among the entire class of workers, especially in its most advanced sections. Through their struggles the working masses become progressively aware, as they pass through rising levels of apprehension, of their real relations to the capitalist exploiters. At any given moment in this process, different parts of the same class stand upon different heights of consciousness. While the most backward can remain stuck at the stage of class collaboration, the most advanced can have marched forward under the spur of necessity and reached, and even surpassed, the point of irrepressible revolutionary conflict. The Rus-

sian as against the American workers in 1922, for example; the Cuban versus the American people in 1962.

When a sufficient number of workers emerge from the primitive state of absolute subservience and begin to differentiate themselves in theory and in practice and to oppose themselves to the capitalists, a change begins to take place in the social and political consciousness of that class. But for the class as a whole there has not yet occurred a qualitative leap in their political mentality. There is progress toward that end—but not yet enough change to produce a revolutionary transformation into its opposite.

Such a revolutionary change in class consciousness takes place only when the dominant section of the workers, aided and led by the Socialist Workers Party, becomes convinced of the utter incompatibility of their vital interests with the capitalist regime and proceeds to act upon that theoretical conviction. At a certain point in the development of the class struggle and in the class education of the workers, this critical point is inevitably attained. Then a qualitative change in the class consciousness of the workers, a revolutionary leap, takes place. From having been more or less capitalist-minded, the advanced workers become really proletarian-minded; from having been more or less reactionary, they become revolutionary in thought and deed. This is the necessary law of the class struggle manifesting itself inexorably during this death agony of capitalism.

At a specific stage in the course of this process a dialectical reversal takes place. What had been an effect of the class struggle, the growing class consciousness of the workers' vanguard, expressed in the growth of the revolutionary party and its influence, becomes in turn a cause of the acceleration and maturing of the class struggle. The objective logic of events is made explicit and realized through the conscious understanding and political intervention of the socialist-minded workers. Their subjective grasp of the logic of events, produced by their experiences in the class struggle and by their Marxist education, be-

comes an effective and indispensable link in the chain of causes leading to the socialist revolution.

The class struggle between capital and labor thus proceeds together with the workers' comprehension of its meaning through an interlocked series of events. Starting in the most advanced countries, it spreads throughout the world. Beginning in a single plant or industry, it seizes all the economic life of the country. Starting on the lowest level of theory and organization, it rises through successive stages, twistings and turnings, spurts and setbacks, first in episodic form, on to limited generalizations and then in a fully generalized form, until it reaches the peak of revolution. And then the process continues to develop dialectically—but upon a new and superior material social basis.

That is what is meant by the logic of history. This is an outline of the dialectics of the class struggle in our time, which moves from one stage to the next until it results in the revolutionary overthrow of the old world and the creation of a new social system. The materialist dialectic we have been studying derives its importance from the essential part it plays in this world-historical process. The abolition of capitalism through the triumph of socialism will be the final vindication of the truth, the power and the glory of materialist dialectics, the logic of Marxism. The task of revolutionary socialists is to realize this in life.

Index

- Abern, Martin, 90
Advancement of Learning, The (Francis Bacon), 74
Anti-Dühring (Frederick Engels), 41, 44, 73, 74
Archimedes, 18
Aristotle, 18, 19, 21ff., 29, 66, 69, 74, 92, 97
- Bacon, Francis, 62, 66, 67, 74
Bauer, Bruno, 100
Brown, John, 56, 59
Bruno, Giordano, 56
Burnham, James, 6, 51, 57, 59, 83
- Caird, Edward, 63
Cannon, James P., 76
Capital (Karl Marx), 106
Cohen, Morris, 72
Collected Works (V.I. Lenin), 47
Copernicus, 29, 30, 55, 126
- Dalton, John, 55
Darwin, Charles, 24, 56, 74
Descartes, René, 62, 66, 67
Dewey, John, 57
Dialectics of Nature (Frederick Engels), 45, 48, 66
Dialogue Concerning the Two
- Chief World Systems* (Galileo), 74
Discourse on Method (René Descartes), 67
Dunne, Vincent R., 75
- Eastman, Max, 27, 57, 105, 106, 108
Einstein, Albert, 56
Encyclopedia of the Philosophical Sciences (Georg W. F. Hegel), 85, 86, 93ff., 103
Engels, Frederick, 18, 19, 41, 44, 48, 66, 68, 73, 74, 76, 77, 79, 81, 87, 96ff., 104ff.
Essay concerning Human Understanding, An (John Locke), 67
Euclid, 18
- Faraday, Michael, 58
Feuerbach, Ludwig A., 96, 99ff., 104, 108, 109
Fichte, Johann Gottlieb, 67, 100
Fourier, Francois Marie Charles, 98
Fourth International, 75
Freud, Sigmund, 56, 81
- Galen, 18
Galileo, 29, 56, 74

- General Natural History and Theory of the Heavens* (Immanuel Kant), 66
- German Ideology, The* (Karl Marx and Frederick Engels), 100, 101
- Goethe, Johann Wolfgang von, 65, 71
- Gompers, Samuel, 134
- Harvey, William, 55
- Hegel, Georg W.F., 16, 18ff., 45, 54-68, 69, 71, 74, 77, 83ff., 91ff., 95, 97ff., 111, 114, 121, 122, 129
- Hegel* (Edward Caird), 63
- Hess, Moses, 100
- Hitler, Adolf, 7, 81
- Hobbes, Thomas, 58, 67
- Holy Family, The* (Karl Marx and Frederick Engels), 100
- Hook, Sidney, 51, 105
- In Defense of Marxism* (Leon Trotsky), 6, 17, 23, 33, 34, 36, 39, 47, 57, 59, 76, 103, 111
- James, William, 57
- Kant, Immanuel, 55, 64, 66, 67, 100
- Khrushchev, Nikita, 8
- Lamarck, Jean Baptiste, 65
- Lassalle, Ferdinand, 75
- Leibnitz, Gottfried Wilhelm von, 78, 86
- Lenin, V.I., 16, 47, 56, 73, 75, 89, 120
- Locke, John, 67, 94
- Lodge, Sir Oliver, 58
- Logic* (John Dewey), 57
- Logic* (Georg W.F. Hegel), 19, 55, 97, 111
- L'Ouverture, Toussaint. See Toussaint L'Ouverture
- Ludwig Feuerbach and the Outcome of Classical German Philosophy* (Frederick Engels), 74, 88, 102, 104, 105, 109
- Marx, Karl, 18, 19, 28, 47, 57, 64, 65, 67, 73, 74, 77, 79, 97ff., 119, 122
- Marxism: Is It Science?* (Max Eastman), 57
- Mehring, Franz, 73
- More, Sir Thomas, 120
- My Life* (Leon Trotsky), 72
- Napoleon I, 62
- Newton, Isaac, 23, 24, 58
- Novum Organum* (Francis Bacon), 67
- "*On the Essence of Constitutions*" (Ferdinand Lassalle), 74
- On the Revolutions of the Heavenly Bodies* (Copernicus), 29
- Origin of Species, The* (Charles Darwin), 74
- Owen, Robert, 98
- Phenomenology of Mind, The* (Georg W.F. Hegel), 45, 62, 63
- Philosophy of History* (Georg W.F. Hegel), 65
- Plato, 74
- Plekhanov, George, 73
- Posterior Analytics* (Aristotle), 21

- Ptolemy, 18
- Revolution Betrayed, The* (Leon Trotsky), 120
- Robespierre, Maximilien, 58
- Roosevelt, Franklin Delano, 81, 137
- Saint-Simon, Claude Henri de Rouvroy, 98
- Santayana, George, 57, 112
- Schelling, Friedrich, 67, 100
- Selected Correspondence* (Karl Marx and Frederick Engels), 74, 77
- Shahtman, Max, 6
- Skepticism and Animal Faith* (George Santayana), 112
- Spinoza, Benedict (*or* Baruch Spinoza), 67
- Stalin, Joseph, 7, 8, 81, 89, 107
- Stammler, Rudolf, 72
- Stirner, Max, 100
- Their Morals and Ours* (Leon Trotsky), 52
- Toussaint L'Ouverture, Francois, 59
- Treviranus, 65
- Trotsky, Leon, 6, 16, 23, 33ff., 47, 52, 56, 58, 72, 73, 76, 103, 111, 120, 124
- Wallace, Henry A., 57
- Wilson, Edmund, 105, 106, 108
- Wordsworth, William, 62

Logic of Marxism

Now in its seventh printing, this book has become one of the most popular elementary expositions of Marxist logic. It contrasts and shows the relationship between formal and dialectical logic and illustrates the relevance of the Marxist method to contemporary struggles.

George Novack is one of the outstanding socialist scholars in the United States. He is the editor of *Existentialism versus Marxism*, and author of numerous books, including *Understanding History*, *Democracy and Revolution*, and, most recently, *Humanism and Socialism*. He has lectured at universities throughout the United States, Mexico, Canada, Australia, and New Zealand on Marxist theory, philosophy, and politics.

Other books by the same author:

The Origins of Materialism \$6.95, paper \$2.95

"...written by a man who understands and believes in the spirit of his subject." — *Bibliography of Philosophy*

"...an honest attempt to retrace the earliest developments of the materialist world outlook. Simple and clearly written." — *Choice*

Empiricism and Its Evolution \$4.95, paper \$2.45

"A companion volume to his *Origins of Materialism*, Novack's latest survey of the history of ideas discusses the nature and history of empiricism from Bacon to Mach and Popper. . . . Recommended." — *Choice*

This book is also available in a clothbound edition for \$4.95.

PATHFINDER PRESS, 410 West Street, New York, N. Y. 10014
British Dist: Pathfinder Press, 47 The Cut, London SE1 8LL