



世界政治与国际关系原版影印丛书

学术精品系列

〔美〕肯尼思·沃尔兹 著

国际政治理论

THEORY OF INTERNATIONAL POLITICS

Kenneth N. Waltz



Graw
Hill



北京大学出版社
PEKING UNIVERSITY PRESS

我撰写本书时怀有三个目标：第一，考察那些宣称在理论上颇为重要的国际政治理论和国际政治的研究方法；第二，构筑一个矫正各种现存理论缺陷的国际政治理论；第三，考察本书所构筑的理论的一些应用实例。

——肯尼思·沃尔兹（摘自本书1992年中译本，第一章）

十多年来，《国际政治理论》一书曾为人们所攻击、修订、误解和讥讽，但它却从未被人所忽视过。

——巴里·布赞（《无政府状态的逻辑》1993年英文版）

与任何其他大师级学者相比，沃尔兹作品被引用的次数最多，造成的争论最热烈，产生的影响最持久。许多学者也曾经或正在造成这样那样的“轰动效应”，但多半属于“季节性的”、“年度性的”，顶多“各领风骚若干年”，而沃尔兹的理论、主要是他在《国际政治理论》中表述的“结构现实主义理论”，从发表之日起到现在为止，近几十年来一直处在争论的焦点位置。

——王逸舟（《西方国际政治学：历史与理论》）

自该书问世以来的二十多年中，国际关系理论研究经历了许多论战与变革，新的理论流派可谓层出不穷，但无论是自由制度主义，还是新近风头正劲的建构主义，讨论的许多问题都绕不过《国际政治理论》一书，可见《国际政治理论》在国际关系学界的地位与影响，沃尔兹本人也因为该书而确立了自己在国际政治理论研究中的大师地位。

——苏长和、信强（摘自本书2003年中译本译者序文）

ISBN 7-301-08093-X



9 787301 080931 >

责任编辑：耿协峰

封面设计：常燕生

ISBN 7-301-08093-X/D·0993

定价：28.00 元

This edition is authorized for sale in the People's Republic of China only, excluding Hong Kong, Macao SARs and Taiwan.

此英文影印版仅限在中华人民共和国境内（不包括香港、澳门特别行政区及台湾地区）销售。

<http://www.mcgraw-hill.com.cn>

国际政治理论

〔美〕肯尼思·沃尔兹 著



北京大学出版社
PEKING UNIVERSITY PRESS

著作权合同登记 图字:01-2004-5671

Kenneth N. Waltz

Theory of International Politics

ISBN: 0-07-554852-6

Copyright © 1979 by The McGraw-Hill Companies, Inc.

Original language published by The McGraw-Hill Companies, Inc. All Rights reserved. No part of this publication may be reproduced or distributed by any means, or stored in a database or retrieval system, without the prior written permission of the publisher.

Authorized English language reprint edition jointly published by McGraw-Hill Education(Asia) Co. and Peking University Press. This edition is authorized for sale in the People's Republic of China only, excluding Hong Kong, Macao SARs and Taiwan. Unauthorized export of this edition is a violation of the Copyright Act. Violation of this Law is subject to Civil and Criminal Penalties.

本书英文影印版由北京大学出版社和美国麦格劳-希尔教育出版(亚洲)公司合作出版。
此版本仅限在中华人民共和国境内(不包括香港、澳门特别行政区及台湾地区)销售。

未经许可之出口,视为违反著作权法,将受法律之制裁。

未经出版者预先书面许可,不得以任何方式复制或抄袭本书的任何部分。

本书封面贴有 McGraw-Hill 公司防伪标签,无标签者不得销售。

图书在版编目(CIP)数据

国际政治理论/(美)沃尔兹著. —北京:北京大学出版社,2004.12

(世界政治与国际关系原版影印丛书·学术精品系列)

ISBN 7-301-08093-X

I. 国… II. 沃… III. 国际政治—理论研究—英文 IV. D5

中国版本图书馆 CIP 数据核字(2004)第 107993 号

书 名: 国际政治理论(Theory of International Politics)

著作责任者: [美]肯尼思·沃尔兹(Kenneth N. Waltz)著

责任编辑: 耿协峰

标准书号: ISBN 7-301-08093-X/D·0993

出版发行: 北京大学出版社

地 址: 北京市海淀区中关村北京大学校内 100871

网 址: <http://cbs.pku.edu.cn>

电 话: 邮购部 62752015 发行部 62750672 编辑部 62753121

电子信箱: zpup@pup.pku.edu.cn

排 版 者: 浩德博文信息科技有限公司

印 刷 者: 北京中科印刷有限公司

经 销 者: 新华书店

787 毫米×980 毫米 16 开本 16.5 印张 430 千字

2004 年 12 月第 1 版 2004 年 12 月第 1 次印刷

定 价: 28.00 元

内 容 简 介

《国际政治理论》一书是当代国际政治理论经典著作，在美国和中国都有着巨大影响（该书已有两个中文译本），是学术引用率最高的著作之一。该书通过考察已有理论和方法，在修正它们的基础上构建了一种新的被称为“新现实主义”或“结构现实主义”的国际政治理论，并对这一新理论进行了多方面的检验。该书被誉为新现实主义国际政治理论的代表作，其作者也因此成为当代国际政治理论的大师级人物。

作 者 简 介

肯尼思·沃尔兹 (Kenneth N. Waltz) 1924年生，1948年毕业于奥比多林学院，1950年和1954年先后获哥伦比亚大学政治学硕士、博士学位，后相继执教于哥伦比亚大学（1953年）、斯沃斯摩尔学院（1957年）、布兰代斯大学（1966年）和加州大学伯克利分校（1971年），并于1994年成为加州大学伯克利分校政治学系终身荣誉教授。沃尔兹教授曾担任美国对外政策委员会委员、美国政治学会会长、美国人文与科学研究院院士等职，并担任《美国政治科学评论》、《世界政治》、《国际安全》等学术刊物的编委。因其在国际关系研究领域的卓著成就，沃尔兹教授于1999年荣获美国政治学会颁发的“詹姆斯·麦迪逊政治科学杰出学术贡献奖”，并被颁奖委员会评价为“20世纪最伟大的国际关系理论家之一”。其主要著作除本书外还有：《人、国家与战争》（1959年）、《对外政策和民主政治》（1967年）、《核扩散辩论》（1995年）等。

《世界政治与国际关系原版影印丛书》

学术顾问

(按姓氏拼音排序)

贾庆国(北京大学国际关系学院)

倪世雄(复旦大学公共事务与国际关系学院)

潘 维(北京大学国际关系学院)

秦亚青(外交学院)

时殷弘(中国人民大学国际关系学院)

宋新宁(中国人民大学国际关系学院)

王缉思(中国社会科学院美国研究所、中共中央党校战略研究所)

王逸舟(中国社会科学院世界经济与政治研究所)

王正毅(北京大学国际关系学院)

许振洲(北京大学国际关系学院)

阎学通(清华大学国际问题研究所)

袁 明(北京大学国际关系学院)

出版说明

引进和交流,是国际研究诸学科发展壮大所不可或缺的一环和纽带。没有引进和交流,学术就难以活跃,也不易创新。每一位从事世界政治与国际关系研究的学者、每一位学习世界政治与国际关系的学生,无不深感阅读外文原文文献的重要性,他们都深知,原文的报刊、教材和专著,是获取最新国际信息、最新理论论争、最新参考资料的必不可少的重要来源,而获得这样的原文文献的机会是不均等的,因此,他们极其渴望更为方便地直接接触到原文文献。而在目前不易直接在国内购买原版书籍的情况下,采取原版影印的方式引进国际上的优秀教材和专著是解决问题的一条捷径,如此就可以使国内普通读者方便地获得最有权威的原文读物,从而可以快速了解国外同行的教学和学术成果,为深入学习和研究、为开展有效的对外学术交流、也为国际关系诸学科在我国的发展打下更坚实的基础。

这套“世界政治与国际关系原版影印丛书”,正是基于上述认识而组织出版的,并且得到了我国国际关系教学与科研领域最有权威的专家教授们的认可,他们分别来自于北京大学国际关系学院、复旦大学国际关系与公共事务学院、中国人民大学国际关系学院、外交学院、清华大学国际问题研究所、中国社会科学院世界经济与政治研究所、中共中央党校战略研究所等单位,作为本套丛书的学术顾问,他们愿意向我国该学科及相关领域的广大学者和学生共同推荐这套丛书。

本丛书第一批先行选入了一些经典文献选读性质的国外优秀教材,也包括美国大学中的一些知名国际关系学教员所编著的教材,内容主要在国际关系理论方面,也包括国际政治经济学和比较政治学方面的优秀教材。它们皆可称为原文中的精品,值得研读和收藏,不仅如此,由于它们本身在国外的大学课堂里都是应用较广的教材和读物,所以特别适合作为我国国际关系与世界政治专业大学教学中的参考读物,甚至可以直接作为以英文授课的课堂教材。在每本书的前面,我们都邀请国内比较权威的专家学者撰写了精彩的导论,以指导读者更好地阅读和使用这些文献。

根据读者的反映和我国建设中的国际关系学科的发展需要,我们决定在上述影印图书的基础上,开辟一个“学术精品系列”,以让我国国际关系专业的学者和学生有机会更方便地接触到那些堪称“精品中的精品”的学术书籍,比如摩根索的《国家间政治》、沃尔兹的《国际政治理论》和基欧汉的《权力与相互依赖》等等。这些作品大都已经有了中文译本,而且有的还不只一种中译本,它们的学术和学科地位是不言而喻的,在中国读者心目中也已有着持久深入的影响,正因如此,在这个新系列的每一种图书前面我们没有再烦请学术顾问们撰写导言。我们相信,如此有生命力的作品,当它们以新的面目出现在中国读者面前时,一定会引发新的阅读感受、新的理论遐思和新的战略决策思考。至少,

它们可以带给我们真正原汁原味的享受,让我们更加贴近当代的国际关系理论和国际关系理论家。

今后,我们会陆续推出更新、更好的原版教材和专著,希望广大读者提出宝贵意见和建议,尤其欢迎更多的专家学者向我们推荐适合引进的国外优秀教材和专著,以帮助我们完善这套丛书的出版,并最终形成一套完整的世界政治与国际关系及其相关学科适用的原文教学研究参考书系。

最后也要特别提醒读者,我们引进这套丛书,目的主要在于推动学术交流、促进学科发育、完善教学体系,而其著作者的出发点和指导思想、基本观点和结论等,则完全属于由读者加以认识、比较、讨论甚至批评的内容,均不代表北京大学出版社。

Preface

Theory is fundamental to science, and theories are rooted in ideas. The National Science Foundation was willing to bet on an idea before it could be well explained. The following pages, I hope, justify the Foundation's judgment. Other institutions helped me along the endless road to theory. In recent years the Institute of International Studies and the Committee on Research at the University of California, Berkeley, helped finance my work, as the Center for International Affairs at Harvard did earlier. Fellowships from the Guggenheim Foundation and from the Institute for the Study of World Politics enabled me to complete a draft of the manuscript and also to relate problems of international-political theory to wider issues in the philosophy of science. For the latter purpose, the philosophy department of the London School of Economics provided an exciting and friendly environment.

Robert Jervis and John Ruggie read my next-to-last draft with care and insight that would amaze anyone unacquainted with their critical talents. Robert Art and Glenn Snyder also made telling comments. John Cavanagh collected quantities of preliminary data; Stephen Peterson constructed the Tables found in the Appendix; Harry Hanson compiled the bibliography, and Nadine Zelinski expertly coped with an unrelenting flow of tapes. Through many discussions, mainly with my wife and with graduate students at Brandeis and Berkeley, a number of the points I make were developed.

Most of Chapters 2 and 3, and some of Chapters 1 and 6, appear in my 1975 essay; they were parts of the original plan for this book. Here and there I have drawn passages from other essays and from an earlier book. These and other sources appear in the bibliography near the end of the book.

Because a theory is never completed, I have been reluctant to declare the manuscript done. I do so now—without a sense of completion, but with a deep sigh of relief and a deep sense of gratitude to the many organizations and individuals who helped me.

Harborside, Maine
July 1978

K. N. W.

Contents

Chapter	1	Laws and Theories	1
Chapter	2	Reductionist Theories	18
Chapter	3	Systemic Approaches and Theories	38
Chapter	4	Reductionist and Systemic Theories	60
Chapter	5	Political Structures	79
Chapter	6	Anarchic Orders and Balances of Power	102
Chapter	7	Structural Causes and Economic Effects	129
Chapter	8	Structural Causes and Military Effects	161
Chapter	9	The Management of International Affairs	194
Appendix			211
Bibliography			223
Index			241

Laws and Theories

I write this book with three aims in mind: first, to examine theories of international politics and approaches to the subject matter that make some claim to being theoretically important; second, to construct a theory of international politics that remedies the defects of present theories; and third, to examine some applications of the theory constructed. The required preliminary to the accomplishment of these tasks is to say what theories are and to state the requirements for testing them.

I

Students of international politics use the term "theory" freely, often to cover any work that departs from mere description and seldom to refer only to work that meets philosophy-of-science standards. The aims I intend to pursue require that definitions of the key terms *theory* and *law* be carefully chosen. Whereas two definitions of theory vie for acceptance, a simple definition of law is widely accepted. Laws establish relations between variables, variables being concepts that can take different values. If a , then b , where a stands for one or more independent variables and b stands for the dependent variable: In form, this is the statement of a law. If the relation between a and b is invariant, the law is absolute. If the relation is highly constant, though not invariant, the law would read like this: If a , then b with probability x . A law is based not simply on a relation that has been found, but on one that has been found repeatedly. Repetition gives rise to the expectation that if I find a in the future, then with specified probability I will also find b . In the natural sciences even probabilistic laws contain a strong imputation of necessity. In the social sciences to say that persons of specified income vote Democratic with a certain probability is to make a law-like statement. The word *like* implies a lesser sense of necessity. Still, the statement would not be at all like a law unless the relation had so often and so reliably been found

in the past that the expectation of its holding in the future with comparable probability is high.*

By one definition, theories are collections or sets of laws pertaining to a particular behavior or phenomenon. In addition to income, for example, associations may be established between voters' education, their religion, and their parents' political commitment, on the one hand, and the way they vote, on the other hand. If the probabilistic laws thus established are taken together, higher correlations are achieved between voters' characteristics (the independent variables) and choice of party (the dependent variable). Theories are, then, more complex than laws, but only quantitatively so. Between laws and theories no difference of kind appears.

This first definition of theory supports the aspiration of those many social scientists who would "build" theory by collecting carefully verified, interconnected hypotheses. The following story suggests how most political scientists think of theory:

Homer describes the walls of Troy as being eight feet thick. If his account is true, then millenia later one should be able to find those walls by careful digging. This thought occurred to Heinrich Schliemann as a boy, and as a man he put the theory to empirical test. Karl Deutsch uses the story as an example of how new-style theories are tested (1966, pp. 168-69). A theory is born in conjecture and is viable if the conjecture is confirmed. Deutsch regards theories of the simple if-then sort as "special theories," which may "later on become embedded in a grand theory." He then gives other examples and in doing so shifts "from a yes-or-no question to a how-much question." We should try to find out how much of a contribution "different variables" make to a given result (1966, pp. 219-21).

What is possibly useful in such a pattern of thinking, and what is not? Everyone knows that a coefficient of correlation, even a high one, does not warrant saying that a causal relation exists. Squaring the coefficient, however, technically permits us to say that we have accounted for a certain percentage of the variance. It is then easy to believe that a real causal connection has been identified and measured, to think that the relation between an independent and a dependent variable has been established, and to forge that something has been said only about dots on a piece of paper and the regression line drawn through them. Is the correlation spurious? That suggests the right question without quite asking it. Cor-

*One must be careful. The above statement is law-like only if it can be verified in various ways. Counterfactual conditions, for example, would have to be met in this way: Person *b* is in the income category of likely Republicans; if *b*'s income were reduced to a certain level, he would probably become a Democrat. More precisely, the law-like statement establishes these expectations: If *b* is an *R* with probability *x*, and if *a* is a *D* with probability *y*, then if *b* becomes *a*, he thereby becomes a *D* with probability *y*.

relations are neither spurious nor genuine; they are merely numbers that one gets by performing simple mathematical operations. A correlation is neither spurious nor genuine, but the relation that we infer from it may be either. Suppose someone propounds a law, for example, by carefully establishing the relation between the amount of push imparted to a cart and the amount of its movement. The relation established, if conditions are kept constant and measurement is careful, is simply a fact of observation, a law that remains constantly valid. The *explanation* offered for that relation of push and movement, however, is radically different depending on whether we consult Aristotle or Galileo or Newton. The uncritical acceptance of a number as indicating that a connection obtains is the first danger to guard against. To do so is fairly easy. The next problem is more important and harder to solve.

Even if we have satisfied ourselves in various ways that a correlation points to a connection that reliably holds, we still have not accounted for that connection in the sense of having explained it. We have accounted for it in the way—and only in the way—that Aristotelian physics accounted for the relation between push and movement. From a practical standpoint, knowledge of the high correlation between push and movement is very useful. That descriptive knowledge may suggest clues about the principles of motion. It may as easily be grossly misleading, as indeed it turned out to be. Numbers may describe what goes on in the world. But no matter how securely we nail a description down with numbers, we still have not explained what we have described. Statistics do not show how anything works or fits together. Statistics are simply descriptions in numerical form. The form is economical because statistics describe a universe through manipulation of samples drawn from it. Statistics are useful because of the variety of ingenious operations that can be performed, some of which can be used to check on the significance of others. The result, however, remains a description of some part of the world and not an explanation of it. Statistical operations cannot bridge the gap that lies between description and explanation. Karl Deutsch advises us “to formulate, or reformulate, a proposition in terms of probability and to say *how much* of the outcome could be accounted for by one element and how much of the outcome could be accounted for from other elements or is autonomous and free” (1966, p. 220). If we follow that advice, we will behave like Aristotelian physicists. We will treat a problem as though it were like the one of trying to say to what extent a cart’s movement results from push and slope and to what extent its movement is impeded by frictions. We will continue to think in sequential and correlational terms. By doing so, results that are practically useful may be achieved, although students of international politics have disappointingly little to show for such efforts, even in practical terms. And if useful information were uncovered, the more difficult task of figuring out its theoretical meaning would remain.

The "inductivist illusion," as structural anthropologist Lévi-Strauss terms it, is the belief that truth is won and explanation achieved through the accumulation of more and more data and the examination of more and more cases. If we gather more and more data and establish more and more associations, however, we will not finally find that we know something. We will simply end up having more and more data and larger sets of correlations. Data never speak for themselves. Observation and experience never lead directly to knowledge of causes. As the American pragmatist, C. S. Peirce, once said, "direct experience is neither certain nor uncertain, because it affirms nothing—it just *is*. It involves no error, because it testifies to nothing but its own appearance. For the same reason, it affords no certainty" (quoted in Nagel 1956, p. 150). Data, seeming facts, apparent associations—these are not certain knowledge of something. They may be puzzles that can one day be explained; they may be trivia that need not be explained at all.

If we follow the inductivist route, we can deal only with pieces of problems. The belief that the pieces can be added up, that they can be treated as independent variables whose summed effects will account for a certain portion of a dependent variable's movement, rests on nothing more than faith. We do not know what to add up, and we do not know whether addition is the appropriate operation. The number of pieces that might be taken as parts of a problem is infinite, and so is the number of ways in which the pieces may be combined. Neither observationally nor experimentally can one work with an infinity of objects and combinations. In the following example, Ross Ashby offers an apt caution. Astrophysicists seek to explain the behavior of star clusters with 20,000 members. The beginner, Ashby observes, "will say simply that he wants to know what the cluster will do, i.e., he wants the trajectories of the components. If this knowledge, however, could be given to him, it would take the form of many volumes filled with numerical tables, and he would then realise that he did not really want all that." The problem, Ashby concludes, is how to find out what we really want to know without "being overwhelmed with useless detail" (1956, p. 113). The old motto, "knowledge for the sake of knowledge" is an appealing one, perhaps because one can keep busy and at the same time avoid the difficult question of knowledge for what. Because facts do not speak for themselves, because associations never contain or conclusively suggest their own explanation, the question must be faced. The idea of "knowledge for the sake of knowledge" loses its charm, and indeed its meaning, once one realizes that the possible objects of knowledge are infinite.

Today's students of politics nevertheless display a strong commitment to induction. They examine numerous cases with the hope that connections and patterns will emerge and that those connections and patterns will represent the frequently mentioned "reality that is out there." The hope apparently rests on the conviction that knowledge begins with certainties and that induction can uncover

them. But we can never say with assurance that a state of affairs inductively arrived at corresponds to something objectively real. What we think of as reality is itself an elaborate conception constructed and reconstructed through the ages. Reality emerges from our selection and organization of materials that are available in infinite quantity. How can we decide which materials to select and how to arrange them? No inductive procedure can answer the question, for the very problem is to figure out the criteria by which induction can usefully proceed.

Those who believe, oddly, that knowledge begins with certainties think of theories as edifices of truth, which they would build inductively. They define theories as hypotheses that are confirmed and connected. But empirical knowledge is always problematic. Experience often misleads us. As Heinrich Hertz put it, "that which is derived from experience can again be annulled by experience" (1894, p. 357). Nothing is ever both empirical and absolutely true, a proposition established by Immanuel Kant and now widely accepted at least by natural scientists. And since empirical knowledge is potentially infinite in extent, without some guidance we can know neither what information to gather nor how to put it together so that it becomes comprehensible. If we could directly apprehend the world that interests us, we would have no need for theory. We cannot. One can reliably find his way among infinite materials only with the guidance of theory defined in the second sense.

Rather than being mere collections of laws, theories are statements that explain them (cf. Nagel 1961, pp. 80–81; Isaak 1969, pp. 138–39). Theories are qualitatively different from laws. Laws identify invariant or probable associations. Theories show why those associations obtain. Each descriptive term in a law is directly tied to observational or laboratory procedures, and laws are established only if they pass observational or experimental tests. In addition to descriptive terms, theories contain theoretical notions. Theories cannot be constructed through induction alone, for theoretical notions can only be invented, not discovered. Aristotle dealt with real motion, that is with the ratios of effort to movement that are matters of common experience. Galileo took bold steps away from the real world in order to explain it. Aristotle believed that objects are naturally at rest and that effort is required to move them; Galileo assumed that both rest and uniform circular motion are natural and that an object remains in either of these conditions in the absence of outside forces. Newton conceived of a uniform rectilinear motion. The theory he devised to explain it introduced such theoretical notions as point-mass, instantaneous acceleration, force, and absolute space and time, none of which can be observed or experimentally determined. At each step, from Aristotle through Galileo to Newton, the theoretical concepts became bolder—that is, further removed from our sense experience.

A theoretical notion may be a concept, such as force, or an assumption, such as the assumption that mass concentrates at a point. A theoretical notion does not explain or predict anything. We know, and so did Newton, that mass does not

concentrate at a point. But it was not odd of Newton to assume that it did, for assumptions are not assertions of fact. They are neither true nor false. Theoretical notions find their justification in the success of the theories that employ them. Of purported laws, we ask: "Are they true?" Of theories, we ask: "How great is their explanatory power?" Newton's theory of universal gravitation provided a unified explanation of celestial and terrestrial phenomena. Its power lay in the number of previously disparate empirical generalizations and laws that could be subsumed in one explanatory system, and in the number and range of new hypotheses generated or suggested by the theory, hypotheses that in turn led to new experimental laws.

Aristotle concluded that, within limits, "a given body can be displaced in a set time through a distance proportional to the effort available" (Toulmin 1961, p. 49). Whether by ancient or modern mechanics, the high correlation of push and movement holds true. But how is it to be explained? Such facts have remained constant; the theories accepted as adequate for their explanation have changed radically. Laws are "facts of observation"; theories are "speculative processes introduced to explain them." Experimental results are permanent; theories, however well supported, may not last (Andrade 1957, pp. 29, 242). Laws remain, theories come and go.

Since I see no reason for wasting the word "theory" by defining it as a set of two or more laws, I adopt the second meaning of the term: Theories explain laws. This meaning does not accord with usage in much of traditional political theory, which is concerned more with philosophic interpretation than with theoretical explanation. It does correspond to the definition of the term in the natural sciences and in some of the social sciences, especially economics. The definition also satisfies the need for a term to cover the explanatory activity we persistently engage in. In order to get beyond "the facts of observation," as we wish irresistibly to do, we must grapple with the problem of explanation. The urge to explain is not born of idle curiosity alone. It is produced also by the desire to control, or at least to know if control is possible, rather than merely to predict. Prediction follows from knowledge of the regularity of associations embodied in laws. Sunrises and sunsets can be reliably predicted on the basis of empirical findings alone, without benefit of theories explaining why the phenomena occur. Prediction may certainly be useful: The forces that propel two bodies headed for a collision may be inaccessible, but if we can predict the collision, we can at least get out of the way. Still, we would often like to be able to exert some control. Because a law does not say why a particular association holds, it cannot tell us whether we can exercise control and how we might go about doing so. For the latter purposes we need a theory.

A theory, though related to the world about which explanations are wanted, always remains distinct from that world. "Reality" will be congruent neither with

a theory nor with a model that may represent it. Because political scientists often think that the best model is the one that reflects reality most accurately, further discussion is needed.

Model is used in two principal ways. In one sense a model represents a theory. In another sense a model pictures reality while simplifying it, say, through omission or through reduction of scale. If such a model departs too far from reality, it becomes useless. A model airplane should look like a real airplane. Explanatory power, however, is gained by moving away from "reality," not by staying close to it. A full description would be of least explanatory power; an elegant theory, of most. The latter would be at an extreme remove from reality; think of physics. Departing from reality is not necessarily good, but unless one can do so in some clever way, one can only describe and not explain. Thus James Conant once defined science as "a dynamic undertaking directed to lowering the degree of the empiricism involved in solving problems" (1952, p. 62). A model of a theory will be about as far removed from reality as the theory it represents. In modeling a theory, one looks for suggestive ways of depicting the theory, and not the reality it deals with. The model then presents the theory, with its theoretical notions necessarily omitted, whether through organismic, mechanical, mathematical, or other expressions.

Some political scientists write of theoretical models as though they were of the model airplane sort. For example, they first criticize the state-centric model of international politics because it has supposedly become further and further removed from reality. Then they try earnestly to make models that mirror reality ever more fully. If their efforts were to succeed, the model and the real world would become one and the same. The error made is the opposite of the one Immanuel Kant so cogently warned against, that is, of thinking that what is true in theory may not be so in practice. As Kant well understood, his warning did not imply that theory and practice are identical. Theory explains some part of reality and is therefore distinct from the reality it explains. If the distinction is preserved, it becomes obvious that induction from observables cannot in itself yield a theory that explains the observed. "A theory can be tested by experience," as Albert Einstein once said, "but there is no way from experience to the setting up of a theory" (quoted in Harris 1970, p. 121). To claim that it is possible to arrive at a theory inductively is to claim that we can understand phenomena before the means for their explanation are contrived.

The point is not to reject induction, but to ask what induction can and cannot accomplish. Induction is used at the level of hypotheses and laws rather than at the level of theories. Laws are different from theories, and the difference is reflected in the distinction between the way in which laws may be discovered and the way in which theories have to be constructed. Hypotheses may be inferred from theories. If they are confirmed quite conclusively, they are called laws.