

# 《自然与希腊》

## 图书基本信息

书名：《自然与希腊》

13位ISBN编号：9787535748713

10位ISBN编号：7535748716

出版时间：2007-05

出版社：湖南科学技术出版社

作者：(奥)E·薛定谔

页数：197

译者：李泳 评注

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## 内容概要

诺贝尔桂冠物理学家薛定谔是20世纪最著名的科学家之一，他关于科学史和科学哲学的演讲久负盛名。本书是多年来第一次呈现薛定谔的两个最有名的系列演讲文本。

《自然与希腊》从现代科学追溯到古老的西方哲学思想，为20世纪科学图景打开了历史的画卷。

《科学与人文》提出了20世纪的若干最基本问题：科学研究的价值何在？现代科学成就如何影响物质与精神的关系？

彭罗斯的前言将薛定谔的演讲置于当代科学的背景下，证明它们在今天和在第一次出版时有着同样的意义。

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## 作者简介

薛定谔（Erwin Schrodinger，1887-1961）因为发现量子力学的波动理论获1933年诺贝尔物理学奖，是20世纪最伟大的科学家之一，他的影响远远超出了物理学。他的《生命是什么》是现代分子生物学的先声。他的系列科学史和科学哲学演讲《自然与希腊》和《科学与人文》以科学家的独特眼光立足现代科学，追溯古代西方哲学思想，几十年来散发着长久的智慧芬芳。

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## 书籍目录

Foreword by Roger Penrose 引言 NATURE AND THE GREEKS 自然与希腊 The motives for returning to ancient thought The competition, reason v. senses The Pythagoreans The Ionian Enlightenment The religion of Xenophanes. Heraclitus of Ephesus The Atomists What are the special features? Bibliography SCIENCE AND HUMANISM 科学与人文 Preface The spiritual bearing of science on life on life The practical achievements of science tending to obliterate its true import true import A radical change in our ideas of matter Form, not substance, the fundamental concept The nature of our 'models' Continuous description and causality The intricacy of the continuum The makeshift of wave mechanics The alleged break-down of the barrier between subject and object Atoms or quanta-the counter-spell of old standing, to escape the intricacy of the continuum Would physical indeterminacy give free will a chance? The bar to prediction, according to Niels Bohr Literature 后记：哲学是科学的后花园

A RADICAL CHANGE IN OUR IDEAS OF MATTER shall now, at last, come down to some special topics. What I have said hitherto may seem pretty long, if you consider it a mere introduction. But I hope it is of some interest in itself - and I could not avoid it. I had to make clear the situation. None of the new discoveries about which I may tell you is frightfully exciting in itself. What is exciting, novel, revolutionary, is the general attitude we are compelled to adopt on any attempt to synthesize them all. Let us go in medias res. There is the problem of matter. What is matter? How are we to picture matter in our mind? The first form of the question is ludicrous. ( How should we say what matter is - or, if it comes to that, what electricity is - both being phenomena given to us once only? ) The second form already betrays the whole change of attitude: matter is an image in our mind - is thus prior to matter ( notwithstanding the strange empirical dependence of my mental processes on the physical data of a certain portion of matter, viz. my brain ). During the second half of the nineteenth century matter seemed to be the permanent thing to which we could cling. There was a piece of matter that had never been created ( as far as the physicist knew ) and could never be destroyed! You could hold on to it and feel that it would not dwindle away under your fingers. Moreover this matter, the physicist asserted, was with regard to its demeanour, its motion, subject to rigid laws - every bit of it was. It moved according to the forces which neighbouring parts of matter, according to their relative situations, exerted on it. You could foretell, the behaviour, it was rigidly determined in all the future by the initial conditions. This was all quite pleasing, anyhow in physical science, in so far as external inanimate matter comes into play. When applied to the matter that constitutes our own body or the bodies of our friends, or even that of our cat or our dog, a well-known difficulty arises with regard to the apparent freedom of living beings to move their limbs at their own will. We shall enter on this question later ( see p. 58 ff. ) At the moment I wish to try and explain the radical change in our ideas about matter that has taken place in the course of the last half-century. It came about gradually, inadvertently, without anybody aiming at such a change. We believed we moved still within the old 'materialistic' frame of ideas, when it turned out that we had left it. Our conceptions of matter have turned out to be 'much less materialistic' than they were in the second half of the nineteenth century. They are still very imperfect, very hazy, they lack clearness in various respects, but this can be said, that matter has ceased to be the simple palpable coarse thing in space that you can follow as it moves along, every bit of it, and ascertain the precise laws governing its motion. Matter is constituted of particles, separated by comparatively large distances; it is embedded in empty space. This notion goes back to Leucippus and Democritus, who lived in Abdera in the fifth century B.C. This conception of particles and empty space is retained today ( with a modification that is just the thing I wish to explain now ) and not only that, there is complete historical continuity; that is to say, whenever the idea was taken up again it was in full awareness of the fact that one was taking up the concepts of the ancient philosophers. Moreover it experienced the greatest thinkable triumphs in actual experiment, such as the ancient philosophers would hardly have hoped for in their boldest dreams. For instance, O. Stern succeeded in determining the distribution of velocities among the atoms in a jet of silver vapour by the simplest and most natural means, of which figure 1 gives a rough schematical sketch. The outer circle ( carrying the letters A, B, C ) represents the cross-section of a closed cylindrical box, exhausted to perfect vacuum. The point S marks the cross-section of an incandescent silver wire, which extends along the axis of the cylinder and continually evaporates silver atoms, that fly along straight lines, roughly speaking, in radial directions. However, the cylindrical shield Sh ( smaller circle ) , disposed concentrically around S, lets them pass only at the opening O, which represents a narrow slit parallel to the wire S. Without anything more, they pass on straight to A, where they are caught and, after a time, form a precipitate in the form of a narrow black line ( parallel to the wire S and the slit O ). But in Stern's experiment the whole apparatus is rotated, as on a potter's wheel, with high speed around the axis S ( the sense of the rotation shown by the arrow ). . . . .

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### 精彩短评

- 1、不读不了解薛定谔
- 2、这本书是英文，只有一点中文件注释。网中都没标注，买回来看不懂
- 3、我知道这是本好书，不过得闲下来慢慢看
- 4、我要翻译的，看原文太费劲，而且还有SB在旁边瞎说
- 5、书的质量很好！不过，这本书是英文，只有一点中文件注释。
- 6、看着费力，会更好一些。
- 7、英文版的，读得很有味，编排不错
- 8、薛老师将科学与哲学在这里分隔，各自沿袭自我的路线探讨，像海岸边的沙滩和礁石都有着自己独特的美丽，或许当初雅典学院的那帮老头子们不会想到这个奥地利的多情才子会把他们一心想统一的东西区分开，但是当这两个看似融合的东西独立出来后才会发现它们所特有的非凡，以及由此能料想出的二者相容后所迸发的奇妙来！致敬吧，这篇惊世骇俗的论文，它已经简短到不能称为一本书了，只可惜这个出版社的版本是英文版的，看起来好吃力啊！
- 9、坑爹啊，居然是英文版的，那请问为什么还有“李泳译”的字样？
- 10、书内容不错,量子力学创始人之一薛定谔写的.不过这本书是英文的,不是网上给出的&#34;(奥)薛定谔著,李泳译&#34;;但有中文评注,不懂英语的慎买.
- 11、科学的目的
- 12、英语读不懂。
- 13、这本书是全英文的，带有少量辅助阅读的中文评注，这些评注很有用，看不明白的时候能够把我带上正轨，不至于理解偏差太大。虽然有很多科学技术和宗教哲学类专业词汇，但是总体来说还是比较好懂的，而且还可以感受一下古典英语的优美。
- 14、内容上只要是喜欢的人自然没得说，书的质量很好！
- 15、如果你真的想了解薛定谔博大精深的学识，那么阅读此书是最佳的方法。老薛文笔流畅，读罢令人回味无穷！
- 16、该书分为两个部分，包含了编者对该书的注释，有利于进行理解。

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## 精彩书评

1、第一次知道薛定谔是在初中的时候。初中化学奥训时代，薛定谔的量子力学和薛定谔方程折磨了我很久。大学是才知道他对生物学的简介。他有一本书《生命是什么》，在他那个时代首次从微观的角度看生命世界。我个人认为这是一位天才，WASON和CRICK据说也是看了这本书才投身到生物领域，最后成为DNA双螺旋结构的发现者，至今盛名不衰。在当当上买了这本书，现在在看，一本自然科学史。语言有很多现在学术文章也不常用的生僻词语。对自然科学有兴趣的人还是可以读一读。这是一位科学伟人的书。

2、第一次拜读薛定谔先生的这本《自然与希腊》是在高中毕业之后的暑假。一直很崇敬薛定谔先生，因为他不仅仅是量子力学的创始人之一，更多的是尊敬他作为一个伟大的物理学家之余，依然能精通英法德三门语言。薛定谔先生和波尔先生以及狄拉克先生一起为近代物理学的发展做出了无法估量的贡献，正是他们对于物理世界的探索，才让我们的物理世界从近代的经典物理学范畴，进入了更为伟大与高深的量子范畴，成为了人类打开粒子物理世界大门的先驱者。老一辈物理学家都有学习拉丁文的经历，而且可以说是精通。薛定谔先生也是同样。在他的书中，能看到很深的拉丁文遗风。但是这正是《自然与希腊》这本书的精妙之处。从他的文章中我才知道：原来古典英文也可以写得如此的优美。但是作为一个物理学家，他的书中不免有许多的物理学知识。当我系统的学习了从普通物理到经典物理知识之后，我才逐渐明白其中，薛定谔先生深邃的物理思想。先生从德莫利克讲到当今物理学的发展，倍让吾辈感到自身的渺小。

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