

STEFAN ENGEL

THE CRISIS OF BOURGEOIS NATURAL SCIENCE

Part III

The Crisis of Bourgeois Ideology,
and the Doctrine of the Mode of Thinking

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The Crisis of Bourgeois
Natural Science

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The Crisis of Bourgeois Natural Science

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*The Crisis of Bourgeois Ideology,
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III. The Crisis of Bourgeois Natural Science

Introduction

The third volume of the book series, *The Crisis of Bourgeois Ideology, and the Doctrine of the Mode of Thinking*, deals with the crisis of bourgeois natural science. To some people this may come as a surprise since natural scientists generally are viewed as neutral experts committed only to objective facts. They enjoy particularly high esteem in bourgeois society because they create the impression of being apolitical, unimpeachable, or committed solely to social progress. A critical spirit has developed everywhere in the world in recent years toward the prevailing bourgeois ideology, but hardly toward natural scientists!

The role of natural science and technology clearly has grown in everyday life in society. Schools and universities, but also literature, films, science magazines, advice books, health courses, radio and television, or the Internet now and then disseminate valuable and doubtless materialistic information about scientific or technical developments. However, all manner of idealist and metaphysical interpretations, unscientific terms, and guides to action that conforms to the system cloud their truth content.

In this way the alien bourgeois ideology also penetrates into the mode of thinking, working and living of the working class. The supposedly “ideology-free” sciences influence especially

the petty-bourgeois intelligentsia as well as school and university students.

The critique of bourgeois ideology and the proof of its crisis would be incomplete were they not also to scrutinize bourgeois ideology's manipulative methods in addition to its contents.

This book does not seek to analyze the entire content and scope of the modern natural sciences or engage in an arcane academic dispute. Even less do we intend to condemn wholesale the materialistic results of scientific research. The critique centers on the crisis-laden, harmful repercussions of bourgeois ideology on the progress of the natural sciences. *In tendency they undermine scientificity*, impede the general development of society, and have serious negative consequences for humans and nature. The dialectical criticism and self-criticism aim at paving the way for a dialectical-materialist natural science as fundamental component of scientific socialism. The Marxist-Leninists resolutely defend scientific progress against the hostility to science of bourgeois ideology with its positivism and pragmatism, its orientation to anticommunism and profit.

In contrast, reactionary hostility toward any social progress belongs to the ideological foundation of ultrareactionary or neofascist social movements. This open hostility in turn makes the natural sciences appear in a progressive light. The same dark forces that today lay claim to special scientificity often cite findings of the pseudo sciences pursued by them. Their methods range from absurd eclecticism to metaphysical distortion and denial of facts, right up to deliberate lies and all sorts of mystical conspiracy theories.

The book begins with a discussion of the *rise and decline of bourgeois natural science*. In overcoming feudalism, modern natural science was one of the progressive and driving

elements of nascent capitalist society. The enlightening bourgeois ideology raised the cultural level of humanity onto a new plane; it sped and significantly shaped the development of capitalist industrial production. At the same time, modern natural science itself is the product of this stormy development. However, the prevailing influence of idealism and metaphysics is directly opposed to a coherent dialectical-materialist worldview. The modern natural sciences consequently have gotten into a deep crisis.

Under the influence of dialectics, in the century before last *modern physics* became a science fundamental to all modern natural science and the development of the capitalist mode of production. To the same degree that bourgeois ideology penetrated into it since the beginning of the twentieth century in the form of idealism and metaphysics, “theoretical physics” fell into a deep crisis.

Bourgeois astronomy once contributed to the liberation from a religious-idealistic worldview. Today, ever more fantastic conceptions of the universe – from the quasi-religious creation story of the Big Bang to fictionally constructed parallel worlds – are taught as science, though they do not stand up to scientific, to materialistic scrutiny. Confronted with the materialist critique of this, based also on ever new discoveries in the cosmos, bourgeois astronomy increasingly descends into the absurd.

Despite an abundance of single new findings, the theoretical foundation of *biology* cannot develop further because idealist and metaphysical interpretations dominate. The extraordinary social and intellectual abilities of humans have long since been scientifically proven. The knowledge of the social nature of humans underscores that a communist society is possible and necessary. The social debate over this issue remains to be resolved.

Bourgeois *environmental research* increasingly reduces the development of the global environmental catastrophe to a question of the climate, whereas the global and universal dimension, the systemic dimension of the crisis of the biosphere is largely ignored. The global environmental crisis has now turned into a *global environmental catastrophe* without this being noticed by the bourgeois ecologists, who are caught up in their positivist thinking.

Bourgeois engineering has tremendously advanced the growth of modern production. However, a downright conceptual ideological separation of theory from practice, programmatic positivism, and pragmatism have subordinated it with particular rigor to the capitalist profit economy and deformed it. Its deep crisis finds expression today mainly in the disaster of useless large-scale projects and a general predatory exploitation of the natural environment.

Despite all indisputable advances and meaningful measures, bourgeois *medicine* fails to cope with the enormous increase in mass diseases. Instead it steers the increased environmental and health awareness of the masses down all kinds of wrong individualistic roads. A holistic, well-founded dialectical-materialist analysis and synthesis of the social and individual causes of illness is still lacking. Approaches to real solutions only grow out of the knowledge of the complex relationships between human life and natural and social conditions. Only in this way can a *self-consistent integral science of medicine* emerge and develop on the basis of the multiplicity of individual advances in knowledge.

Bourgeois psychology attributes mass mental illnesses in many cases one-sidedly to drastic or traumatic experiences in individuals' life history, or to genetic causes. Even when it does recognize social causes to a certain extent, its therapies are oriented one-sidedly mainly to individual coping with the

negative effects of the illness. Instead of studying the manifold material causes for the disturbance of the human metabolism, their interactions with capitalist production, the environmental crisis, the bourgeois state and family system and individual life experience, it diverts attention away from the objective laws and necessary changes in society as a whole. It focuses one-sidedly on the subjective perception and interpretation of the problems, which in many cases hardly leads to a cure or even exacerbates the illness.

All the developing crises of the imperialist world system in the ideological, economic, ecological and political spheres are an expression of the *fundamental contradiction in the historic period of transformation from capitalism to socialism*, which is pressing toward a solution. Bourgeois crisis management is in the end nothing but an inept attempt to stop the drive of the revolutionary productive forces toward socialism, to stop the growing criticism of capitalism and the rebellion of the international working class and its allies. Scientifically founded optimism and convincing visions of the future in the revolutionary and working-class movement acquire strategic importance in this general social debate!

It is indispensable *generally to revive and spread materialistically founded free thinking in the working class*. This is a precondition for overcoming any kind of religious, metaphysical and idealist thinking so that working-class consciousness awakens and develops.

For humanity it is absolutely vital that scientific socialism and its dialectical-materialist method in theory and practice gain new esteem worldwide in the thinking, feeling and acting of the workers and the broad masses. Only then will humanity be enabled to free all achievements of the modern natural sciences from their reactionary fetters and appropriate them for social progress. Conversely, the modern natural sciences,

in interaction with scientific socialism, will regain their scientificity step by step and spur the inexorable progress of the knowledge of universal reality.

So this book is a *polemic* that challenges the working class, in alliance with progressive students and scientists, to capture the leading role in criticizing bourgeois natural science ideologically. It also is a call to progressive intellectuals to break away from the ruling monopolies, from their politics and world outlook, from their mode of thinking and privileged way of living and working, and align themselves with the still oppressed, but only revolutionary working class.

Considering the ever more complex interrelations and newly arising questions in nature and society, the ideological-political and scientific level of the working class and its revolutionary party must be purposefully raised.

Although the book deals with natural science, it is explicitly addressed also to readers who have not yet concerned themselves to any great extent with this topic. Possibly, not everyone will understand the entire text on the first read. But no one should let this discourage them! Straightaway, and still more through thorough consideration, joint study, and in the discussion, everyone will get interesting ideas from this book and expand their knowledge, broaden their horizons, and find answers to previously unanswered questions. Not least of all, everyone – whether worker, academic, or young person – will raise their cultural level and get impulses for a critical approach to bourgeois natural science and for scientific work.

Readers certainly also can begin with single chapters that appear particularly interesting to them. In any case it is advisable to first read the summary introduction and the chapter on the rise and decline of bourgeois natural science.

This book is once again a *product of the collective wisdom* of a large team of knowledgeable, critical, and scientifically

thinking and acting working-class comrades and academics critical of society. All are unified on the application of the dialectical-materialist method to consider the natural sciences. I thank all collaborators – among them Dr. Günther Bittel, Herbert Buchta, Adelheid Erbslöh, Oskar Finkbohner, Prof. Christian Jooss, Christoph Klug, and Prof. Josef Lutz – explicitly for the fruitful cooperation. I make particular mention of the collaboration with Monika Gärtner-Engel and Gabi Fechtner for the sometimes complicated process of discussion, elaboration, and editorship.

The book is dedicated to my loyal comrade, longtime friend, and physician, Anton “Toni” Lenz, who was unable to complete his contribution to the book, especially on the subject of medicine, due to a serious, incurable illness. He passed away on 23 January 2023.

Stefan Engel, February 2023

1. Rise and Decline of Bourgeois Natural Science

In the nineteenth century the natural sciences developed rapidly. They flourished with industrial production, giving it a powerful boost particularly through the advent of dialectics in scientific work.

In interaction with the progressive development of the modern productive forces, in the course of the nineteenth century the *modern natural sciences* emerged – physics, biology, chemistry, astronomy and geology.¹ Concerning the truly revolutionary advances of that period, Frederick Engels wrote in *Dialectics of Nature*:

Empirical natural science made such an advance and arrived at such brilliant results that not only did it become possible to *overcome* completely *the mechanical one-sidedness* of the eighteenth century, but also natural science itself, owing to the proof of the *inter-connections* existing in nature itself *between the various fields of investigation* (mechanics, physics, chemistry, biology, etc.), was transformed from an *empirical* into a *theoretical science* and, by generalising the results achieved, into a *system* of the materialist knowledge of nature.²

Inspired by the bourgeois revolution and the Age of Enlightenment against superstition and clerical dogmatism, a significant number of natural scientists turned to dialectics and materialism. This they did in most cases without consciously

¹ According to Frederick Engels, the development of modern research into nature began in the second half of the fifteenth century. However, one could only speak of science since the eighteenth century, when astronomy, optics and mechanics developed into integral theories. (Cf. Frederick Engels, “Anti-Dühring,” in: Marx/Engels, *Collected Works*, Vol. 25, pp. 22)

² Frederick Engels, “Dialectics of Nature,” in: Marx/Engels, *Collected Works*, Vol. 25, p. 476; emphasis added

reorienting their scientific work. More importantly, these natural scientists did not follow the entirety of the proletarian, dialectical-materialist ideology as theoretically generalized by Marx and Engels.

Frederick Engels described the qualitative changes in natural science:

The new outlook on nature was complete in its main features: all rigidity was dissolved, all fixity dissipated, all particularity that had been regarded as eternal became transient, the whole of nature was shown as moving in eternal flux and cyclical course.³

He saw in the development of the modern natural sciences mainly an important material basis for the development of the class consciousness of the working class:

Only real knowledge of the forces of nature ejects the gods or God from one position after another....⁴

When the bourgeoisie became the ruling class after the bourgeois revolution⁵ it lost its “*historically ... most revolutionary part*” in which it had “*put an end to all feudal, patriarchal, idyllic relations.*”⁶ The bourgeois world outlook now served to justify the capitalist relations of exploitation and to increasingly subordinate the bourgeois natural sciences to them. Frederick Engels explained:

To the same degree that speculation abandoned the philosopher’s study in order to erect its temple in the Stock Exchange,

³ *ibid.*, p. 327

⁴ Frederick Engels, “Preparatory Writings for *Anti-Dühring*,” in: Marx/Engels, *Collected Works*, Vol. 25, p. 605

⁵ Starting from the French Revolution in 1789

⁶ Karl Marx, Friedrich Engels, “Manifesto of the Communist Party,” in: Marx/Engels, *Collected Works*, Vol. 6, p. 486