Dialectics of Force: Ontobia

A New Edition and Translation

New York

ALSO BY ALEX BATTLER

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Alex Battler

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To my wife

In this book, for the first time in world scientific literature, the category of Force is presented as an attribute of matter alongside motion, space, and time. This has enabled the author to develop a different approach to the Big Bang, to give a new formulation of the border between life and the inorganic world, and to offer his own interpretation in the disputes on the mind–body problem. The category of Ontological Force formulated by the author has allowed him to develop a new definition of the concept of Progress, which creates a methodological basis for fruitful research in the fields of the social sciences and international relations.

This book is intended for instructors and students of philosophy and the natural sciences as well as for all those interested in the problems of the universe, life, and man.

CONTENTS

PREFACE

> It must be so; for miracles are ceas'd;
> And therefore we must needs admit the means,
> How things are perfected.
>
> *Shakespeare*

I assure you, dear reader, it was not my own desire that drove me to start working on this book, which took me almost three years to write. In that time, I could have published several books on topics more familiar to me: foreign policy and international relations. The responsibility for my long silence rests with a woman (the French got it right: *cherchez la femme*), and this woman is my wife. For around 15 years, she has been insisting that I finally write a book about *force* that will explain *everything.*

It was some 25 years ago when I pondered the Communist Party's formula, which was well known in Soviet times—the balance of powers in the world is shifting in favor of the forces of peace, progress, and socialism—and I asked a naive question of my mentor: what exactly is this "force"? He replied that is something that every schoolboy knows. Then I asked him to explain the difference between force and power and how they might be measured. I cannot reproduce his answer here in acceptable language; essentially, he told me where to go and to stop wasting time on foolishness. "You're not a German, after all, to dig into concepts and categories," he added unexpectedly.

Having received no answers to my seemingly simple questions, I decided to devote some of my spare time (in those years, I was researching Japan and China) to "foolishness"—that is, to investigating the literature on force. To my surprise, I discovered perfect chaos on this subject in the minds of the political scientists and scholars of international relations whose works I managed to read (about 100 monographs in

all). It became clear to me that this topic was not as simple as it initially seemed. Moreover, several theoreticians have advised their readers to avoid the tangled topic of force since it is not something one can hope to escape. I decided to leave the topic alone and continued researching the problems of international relations in the Far East. However, no matter what I was working on, the problem of force kept cropping up and demanding a scientific explanation.

Some people might ask why on earth I was curious to this problem. After all, many authors write about politics and international relations using the word *force* all the time (e.g., center of force, politics of force) without bothering with the question of its meaning. It is something that is, in any case, supposed to be obvious to everyone. It is true that many authors write as if that were so. However, their writings have nothing to do with science—they are mere political fiction. Even a number of official documents fall into this class; for example, the so-called conceptions of foreign policy or the national security of modern Russia. I have labored more than once to demonstrate the illiteracy of these authors and their documents. When fiction is made the basis of actual foreign policy, the resulting course of action inevitably results in failure, as the foreign policy of the Soviet Union in its last years and today's Russia shows.

Be that as it may, the moment came when I began to define for myself the category of Force in foreign policy and international relations, which immediately simplified for me the task of predicting the activities of this or that state in the world arena. But these were all definitions of force as a reflection of something more fundamental that I was unable to discern on the ontological level. Therefore, my definitions were incomplete, or, rather, they did not grasp the essence of force in its entirety. In spite of this, I continued to avoid delving too deeply into understanding force, being mindful of warnings from scholars who had already been burned by tackling this category. However, under pressure from my wife, I decided to come to grips with this problem after all.

Since I knew already that theorists in neither the area of political science nor that of international relations would be of any help to me in this endeavor, I decided, as a start, to browse through the philosophical literature, beginning with the ancient Greeks. I had to find out how this category was understood in the parlance of philosophers. Then I planned to determine in what form and through which phenomena force manifests itself in the inorganic (the sphere of Cosmogony and Physics) and the organic world. Quite unexpectedly, I found myself in

the thick of issues in natural philosophy at the heart of scientific battles whose existence I had never suspected.

When I started work on the chapter on consciousness and thought, in a book by Ernst Haeckel I came across the name of the German physiologist Emil Dubois-Reymond, who said the following in his famous speech "On the Limits of Cognition of Nature" (1880): "Regarding the puzzles of what matter and force are, and in what fashion they can think, he [the scientist—*A.B.*] must make once and for all a much more difficult confession, expressed in the verdict 'ignorabimus' (we won't learn)."[1]

In this speech, Dubois-Reymond spelled out the seven major puzzles of the world:

1) the essence of matter and force;
2) the origin of motion;
3) the origin of life;
4) the purposefulness of nature;
5) the emergence of senses and consciousness;
6) the emergence of thought and speech, which is closely tied to thought;
7) the problem of freedom of will.

In Dubois-Reymond's opinion, four of these puzzles are completely transcendent and unsolvable—numbers 1, 2, 5, and 7. Three others, though difficult, are solvable—numbers 3, 4, and 6. Haeckel, though, when he was addressing these puzzles, declared, "We, as yet, do not know."

Despite Haeckel's optimism, I found myself in a slight panic since, in this present work, I had become entangled in different ways in the thickets of all these puzzles (the last one of which I was planning to address in my next book). If I had only come across this book of world puzzles before I started my research, I would most likely have refrained from beginning my own book. Then I remembered the English philosopher and economist John Stuart Mill, who wrote (if I remember correctly) in his *Principles of Political Economy* (1848) that, if a capitalist had studied his book, he would likely never have started up a business. It appears that many achievements come about only because their authors do not know in advance of the difficulties ahead. I guess that Napoleon was right after all when he said that the main thing is to get engaged in

1 Haeckel, *Die Welträthsel*.

the battle and then let the chips fall where they may.

When, in my ignorance, I became involved in this battle for the recognition of force in philosophy—force in the inorganic and organic worlds, and in the realm of psychology as well—I discovered the most savage arguments between different schools and trends about these very puzzle-problems. I was obliged to develop my own position on these matters and, occasionally, offer my own solutions.

I will talk of this position in more detail in the introduction. At the moment, I would like to draw your attention to the following:

Ordinarily I do not discuss my works with anyone until they are published. I am repelled by the practice of specialists working on the same topics talking over ideas among themselves. I have horrible memories of how it was done in the Soviet Union (and I suppose that the practice is still alive in that land to this day), where your idea was first discussed in your "sector" and then in your department of the institute so as to receive approval for publication "with note duly taken of criticisms." Since all books without exception underwent this procedure, upon publication they appeared practically the same irrespective of who the author was. Can you imagine Aristotle "taking due note" of criticisms by Plato, Leibniz of those by Newton, Hegel of those by Schelling, or Marx by of the above-mentioned Mill? If it had been done this way, none of them would have become what they were; their works would have been faceless, in compliance with the views dominant at that time, i.e., without a hint of new ideas.

However, in writing this book, I was forced to forget my rule since I was straying outside my turf. Even though I had of necessity read many books on physics, biology, and psychology, I still did not feel sufficiently confident in these areas. For this reason, I was obliged to subject the sections on physics and biology to the scrutiny of specialists: the cosmonaut Yuri Baturin, one of whose areas of expertise is cosmology, and Georgy Lyubarsky, a biologist and leading expert at the Zoological Museum of Moscow State University.[1] Their comments proved to be extremely valuable to me; not only did they help me correct some of my terminological mistakes, but they also assisted me in formulating my thoughts on various problems somewhat differently. Mr. Baturin, among other things, compelled me to read a great deal of additional

1 Unfortunately, I was unable to get the chapter on psychology checked in the same fashion, for I could not find a scholar (in Russia) who studied the body–mind problem in the spirit of the present work.

literature, including works about information entropy. I would like to express my sincerest gratitude to both of them. Should professionals find any incongruities in the parts of my book dealing with physics or biology, it will be only because I inserted them after my esteemed reviewers had finished looking at the text.

Let me add that many of Mr. Lyubarsky's criticisms proved useful to me, and I complied with them gratefully. At the same time, I left untouched many things that had my well-disposed reviewer perplexed. Specifically, I am referring here to Chapter III ("The Origin of the Organic World..."). G. Lyubarsky many times brought up the names of several Soviet (or Russian) biologists I had failed to mention while offering a detailed analysis of the works of several Western biologists whose views he considers "trivial" or "unscientific"—and why did I have to "promote" Karl Popper while there are other interesting philosophers? I expect that similar questions or "befuddlements" may occur to many Russian readers "hurt" by the insufficient attention given to Russian scientists. Even though I perceive such reactions to be just, they may lose ground when one considers certain circumstances that are unfamiliar to Russian readers' perceptions. (The explanation of this may be of interest to the Western reader as well.)

Even though the original text was written in Russian (my native language), I am not a Russian scholar but rather a representative of the Western scientific community; therefore, my book is geared first and foremost toward the Western reader. To Western readers, even those in the sphere of science, Russian names, with very few exceptions, say little. This, by the way, is a criticism I level against Western science in this book. Wherever it is useful (or sometimes just for the sake of mentioning them), I insert or refer to Russian scientists.

In addition, although some Western scientists may express views that are, in Lyubarsky's opinion, "unscientific," they are nonetheless widely discussed in the scientific literature; in other words, they constitute a kind of background for certain problems. Of course, there are other philosophers besides Popper, but he is for many a great authority on the subject of determining the boundaries of science, as is attested to by frequent references to his works rather than to, say, the works of Deborin, Mitin, or Kedrov—Soviet-era philosophers.

This applies to biology, too. Of the ten Russian biologists mentioned by Lyubarsky—who are, perhaps, major figures—not one is to be found in the bibliographies of the modern Western works that I have used in my monograph. They are absent even in the bibliography of Stephen Jay

Gould's *The Structure of Evolutionary Theory*, a fundamental work of 1,433 pages. This does not at all mean that Russian scientists are at a lower level than their Western counterparts. It is just that Russian science is limited by national boundaries while Western science encompasses the entire world and sets the tone for the progress of science and technology.

Moreover, my choice of this or that scientist was determined not by his contribution to science (I then would have had to write an entirely different book) but rather by the degree of connection between his views and the problems analyzed in this book. Among contemporary Russian scientists, the problems tackled in this book are practically not discussed at all.

There is one more thing to consider: I live in the West, so I have limited access to Russian sources. Moreover, those Russian scientific magazines that are represented online offer the titles of their articles but not the texts.

At this point, I wish to draw the reader's attention to the following fact: several selected parts of my work (and later whole book) have been posted on my website. I needed to gauge the degree of my text's accessibility for the regular reader. I received a number of e-mails in response that contained complaints about excessive quotation and abuse of certain scientific terms. I was advised, in the first case, to put others' ideas into a popular retelling style and in the second to replace technical terms with "normal words."

In this connection, I want to warn the reader right away that this book is not a popular essay that can be browsed in the subway or when having a cup of tea. This is a scientific analysis of an extremely difficult problem that has been discussed by scientists for over 2,000 years. Moreover, regardless of the results I have arrived at in solving the problem of force, what is important here is the process of achieving the stated goal, what Hegel called "result together with its formation." The perception of this realization requires mental effort, including understanding my predecessors' original texts, rather than simplified interpretations of them. I quote different authors rather than recount their ideas precisely because the idea itself is often not as important as the road taken to get to it, i.e., the logic of thought and the manner of presentation. It is only by following that road that the reader himself starts to think and to understand. When reading, say, a textbook on philosophy, a person receives information that is quickly forgotten. But the reader who studies the original—say, Aristotle's *Metaphysics* or Hegel's *Science of Logic*—learns to think. It is no accident that many

Russian thinkers of the 19th and 20th centuries "underwent" Hegel; let it suffice to name Belinsky, Herzen, Chernyshevsky, Pisemsky, Bakunin, Plekhanov, and Lenin. Curiously, those who failed to train their brains on the works of "the objective idealist" Hegel remained either second-rate politicians or theologians of no note who had no influence on their country's development. It is for this reason that I often intentionally overdo quotations from, say, Leibniz, Kant, or Hegel: I want the reader to use his brains.

As for special terms, their use is unavoidable in principle since each science has its own specific lexicon. Just in case, I put together a small glossary of terms. Perhaps I failed to include some terms there, but please bear in mind that this book is not intended for the uneducated reader who consumes bestsellers by Danielle Steel or some corresponding Russian hack. My reader is a person who reflects on questions such as what life is, what its meaning is, and why the universe exists.

In this book, I present my answers to these questions. As almost always, they are not identical to the ideas provided by most of the scientists mentioned in this book and certainly to those of many others who remained outside my research. Thus, I invite criticism of my views and ideas but in writing only (in the mass media or on my website) rather than in backroom talks.

To sum things up, in this book, I formulate:

- *a definition of force as an ontological category;*
- *the manifestation of force in the inorganic world within the framework of the idea of the Big Bang;*
- *a definition of force in the organic world to determine the boundary between life and nonlife;*
- *a solution to the mind–body problem (i.e., what consciousness and thought are), which has led me to a new formulation of the concept of Progress.*

This being done, I consider the natural philosophy part of my analysis of force to be complete. The next book, *Society: Force and Progress*, will

be dedicated to the analysis of force in social relations. The last part of the odyssey will deal with defining the concept of Force in the sphere of international relations.

Finally, a few more words about the person without whose persuasion this book would never have been written—my wife. Valentina has the unique ability to deprive me of rest. In fact, this is true of my previous books, too, as well as, I suspect, the books to come. Before I even finish a work, she starts to offer the next intriguing problem. She creates truly unique conditions for my creative work, providing the necessary technical functions such as editing, proofreading, formatting, information searches, etc.

Valentina—an artist and a poet—is a creative person who paints in the Chinese style and writes poems to accompany them in Russian and English. So it is to Valentina that I dedicate this book on force. It may not explain *everything* the way she told me to, but at least it explains the force of my love for her.

In conclusion, I would like to thank my Canadian translator, Pavel Sorokin, a unique person possessing multifaceted knowledge in many areas of science and art. He has been the first of my translators to be able to adequately translate texts in four scholarly and scientific disciplines (philosophy, astrophysics, biology, and psychology) while preserving the author's style. I am truly grateful to him for his thorough work.

* * *

This book is a new edition and translation from Russian. In this latest revised version, I did not add new materials on the topics outlined in the table of contents and set aside the deepening of these topics for a while. I intend to include new materials and even reflect on some topics in a new light in my next series of books called *Mirology: Force and Progress in World Relations*.

INTRODUCTION: LEXICON AND METHOD

> Eating and drinking are reckoned a more intelligible business than thinking and understanding.
>
> *Hegel*

In everyday life, we constantly come across expressions such as *the power of love*, *strength of spirit*, and *force of life*. These words confuse no one; we all understand each other just fine. However, if one poses a simple question such as what is love?, what is life?, or what is spirit?, everyone will provide different answers. This applies not only to ordinary people but also to people who are supposed to be intellectuals (scientists, authors). I once read a book written by a philosopher in which he had collected the definitions of *love* given by some of the best-known personalities in the realms of science and culture, and all these definitions taken together still did not make clear what love is.[1] The situation is the same with the words *life, spirit,* and *force*.

Force will be the hero of this book, though the question, which force?, may arise immediately. Force as might or force as violence? Or perhaps force as authority? But let us proceed without haste. For the time being, I will simply make use of the word *force* without drawing distinctions.

However, in my opinion, the problem of translation arises at once. How to translate into Russian, for example, the expression *powers of forces* used by Newton in his famous *Mathematical Principles of Natural*

1 Chertkov, *On Love*.

Philosophy? This phrase is rendered into Russian with the same word, *sila*. Or how about the expression *strengths of forces*, which I have come across more than once? Since two different words are used in these phrases, it stands to reason that different phenomena stand behind them. For example, in the Russian and English translations of Hegel's *Science of Logic*, in one place the German word *Gewalt* has been translated respectively as *moshch'* (might) and as *power*, even though *Gewalt* means *violence*. This has resulted in a serious perversion of Hegel's thought.

There are no fewer problems in translating this word as the ancient Greek philosophers used it. Let us recall that, in the Greek language as used, for example, by Aristotle, we encounter the words *dunamis, energia,* and *entelecheia*. The first of these is translated into Russian as *vozmozhnost'* (possibility) and into English as *power*. *Energia* and *entelecheia* are translated into Russian as *deistvitelnost'* (reality) and *deyatelnost'* (activity), with the latter sometimes also translated as *sila*. In the English language, both are rendered sometimes as *force* and sometimes as *power* while *entelecheia* is most often translated as *actuality*. The problem is that the Greek authors themselves put different meanings into these words. For that reason, in every concrete case—when quoting, say, Aristotle—the meaning of the word used must be specified.

With Latin, things are much simpler. In that language, for the most part, two words are used to signify force: *potentia* and *vis*. The former means a passive force while the latter means an active one. However, they are both translated into English sometimes as *force* and sometimes as *power*, *vis* often being left untranslated or, on occasion, transformed into *vis viva* (living force).

The greatest difficulties arise in the case of the English language, in which the equivalent of the Russian word *sila* has undergone a very extensive development, splitting up into *force, power, might, strength, violence,* and *authority*. As an aside, this variety has created confusion in the social sciences, especially in the area called international relations. The only author who attempted to draw distinctions between these words on the level of terminology was, unusually, a woman: Hannah Arendt, whose work I will have to address in the corresponding part of the subsequent monograph. At this point, it is appropriate to provide the definitions of these words as found in Webster's dictionary, although even that is not so simple. For example, Webster's defines the first meaning of strength as "the quality or state of being strong" and the

second as "power to resist force."[1] However, considering the contexts in which these words are used, they mean approximately that *force* is force in the inorganic world; *vis* is force in the organic world; *power* is force in society; *might* is what is called *moshch'* in Russian; and *strength* is individual force, close in meaning to the Russian word *tvyordost'*. The table below shows approximate translations of these words:

English	Force	Power	Might	Strength	Violence	Authority
German	Kraft	Kraft Macht Energie	Macht	Stärke	Gewalt	Autorität
French	Force Pouvoir	Puissance	Puissance	Force Puissance	Violence	Autorité
Italian	Forza	Forza Potenza	Forza Potere	Forza Vigoria	Balìa	Autoritá
Russian	Сила	Сила	Мощь	Твердость	Насилие	Власть
Latin	Ops Vis	Potentia	Potestas	Robur	Violentia	Imperium Potestas
Greek	ΒΙΑ ΔΥΝΑΜΗ ΙΣΧΥΣ	ΙΣΧΥΣ ΕΞΟΥΣΙΑ ΔΥΝΑΜΗ ΕΝΕΡΓΕΙΑ	ΚΡΑΤΑΙΌΤΗΣ ΙΣΧΥΣ ΔΥΝΑΜΗ	ΔΥΝΑΜΗ ΙΣΧΥΣ ΡΏΜΗ	ΒΙΑ ΒΙΑΙΌΤΗΤΑ	ΕΞΟΥΣΙΑ ΚΥΡΟΣ

I repeat that these are just words, not even terms. A word becomes a term when it is given a specific meaning. For example, the word *might* is used to signify many things: the might of a state, the might of reason, the might of the economy. However, when I specify that I am using the word *might* to mean only *economic might* (disregarding the state, reason, etc.), it becomes a term with a precise meaning relating to economics. This is the first stage in moving away from ordinary consciousness toward scientific cognition, though it is not yet science. Scientific research begins when the researcher switches to the language of concepts and categories. **In cases in which a science is only beginning to form, it is unreasonable to expect the use of definite concepts and categories from the very start**; they do not yet exist at the initial stage. The process of research is conducted in such cases based on mere words, or terms, at best. Reasoning on the basis of words, for example, is typical for such a field as "international relations." As was noted perfectly correctly by the

1 *Webster's Seventh New Collegiate Dictionary*, 868.

renowned psychologist Lawrence Weiskrantz, "Definitions and precise theoretical constructs are the final product, not the starting point of inquiry."[1] Once the final product—concepts and categories—has been constructed, it is fair to say that this concrete area of knowledge has become a new science.

The problem with the word *force*—as well as the words *life, love,* and *spirit*—is precisely that they have not yet acquired a conceptual content, at least not in the social sciences. However, let us recall Hegel's words: "Only in its Notion does something possess actuality, and to the extent that it is distinct from its Notion it ceases to be actual and is a non-entity; the side of tangibility and sensuous self-externality belongs to this null aspect."[2] In other words, it belongs to the existential side of life but not to its scientific part. Therefore, the phenomena that stand behind the above-discussed words are still not understood, are barely studied, and are unpredictable.

Here lies the paradox: in spite of all this: it is precisely these words that have been used to lay the foundations for many scientific theories and even laws. Such developments are possible.[3] Newton wrote of this with some irritation in his *Principles*: that he was incapable of discovering the phenomenon of gravity since "I frame no hypotheses"—I practice experimental philosophy. The physicist Henri Poincaré formulated this idea laconically: "It is not important to know what force is; it is important to know how to measure it."[4] If so, the question arises as to what it is that is being measured.

To a certain degree, I followed this rule myself when I formulated the laws of *poles of power* (might) and *centers of power* without knowing what power is in its essence.[5] A very serious danger emerges in the process: is it really force that we are measuring? Could it be something else? At the intuitive level, everyone senses that force is something fundamental. But what is it?

Political scientists and scholars of international relations have given many definitions, and they will be presented in the appropriate place. However, these all remind me at once of that fortunate statement by Yu. Baturin: "In science they sometimes speak none too clearly of things

1 In Marcel and Bisiach, *Consciousness in Contemporary Science*, 183.

2 *Hegel's Science of Logic*, 50.

3 For a philosophical justification of this paradox, see Klaus, *The Power of the Word* (Gnoceology and the Practical Analysis of Language).

4 Poincaré, *On Science*, 73.

5 See Battler, *The 21st Century: The World without Russia*, 267–72.

that they do not have a very clear idea about. It is much more dangerous, though, when they speak clearly of things they do not understand clearly."[1]

Clarity can be introduced only through establishing a hierarchy of linguistic signs and their meanings while translating them into a scientific language that operates with concepts and categories. It is well known what great importance philosophers have accorded to the problems of scientific language, for example, by Condillac and Leibniz. Even a simple explication of the lexicon on the terminological level frequently clarifies the essence of problems. When terms are elevated to the level of concepts and categories in their hierarchical interrelation, this creates the possibility of transforming an area of knowledge into a branch of science.

The present work is an attempt of this sort. The methodological basis is the dialectics, the nucleus of which is Hegel's dialectics, and dialectical materialism that emerged in the 19th century through the efforts of two giants of man—Marx and Engels. For this work, two outstanding books are particularly important: *Dialectics of Nature* by Engels and *Science of Logic* by Hegel. The scientists in the West, however, with rare exceptions prefer Kant to Hegel. There is a reason for this, but a discussion of the subject is outside the scope of this book.

Let us recall that Hegel had a reason for criticizing those mathematicians who asserted the truth of proofs in physics, on the grounds that mathematics is unable in principle to uncover "the qualitative nature of moments." The reason is clear: "This science [mathematics—*A.B.*] is not philosophy, does *not start from the Notion*, and therefore the qualitative element, in so far as it is not taken lemmatically from experience, lies outside its sphere."[2] In other words, the quality of nature—its essence—can be uncovered only through notions (concepts), through definitions of concepts that "are laws."

However, even if we agree that without concepts and categories it is impossible to cognize essences and phenomena, another problem emerges: that of distinguishing a concept from a category. Often even great philosophers use these words as synonyms. For example, Vladimir Lenin offers a treatment of matter as a category, and then, in the same place, he speaks of it as a concept.

Here we encounter the problem of the inseparable unity of category

1 Quoted in Shakhnazarov, *The International Order: Political–Legal Aspects*, 30.

2 *Hegel's Science of Logic*, 273.

and concept. In the words of M. Bulatov, "It is present in those texts in which one means at the same time the category's relations to things split into rubrics, and their own internal content."[1] Therefore, we must determine at the very beginning what is a *concept* and what is a *category*. This topic in itself is one of the problems of philosophy, with different solutions offered by different philosophers and currents in philosophy.

Of course, the deepest and the most interesting definitions of these terms were given by Hegel. In his theory of cognition, he made a clear distinction between objective logic (the doctrine of being—categories) and subjective logic (the doctrine of the concept—a concept as such). He goes on to specify that "the Concept is the Universal which is at the same time determinate; that which remains in its determination is the same Whole or Universal or it is the determinateness which grasps together within itself the different determinations of an object as a unity."[2] Naturally, Hegel's dialectics lead him to recognize the internal contradiction of the notion since "*any* Notion whatever to be a unity of opposed moments to which, therefore, the form of antinomic assertions could be given."[3] In that same work, Hegel gives a definition of the term *category*. He writes, "According to its etymology and Aristotle's definition, category is what is predicated or asserted of the existent" (ibid., 410).

As mentioned above, there exist other ideas about concepts and categories inherent to different schools or currents in philosophy that deserve to be analyzed in a separate work. Here I shall limit myself to presenting my understanding of these terms, which boils down to the following:

A category defines the most general properties of being or reality such as matter, time, and space. Notions are aspects of categories or forms of thought that reflect some particular side of the categorical being. To put it more simply, categories are used to analyze "thing-in-itself" while notions are used to analyze "thing-outside-self," i.e., to cognize the essence through its manifestations.

It is necessary to note that the word *category* is also used in the sense of systematizing, putting into rubrics, splitting up this or that group of objects. It is this meaning that is used to define the term, say, in the *Oxford Companion to Philosophy*: "Categories. The most fundamental

1 Bulatov, *Logical Categories, and Notions*, 107.
2 Hegel, *The Philosophical Propaedeutic*, 105.
3 *Hegel's Science of Logic*, 191.

divisions of some subject-matter."[1] This meaning is easily identified, and, in this work, I shall be using this word for the most part precisely in its ontological meaning.

To reiterate: *Notion* is an area of thought in the sphere of subjective reality in which the objective reality is imprinted. *Categories* are embedded in objective reality itself; they reflect existing being in thought.

One more important thing needs mentioning: the transformation of categories into concepts and vice versa. A category is transformed into a concept when that of which it is a reflection is cut away from it, i.e., being or its attributes. What happens is a transition from objective reality to subjective reality, which, even though tied to the former through reflection, already has an independent meaning as a method of thinking. For example, force can be viewed as a category of being, but it can also be viewed as something mutually related to other reflected phenomena—might, for example—and then it becomes a concept. In the same fashion, concepts can be transformed into categories when functions or properties of being are added to them. They become categories even more assuredly when they are endowed with functions of division, etc.

In principle, I should have described here the method of cognition I chose for this work. There exists an infinity of these methods; the choice depends on the scientific milieu in which the researcher dwells and on the literature toward which he gravitates due to his preferences or particular circumstances. In this connection, I shall refrain from asserting that some particular method of research is to be preferred, but for a host of reasons, I gravitate toward a method of research that is not recognized by the majority of scientists in the West—dialectical materialism. Its core is the dialectics of Hegel, which can be described schematically on the epistemological level.

According to Hegel, ordinary consciousness, or understanding, proceeds from the separateness of the content of cognition and its form, i.e., truth and reliability. In the first stage of cognition, it is supposed that the matter of cognition exists in itself, outside of thought, as some world at hand. Thinking is connected to this matter as some form from outside, filling it and acquiring a certain content within it. It follows from this that Hegel viewed notions as something subjective, set opposite to the object in the capacity of "outside reflection." Here the

1 *Oxford Companion to Philosophy*, 125.

notion—or, more exactly, knowledge of the object—opposes the latter as direct. The notion only verifies the presence of the object through its manifestations. The truth still remains "in-itself." This is only natural since thinking that grasps the manifestations of the object is abstracting understanding and conducts itself as ordinary common sense, capable of reflecting the sensuous reality—which is precisely from what its meaningness or actuality derives. However, common sense is very assertive, and it often passes itself off as a reason even though in reality it is not, cognizing as it does only sensuous reality (= subjective truth), i.e., phenomena rather than the nature of things.

The second stage is the stage of objectification of the notion when it steps out of its subjectivity and "out-of-selfness" and merges with the object of its reflection, becoming adequate to it. Then comes truth, which is "the agreement of thought with the object, and in order to bring about this agreement—for it does not exist on its own account—thinking is supposed to adapt and accommodate itself to the object" (ibid., 44).

The projection of this idea onto any topic means that, in subjecting ourselves to the object, we have discovered the truth "for ourselves." In other words, having shown common sense, we merely discovered the presence of the object. It is necessary here to keep in mind one important thing: even if we admit that a certain notion really does adequately reflect reality, it is in this case, only a change in the mode of thoughts and perceptions. "In its relation to the object, therefore, thinking does not go out of itself to the object; this, as a thing-in-itself, remains a sheer beyond of thought" (ibid., 45). That is, the self-aware process of definition does not change, in this stage, the object itself (for example, economics or politics); it belongs exclusively to thinking. *This* thinking, though, is different from the preceding thinking: understanding has become elevated to reason or, put differently, negation of understanding by reason took place. There is progress here, a certain leap. Nevertheless, a substantial minus remains: even the changed thinking (reason) does not touch upon the essence of the object the latter remains on its own, "the empty abstraction," the "**thing-in-itself**."[1] This Kantian doctrine in its purest form remains if only no subsequent move takes place; i.e., until things and thinking about them become adequate to each other—thinking in its imminent definitions and the true nature of things will form a single content. According to Kant, this is impossible in principle

1 Lenin, *Complete Works in 55 volumes* (subsequently CW), 29: 83. [Translated from Lenin, *Philosophical Notebooks.*]

since his "thing-in-itself is an empty abstraction." And Hegel, as stressed by Lenin, "demands abstractions, which correspond to the essence" (ibid., 84) since, as the progress of consciousness shows, "it is only in absolute knowing that separation of the *object* from the *certainty of itself* is completely eliminated: truth is now equated with certainty and this certainty with truth."[1]

Thus, in the third stage, a unity of the subjective and the objective is attained in which the notion finds its adequate expression. This mutual penetration of opposites—the thought and the object—means the revelation of the truth.

Let us here recollect that the progress toward truth unfolds in the following sequence: "The understanding *determines,* and holds the determinations fixed; reason is negative and *dialectical*, because it resolves the determinations of the understanding into nothing; it is positive because it generates the universal and comprehends the particular therein" (ibid., 28). The joining of the two results in "positive reason, or intuitive understanding," which equals the positive.

Anyone familiar with Marx's "Theses on Feuerbach" will notice that the reasoning of Hegel reproduced above served as the foundation for the former's criticism of the German materialist's conception of cognition. According to Marx, Feuerbach's main shortcoming is "the thing, reality, sensuousness is conceived only in the form of the *object or contemplation*, but not as *sensuous human activity, practice*, not subjectively."[2] This approach contradicts Hegel's views in principle in which the active aspect of thinking, its merging with the object, is excluded; i.e., thinking as object-oriented activity. This approach ultimately leads to the separation of thinking from the object, the separation of theoretical activity from practice; as a result, both thought itself and practice begin to decay. Marx was opposed to this. He wrote, "The question whether objective truth can be attributed to human thinking is not a question of theory but is a *practical* question. Man must prove the truth, i.e., the reality and power, the this-sidedness of his thinking in practice" (ibid.).

* * *

1 *Hegel's Science of Logic*, 49.

2 Marx, Engels, *Collected Works*. 2nd edition, 3:1. (subsequently ME). [Translated from Marx & Engels: *Collected Works* in 50 volumes.]

Let me state again: there exist different principles of the thinking activity of reason and understanding. Within ordinary consciousness, one usually operates with words, which offer the possibility of describing the phenomena of the surrounding world. Unfortunately, the area of knowledge that encompasses foreign policy and international relations—where the concept of force is key, in my opinion—does not possess its own language (i.e., a conceptual apparatus) and makes do with terms at best. These terms have yet to acquire conceptual definiteness. Therein lies their vulnerability, which means at the same time that this area of knowledge is not yet a science. Foreign policy and international relations as a sphere of research continue to rely on common sense, which reflects at best the sensory perception of understanding. In this connection, Hegel wittily remarked, "Live and let live"; i.e., sensory perception recognizes definitions and terms as "indifferent" to each other, with no contradictions, no conjugacy.

Therefore, introducing conceptual apparatus to this sphere of knowledge is long overdue. Through concepts, opposites are cognized in their unity; the positive is learned in the negative and the negative in the positive. Reason retains concepts in their definiteness and carries the knowledge of the absolute.

Does force possess this abstract conceptual power in the area of social life and international relations? The present work is precisely an attempt to answer that question. It consists of three parts, or books:

One: *Dialectics of Force: Ontobia*

Two: *Society: Progress and Force* (Criteria and First Principles)

Three: *Mirology: Force and Progress in World Relations*

As I pointed out already in the preface, contemporary political science and the theory of international relations have proved unable to define the essence of force. This is not at all surprising since even physicists—people who use this word all the time—debate its essence. However, in nature, phenomena do not exist separate from their essences. In order to understand force, it has been necessary to turn to philosophy, which has not been able to avoid analyzing such a pivotal category.

In Chapter I, I present different philosophers' views on the topic. My choice of authors was determined not so much by their importance in the history of philosophy as by their attention to the category of Force. Though every one of them made certain contributions to the analysis of the phenomenon in question, all of them together could not quite satisfy me, and ultimately I was compelled to give my own definition of this category in accordance with my conception of being. I had to introduce a new word for this definition: *Ontobia,* or *ontological force.*[1] In my opinion, it may prove to be a very useful category for understanding the essence of force.

Chapter II examines the manner in which this ontobia reveals itself in the inorganic world, mostly through the prism of conceptions of the Big Bang and operation of the second law of thermodynamics. It was important here to show that *force as an attribute of being* can manifest itself in different guises such as energy or "dark matter."

Chapter III looks at the manifestation of force in the organic world. This chapter is important from the perspective of solving the problem of the boundaries between animate and inanimate nature, i.e., *what the criterion is for living and non-living matter.* I had to become involved in discussions about this problem *nolens volens.* My solution is unusual, and it placed me in opposition to all modern areas and trends of thought.

Chapter IV is devoted to problems of the mind and the analysis of the equally controversial questions of *what consciousness and thought are.* I also needed to find out in what fashion—or through what phenomena—thought expresses itself in psychology. On the basis of combining philosophy and psychology, I have presented a conception of thinking that has led me to a definition of progress that differs qualitatively from all known formulations.

The conclusions, formulations, and regularities tied to ontobia provide, in my view, the methodological tools for analyzing the *manifestations of force in society and international relations.* In other words, the conception of force presented in this part of the book makes it considerably easier to forecast social and international phenomena; the correctness of the time frames will in practice depend only on the availability of databases.

In my research on force, I have drawn on a wide selection of writings from the domain of the natural sciences (physics, biology, and psychology),

1 The word *ontobia* consists of two Greek words: *ontos* (essence) and *bia* (force).

authored for the most part by contemporary scientists in the English-speaking world. I made use, naturally, of works by German and French authors in their Russian or English translations regarding the matter of philosophy conceptions and theories of *naturphilosophie* from the 19th to early 20th centuries. Being Russian in origin, I could not avoid using some works by Russian scientists, though only a limited number, for the simple reason that their names, even the great ones, are unknown to the Western reader. In other words, their ideas are not subject to scholarly discussion in the West; they are not even given simple attention. There are certain reasons for this, but I shall not delve into them here.

Despite the abundance of literature listed in the bibliography, there is not one book there in the area of *naturphilosophie* that is dedicated to force as such.[1] In one aspect or another, force has been analyzed in works of a more general scope from the philosophers of antiquity until the end of the 19th century. Then, in the 20th century, the analysis of force was picked up by the social sciences, mainly in the aspect of power or authority. In spite of this, force did not become either a category or a concept; i.e., it did not become the core of even one scientific conception or theory within whose framework one could formulate the regularities of its functioning or manifestation. Nonetheless, there does exist a certain range of literature—not very large in quantity—that attempts to use system analysis of the fundamental problems of human knowledge: How and why did the universe emerge? What is life, what is man, and what is he necessary for? Among the authors of this kind of work, I would like to single out the names of the following scientists of the 20th and early 21st centuries: V. I. Vernadsky, I. S. Shklovsky, Walter Hollitscher, Pierre Teilhard de Chardin, J. Bernal, Arthur Young, Armand Delsemme, Roger Penrose, and Steven Weinberg. The value of their works lies in that these scientists trace Being from its beginning to man—based, of course, on their own scientific and ideological views. In the present case, it does not matter whether I agree with their views or not; to me, it is important that they managed to span a wide range of different branches of science without losing the main thread of their analysis. Of all 19th-century works, the one most relevant to the topic

1 I have a confession to make to the reader: it turns out that such a book does indeed exist, but, unfortunately, I only read it after this book of mine had already been published in Russian and translated into English. It is Herbert Spencer's famous work *First Principles*, which I had laid aside, intending to use it in another of my work and, not suspecting that his theory of evolution stems from the universal conception of Persistence of Force.

of my research is *Dialectics of Nature* by Engels; it amazes not only with its universal grasp of different sciences, but also with its predictions that came true in the 20th century. I believe that no textbook on natural sciences is worth the paper it is printed on unless it presents, even if only briefly, the ideas and views of the scholars listed above.

The reader has certainly noticed by now that I frequently quote Hegel. There is good reason for that; I deeply believe that no matter what ideological labels are attached to this name, it is impossible to reflect on any topic of study to its full extent without his methodology. In the time elapsed since Hegel's books *Phenomenology of Mind* and *Science of Logic,* mankind has not invented a better mechanism for developing thinking. My special attitude toward Hegel is due to the fact, among others, that it was Hegel who led me toward the definition of force that took on the form of the category Ontobia.

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INDEX