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DISCUSSION OF DIALECTICAL MATERIALISM

	Page
POST-ENGELS	
By Irwin Hyper and Buddy Lens	1
MARXIST LOGIC AND THE OBJECTIVE WORLD	
A Second Answer to Comrade Loris	
By William F. Warde.....	17
ANENT UNSCIENTIFIC SCEPTICISM	
By Ben Maxson.....	30
SURPLUS VALUE AND EXCHANGE OF EQUIVALENTS	
Note on an example in William F. Warde's "Introduction To The Logic Of Marxism"	
By Marc Loris	31

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POST-ENGELS

".....a knowledge of mathematics and natural science is essential to a conception of nature which is dialectical and at the same time materialist" (p. 15, Anti-Duhring)

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The Task - Nature knows no standing still. Ideas, as all else, must grow or decay. The study of dialectical materialism¹ has undergone no fundamental development since the time of Engels. It has yet remained a healthy and virile body, largely because of its continued conscious application in living events, chiefly at the hands of Plekhanov, Lenin and Trotsky.

Our party must not be satisfied with mediocrities. Our philosophy must stand the critical examination of the entire modern world; lay, political, scientific -- and must remain clearly and unambiguously foremost. Therefore; it is not enough to repeat Marx, Engels, Lenin and Trotsky like unthinking parrots. These greatest Marxist theoreticians were not infallible, they were always the first to admit their errors and never hesitated to change their views on minor issues when historical and scientific development showed them to be incorrect. Comrade Warde expressed the correct approach in an F. I. article (Dec., 1940) when he pointed out that, although the groundwork has been laid in D.M., the major development is still up to us.

Engels made many errors. Some were corrected by himself; others were left for us. However, on almost every issue, Engels was up to date or better. He was either abreast of the natural scientists of his day or far ahead of them -- and in the social sciences -- the magnitude of separation is beyond the realm of simple comparison. This pays great tribute to the power of the man and the method. We must follow this excellent example and not lag behind fifty years to the science of his day and age -- rather it is high time we began to stride forward and far ahead.

In the last fifty years every science has undergone revolutions that have rocked its foundations². Just as wars and revolutions provide the tests and bases for development of political theory, revolutionary advances in the study of nature provide the tests and bases for development of scientific theory. Clearly then, if D.M. is not to degenerate into scholastic dogma, it must constantly examine and be examined in the light of all current developments in knowledge.

In the development of modern science we can trace a great chain of men who have employed to some degree the method of D.M. in specific fields. Principally in the field of political science exist

1. Hereinafter referred to as D.M.

2. A few examples:--wave mechanics and relativity in physics; the concept of rigor, mengenlehre in mathematics; experimental evolution in biology; ionic theory in chemistry; etc.

the men who called themselves dialectical materialists. This does not mean that others did not or do not use the same methods. A few outstanding examples in this great chain (outside of the Marxists) are Darwin, C. S. Pierce, Mendelejev, Freud, Einstein, Bohr, Schrödinger. Marx and Engels were the first to consciously formulate the method, to name it, to find some general laws.

D.M. today has much to absorb from the natural sciences; their precision, quantitative formulations, and ever-more rigorous foundations. It will in turn impart to science the concept of the universality of change, the falsity of "absolutist" definitions, and more -- we feel much more.

The party, also, is by no means a finished product, with all problems solved. Most of the comrades are as yet students. The writers of this article are students of D.M., students of modern science, students of logic and philosophy; we work as machinist-toolmakers; we aspire to be professional revolutionists. Relatively new to the study of scientific socialism, far more familiar with the body and methods of "natural" sciences, we have been impressed by the universality of Marxist method--its applicability in all of the fields with which we are familiar. It is our intent, in a series of subsequent articles, to affect a harmonious integration of D.M. into natural science and vice versa. We welcome this discussion as an opportunity to set forth and develop our views before--and together with--an interested audience; and also as an indication of a certain maturity of the party. We have come a long way since the academicians (who thought method "did not matter") left us.

D.M. serves us as a philosophy, a logic, and a science. In succeeding articles we shall develop this concept and show the interpenetration and inseparability of these categories. In our next article we will discuss some fundamental ideas (i.e. the postulation of a material universe, one of whose diagnostic characteristics is change), their development, their relationship to our present body of knowledge, and why we consider them fundamental. Following that, we will attempt to present the hypotheses and laws of D.M., their origins in the specific sciences, their tremendous value in our present social science (today the only social science is Marxism) and the natural sciences of the future.

It is only with slight regret that we enter this discussion with a harsh analysis of the two opposing tendencies (Comrade Loris' and Comrade Warde's). There is an inner logic in this. The theoretical foundations as well as the program of the party develop through struggle. Only a wistful longing for the peaceful warmth of the classroom would make us hesitate to enter the "cold outer world". But we would be unwilling to enter a struggle only to the extent that we might be uncertain of our position. We keep constantly in mind the excellent tradition of Marxism; who would destroy must be prepared to build afresh.

Let us now discuss Comrades Loris and Warde. Each presents a unique phenomenon in his method of presentation, but neither is alone in his basic formal position. We shall take both these facts into consideration.

Loris--Innovation in procedure and idea. We have two fundamental differences with Comrade Loris. First, we cannot allow his procedure to go unchallenged. He has disguised an attack on Engels as a criticism of Warde; in his actual criticisms of Warde, the critic has mistaken the superficial for the essential, the phrase for the context; he has professed one aim, criticism of a pamphlet, and pursued another, destruction of the concept of the dialectic as commonly understood in the Marxist movement. We will not quarrel with the procedure of one who introduces innovations or deviations provided that they are presented as such, and provided, of course, that the basis for the innovation is completely demonstrated. However, Loris smuggled in a major revision of Marxist method as a particular criticism of a particular pamphlet.

"Ontology," "Epistemology," "Metaphysics," "Science" Comrade Loris maintains "that all these difficulties of Comrade Warde come from the fact that he gives a metaphysical or, to be more precise, ontological character to the dialectic." (p. 2, Internal Bulletin V. 5, No. 2). In his development of this thought, it becomes clear that Loris calls metaphysicians those who try to formulate general laws of nature--that apply to all matter in all forms.

Marx and Engels conceived of D.M. as dealing with the foundations of natural laws. In doing so, they not only examined the development of the sciences (the epistemology) but, to a far greater extent, their content. The founders of scientific socialism had observed in the greatest detail that social development follows laws they called "dialectical," quite as Newton had observed that moving bodies follow laws that he called "physical." When Marx and Engels linked the laws of motion of society with the laws of motion of nature in general, they were behaving in the best scientific tradition by generalizing.

The physicist formulates laws governing all mechanical systems; the biologist formulates laws governing all living systems. Their laws apply to their respective systems under the most widely diverse conditions, from the collision of a couple of billiard balls to the rotation of a spiral nebula--from the metabolism of a few protein molecules to the metabolism of a human brain. Obviously, these scientists are justified in their generalizations because they note--in the collision of the billiard balls and the movement of a spiral nebula; in the metabolism of a few protein molecules and that of a man--certain significant identical characteristics. What objection can you have to further generalization, Comrade Loris? We have noticed that all matter in the universe, whatever its form is constantly changing. Does this not suggest universal laws of change? To Marx and Engels it did--Engels viewed life as the mode of motion of the albuminous (protein) substances, chemistry as dealing with the mode of motion of molecules, astronomy as dealing with the mode of motion of celestial bodies.

By what authority are we forbidden to search for general laws of motion governing all matter, of which the preceding are only special cases? Loris expressly denies the existence of such laws, -- "..... for the movement of an atom does not follow the same pattern as the development of a cell, the solar system does not follow the same scheme of evolution as capitalist society, etc." (Int. Bulletin. cit. p. 4)

We hold that Marx and Engels have given us just such laws, or at the very least, an excellent indication of their existence. Consider, for example, the law of "quantity changing into quality." The physicist observes that water changes from gas to liquid when calories are removed to the extent of lowering the temperature to less than 100° C. He may examine only 100 or 1000 different gases in his laboratory. He observes that when calories are removed, a certain point (perhaps at a different temperature in each case) is observed where each gas becomes a liquid. Comrade Loris, will the physicist now become a meta-physicist if he should postulate, "any gas (including the x number of gases that I have not studied) will become a liquid at a certain point, if I continue to remove calories from it?" Would you have denied to Pascal the right to formulate his law of uniform pressure in liquids-- on the basis of limited observations? What of Darwin's very general laws of evolution, Marx's general laws of social development, etc.? This is a crucial question! For if a Marxist follows the same procedure of generalizing as did our physicist who arrived at his gas to liquid "law" and generalizes further, on the basis of the physicist's observations plus his law, on the basis of wide observations in many other fields³, he now proceeds to postulate "at a certain stage in any development of quantitative change, a qualitative change will occur." Is this metaphysics? Is it epistemology?

"But", Loris might now say, "is your very general law useful?" We reply--yes--our law is as useful as the physicist's and on a higher plane! When a new gas is investigated, the physicists will predict in advance that at a certain point in the lowering of its temperature, it will liquefy. He does not, on the basis of this law alone, predict exactly at what degree of temperature. Should someone tell our physicist that the new gas will never liquefy, he will reply "Perhaps, the probability is extremely slight. But my choice here is either of accepting the notion the new gas will never liquefy and thus rejecting my entire previous body of interpretative knowledge, or rejecting your new notion."

3. development of prehensile thumb, development of cerebral cortex in organic evolution (see any recent vertebrate zoology textbook); revolutionary overthrow of governments in society (see Communist Manifesto, State and Revolution); the hierarchy of organic molecules (Anti-Duhring, American Ed. p. 139 ff., or any organic chemistry text); and countless other examples to be found in the writings of Marx and Engels and in the whole body of modern science.

Similarly, when a new phenomenon is studied, the dialectical materialist will predict in advance that at a certain stage in the development of the new phenomenon, a change will occur at one point differing qualitatively from the general changes at other points. He does not, on the basis of this law alone, predict exactly at what point in the quantitative development the qualitative change will occur. Should our super-skeptic now suggest that no such outstanding qualitative change will occur in the new phenomenon, the dialectical materialist will reply precisely as did the specialized scientist -- perhaps; the probability is extremely slight. But my choice here is either of accepting the notion of perfectly smooth development (a corresponding unit of quality per each unit of quantity) of our new phenomenon and thus rejecting my entire previous body of interpretative knowledge, or.....rejecting the new notion!

Loris will now object--Your laws are "vague", "barren" and "of no great value", are not as rigorous or precise as those of the natural sciences. A more detailed answer to these questions will be given in a separate article. The clue lies in the analogy above. Let us only remind you,-- that these identical objections (uselessness, vagueness, etc.) were raised to Darwin's laws of organic evolution!

* * * * *

Roping off the Elusive Category, Logic. What of D.M. as a logic? Says Loris, "...logic, in the broad sense of the word, takes as its subject-matter the sciences themselves. It follows their development, studies their methods, establishes how knowledge grows." (Int. Bulletin Cit. p. 2) thus "logic" is principally something outside of the framework of the sciences themselves. But perhaps this is only "logic, in the broad sense"--perhaps Loris will allow us some logic as an internal and necessary part of the sciences per se. Alas, we are denied even this, for he continues "this general logic is better called epistemology, the science of knowledge, and includes as a part formal logic,....." (our emphasis)

"But", some super-conscientious comrade might object, "is it fair for you to assume that Loris is so undialectical as to postulate rigid categories in his definition of logic, perhaps he will also allow an internal logic of the sciences." To such objections, we reply in advance,--we can but take the writer at his word--it is his definition, he is obliged to make it clear.

Scientists cannot operate without logic--even in the most limited sense! A physicist cannot even make two observations in his field without assuming a logical connection--at the very least insofar as he places two different phenomena in the very general category, physics. Observations without interconnections and interpretations are meaningless. A camera records an "observation." A seismograph records an "observation." Neither a camera nor a seismograph is a scientist; nor is the mere pressing of the shutter trigger of the camera, or the filling of the pen of the seismograph, science--in any sense of the word. Various scientists are aware of their logical procedure in varying degrees of consciousness--all use logic as a necessary (but not sufficient, of course) condition for science.

Formalist View of Logic. It is fruitful to digress here and consider a possible slightly different interpretation of Loris' views. According to this interpretation, Loris would deny to logic a direct application to nature. More positively, he would hold that logic, dialectic and formal, is materially empty, that logic has as its domain our ideas and treatment of nature, but not nature itself. To illustrate, let us consider an example from formal logic--the Aristotelian principle of contradiction--a thing cannot be true and false, or in a different terminology, a thing cannot be both A and non-A. In this interpretation of Loris' position, he would hold that the "things" referred to in the principle of contradiction can be only statements of ideas and not objects in nature.

If this is actually Loris' view of the role of logic, it neither originated with him nor received its best expression by him. It is a position held by the so-called "formalist" school of logicians and has been most comprehensively summarized by Carnap in his "Logical Syntax of Language." Loris then would differ with Carnap to this extent--he would replace Carnap's rigid, formal manipulations of logical propositions with dialectical transformations. To our minds, this would make for a considerable advance in epistemology, in the analysis of propositions and ideas. But when Loris sharply raises his hand here to stop our machine, which has really just gotten into gear, he runs the risk of being run over.

We have indicated that Loris' views bear a strong resemblance to those of Carnap (and Wittgenstein, etc.)--adherents of the "formalist" interpretation of logic. We believe that we have answered Loris but not the school of Carnap ("logical positivism") some of whose ideas Loris has put forth. At a later date, we hope to undertake an analysis of logical positivism.

An Unexplained Alteration. It would appear that through his general position that D.M. is confined to the realm of epistemology, Loris has forced himself into a peculiar and absolutely untenable position in the particular--having admitted that D.M. is a generalization of which formal logic is a particular case, he also restricts formal logic to epistemology.

At the time of its writing, Loris agreed in toto with the position of J. Gerland in the "Algebra of Revolution", (F.I., May, 1940). In this article, Gerland sums up a group of ideas thusly, "The Russian revolutionist Hertzzen called the dialectic the 'Algebra of the revolution'. It is really much more than that and its value extends to all of human knowledge, of society, of nature." (our emphasis). Can anyone construe this article or the specific conclusion quoted above as limiting the usefulness or application of dialectics to epistemology? In the F.I. article Gerland (endorsed by Loris) speaks as a "Marxist" for the "Marxist position." Loris presumably speaks for the "Marxist position" in his "Brief Remarks.." (Int. Bulletin Cit.) What is the basis for your change, Comrade Loris?

* * * * *

Warde--A Maze of Contradictions -- It is difficult to introduce this section of our discussion with a characterization of Comrade Warde's position on D.M., or to name his philosophy. The writers of this article have studied the essays, lectures and discussion article of Warde's for months, trying to decide whether his real position is that of a materialist or an idealist. Of his formal position, there can be no doubt. To his credit, he will proclaim often and vigorously his "orthodoxy", his uncompromising materialism. But we distinguish between an individual's self-proclaimed formal position and his real position as determined objectively by his behaviour in events and his attitude on specific issues. (We sincerely thank Comrade Warde for having once admonished one of us to distinguish between "formal" and "real" positions) From a study of Warde's writings, it becomes evident, that regardless of how he describes his own position, he runs the gamut from materialism, through agnosticism, to idealism-- and this often in the same articles!

Warde, Idealist -- Consider this:--".....Existing states of matter are being converted into various forms of energy or other forms of material existence. In comparison with their original state these higher forms of material motion have a less 'material' character. At the lower end of the scale there is dead unconscious matter: this is its predominant aspect. But this form of matter contains within itself an opposing form, live, conscious matter. Through an ascending series of material transformations the first form of matter evolves into the second. Which is matter? Both. But the second is a higher, realer, more essential form." ("D.M., Outline Course" by William Warde, p. 30)

The thought is clear. Live matter is more real, more essential than dead matter!! This concept belongs clearly to idealism and was often expressed by the Catholic theologians. Starting with "dead" matter, in quite the same manner as Warde they established degrees of reality--but for them the highest reality, the most "real" matter was--the soul. Comrade Warde, as materialists, we hold that all matter is equally real, equally "essential." The "reality" of an object is determined by fairly objective tests--weighing, measuring, etc. By these tests a lump of iron is quite as real as a man and an angel is quite as unreal as the soul.

Warde, Agnostic -- Let us consider one of Warde's conclusions in an F.I. article, "Elements of D.M."--"Just as there is much in the mind that cannot and will never be present in other parts of nature, so there is much in the rest of nature that has not yet and never will be possessed by the mind." (F.I., Aug. 1940, p. 111)

This is, of course, the essence of agnosticism--some things are not for mere mortals to know. Generally Warde's "...much in the rest of the nature that...never will be possessed by the mind" is used by the agnostics as an ideal vehicle for trotting in the "unknowable"...that is, God. Historically, this type of philosophy has always been a powerful reactionary force in science. Whenever a new problem was broached among scientists, there would always be some who would say, "all our previous findings, good--they were in the realm of science--but this new problem is in the realm of the

unknowable--and therefore, it is pointless for us to investigate." For the less sophisticated vitalists--the "unknowable" was equated to God. Materialists have always fought this point of view, have always chosen to investigate any and every new problem, and customarily have solved the "unknowables", formulated new problems on a higher plane which in turn are relegated to the realm of "unknowable" by one or another group of agnostics. Even if it were for no other reasons, the total uselessness and reactionary character of this philosophy is enough for us to reject it.

Warde does not give us any indication of just what sort of thing "never will be possessed by the human mind." In this respect he does not do as well as some of our modern vitalist and agnostic scientists--who have at least specific problems postulated which they allow to that category.⁴ Warde prefers to be mystical, and to merely leave his readers with this little agnostic thought for today.

The Old Man would have answered Warde's gloomy forecast as, in concluding his speech to the Mendeleev Congress in 1925, he answered DuBois Reymond, ".....and scientific thought, linking its fate with the fate of the rising class, replies, 'You lie!--the impenetrable does not exist for conscious thought! We will reach everything! We will master everything! We will rebuild everything!'"⁵

4. For example, one well-thought-out idea of our modern agnostics is that the problem of the entropy of the universe is unsolvable by any other means than by postulating a super-natural force which was responsible for "winding-up" the universe which is now "running down." These people have at least a good argument. They base themselves on the second law of thermodynamics. What does Warde base his ideas on? This (agnostic) trend of thought is particularly important and widespread in biology--going under the name of "vitalism." And biology furnishes us with the best illustrations of the reactionary character of such philosophies--stifling, as they do, research into the "unknowable". It was held by vitalists that life and all its products were not susceptible to scientific analysis. Unknowable "vital forces" were postulated (i.e. Buffon's "vegetative force"). One of the necessary consequences of these theories was that they held to be futile, any attempt to synthesize any product resulting from metabolism. Wöhler, in 1828, exploded this stronghold of agnostic thought by synthesizing urea.

For those interested in this question, a scholarly and somewhat technical answer to our contemporary vitalists (and many of these are of no mean stature) is given by the very competent biologist, Joseph Needham (in "Order and Life", Yale U. Press, 1936). Other references in physics and biology will be furnished on request.

5. Perhaps needless to add; but we do not think that Trotsky was prone to polemical exaggeration in expounding his views.

Warde, Dialectician? -- We quote three consecutive typical paragraphs from Warde's "Outline Course"--

"Hegel... did not construct his new system haphazardly, but in accordance with a method as rigorously logical as the methods of mathematics. [our emphasis, B.L., I.H.]. The whole structure of his logic was built up by deducing one category from another in a uniform manner along the lines of his primary principle of the unity of opposites. This method of procedure is his famous dialectical method.

"As an example of Hegel's method, take the first three categories of his Logic. These are being, nothing and becoming. Hegel begins with the category of being because it is the emptiest, most abstract, and general of all notions. That implies it is equivalent to nothing. Being therefore immediately produces out of itself the idea of its opposite, nothing. This is the first stage in the process of dialectical development. Being passes over into nothing, and conversely, nothing passes back into being, for the idea of nothing is the idea of emptiness which is the same as pure being. In consequence of this disappearance of each category into the other, a third thought necessarily arises, the idea of their passage into each other. This is the category of becoming.

"Becoming is a unity of being and nothing, which are its positive and negative forms. The first form of becoming is beginning, arising, coming into being; the second form is ending, ceasing, passing away. Thus, beginning with being, we deduced nothing, and then from the relations between these two, we derived becoming. Such are the first steps in the Hegelian logic." (op. cit., p. 26)

We will let the reader judge the merits of the above (from its science, its style, its logic, its clarity, etc.). We need add only one comment, we receive the impression from Warde's eulogy of Hegel that Hegel gave us dialectics as a finished logical structure, "as rigorously logical as the methods of mathematics"! This is not the writer's conception, nor is it to our knowledge the conception of any of our great Marxist theoreticians. We hold that dialectics as a logic is in its infancy, that Hegel's foundations are far from "rigorous".

Our method thus far has held its own against the Bogdanovs, Hooks, Eastmans and Burnhams. But D.M. must do more than hold its own--it must grow! The surest way to stifle its growth is to assume that Hegel said the last word on dialectic with his "rigorously logical method." Like the devoted gorilla mother who crushed her offspring to death while defending it, Warde mangles and distorts Marxist method while "defending" it.

* * * * *

Elementary Errors -- In our treatment of Comrade Loris we endeavored to demonstrate implicitly that his desire to limit the province of dialectic flows from a lack of appreciation for the method of science, that he is unwilling to generalize where generalization is manifestly called for. If Loris' error flows from a lack of appreciation for science, Comrade Warde's errors flow from an ignorance of it.

Following are a few typical elementary mistakes of Warde's:-

1. ".....If the earth were not bound to the sun by attraction, it would leave the solar system and fly off into space. If the sun, on the other hand, did not exert constant repulsion in the form of radiant energy upon the earth and keep it at a distance, this planet would long ago have fallen into its flaming mass and become absorbed." (F.I., Dec. '40, p. 203)

Warde's theory of the forces governing the earth's movement is quite unique and has absolutely nothing in common with either the explanations of the classic or the modern physicists. We do not believe that this is the place for these explanations, involving as they do certain technical calculations, but just as a brief indication of the thorough falsehood of Warde's explanation, we note that the moon revolves about the earth in a manner quite similar to the earth-sun system. The forces involved may be considered as perfectly analagous in both cases, yet the moon does not fall into the earth even though the earth does not repel the moon with any "radiant energy". In astronomers' calculations of the earth's orbit about the sun, the effect of radiant energy is relatively infinitesimal and may safely be ignored.

Is Warde aware that he has propounded a radically new theory of planetary motion? We doubt it. If he were so aware, why did he not announce it as new, why did he not give the evidence for it?

2. "Just as Newton's system forms part of Einstein's; Aristotle's logic part of Hegel's....." (Outline Course, p. 52)

To consider Newtonian mechanics as a special limiting case of relativity physics is to ignore the revolutionary nature of the latter. Einstein proceeded from premises totally different from Newton's and his work is no mere extension but a radically new conception. Any calculations of the same phenomenon, when performed in the two mechanical systems, must in general, in principle, differ. Sometimes this difference is tiny and may be ignored (as in the building of a bridge across a river), but for this reason to even momentarily equate "Newton's system" as a "part of Einstein's" is quite analagous to equating a social reformist to a Marxist revolutionist, because in a special situation, for a short time, they may act in the same manner or strive after the same end.

3. ".....The view that matter was atomic in constitution was little more than a guess when it was first broached by the Greek materialist, Democritus. It took almost 2500 years before this hypothesis was converted into verified fact and became the basis of a separate branch of science." (Int. Bulletin V. 5, No. 2, July, 1942, p. 17).

So Democritus' "guess" has become "verified fact"! Warde disposes of whole bodies of knowledge with remarkable facility. The phenomenological outlook expressed in the matrix mechanics of Heisenberg and Born, the wave mechanics of Schrödinger, among other present-day theories--bear not the slightest resemblance to Democritus!

Atomic hypothesis. Nor do the exponents of the atomic theories claim for their hypotheses the title of "verified fact." Science, in this field, as in every other, is in a state of development. Today there exists no physical theory that will not "too, pass away" yielding to more comprehensive explanations. We believe, with Lenin and Trotsky, that in principle there is nothing we cannot know. However, the problems of the nature of matter, at this stage of the game, is more of a problem than ever before. That is because we know more, not less.

4. "nevertheless, in the theory of relativity, there remains one absolute, the speed of light, which remains constant in all frames of reference. This is the unmoveable axis of Einstein's physical system. It is also the anomaly, the contradiction, the Achilles Heel in his theory. Why should this physical factor alone be unchanged and unchangeable? The speed of light plays the same role in Einstein's physical system, as gold plays in capitalist economy. It is the despot that dominates all transactions. This despot will be overthrown with the further advance of physical knowledge." (Outline Course, p. 51).

To fully discuss Warde's peculiar criticism of Einstein and his "despot" light would require a good-sized book. We intend, as a matter of fact, in subsequent articles to reveal the intimate connections between D.M. and relativity. But for the moment we content ourselves with a brief remark on fact:--

The invariant speed of light (not its "absolute" speed as Warde calls it--that concept of "absolute speed" is precisely the one destroyed by relativity) is part of the restricted principle of relativity and is not always true in Einstein's general theory, which has been in the field for the last few decades. Warde's criticism of Einstein, poor on its merits--no new evidence was presented--is therefore in addition completely misplaced.

"Whenever any Marxist attempted to transmute the theory of Marx into a universal master-key and ignore all other spheres of learning, Vladimir Ilyich (Lenin) would rebuke him with the expressive phrase: 'Komchvanstvo' ('Communist swagger')....." (L. Trotsky, in speech cited above). This admonition is just as appropriate to our contemporary swaggerers.

5. "Along came Einstein who took the other, revolutionary road. He created a new physical theory, the system of relativity, which boldly denied the assumptions of Newtonian mechanics and thereby gave an explanation of the irregularities in Mercury's orbit (by the bending of light rays in a gravitational field)." (Outline Course, p. 50)

To be sure, one of Einstein's great triumphs was the quantitative prediction of the deflection of light rays in gravitational fields. But this has nothing to do with the orbit of Mercury. Mercury's orbit is irregular as calculated by Newtonian mechanics because Newton's law of gravitation is incorrect. Einstein formulated a new theory of gravitation and on this basis was able to predict accurately the path of Mercury's orbit. Einstein's explanation of the deviation of Mercury's orbit has no connection whatsoever with

the bending of light in a gravitational field.

6. ".....The Copernican revolution in astronomy, culminating in Newton, deprived the earth of this central position and gave it to the sun. Einsteinian physics removed this privilege from both planets and at the same time partially restores it to the earth. One frame of reference is as real as another." (Outline Course, p. 51).

One of our modern astronomer's diagnostic criteria for a "planet" is that it does not radiate its own light. There are many other criteria which exclude the sun from this category. Comrade Warde, the sun is not a planet!

In the language of the ancient astrologers and astronomers, any "star" (a heavenly body) that appeared to have an orbit was called a "planet". But in modern terminology (last few hundred years), this is unthinkable.

We feel sure, of course, that Warde understands this distinction and that his use of the word was merely a careless error. But nevertheless it is the type of gross error that when paraded in a party publication leaves the theoretical basis of our movement upon to grave doubts if not absolute ridicule by an informed outsider interested in the party. This holds true of course, for all the other "errors."

7. "But in the nineteenth century the mathematicians, Gauss, Bolyai, Lobatchevsky, and Riemann created alternative systems of geometry based upon a denial of the axioms of Euclid's system. These non-Euclidean geometries subsequently played an important role in physics when it was found that the space-time continuum required by Einstein's theory of gravitation conformed to them." (Outline Course, p. 29).

If we understand the language, this means that Einstein's theory concretizes the geometries of Bolyai and Lobachevsky. The "hyperbolic" geometry of Bolyai and Lobachevsky is quite different from the "elliptic" geometry of Riemann. It is the latter which is employed in Einstein's relativity theory. Warde is in error in fact when he maintains that the theory conforms in any way to the geometries of Bolyai and Lobachevsky.

Warde also errs in fact when he states that these systems of geometry were "based upon a denial of the axioms of Euclid's system."

The only axiom of Euclid's system that was challenged and replaced in these "non-Euclidian" geometries was the parallel postulate, which states that through any point not on a given line one and only one line can be drawn parallel to the given line.

8. What of Warde's anthropology? He states "Men have reasoned logically for only a few thousand years. Before men acquired the habits of logical thought, they reasoned not so much logically as pre-logically. To the pre-logical mentality, any single thing is not separated from every other thing, is not just itself and not other things. Everything is part of everything else,.....(etc.)."

Or else he (the savage) makes no distinctions where we instinctively draw them; e.g. between the natural and super-natural, between life and death, waking and sleeping, the self and society, society and the world." (Outline Course, pp. 10, 11).

Does the modern "civilized" religious person "instinctively" draw any more distinction between life and death than did the pagan savage? The Cro-Magnon men (who, it is estimated, flourished about 25,000 years ago) buried their dead, hunted with artificial weapons, painted pictures, etc., etc. Is it not obvious that certain laws of identity were essential to their thinking, even though probably not consciously applied as such? Surely Warde will not insist that the use of logic is restricted only to logicians consciously applying formal rules? Did the cave-man artist use less logic than the Old Man's illiterate peasant woman or the (now famous) dialectical fox? (see p. 84, Defense of Marxism).

Where in history shall we draw the dividing line between the era of predominantly "pre-logical" reasoning and the time when "men acquired the habits of logical thought"? Certainly not "a few thousand years" ago! If Warde means by the "habits of logical thought", the unconscious following of logical patterns in thought--and this is the more plausible interpretation of Warde's statement, since "habit" means an unconscious pattern of activity--then to find our dividing line we must stretch all the way back through vast reaches of the earth's history to the era when the chordates began to develop in the course of their evolution, the cerebral cortex,-- this era occurring, of course, long before the development of the genus, man. If Warde means--and this is the less plausible interpretation--that by "habits of logical thought", men are habitually logicians, then we shall have to look far into the future of humanity to find our dividing line. (Today, a terribly minute number of people apply consciously a few relatively crude laws of logic in a few limited spheres on some limited occasions. The vast majority of humanity is still logically illiterate).

9. "So also with the.....law of the excluded middle..... Qualitatively a thing must be one color or another, either red or blue. I must be either a man or a beast, a worker or an intellectual." (Outline Course, p. 14).

This is truly fantastic.

One way of correctly stating the law of the excluded middle is --Everything in the universe must be either A or non-A. To rephrase Warde's examples so that they read correctly according to this law; a thing may be red or non-red (non-red can be blue, yellow, black, etc. or any combination of these); I must be either a man or non-man (non-man, of course, may be beast, stone, tree, etc. or several or all of these things); I must be either worker or non-worker (non-worker may be intellectual, banker, capitalist, etc. or any combination of these) Warde assumes that according to formal logic, non-red is the same as blue, non-man is the same as beast, non-worker equivalent to intellectual.

Sometimes Warde states the law almost correctly in its abstract form (as on page 13, "A is either B or not B") but more often he states it incorrectly--and almost invariably, his examples are completely false representations of this law! Warde's use of the principle of the excluded middle indicates quite clearly that he does not understand it.

Perhaps Warde has made merely a minor slip in a few examples? Not at all! He re-affirms his misinterpretations many times--as on page 13 --

"Examples:-Religion is either scientific or non-scientific [this is the only correct example of the law of the excluded middle in the entire pamphlet!--B.L., I.H.]; a state is either bourgeois or proletarian, progressive or reactionary."

And on page 16, still another erroneous interpretation, this time a different error in explaining the same law!! In giving Aristotle's laws--

"3. The law of excluded middle states that a thing is either itself or a totally different thing. A is either A or not-A⁶, belongs to either one class or another and not to all others (!); this is either good or bad, here or there, progressive or reactionary."

According to this second misinterpretation of the much-abused law then, "A thing is either itself or a totally different thing. A is either A or not-A" This means that a horse (A) is either a horse (A) or a cow (not-A), allowing both as equal possibilities! This means that Trotsky (A) is either Trotsky (A) or Stalin (not-A), allowing as equal to the possibility that Trotsky is himself, the possibility that Trotsky is Stalin!

It is precisely these types of logical contradictions, or absurdities that formal logic correctly applied will avoid!

10. Let us here also take exception to both the method and example of Warde in his advice to the unsuspecting machinist-worker. We implore all our machinist comrades to read this:-

"Suppose the blueprint of a machine calls for locating and drilling a one-quarter inch diameter hole on the center line half-way between two tapped holes. An inexperienced worker asks: How can I do this? I give him the following directions: Take a scribe and inscribe intersecting arcs from both ends of the line above it and below it on both sides. Then draw a straight line connecting the two points of intersection. The center will be at the point of intersection of the two lines.

" 'But how do you know that the layout will be in the exact center?' asks the worker who cannot afford to go wrong. I explain that it is a geometrical law that two points equidistant from the ends of a line determine the perpendicular bisector of that line. Although

6. Note the important difference between the correct statement, "A is either B or non-B" and this incorrect statement.

the worker may not be completely convinced of this scientific formula, couched in unfamiliar technical terms, he obeys my instructions and drills the hole in perfect accordance with the blueprint. He thereupon becomes convinced of the correctness of the law and the authority of my knowledge because he sees that it works in practice." (Outline Course, p. 11).

Those who have ever had to drill a hole "in perfect accordance with the blueprint" need read no further.

For the non-machinists, while we cannot here give a course in machine shop practice, we add briefly:-

A) No hole has ever been, or ever will be drilled between two other tapped holes "in perfect accordance with the blueprint" (we take this to mean with relatively small tolerance) by this method.

We will give Warde the benefit of the doubt and assume that by "scriber" he means "dividers" (metal-workers' compass). Then we have the difficulty of finding the center-line between the two tapped holes. This is just as difficult if not more difficult than the rest of the operation so glibly described. Let us give Warde the benefit of the doubt once more and assume that the line is already there. How does Warde's pupil now find the "ends" of the line that are so easily spoken of. Obviously, in scribing his arcs, he cannot place one point of the dividers in the center of the tapped hole--air is not solid enough. Nor can he use any of the edges of the holes--in addition to the mechanical difficulty of placing a point on the edge of a hole--the tapped holes are irregular at their openings due to the threads. But let us give Warde the benefit of the doubt and assume the "ends" of the line have been located, the arcs carefully scribed, the perpendicular bisector erected,--and now we come to our final and insurmountable difficulty. The width and irregularities of a scribed line are too great to allow for the degree of accurate location usually required in machine work. For this last reason primarily, in addition to several others, the method described above is not used in machine shops where any degree of accuracy is required. (Mathematical lines have no thickness and are perfectly regular, so for philosophers and vicarious machinists, this method is allowable and gives perfect results.)

B) The "inexperienced worker.....who cannot afford to go wrong will be highly incensed at his advisor, will not be "convinced of the correctness of the law and the authority of my knowledge".

C) The advisor will be labeled by his fellow workers "shoemaker", "butcher", "school-boy", "book-machinist", etc.

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Occasional Error or Non-Marxist Method? We do not hold that these errors and philosophical positions represent a consistent position of Wardes. Often he makes statements which contradict the content of some of the quotations we have shown above. However these philosophical gyrations and factual "errors" cannot be dismissed as merely

"poorly placed adjectives" nor as isolated occasional errors--which would surely be allowable to anyone.

There is something fundamentally wrong with the method of one who consistently makes elementary mistakes and thus talks nonsense. In addition, to do this constitutes criminal irresponsibility to the party. In this article we have restricted ourselves to only a few of the most elementary mistakes and unsophisticated errors.

An essential and fundamental part of Marxist method is to study the method and results of the natural sciences--and not to pretentiously "correct" these results and methods without first thoroughly absorbing and understanding them.

Shall the Party put the official stamp of approval on one who calls himself a materialist, and blandly expounds as Marxism, the basic premises of idealism, agnosticism, materialism, etc.? How shall we treat the theses of one who has not yet mastered the elements of Newton's mechanics and presumes to revise Einstein's relativity? How shall we react to one who writes an imperative analysis and critique of classic logic--and yet shows a profound ignorance of the meaning of its most elementary axioms?

Today no-one, perhaps, realizes as acutely the short-comings of classic logic as do the modern scientists, mathematicians and logicians themselves. The method and science of Marxism stands ready to conquer these difficulties. D.M. analyzes the short-comings, sharpens our consciousness of them, and indicates the road to more accurate logic and a freer, more reflexive philosophy of science. Shall we allow the healthy young giant of D.M. to be defended only by the shiny tin sword of bold ignorance?

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Perhaps it is now necessary to reiterate;--We do not polemicize for the sake of argument. If our criticisms of Loris and Warde appear to be sharp, it is not because we wish to be unfriendly or uncomradely. It is only for two reasons;--Firstly, our party propoganda and educational publications must be of the type that attracts workers on the highest political basis--that of understanding our method and program; this educational material must not be of inferior quality--nor can we allow devious revisions of Marxism to slip in unnoticed. We should not lose a single recruit because of a sloppy, careless, ignorant or false presentation of our ideas! Secondly, and of even more consequence, is the vital importance of our method, recognized by all the great Marxists. This cannot be repeated too often. Marxist method has defended itself against its enemies; it will prevail over its opponents in every field; but we must guard it from its "friends"!

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MARXIST LOGIC AND THE OBJECTIVE WORLD

A Second Answer to Comrade Loris

By William F. Warde

The central question in our dispute with Comrade Loris concerns the relation of logic, both formal and dialectical, to the external world. The unified world-conception of Marxism holds the view that the laws of thought and the laws of nature and of society are different expressions of the same fundamental forms of material motion.

In addition to those quotations already cited, here is another pertinent quotation from Engels on this question. "The fact that our subjective thought and the objective world are subject to the same laws, and that consequently too in the final analysis they cannot be in contradiction to one another in their results, but must coincide, governs absolutely our whole theoretical thought...In the present work (Anti-Duhring) dialectics is conceived as the science of the most general laws of all motion. Therein is included that these laws must be equally valid for motion in nature and human history and for the motion of thought. Such a law can be recognized in two of these three spheres indeed even in all three, without the metaphysical philistine being clearly aware that it is one and the same law that he has come to know. (Dialectics of Nature, Pages 313-314.)

Comrade Loris has presented a quite different position on this matter. He recognizes the validity of the laws of dialectics in one sphere only - the sphere of the human mind, and there only within the single province of epistemology, or the theory of knowledge. Outside of epistemology, claims Loris, the laws of dialectics have no genuine validity or value. "All the themes of dialectics have a great value in the epistemological field, but become empty abstractions outside... Materialist dialectic belongs to the field of epistemology."

Marxist theory, Marxist tradition, the foremost Marxist teachers agree that the laws of dialectics have universal application. Loris contends that they must be restricted to the single "field of epistemology." Drawn to their logical conclusion, these are two incompatible and irreconcilable positions.

This is the fundamental issue in our controversy. Together with Wright and Weber, whose remarks Loris in his "answer which does not answer" omits to mention, I defend the orthodox Marxist position on the question. Loris on the other hand brings forward views which lead to a departure from Marxism and bring him close to the standpoint of Kantianism, empiricism, positivism, and skepticism.

From his primary error of restricting dialectics to epistemology and divorcing its laws from the external world, Loris has been led to give a one-sided and scholastic version of formal logic; to dismiss any investigation into the nature of objective reality as "meaningless" and "metaphysical"; to deprive contradiction of objective reality

and objective reality of contradictory characteristics; and finally to deny practical value to the laws of dialectics.

On Methods of Discussion

In his original "Brief Remarks" Comrade Loris criticized me for deviating from Marxism. Now, in his second document, he has shifted the ground of his criticism and complains chiefly about my methods of discussion. It appears, according to Loris, that I have been guilty of evading issues, raising smokescreens, distorting his views, etc. This second list of charges is no more valid than the first.

In everyday political practice Marxists proceed from the basis of theory, principles and method to a consideration of concrete questions and individual instances. This principled procedure is all the more compulsory in a controversy over the fundamental problems of Marxist philosophy and of scientific thought in general. In accordance with this procedure I have discussed - from the standpoint of the fundamental principles involved - all the important questions raised by Loris: the relations between logic and nature, the nature of contradiction, the practical value of scientific laws, etc.

On the other hand, Loris, while making a big fuss about this or that minor point or individual example, has sought from the outset to evade and postpone any exposition of the elementary principles of dialectical materialism. He has put forward an extremely ambiguous, if not self-contradictory and false, conception of the relations between logic and nature. He still maintains a stubborn silence on such important questions as the nature of contradiction and the contradictory nature of reality. All the while he keeps demanding discussion of "concrete questions"; kicks up clouds of dust to obscure his real position; and complains that he cannot see - how I have answered his criticisms! A careful comparison of our respective contributions will demonstrate that in reality Loris is guilty of all the sins he attributes to me. As I propose to show, all the evasions, the smokescreens, and vacuums are on his side, not mine. And they are designed to conceal, not "the absence of offensive operations" which he imputes to me, but the presence of offensive operations implicitly directed against the Marxist method and Marxist ideas.

Loris And Engels

The character of Loris's methods of discussion is thrown into bold relief by the extremely instructive development of his attitude toward Engels as an exponent of materialist dialectics. In his opening remarks Loris presented himself as the defender of dialectical materialism against certain alleged deviations he had uncovered in my old lecture notes. An impression might have been conveyed that Loris was defending the views of Marx and Engels against my distortions.

Now behold! After Warde, Wright and Weber replied that not Warde but Loris had deviated from Marxism, Loris suddenly steps forth, no longer as the strict adherent of Marxism, but as a critic of Engels! In separating himself from Engels, Loris takes cover behind Lenin, just as in his previous attack upon Warde he took cover behind Marx and Engels. This second stratagem will prove even less effective than the

first. In his polemical zeal, Comrade Loris is venturing into dangerous territory. No one in our movement should undertake to separate Marx, Engels, Lenin and Trotsky. No one has yet succeeded or can succeed in demonstrating differences among them on fundamental questions of theory. Our great teachers stand united as consistent exponents of the same basic ideas of dialectical materialism.

Many times in the past revisionists have attempted to detect or to demonstrate opposition between our great teachers—and always with the most catastrophic consequences for themselves. I shall limit myself to two fresh and familiar examples on the philosophical field. Eastman and Hook. Eastman wrote several volumes around the thesis that Lenin, the realistic "engineer of the Russian Revolution", held different views and employed in practice a different method than Marx, the "Hegelian idealist" and "German metaphysician." Hook initiated his flight from Marxism by trying to oppose Engels to Marx. Hook wrote that Engels "in his exposition of Marx's philosophic position" committed "a definite deviation from Marx's views." ("Toward The Understanding of Karl Marx," The Symposium, July, 1931.) Is it not surprising to hear a belated echo of such arguments from Comrade Loris?

The Source of Loris' Differences

Loris favorably contrasts his own "open criticism" of Engels' ideas with my "loud claims to orthodoxy." To have first concealed his differences with Engels and now in his second document to postpone any exposition of the nature of those differences is neither "open" nor proper.

Why does Loris pursue these false methods of discussion? Why are his remarks so confused and confusing, so inconsistent and contradictory? The explanation is not hard to find. Loris' ideas are incorrect and his position untenable for a Marxist. He need not be so secretive about his differences with Engels. They are easily discernible and we have already exposed them.

Loris is moving away from Marxism on the fundamental question of the relation between logic and reality and toying with views belonging to bourgeois schools of thought. This must inevitably bring him into conflict with the philosophical position so clearly expressed by Engels.

Yet Loris cannot bear to admit this fact either to himself or to others. This is the contradiction in which Loris is caught and from which he must extricate himself. This also is the key to all our differences.

What Abstractions Does Loris Question?

His shift of position on the question of abstraction provides another example of Loris' false methods of discussion. In his first document Loris wrote: "All the themes of dialectics...become empty abstractions outside of the epistemological field." Now in his second document Loris tries to make out that it is solely Warde's formulations which he condemned as abstract. "The question is not one of abstractions, but of the specific abstractions used by Warde."

No, the question originally raised by Loris is whether or not the laws of dialectics become empty abstractions when they are applied to the external world. I upheld the orthodox Marxist view that, although the laws of dialectics like all scientific laws are abstract, they lead to the most precise and productive results when applied to objective reality in society and in nature. Loris explicitly asserted the contrary. To drag in the subsidiary factor "of Warde's formulations" serves only to becloud the issue, not to clarify it.

Particular And General Laws

Loris informs us that there are physical laws, biological laws, and social laws. Agreed. But he denies "the existence of a general law of change (development) which can be applied to all fields..." In denying "the existence of a general law of change", Loris really denies the possibility of the laws of dialectics which Engels defined as "the science of the general laws of all motion."

Marxism of course recognizes that each individual science has its own laws which can only be derived from direct and prolonged investigation of the material processes operating in that specific field of reality. But the existence of separate sciences does not, as Loris states, negate the existence of general laws of motion which arise out of the results of the individual sciences and embrace the entire known universe.

Processes in nature manifest themselves in various forms of motion: mechanical, electrical, chemical, mental, etc. These qualitatively different forms of motion are not only interfused but interconvertible into one another under the proper material conditions. Mechanical motion can pass into heat, heat into light, light into electricity, and vice versa. These diverse forms of motion exist and function only in relative independence of each other.

Just as one form of motion develops out of and into another, so their reflections in the human mind, the various sciences, necessarily arise out of and pass into one another and thereby form an interconnected body of knowledge. The unity and organized interconnection of the sciences is a conceptual expression of the material unity of the universe.

The laws of dialectics single out and express the common feature exhibited by all these diverse forms of motion, extending from ordinary mechanical motion, or change of place, up to the complex motion of thought. In the last analysis the unity of the Marxist world-conception seeks to reproduce the unity of the material universe in its process of development.

Loris tries to break up this unity of Marxist thought summarized in the laws of dialectics. Falling into the trap of the most vulgar empiricists, he, too, tends to consider the various fields of science as absolutely independent of each other. At the same time he admits that "scientific laws in different fields have a tendency to connect one to another, and to form a system." He does not explain why they have such a tendency nor what the theoretical conclusions

of their growing unification must be. All this is left blank. Loris merely reiterates that general laws of change are meaningless and impossible. His theoretical error consists in an inability to see the underlying unity as well as the distinctions among the sciences. He fails to see the forest for the trees - to grasp the general together with the particulars.

Geometrical And Dialectical Laws

Loris now attempts to buttress his false conception of dialectics with an equally false conception of geometry. The laws of geometry, he writes, "give us the correct conclusion," whereas the laws of dialectics only guide us to correct conclusions. Does Loris realize that he here invests the laws of geometry with the magic powers which he implies I attribute to the laws of dialectics; namely, that laws can of and by themselves provide correct answers regardless of material considerations?

The geometrical law that a given area equals its length multiplied by its width is nothing but an abstract formula. It cannot "give us any correct conclusion" in a particular case until the quantitative length and width of the area in question are known. Only when we possess these specific material measurements can we with the aid of the law arrive at the exact area. So far as their relation to objective reality is concerned, there is no essential difference in this respect between dialectical and geometrical laws.

Moreover, here and elsewhere Loris inclines to impute to materialist dialectics claims which Marxists have always disowned. The method of Marxism is not an instrument for proving things. The truth or falsity of any conclusion is tested and proved by material, and not formal or methodological, factors.

Engels refuted this hoary caricature of materialist dialectics in "Anti-Duhring." Duhring had accused Marx of deducing his conclusions, not from investigation of the historical and economic processes, but from Hegel's dialectics. Engels pointed out that the contrary was the case. "After he has proved from history that in fact the process has partially already occurred, and partially must occur in the future, he also then characterises it as a process which develops in accordance with a definite historical law. That is all." - (Page 152.) Engels earlier declares: "To me there could be no question of building the laws of dialectics into Nature, but of discovering them in it and evolving them from it. But to do this systematically and in each separate department is a gigantic task." (Page 17.)

The dialectical method is only a means of attaining knowledge, indispensable but insufficient by itself. It can no more dispense with the findings of material reality than a machine can produce anything without material. Moreover, our method is not a machine which automatically grinds out answers to all questions in all fields. It is a guide to action. The validity of all conclusions are proved in practice, not by theorizing in abstraction from reality.

Engels and Hegel; Materialism

And Idealism

Engels learned from Hegel and other classical philosophers what Loris has yet to learn; the unity of thought and being. In his anxiety to score a point against me, Loris declares that Hegel's opposition to any separation of thought and being "was the very essence of his idealism."

This is incorrect. The essence of idealism is the conception that being is essentially thought. The essence of materialism is the conception that all being is essentially material in character and that thought itself is one of the manifestations of matter. A few sentences later Loris indicates that he too is aware of this in his clearer moments. "In the 'unity' and the 'interconnection', matter is primary, original, mind is secondary, derived. If this point is not stressed, the difference with idealism fades." Very true. But here Loris admits what he previously denied; that what differentiates materialism from idealism is the primacy of matter and not the question of their unity. If as Loris correctly asserts "mind came out of matter" then what happens to his contention that the laws of dialectics are purely epistemological in character? For do not the products of the mind (the laws of the dialectic in this case) "come out of matter" or Nature as Engels said?

To repeat, the question of the unity of thought and being does not at all determine the basic differences between materialism and idealism. On this question objective idealism and dialectical materialism maintain a common front against the agnostics. They can do so because they are two consistent and principled conceptions of the universe whereas agnosticism wanders and wavers on this point without coming to any settled conclusion.

Loris here confuses the question of the unity between thought and being with the quite different question of the identity of thought and being. Idealism holds that in the last analysis being is nothing but thought. According to dialectical materialism, reality develops and our knowledge of reality develops along with it. But our knowledge of reality, while closer and closer approximating to reality, can never completely coincide with it. Nevertheless, thought and reality have a common content which finds expression both in our knowledge of the laws of thought and of the laws of nature. "Laws of thought and laws of nature are necessarily in agreement with one another if only they are correctly known." - (Engels, Dialectics of Nature, Page 239.)

Dialectics therefore does not simply "deal with the historical progress of knowledge", as Loris asserts, but with the entire historical process of which the progress of knowledge is only a reflected part. "The dialectic in our heads is only the reflection of the actual development which is fulfilled in the world of nature and of human history in obedience to dialectical forms." (Marx-Engels Correspondence, Page 495.)

Lenin and Loris

Loris mistakenly attempts to enlist Lenin as his ally in revising the conceptions of Marxism. I shall here deal with only one aspect of his misunderstanding of Lenin; Loris' implication that Lenin denied the dialectics of nature. For what else are we to infer from Loris' statement that "the center of gravity...consists of using the scientific method in sociology?"

In his Granat Encyclopedia article on "Marx" Lenin quoted and approved Marx and Engels' definition of dialectics as "the science of the general laws of motion-both of the external world and of human thought." And "modern natural science...has proved that in the last analysis nature's process is dialectical and not metaphysical."

Least of all could Lenin agree with Loris' conception that epistemology included dialectics. In fact, he specifically states otherwise. "Dialectics, as understood by Marx, and in conformity with Hegel, includes what is now called the theory of knowledge, or epistemology, which, too, must regard its subject matter historically, studying and generalizing the origin and development of knowledge, the transition from non-knowledge to knowledge."-(Selected Works, Vol.XI, Page 17.) Lenin here says; dialectics includes epistemology as an element of itself. But Loris says; Materialist dialectics belongs exclusively to the field of epistemology.

These two positions are incontestably counterposed. How can Comrade Loris reconcile them?

The Development of Social Contradictions

Now that the differences in our fundamental positions have been clarified, we can profitably consider the examples of contradictory relations tersely noted in my lectures. This will help remove one of the new smokescreens Loris has raised. I propose to take two examples - one from society, the other from nature-upon which Loris has concentrated his criticism and, as he demands, "clarify them so well that every party member should be able to understand them, be prepared to expound them and be armed to defend them against attacks." In particular, against the attacks of Comrade Loris. These examples are no more than popular illustrations of some fundamental ideas of dialectical logic and by no means exhaust the subject.

First, the relations between capitalists and wage-workers. Loris will hardly deny that these two classes stand in essential opposition to each other and that out of their incompatible and conflicting material interests the class struggle develops. At the same time these two polar classes are inseparably interconnected and together constitute the organic structure of capitalist society. Logically speaking the, the social relations of these classes comprise a unity of opposites. What is this but a contradiction?

What Loris denies is that either one of the opposing sides of this contradiction can be transformed into the other. He wants to

freeze these social relations forevermore in their opposition. "What do you mean by saying, "he asks, "that the capitalist can become a wage-worker' at any given moment.'" An attentive reading of the sentence Loris quotes will show I really said; "each side...can retire and give way to the opposite." All depends, however, upon the specific material conditions within the oppositional relation exists and under which it develops.

In this instance a capitalist can become a wage-worker if his business is ruined and he has to accept work in a factory at an hourly wage-rate. A former employee who has blossomed into a factory owner can hire him. Such reversals have happened not only in Hollywood but in real life.

Moreover there exist many gradations between these social extremes. The "small master" who works in the shop side by side with his hired wage-laborers is neither a pure capitalist, living exclusively by exploiting others, nor a wage-worker existing through the sale of his labor-power. These "cockroach capitalists" are a cross between the two opposing classes, transitional types which share the features of both and are neither completely one nor the other. Such an economic phenomenon is a living contradiction in modern economic life.

But, Loris may object, although this dialectical passage of one side over and into the other may happen to individuals, it cannot hold for the entire class. To be sure, it is absolutely impossible, owing to the material constitution and course of capitalism as a system of exploitation, for all wage-workers, or even any significant percentage of them, to become capitalists. The great contradiction of capitalism cannot be overcome and abolished in that way. That is why the illusion propagated by American capitalism up to 1929 that every worker could become a shareholder in the capitalist set-up was utterly reactionary and Utopian.

This social contradiction has to be resolved in the opposite direction. It is not only possible but inevitable that with the revolutionary development of the contradictions between the classes the capitalist class will become "decapitalized" and converted into wage-workers en masse. This happened in the Soviet Union. The task of the socialist revolution is to realize such a dialectical transformation of the capitalist exploiters into their own opposite as the major step toward the abolition of all class distinctions.

Loris' theoretical error consists in taking contradictory relations as static things whereas they are relative; fluid, flexible, in constant movement and change. Scientific Socialism is based upon a profound grasp of this dynamic, i.e. dialectical, nature of all contradictions.

Contradictions of Sexuality

Sexuality is no less contradictory a phenomenon than capitalism. It is "common-sense" knowledge that there are two sexes, male and female, and that every individual must belong to either one class

or the other. These facts of life conform not simply to everyday experience but to the laws of formal logic which assert that everything is identical with itself, that it must be one thing or the other, and cannot be two opposing things at one and the same time.

Unfortunately for common sense and formal logic, these normal modes of sexuality are constantly being violated. The most contradictory biological combinations and conversions occur. Males turn into females and females into males.

As we descend in the animal kingdom, the sexual situation becomes increasingly complicated. We find hermaphroditic groups in which maleness and femaleness are exhibited by one and the same individual either concurrently or in succession. Certain fruit flies are male on one side of the mid-line of the body and female on the other; others are one-quarter male and three-quarters female; in still others the head is female and the rest of the body male. Reversals of all kinds take place. There are inter-sexual species of moths which develop as male or female up to a certain point in their life history, switch over, and thereafter develop as female or male. The oyster which begins life as male can when one or two years old become a female. Then while still carrying its own embryos it can equip itself as a male once more. Similar sexual phenomena occur in plants. They can be artificially as well as naturally induced.

Thus biology and botany contrive to make a fool out of common-sense thinking and formal logic. We see here how the generalizations of formal logic arise out of an extremely narrow range of experience and limited aspects of reality. In order to classify phenomena correctly and to comprehend all their various and contradictory phases other laws, indeed another type of logic are needed. These can only be the laws of dialectics which view reality as a never-ending process of contradictory phenomena passing into and out of each other. For materialist dialecticians these contradictory processes are the result of material causes which determine not only the material constitution and changes of things but likewise the logical forms by which the human mind comes to understand them.

Logical "Patterns"

"Do you mean that the transformation of male into female follows the same pattern as the transformation of the capitalist into the wage-worker?" Loris sarcastically inquires in his "Brief Remarks." Since the first process is organic and the second social in character, they operate in different domains and in obedience to different kinds of material causes. Nevertheless both processes, in so far as they exhibit the transformation of a thing into its opposite, trace out the same logical pattern. They are different examples of the dialectical law of the interpenetration of opposites.

Formal logicians swear that such a thing is logically impossible. Nevertheless, it continues to take place all the time on the earth, in society and in our heads. This upsets the formal logician and his neat little garden of hard-and-fast distinctions no end, just as it bothers Comrade Loris. But reality is under no obligation to conform to their prejudices and misconceptions.

Loris repeats his error later on when he asserts that "the movement of an atom does not follow the same pattern as the development of a cell, the solar system does not follow the same scheme of evolution as capitalist society, etc." It is true that the specific modes of motion of these diverse phenomena differ. That is why science is split up into different branches, each of which must be directly and independently investigated in order to discover its specific laws. At the same time, since all branches of science deal with portions of the same material universe, they have certain fundamental features in common. That is why we have unified science and general laws of motion.

The highest synthesis of scientific knowledge in the field of logic is materialist dialectics. The common logical characteristics of all parts of reality now known to us constitute the content of its laws and categories. The trouble with Loris is that he sees only the divisions and differences between the various departments of science but not their underlying unity and points of identity which find expression in the laws of dialectics. This one-sidedness is typical of all his thinking in this discussion.

The Universal and Material Character of Contradiction

Loris has now been given both my general conception of contradiction and a clarification of some examples. We, alas, have neither from him. "It was perfectly clear to me when I wrote my 'Brief Remarks' that we have to come to a general discussion of the nature of contradiction," remarks Loris. Yet he does not favor us with his views.

Loris writes; "Warde speaks of 'material contradictions'(!) which, so far as I know, Engels never mentioned." Loris' assertion is contrary to fact. Chapter XII of "Anti-Duhring" is devoted to a polemic against Duhring's view that "contradiction is a category which can only appertain to a combination of thoughts, but not to reality." "Motion," says Engels, "is a contradiction which is objectively present in things and processes themselves and so to speak in corporeal form...If mechanical changes of place contain a contradiction, this is even more true of the higher forms of motion of matter, and especially of organic life and its development...Life is also a contradiction which is present in things and processes themselves..." - (Pages 136-138.)

The whole of Marxist literature is filled with references to class, social and economic contradictions. Surely these are not "immaterial" relations of polar opposition. "The October revolution inherited from Old Russia, besides the internal contradictions of capitalism, no less profound contradictions between capitalism as a whole and the pre-capitalist forms of production," wrote Trotsky in "The Permanent Revolution", Page xix. And then he adds; "These contradictions had and still have, a material character, that is, are contained in the material relations between the city and country in definite proportions or disproportions of various branches of industry and national economy in general, etc."

Possibly contradictions may exist in society but not in nature? Let us again hear from Trotsky. "Pedants think that the dialectic is

an idle play of the mind. In reality it only reproduces the process of evolution, which lives and moves by way of contradictions" (History of the Russian Revolution, (Vol. II, Page 1.)

These three citations should suffice to establish the Marxist conception of the objective, universal and material character of contradiction. Dozens more to the same effect could be cited.

Although Loris is reluctant to set forth his own conception of contradiction, it is not difficult to deduce from his implied opposition to the materialist view the essence of the position he will be obliged to adopt - if he persists in maintaining his recent contentions.

If contradictions are not "material", then they must be considered "immaterial", that is, purely psychological in character. If they are not to be found in nature and society, they must be restricted to the mind. Such a conception of contradiction as purely a product of mental processes would conform to Loris' general view of dialectics as confined to epistemology.

There is nothing new in this stale subjective conception of contradiction. The purely psychological or "intellectual" character of contradiction is stoutly maintained by every school of anti-dialecticians without exception. It is a cardinal tenet of all subjective idealism which Hegel explicitly challenged and overthrew. Hook, Eastman, Edmund Wilson and all the other revisionist opponents of materialist dialectics attack the material character of contradiction. In his formal declaration of independence from dialectics Hook wrote: "The fundamental presupposition of all the laws of dialectic is the belief that contradiction 'is objectively present in things and processes.' To say the very least, this is a strange use of the term 'contradiction,' for since the time of Aristotle it has been a commonplace of logical theory that propositions or judgments or statements are contradictory, not things or events. Engels is perfectly aware of the traditional usage but argues against Duhring that the refusal to make the concept of contradiction applicable to things is precisely what reveals the limitations of common sense and formal logic. ("Dialectic and Nature", Marxist Quarterly, April-June 1937.)

The revisionists see the vulnerable point of the Marxist dialectic precisely where it is strongest; in its recognition of the objective reality of contradiction. That is why they instinctively concentrate their attacks upon one of these nerve-centers of Marxist theory. It is a sad fact that Comrade Loris simply echoes their arguments, often in the self-same terms, although he obviously does not belong in their company.

Loris Entangles Himself in Contradiction

In his second document, under pressure of our criticism, Loris has retreated a step away from his original contention that logic is independent of reality. As the ever-hopeful Christian seeks to separate soul from body, so Loris still tries to find some segment of the thought process which is completely free from domination by matter.

He mistakenly finds that in the pure process of deduction itself. But "at the beginning and at the end of the process" he now admits that logic refers to experience. Even more, he acknowledges that "the laws of formal logic, of consistency have originally been abstracted from nature."

Although this reluctant admission brings Loris closer to the materialist conception, it does not improve his general theoretical position. In fact, it serves to expose the most glaring inconsistencies within it.

If the laws of formal logic "have originally been abstracted from nature" and this "enables us to deal with nature" - and these statements are correct - then why does this not hold true of the laws of dialectics?

Loris contends that the laws of dialectics are not abstracted from nature and cannot be applied directly to nature. They are, according to his "epistemological conception", applicable only to the theory of knowledge. Thus Loris endows formal logic with a universal character and a superior status which he denies to dialectics. But we have been taught - and Loris presumably also believes - that dialectics is a form of logic superior to formal logic. In what does its superiority consist, if one can be applied to nature and the other only to the theory of knowledge? In reality Loris degrades dialectics below formal logic by confining it to a far more restricted sphere of operations.

The truth of the matter is that both systems of logic, formal and dialectical, have been abstracted from nature and are applicable to nature. Dialectics is superior to formal logic because it derives from a far more penetrating insight into natural processes and from a far more comprehensive view of phenomena and can therefore be employed far more extensively and accurately in all fields.

Loris who does not believe in the objectivity of contradiction finds himself entangled in a double contradiction. First, he contradicts himself by really degrading dialectics beneath formal logic, while claiming that the former is superior to the latter. Second, he contradicts Marxism. Even from the standpoint of formal logic, there is not much consistency observable in his remarks. Nor, we may add, much dialectics either.

It is not easy to acquire a sure grip upon the method and ideas of materialist dialectics, not to speak of disseminating and developing them. The keenest intelligence can fall into errors along the way.

When the Bolsheviki were discussing similar problems in 1922, Lenin made the following observations: "...Unless it stands on a solid philosophical ground no natural science and no materialism can hold its own in the struggle against the onslaught of bourgeois ideas and the restoration of the bourgeois world outlook. In order to hold its own in this struggle and to carry it on to a victorious finish, the

natural scientist must be a modern materialist, a conscious adherent of the materialism which is represented by Marx, i.e., he must be a dialectical materialist.

"In order to attain this aim, the contributors to the magazine 'Under the Banner of Marxism' must arrange for the systematic study of Hegelian dialectics from a materialist standpoint, i.e. the dialectics which Marx applied practically in his 'Capital'...

"Of course, this study, this interpretation, this propaganda of Hegelian dialectics is extremely difficult, and the first experiments in this direction will undoubtedly be accompanied by errors. But only he who never does anything never commits errors." -- (Selected Works, Vol. XI, Page 77).

Lenin's words are entirely appropriate to the present discussion. We can all profit by them.

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ANENT UNSCIENTIFIC SCEPTICISM

By Ben Maxson

In short, Comrade Loris thinks that the dialectic method is not an adequate guide when applied in every field of science and the arts.

I seriously doubt whether the comrade has attempted to apply the dialectic method in every field of science and the arts; and until he has performed this little experiment with a high percentage of negative results, I suggest that the most fitting thing to do, from the strictly scientific point of view, would be to maintain a modest silence on the subject.

Admitted that dialectic materialism "too shall pass away", the comrade has mistaken the flow for the ebb. At a time when advances in science and culture so frequently verify dialectics, we feel justified in believing that its ever widening application is a counterpart of our ever growing revolutionary optimism which, without quoting "examples", we likewise believe justified.

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SURPLUS VALUE AND EXCHANGE OF EQUIVALENTS

(Note on an example in William F. Warde's
Introduction to the Logic of Marxism)

By Marc Loris

I.

Comrade Warde writes on page 18 of his pamphlet:

"The laws of formal logic are not the only laws which have a restricted validity. This holds true of all scientific laws. Let us consider, for instance, the law governing the exchange of commodities which plays so important a part in the science of economics."

Warde then undertakes to show at length that this economic law has a restricted validity; and he concludes (p. 21): "So it is with formal logic and dialectics." Warde's method is quite clear. He wants to prove a proposition; "The laws of formal logic have a restricted validity." For this end, he states a more general proposition; "This holds true of all scientific laws." Then he supports this general proposition by citing another special proposition, on a certain law of economics, and he bravely concludes; "So it is...". Thus, the laws of formal logic have exceptions because ... a certain law of economics has some. By such a method anything can be proved by anything. At best, what Warde has done is to give an illustration to convey his thought, but by no means to prove it.

This very same method is used throughout the entire pamphlet and makes a critical examination of Warde's work extremely difficult. You are never sure of what he merely states and of what he considers proved. However, my intention is not to dwell on this point at the present time. I wish to deal here with a factual error concerning the economic law Warde has cited.

II.

Although radically wrong, Warde's thought is clear (p. 19):

"Does this law that every commodity is and must be exchanged for another commodity of equal value hold good for capitalism? It does. For this reason Adam Smith, Ricardo and the other great bourgeois economists made this law the basis of their theory of the operations of capitalism.

But does this law apply unconditionally to all the relations within capitalist society? The classical economists believed that it did. Then along came Marx and Engels who pointed out that, while this elementary law applied to almost all the relations of capitalist society, there was one vital place where it didn't apply. It didn't hold good for the heart of capitalism; the economic relations between the capitalist employers and the wage-workers." (Warde's italics).

And further on (p. 20):

"(Marx and Engels) discovered and demonstrated that capitalism had developed as a distinct form of society and acquired its unique characteristics, not by obeying this law common to all forms of commodity society, but in violation of it. In reality capitalism functioned, not in accordance with the law of equivalent exchange of commodities, but through the opposite law of the exchange of unequal values between the capitalists and wage-workers."

Therefore, according to Warde, the specific feature of capitalism -- what distinguishes it from any other commodity society -- is that the law of exchange of equivalents is not respected in the relations between capitalists and wage-workers. Moreover, Warde presents this affirmation not as his own, but as Marx's. I simply want to show that it is contrary to one of the most fundamental parts of Marx's economic doctrine.

III.

The task is simple. We merely have to take the first book of Capital. Let us go through the second part, "The transformation of money into capital", and the beginning of the third part.

Marx starts by examining the difficulty of the problem: how money can be converted into capital, that is to say, yield a greater amount of money?

"The conversion of money into capital has to be explained on the basis of the laws that regulate the exchange of commodities, in such a way that the starting point is the exchange of equivalents. Our friend, Moneybags, who as yet is only an embryo capitalist, must buy his commodities at their value, must sell them at their value, and yet at the end of the process must withdraw more value from circulation than he threw into it at starting."

In order to underline the difficulty of the problem that no one has solved before him, Marx proudly adds:

"Hic Rhodus, hic salta!"

If Warde's affirmation were true, it would mean that Marx was unable to solve the problem thus posed, that is to say, without violating the exchange of equivalents. But, as is well known, Marx solved it. How?

The conversion of money into capital is possible because there is in the market a commodity, sold and bought at its exchange-value, as is every other commodity, whose use-value possesses the peculiar property of being a source of value. This peculiar commodity is labor-power. What is the value of this commodity?

"The value of labor-power is determined, as in the case of every other commodity, by the labor-time necessary for the production, and consequently also the reproduction of this special article... The value of labor-power is the value of the means of subsistence necessary for the maintenance of the laborer."

All throughout this development, Marx never tires of repeating: "equivalents are exchanged", "the commodity is paid for at its full value," etc.

Warde could not, of course, completely fail to know so fundamental a fact about Marx's economic doctrine, but this did not prevent him from introducing his "law of exchange of unequal values." Warde writes (p. 19):

"They (the capitalists) give the workers what it costs to produce their labor power. In this respect the law of exchange value held good. But they did not give the workers the full value of what they produced. On the contrary, they always give the workers less value in wages than the value the workers subsequently create in the process of production. The workers always get less value than they give. If this were not so, if the bourgeois law of identical value in exchange held unconditionally true, it would be impossible to explain how and from where the capitalists derive their profits, rents, interest."

In these few lines Warde has done his utmost to undo the work of clarification accomplished by Marx on the problem of surplus value. He has obliterated Capital's precise formulations and replaced them with vague phrases such as "the full value of what the workers produced" or "the workers always get less value than they give". This last affirmation of Warde's is incorrect from a Marxist point of view. The workers "give" their labor-power, which is paid by wages at its value, that is, at its cost of production. Equal value is exchanged for equal value. What Warde intended to say by these confused words is that in the process of production the labor of the workers creates new value, which generally is greater than the value of their own labor-power (that is, the cost of their own maintenance). This proposition is true, but, contrary to what Warde thinks, does not violate in any way the exchange of equivalents.

The clarification of this point rests upon the distinction between exchange-value and use-value, which runs through Marx's entire economic work. The "law of the exchange of unequal values" is not to be found in Marx's Capital, but in Warde's mere confusion of the exchange-value of labor-power with the use-value of the same labor-power.

Surplus value, which distinguishes capitalist production from simple circulation, does not have its origin, as Warde imagines, in "the exchange of unequal values", but in the fact that a certain commodity, labor-power, sold and bought at its value, has the unique feature, as use-value, to produce value. At least, this is the way Marx explains the origin of surplus value:

"The past labor that it embodies in the labor-power, and the living labor that it can call into action; the daily cost of maintaining it, and its daily expenditure in work, are two totally different things. The former determines the exchange-value of the labor-power, the latter is its use-value. The fact that half a day's labor is necessary to keep the laborer alive during 24 hours, does not in any way prevent him from working a whole day."

The capitalist is interested in labor-power because the specific use-value which this commodity possesses is to be "a source not only of value, but of more value than it has itself." And Marx continues:

"This is the special service that the capitalist expects from labor-power, and in this transaction he acts in accordance with the eternal laws of the exchange of commodities. The seller of labor-power, like the seller of any other commodity, realizes its exchange-value, and parts with its use-value. He cannot take the one without giving the other. The use-value of labor-power, or in other words, labor, belongs just as little to its seller, as the use-value of oil after it has been sold belongs to the dealer who sold it. The owner of the money has paid the value of a day's labor-power; his, therefore, is the use of it for a day; a day's labor belongs to him. The circumstance, that on the one hand the daily sustenance of labor-power costs only half a day's labor, while on the other hand the very same labor-power can work during a whole day, that consequently the value which its use during one day creates, is double what he pays for that use, this circumstance is, without doubt, a piece of good luck for the buyer, but by no means an injury to the seller."

Marx's phrase that the capitalist "acts in accordance with the eternal laws of the exchange of commodities", answers Warde directly, eighty years in advance.

Thus Marx has solved the problem he had posed and, unlike Warde, he had no need to evoke "the law of the exchange of unequal values". Marx finally concludes:

"Every condition of the problem is satisfied, while the laws that regulate the exchange of commodities have been in no way violated. Equivalent has been exchanged for equivalent."

Of Warde's affirmation nothing remains.

IV.

This little incident, has, however, its moral. Warde discovered "the law of exchange of unequal values" as "the opposite of the law of equivalent exchange" with the help of what he called "dialectical understanding". The sad fate of Warde's innovation in the field of Marxist economic theory cannot fail to cast suspicion on the validity of Warde's "dialectic".

November 20, 1943

(The quotations from Capital are from the standard English translation, but I have introduced a few changes which appeared to me indicated by the German original.)

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