
Philosophical Writings of Etienne Bonnot, Abbé de Condillac

*Translated by Franklin Philip
with the collaboration of Harlan Lane*



Psychology Press

Philosophical Writings of
Etienne Bonnot,
Abbé de Condillac

Page Intentionally Left Blank

Philosophical Writings of
Etienne Bonnot,
Abbé de Condillac

*Translated by Franklin Philip
with the collaboration of Harlan Lane*

 Psychology Press
Taylor & Francis Group
NEW YORK AND LONDON

First Published 1982 by Lawrence Erlbaum Associates, Inc.
This edition published 2014 by Psychology Press
711 Third Avenue, New York, NY, 10017

and by Psychology Press
27 Church Road, Hove, East Sussex, BN3 2FA

Psychology Press is an imprint of the Taylor & Francis Group, an informa business

Copyright © 1982 by Lawrence Erlbaum Associates, Inc.

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

Trademark notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

Library of Congress Cataloging in Publication Data

Condillac, Etienne Bonnot, de, 1714-1780.
The Philosophical writings of Etienne
Bonnot de Condillac.

1. Thought and thinking—Addresses, essays,
lectures. 2. Senses and sensation—Addresses,
essays, lectures. I. Title.

B1982.E5 1982 194 81-12462
ISBN 0-89859-181-3 AACR2

Publisher's Note

The publisher has gone to great lengths to ensure the quality of this reprint but points out that some imperfections in the original may be apparent.

ISBN 978-1-315-80281-7 (ebk)

Contents

Preface

BOOK I: A TREATISE ON SYSTEMS

1. Three Sorts of Systems Should be Distinguished	1
2. On the Uselessness of Abstract Systems	6
3. On the Misuses of Abstract Systems	12
4. First and Second Examples of the Misuse of Abstract Systems	18
5. Third Example: On the Origin and Development of Divination	22
6. Fourth Example: On the Origin and Consequences of the Preconception of Innate Ideas	33
7. Fifth Example: Taken from Malebranche	40
8. Sixth Example: Monads	50
9. Seventh Example: Taken from a Work Entitled “Of Physical Pre-Motion or the Action of God on Creatures”	71
	v

vi CONTENTS

10. Eighth and Last Example: Spinozism Refuted	81
11. Conclusion of the Preceding Chapters	122
12. Hypotheses	123
13. Of the Genius of Those Who With the Intent of Going Back to the Nature of Things Create Abstract Systems or Gratuitous Hypotheses	134
14. Cases in Which We Can Construct Systems on Principles Established by Experience	138
15. On the Necessity in Political Systems of Views and Precautions with which They Ought to be Constructed	140
16. On the Use of Systems in Physics	145
17. On the Use of Systems in the Arts	148
18. Considerations about Systems or about the Way to Study the Sciences	151

**BOOK II:
A TREATISE ON THE SENSATIONS**

**Part One: On Senses That By Themselves
Do Not Judge External Objects**

1. Of the First Knowledge of a Man Limited to the Sense of Smell	175
2. On Mental Processes in a Man Limited to the Sense of Smell, and How Different Degrees of Pleasure and Pain are the Mainspring of These Processes	177
3. The Desires, Passions, Love, Hate, Hope, Fear and Will in a Man Limited to the Sense of Smell	189
4. The Ideas of a Man Limited to the Sense of Smell	192

5. Of the Sleep and Dreams of a Man Limited to the Sense of Smell	199
6. Of the Self, or Personality of a Man Limited to the Sense of Smell	200
7. Conclusion of the Preceding Chapters	202
8. Of a Man Limited to the Sense of Hearing	204
9. Of the Senses of Smell and Hearing United	208
10. Of Taste Alone and of Taste Joined to the Senses of Smell and Hearing	210
11. Of a Man Limited to The Sense of Sight	212
12. On Sight with Smell, Hearing and Taste	220
 Part Two: On Touch, Or The Only Sense That Judges External Objects On Its Own	
1. Of the Least Degree of Sensation to which a Man Can be Reduced Who is Limited to the Sense of Touch Alone	225
2. This Man Limited to the Lowest Degree of Sentience Has No Idea of Extension or of Movement	226
3. Of the Sensations that are Attributed to Touch and Nevertheless Give no Idea of Extension	228
4. Preliminary Considerations for the Solution of the Question: How Do We Go from Our Sensations to a Knowledge of Objects?	230
5. How a Man Limited to Touch Discovers His Body and Learns That There Is Something External to Himself	232
6. Of Pleasure, Pain, and the Needs and Desires of a Man Limited to the Sense of Touch	237
7. On the Manner in Which a Man Limited to a Sense of Touch Begins to Discover Space	239

viii CONTENTS

8. On the Ideas That a Man Limited to the Sense of Touch Can Acquire	242
9. Observation to Aid Understanding of What Will Be Said in the Discussion of Vision	253
10. On Rest, Sleep, and Awakening in a Man Limited to the Sense of Touch	256
11. On Memory, Imagination and Dreams in a Man Limited to the Sense of Touch	258
12. On the Principal Organ of Touch	262
Part Three: How Touch Teaches The Other Senses To Judge External Objects	
1. On Touch With Smell	267
2. Of Hearing, of Smell and of Touch United	271
3. How the Eye Learns to See Distance, Location, Shape, Size, and the Movement of Objects	274
4. Why We Tend to Attribute to Vision Ideas that are Due Only to Touch. By What Series of Reflections We Come to Discard This Preconception	287
5. Of a Man Born Blind Whose Cataracts Were Removed	290
6. How We Could Study a Person Born Blind Whose Cataracts Had Been Removed	294
7. The Idea of Duration Given by Vision Joined with Touch	296
8. How Vision Added to Touch Gives the Statue Some Knowledge of the Duration of Sleep and Teaches it to Distinguish Dreaming from Waking	299
9. On the Chain of Knowledge, Abstractions, and Desires When Sight is Added to Touch, Hearing, and Smell	300
10. Of Taste United with Touch	302

11. General Observation on the Union of the Five Senses	304
---	-----

**Part Four: On The Needs, Skills And Ideas
Of An Isolated Man Who Enjoys All His Senses**

1. How This Man Learns to Satisfy His Needs With Choice	309
2. On the State of a Man Left to Himself and How the Accidents to which He Is Exposed Contribute to His Instruction	314
3. Of the Judgments That a Man Left to Himself Can Make about the Goodness and Beauty of Things	318
4. On the Judgments that a Man Left to Himself Can Make about the Objects He Requires	321
5. On the Uncertainty of Judgments that We Make about the Existence of Sensory Properties	323
6. Consideration on Abstract and General Ideas that Can be Acquired by a Man Living Outside Society	325
7. Of A Man Found in the Forests of Lithuania	330
8. Of a Man Who Remembers Having Received the Use of His Senses One After the Other	332
9. Conclusion	337

**BOOK III:
LOGIC, OR THE FIRST DEVELOPMENTS OF THE
ART OF THINKING**

**Part One: How Nature Itself Teaches Us To Analyze; And How
With This Method We Explain The Origin And
Development Of Either Ideas Or The Faculties Of The Mind**

1. How Nature Gives Us Our First Lessons in the Art of Thinking	347
2. Analysis is the Only Method for Acquiring Knowledge. How We Learn it from Nature Itself	351

x CONTENTS

3. Analysis Forms Sound Minds	354
4. How Nature Causes Us to Observe Sensible Objects in Order to Give Us Ideas of Different Kinds	357
5. Ideas of Things That Do Not Excite the Senses	363
6. Continuation of the Same Subject	365
7. Analysis of the Faculties of the Mind	367
8. Continuation of the Same Subject	371
9. Of the Causes of Sensibility and Memory	373

**Part Two: Analysis Considered In Its Means And Effects,
Or The Art Of Reasoning Reduced To A Well-Formed Language**

1. How the Knowledge We Get from Nature Forms a System in Which Everything is Perfectly United; and How We Go Astray When We Forget its Lessons	383
2. How the Language of Gesture Analyzes Thought	388
3. How Languages are Analytical Methods. The Inadequacy of These Methods	392
4. On the Influence of Languages	395
5. Considerations on Abstract and General Ideas; or How the Art of Reasoning Reduces to a Well-Formed Language	397
6. How Those Who Regard Definitions as the Only Means of Remedying the Abuses of Language are Mistaken	401
7. How Reasoning is Simple When Language Itself is Simple	405
8. What the Whole Technique of Reasoning Consists of	412
9. Of Different Degrees of Certainty; or of Fact, Conjectures, and Analogy	415

Preface

In the course of the eighteenth century, two near contemporaries—David Hume (1711-1776), writing in English, and Etienne Bonnot, abbé of Condillac (1715-1780), in French—argued independently that the only available medium for constructing a rational understanding of reality is the individual person's successive instants in the having of sensations.

Within subsequent philosophy, the brilliant Scotsman has enjoyed a fame that almost totally eclipses the memory of the dogged Frenchman. This translation of three of the philosophical works of Condillac is being published in the hope of redressing the balance between the two.

Hume was skeptical about the reasonableness of certain common-sense assumptions, and the tensions created by his practically intolerable but seemingly irrefutable skepticism have helped to keep Humean metaphysics alive. Condillac, despite his official status as metaphysician for the acute critics of the French Enlightenment, was himself mostly not skeptical. The absence of tension between his sensationalism and common sense may, together with his compatriots' characteristic impatience with empirical ideas, account for Condillac's comparative obscurity even in French philosophy.

Condillac has had a continuing influence, however, on Western thought, for his constructive ideas have been incorporated into the behavioral sciences. From the first psychiatrist Philippe Pinel's use of *observation* of the mentally infirm to the application of Maria Montessori's *sensory* training of the child, the social sciences have explicitly relied on Condillac's genetic theory of mental operations.

Of the three books included in this volume, the first, the *Treatise on Systems* (1746), contrasts Condillac's philosophic system with rationalistic

systems that end in contemplation rather than observation. The *Treatise on Sensations* (1754) details the development of knowing, desiring, and acting, beginning with a single impression in one sense modality and ending with the full reconstitution of the external and mental worlds of the individual. Finally, the posthumously published *Logic* (1792) elaborates Condillac's universal method for acquiring knowledge by a child, an adult, or a discipline—the method of analysis.

Condillac came from a family belonging to the minor aristocracy of Grenoble. After receiving holy orders in the Catholic church, he dressed in a cassock but did not otherwise pursue the priestly vocation. Most of his adult life was spent in Paris, where he became acquainted with the leading intellectual figures of the time, including Voltaire, and often dined with Rousseau and Diderot. Accounts of salon life suggest that he was socially unassertive. He died at his estate in the Loire valley at the age of sixty-five.

These books have been translated from the French edition of Condillac's works edited by Georges Le Roy, *Oeuvres Philosophiques de Condillac*. Paris: Presses Universitaires de France, 1948.

This publication was made possible by grant number RL 28904-77-1364 from the Translation Program, Division of Research Grants and by grant number RP-2038-80 from the Publications Support Program of the National Endowment for the Humanities.

**Franklin Philip
Harlan Lane**

Philosophical Writings of
Etienne Bonnot,
Abbé de Condillac

Page Intentionally Left Blank

BOOK I:

A TREATISE ON SYSTEMS

Page Intentionally Left Blank

1 Three Sorts of Systems Should be Distinguished

A system is nothing other than the arrangement of different parts of an art or science in an order in which they all lend each other support and in which the last ones are explained by the first ones. Parts that explain other parts are called principles, and the fewer principles a system has the more perfect it is. It is even desirable to reduce all principles to a single one.

In the works of philosophers we can observe three sorts of principles from which three sorts of systems are formed.

The principles I put in the first class, as the most fashionable ones, are general or abstract maxims. They must be so evident or so well-proven that we cannot cast doubt on them. In fact, if they were uncertain, we could not be certain of the conclusions we draw from them. The author of the *Art of Thinking* is speaking about these principles when he says:¹

Everyone agrees that it is important to have in mind several axioms and principles that, being clear and indubitable, can serve us as a basis for understanding the most hidden things. But those that are generally given are so rarely useful that it is quite pointless to know them. For what they call the first principle of knowledge, “it is impossible for the same thing to be and not to be,” is perfectly clear and certain; but I find no occasion where it can ever serve to give us any knowledge. I thus believe that the following can be more useful.

He then gives us a first principle: “Everything included in the clear and distinct idea of a thing can be truly affirmed of it.” As a second principle: “The

¹Part 4, Chapter 7.

idea of everything that we conceive clearly and distinctly includes at least possible existence"; as a third principle: "Nothing cannot be the cause of anything." But it would be needless to relate the other principles; the ones just mentioned are sufficient to serve as examples.

Philosophers ascribe such great virtue to these sorts of principles that they naturally have tried to increase their number. Metaphysicians particularly distinguished themselves in this way. Descartes, Malebranche, Leibniz, and others outdid each other in lavishing them on us, and we have no one else to blame now but ourselves if we do not penetrate as far as "the most hidden things."

Principles of the second kind are suppositions formulated to explain things that we could not otherwise give an account of. If these suppositions do not appear impossible and if they provide some explanation of known phenomena, philosophers do not doubt that they have discovered the true guiding principles of nature. Would it be possible, they say, for a false supposition to yield an appropriate outcome? Whence arises the opinion that the explanation of phenomena proves the truth of a supposition, and that we should judge a system less by its principles than by the way it explains things. Suppositions that are at first arbitrary are considered to become indisputable through the skill with which they are employed.

The metaphysicians were as inventive with this second kind of principle as with the first. And because of their work, metaphysics no longer encountered anything that could be a mystery for it. In their language, metaphysics means the science of first truths, the first principles of things. But it must be agreed that we do not find this science in their works.

Abstract ideas are merely ideas constructed out of what several particular ideas have in common. An example is the idea of animal. It is extracted from what belongs alike to the ideas of man, horse, monkey, and so on. In this way, an abstract idea can appear to explain what we observe in particular objects. For example, if we ask why the horse walks, drinks, or eats, someone will give a highly philosophical answer stating that it is merely because the horse is an animal. When we analyze this answer, however, it merely means that the horse walks, drinks, and eats because in fact it walks, drinks, and eats. But people are rarely dissatisfied with an initial answer. It seems that their curiosity leads them less to learn about one thing than to raise questions about many things. The philosopher's confident manner obliges them to do this. They would fear appearing stupid if they insisted too much on the same point. It is enough for the oracular pronouncement to be composed of familiar expressions, and they will be ashamed of not understanding it. Or if they cannot close their eyes to its obscurity, a single look from their teacher would appear to clear it up. Can we doubt matters when he in whom we place all our confidence does not doubt them himself? Thus we have nothing to be surprised at if abstract principles have proliferated and have always been regarded as the source of our knowledge.

Abstract ideas are absolutely necessary to put order in our knowledge because they indicate the class of each idea. This is their sole proper use. But to suppose that abstract ideas are formed so as to lead us to some knowledge of particulars is all the more unenlightened as they themselves are made up only of that knowledge. When I criticize abstract principles, then, do not suspect me of demanding that we relinquish all abstract ideas. That would be ridiculous. I am merely claiming that we ought never to take them for principles appropriate for leading to discoveries.

As for suppositions, they are such a handy expedient for ignorance, imagination makes them up with so much pleasure and so little pain. It is from our beds that we create, we govern the universe. All this costs no more than a dream, and philosophers dream readily.

It is less easy to consult experience and to assemble facts with discrimination. That is why we rarely take only well-established facts for principles, although perhaps we have many more of them than we think. For want of the habit of using them, however, we do not know how to apply them. To all indications, we have the explanation of many phenomena already close at hand but we look for it afar. The gravity of bodies, for example, has always been a well-established fact, but it is only in our own day that it has been recognized as a principle.

True systems, the only ones that merit the name, are based on principles of this last kind. For it is only by means of these principles that we can explain the things whose mainsprings we are permitted to discover. I shall call abstract systems those based only on abstract principles, and hypotheses those based only on suppositions. By mixing these different sorts of principles we could form still other sorts of systems. However, as they would always be more or less related to one of the three I have just mentioned, there is no need to make up new classes of them.

The only proper scientific principles are established facts. How then could others have been imagined? This is what we are going to find out.

Systems are older than philosophers. Nature creates them, and there were no inadequate systems when nature was man's only teacher. For then a system was and could only be the result of observation. It had not yet been suggested that everything could be explained. Man had needs, and he sought only the means for satisfying them.

Only observation could reveal these means. And man observed because he was forced to. Ignorant of what has since been called a principle, man at least had the advantage of steering clear of many errors, for a start in knowledge is required to go astray, and it often seems that philosophers had only this start.

Therefore, man observed, that is, he noticed facts related to his needs.

Because he had few needs, he had few observations to make. Because his needs were primary, he was rarely mistaken or at least his errors could be only short-lived: he was soon alerted to these errors since the needs went unsatisfied.

Since observation as yet took place only through trial and error, a man would not always make sure of a fact as soon as he thought he had discerned it. He suspected it, he assumed it, and for lack of anything better, a supposition took the place of discovery, which a new observation either confirmed or disproved.

This is the way that nature guided man and the way he taught himself without noticing that he was going from one bit of knowledge to another by a series of carefully observed facts.

When he had made discoveries related to his needs, it is obvious that to make discoveries of another kind, he had only to keep to the same behavior. A first observation, which would have been only some tentative trial, would have given him hints. These hints would have indicated other observations to make, and these observations would have confirmed or disproved the supposed facts.

Once men had a sufficient number of facts to explain the phenomena they sought the reason for, the systems would have completed themselves, as it were, because the facts would have arranged themselves in an order in which they successively explained each other. Then men would have perceived that every system has a first fact that is its beginning and that for this reason would have been called a "principle," for "principle" and "beginning" are two words that normally mean the same thing.

Suppositions are strictly mere suspicions, and if we need to make them, it is because we are reduced to groping.

As soon as suppositions are mere suspicions, they are not observed facts. Thus they cannot be the principle or beginning of a system. For an entire system would then reduce to a suspicion.

But if they are not the principle or beginning of a system, they are the principle or beginning of our means for discovering one. Now because they are the principle of these means, it has been believed that they are also the principle of the system. Thus two very different things have been confounded.

As we acquire bits of knowledge, we are obliged to assign them to different classes. We have no other way to put them in order. The least general classes are comprised of individuals and are called species in relation to more general classes called genera. Classes that are genera in relation to subordinate classes become themselves species in relation to other more general classes. Thus we go from class to class up to a genus that comprises all of them.

When this distribution has been performed, we have a highly abbreviated way for giving an account of our knowledge. It is to begin with the most general classes. For the highest genus is properly an abbreviated expression that includes all the subordinate classes and that lets us take them all in a glance. When I say "being," for example, I understand "substance" and "modification," "body" and "mind," "quality" and "property." In short, I

understand all the divisions and subdivisions included between being and individuals. Thus I should begin with a general class when I want to represent quickly a multiplicity of things. Then it can be said that this general class is a beginning or principle. This is what people were vaguely perceiving when they said: “general ideas and general maxims are the principles of the sciences.”

So I repeat that only carefully established facts can be the true principles of the sciences. And if suppositions and general maxims have been taken as the principle of a system, it is because without realizing what they were seeing, people realized that general suppositions and maxims are the principle or beginning of something.

2 On the Uselessness of Abstract Systems

Philosophers who believe in abstract principles will tell you: “Consider attentively the ideas that come closest to the universality of first principles, make propositions out of them, and you will have less general truths; then consider ideas whose universality brings them closest to the discoveries that you have just made and make new propositions out of them; continue in this way, not forgetting to apply your first principles to each proposition that you discover, and you will descend by degrees from general principles to the most specific knowledge.”

According to these philosophers, in creating our souls, God is satisfied with engraving certain general principles thereon, and the knowledge that we acquire later consists merely of our deductions from these innate principles. We know that our body is larger than our head only because we apply the principle that a whole is greater than a part to the ideas of body and head. But so that we are not surprised to find we apply this principle without our perceiving it, we are told that it is done by a secret operation, and that our habit of often repeating the same judgments prevents us from observing their true source. According to these philosophers abstract principles are thus so surely the origin of our knowledge that if these principles are taken away from us, it cannot be imagined how any of the most obvious truths could be within our grasp. But these philosophers reverse the order in which our ideas develop.

It is the role of easier ideas to prepare the intellect for more difficult ideas. Now our own experience shows us that ideas are easier as they are less abstract and closer to the senses, and that on the other hand they are harder as they are further from the senses and become more abstract. The reason for this experience is that all our knowledge comes from the senses. An abstract

idea must be explained by a less abstract idea, and so on successively until we reach a particular sensory idea.

Moreover, a philosopher's main purpose should be to specify his ideas exactly. Particular ideas and only particular ideas are specified strictly by themselves. On the other hand, abstract notions are naturally vague and have nothing fixed about them, being specified by other ideas. But are these ideas even more abstract? Doubtless not, for such ideas would have even more need of specification. Thus we must resort to particular ideas. Indeed, nothing explains an idea better than the one that gave rise to it. Consequently it is quite wrong to contend that our knowledge has its source in abstract principles.²

Besides, what would these principles be? Would they be maxims so universally accepted no one dares dispute them? "It is impossible for a thing to be and not to be at the same time." "Everything that is, is." And other similar ones. It would take a long time to find a philosopher who had derived some knowledge from these maxims. In speculating, they all agree, in truth, that first principles are those that are universally adopted. Their method even has something beguiling about it in the way it is first presented. But to follow them in practice it is curious to see how they soon go their separate ways and with what scorn some of them reject others' principles. It seems to me that one cannot begin such an inquiry without realizing that these sorts of propositions are inadequate to lead to knowledge.

If abstract principles are general propositions, true in every possible case, they are not knowledge so much as an abbreviated way of presenting several bits of particular knowledge acquired before principles had even been thought of. "A whole is greater than any of its parts" means "my body is larger than my arm; my arm is larger than my hand; my hand is larger than my finger," and so on. In short, this axiom involves only particular propositions of this kind. And the truths that we imagine it leads to were known before it was itself.

This method would thus be utterly barren if it were based only on such maxims as these. Thus there are two ways to make it appear fruitful. The first one begins with propositions that, being true in many respects—especially the most salient respects—make it reasonable to suppose that they are true in every case. Indeed, if we understood them and drew only precise conclusions from them, it is obvious that they would be like the principles we have just

²Locke knew that abstract maxims are not the source of our knowledge. He gives reasons I will not cite since his work is readily available. See the *Essay on Human Understanding*, Book 4, Chapter 7, Sections 9 and 10. But at the end of Section 11 of the same chapter, the authority of the mathematicians has sway over him and he agrees that abstract principles are used as preliminaries to reveal known truths. I believe I have shown the uselessness and the excesses of proceeding in this way. See the *Logic* and the *Art of Thinking*.

discussed. But this is to be thoroughly avoided; on the contrary, they are taken to be true in many respects in which they are completely false. Whereupon they are applied to quite inappropriate things, and conclusions are drawn that seem all the more novel for not being contained in the original proposition. One example is the Cartesian principle: “We can affirm of a thing everything that is included in our clear idea of it.” For I will show that this is not always true.³

This way of giving a kind of fertility to an abstract system is the most adroit one; the second is rather crude but it is employed just as widely. It consists in imagining something unknown in accordance with something whose ideas are more familiar. When in this way a number of abstract relations and frivolous definitions are formulated, one reasons about the unknown as he would reason about the known. Thus it is that many philosophers employ the language used for physical objects to explain what happens in the mind. They need only imagine some relations between these two substances. We shall see examples of this.

There are thus three sorts of abstract principles commonly used. The first are general propositions true in every case. The second are propositions that are true in the most salient respects, and for that reason are supposed true in every respect. The last are vague relations imagined between completely different things.

This analysis is sufficient to show that some of these principles lead nowhere, and that others lead only to error. However, there you have the whole art of abstract systems.

If the foregoing reflections are not enough to convince us of the uselessness of these principles, let us give someone the principles of a science that he does not know and ask if he can carry it much further with such feeble help? Let him meditate on these maxims: “The whole is equal to all its parts; add equal magnitudes to equal magnitudes and the wholes will be equal; add unequals to them and they will be unequal.” Will he then have what it takes to become a profound geometer?

But to make this clearer, I would rather like to snatch out of his study or school one of those philosophers who see such great fruitfulness in general principles, and offer him the command of an army or government. If he did himself justice, he would probably excuse himself by saying he understood neither war nor politics. But this would be the feeblest possible excuse. Soldiery and politics have their general principles, like all the other sciences. If we teach them to him—which will only take a few minutes—why could he not discover all of their implications, and after a few hours of meditation become a Condé, a Turenne, a Richelieu, or a Colbert? What would stop him

³Chapter 6, Article 2.

from choosing from among these great men? We can sense how absurd this supposition is because to enjoy the reputation of a good statesman or general—like that of a good philosopher—it is not enough to lose oneself in vain speculations. But is it less requisite for a philosopher to reason well than for a general or statesman to act well? The general or statesman would have to master or at least carefully study the details of all subordinate tasks whereas a philosopher suddenly becomes a sage, a man for whom nature holds no secrets, and that through the magic of two or three propositions!

Another consideration well-suited to showing the inadequacy of abstract systems is that it is impossible with them to take into account every aspect of a question. For since the notions making up these principles are merely partial ideas, we cannot use them without disregarding many essential considerations. This is why somewhat complicated subjects with a thousand possible angles of approach give rise to a great many abstract systems. For example, it is asked what the origin of evil is. Bayle bases his answer on the principles of the goodness, holiness, and omnipotence of God. Malebranche prefers the principles of order and wisdom. Leibniz believes that only the sufficient reason of God explains everything. Theologians use the principles of freedom, universal providence, and the fall of Adam.⁴ The Socinians reject divine prescience. The Origenists assert that our difficulties are not everlasting. Spinoza admits only a blind and fatal necessity. Finally, the Manicheans have always piled up principles on top of principles, absurdities on top of absurdities. I will not discuss the pagan philosophers who, by reasoning from different principles, have stumbled into some of these systems or into others such as metempsychosis.

This example shows us the impossibility of using abstract principles to erect a system embracing all aspects of a question. Nevertheless, philosophers show no hesitation. In these sorts of cases each philosopher has his favorite system which he wants all the others to yield to. Reason plays little part in their choice; usually the passions decide everything on their own. A naturally sweet-tempered and benevolent mind will adopt the principles derived from the goodness of God because he finds nothing greater or more beautiful than to do good. Thus this ought to be the chief trait of divinity to which everything should be referred. Someone else with a powerful imagina-

⁴The principles employed by Bayle, Malebranche, Leibniz, and the theologians are truths. That is their one advantage over those of the Socinians, Origenists, and others. But none of these truths is fertile enough for us to explain everything. Bayle is not incorrect in saying that God is holy, good, and omnipotent. He is incorrect in believing these facts are sufficient to create a system. I would say the same about the others. The few truths that our reason can discover and those revealed to us make up part of a system proper for resolving all possible problems, but they are not destined to make it understandable to us, and the church does not approve of the theologians who undertake to explain everything.

tion and high-minded ideas will prefer the principles taken from order and wisdom because nothing pleases him more than in infinite chain of causes and an admirable combination of all the parts of the universe, even of the unhappiness of all creatures is a necessary consequence. Finally a person who is somber, melancholy, misanthropic, and odious to himself and others will have a taste for the words “destiny,” “fatality,” “necessity,” and “chance” because, anxious and discontented with himself and everything else around him, he is obliged to regard himself as an object of scorn and horror, or to convince himself that there is neither good nor evil, neither order nor disorder. Can he hesitate? Wisdom, honor, virtue, probity—these are vain sounds. Destiny, fatality, chance, necessity—this is his system.

It would be too presumptuous to think that everyone could be straightened out on this subject. When curiosity is combined with a little imagination, we immediately try to extend our sight further, to embrace everything, to know everything. This intention makes us neglect details, the things within our reach. We travel through unknown territory and construct systems. It remains true, however, that to acquire a general and encompassing point of view that is fixed and certain we must begin by familiarizing ourselves with particular truths. Perhaps the early thinkers were mediocre only because they neglected this study. Perhaps one of them would have earned the praise due the greatest men if he had taken greater care to acquire the smallest details of the knowledge necessary for the tasks he set himself. Wise conduct would increase his talents and develop his genius.

Today some physical scientists, particularly chemists, stick simply to collecting phenomena because they recognize that they should take in the effects of nature and discover their interdependence before formulating explanatory principles. The example of their predecessors has served as a lesson. They at least try to avoid the errors that the craze for systems led to. If only other philosophers imitated them!

But in general thinkers have merely tried to increase the number of abstract principles. Descartes, Malebranche, Leibniz, and many others saw a richness in many maxims that no one before them had noticed. Who knows whether some day new philosophers will not give birth to new principles? How many systems have we not created? How many more will we not create? If only we found one system that was nearly universally accepted by all its partisans! But what foundations could anyone have built with systems that undergo a thousand changes in passing through a thousand different hands; that appear and disappear in a twinkling like a jack-in-a-box that are so inconsistent we can often use them to defend both the pro and the con?

Imagine people waking from a deep sleep and, seeing themselves in the middle of a labyrinth, proposing general principles for discovering the way out. What could be more ridiculous? Nevertheless this is how philosophers behave. We are born in the middle of a labyrinth where a thousand turns are

laid out for the sole purpose of leading us into error. If there is a way leading to truth, it is not at first apparent. Often it is the one that appears to least warrant our confidence. Thus we cannot be too cautious. Let us proceed slowly, examine carefully all the places we go through, and acquaint ourselves with them so thoroughly that we are able to retrace our steps. It is more important to find ourselves merely where we were at first than to believe prematurely that we are out the labyrinth. This will be proven in the following chapters.

3

On the Misuses of Abstract Systems

If I wanted to systematize some subject all of whose details I had thoroughly studied, I would merely have to observe the relations among its different parts, and to single out those where the parts are so interrelated that the first ones known would be sufficient to explain the others. Thereupon, I would have principles whose applications were so well specified that it would be impossible to restrict them or extend them to cases of a different nature. But when we try to erect a system about some topic whose details are completely unknown, how can we establish the scope of the principles? And when the principles are vague, how can the expressions have any precision? If, however, convinced that I could acquire knowledge only in this way, I devote myself to it completely, if I pile up principles on principles, if I draw conclusion after conclusion, soon foisting them upon myself, I will admire the fruitfulness of this method; I will congratulate myself on my alleged discoveries, and will not doubt the solidity of my system for an instant. Its principles will seem to me natural, its expressions simple, clear, and precise, and the conclusions perfectly derived. Thus the first misuse of systems, which is the source of many others, is that we believe we are acquiring true knowledge when our thoughts only involve words with no definite meaning.

Even more, it is that we are encouraged by the ease and richness of this method and we do not think of doubting the principles on which we have reasoned. On the contrary, persuaded that they are the source of all our knowledge, the more we use them, the less careful we are. If we dared to doubt them, what truth could we lay claim to? This is what has sanctioned the singular maxim that “principles should not be called into question”—a maxim whose misuse is all the greater as there is no error that it cannot lure us into.

Once this axiom is adopted, however unreasonable it may be, it is natural to think that we should no longer judge a system other than by the way it explains phenomena. Although it may be based on the clearest ideas and the most certain facts, if it is lacking in this respect, it must be rejected. And we should adopt an absurd system when it explains everything. Such is the excessive blindness people have fallen prey to. As an example I will cite what Bayle wrote about Manicheism.⁵

The *clearest*⁶ and most *certain* ideas of order teach us that a being that exists by itself, that is necessary and eternal, must be unique, infinite, omnipotent, and endowed with every sort of perfection. Thus, in consulting these ideas, we find nothing *more absurd* than the hypothesis of two eternal and independent principles one of which had no goodness and could thwart the intention of the other. These are what I call *a priori* reasons. They necessarily lead us to reject this hypothesis and to admit only one principle for all things. If only that were required for the goodness of a system, the case would be settled to the confusion of Zoroaster and all of his followers. But to be good, every system needs these two things: one, that its ideas be distinct, and the other, that it can explain phenomena.

These two things are indeed both essential. If clear and certain ideas are insufficient to explain phenomena, we would not know how to construct a system out of them. We should confine ourselves to regarding them as truths belonging to a science that we know only a small part of. Nothing would be less reasonable than to take absurd ideas for principles. That would be trying to explain things that we do not understand by others whose falsity we are well aware of. From which we would have to conclude that, supposing the system of the unity of principle is insufficient to explain phenomena, there is still no reason for admitting the Manichean system as true. An essential condition is missing.

But Bayle reasons very differently. For the purpose of concluding that we must appeal to revelation to destroy the Manichean system, as if revelation were necessary to overturn an opinion admittedly contrary to the clearest and most certain ideas, he invents an argument between Melissus and Zoroaster, and makes the latter say:

You outdo me in the beauty of your ideas and *a priori* reasons, and I outdo you in explanations of phenomena and in *a posteriori* reasons. And since the chief characteristic of a good system is its capacity to explain experiences, and the

⁵The Manicheans.

⁶I have italicized the expressions that should be particularly noted.

inability to explain them is by itself a proof that a hypothesis is not good, however beautiful it otherwise seems, agree that, by admitting two principles, I strike home and you do not, you who admit only of a single one.

In supposing that the main feature of a system is to explain phenomena, Bayle adopts one of the most widely received prejudices, which is a consequence of the principle that “principles should not be called into question.” It is easy to provide Melissus with a more reasonable answer than Zoroaster’s argument.

If the a priori reasons of two systems [I would have him say] are both good, we should prefer the one that explained the phenomena. But if the one system is based on clear and certain ideas and the other on absurd ideas, we should not take account of the latter’s seeming to explain phenomena. It does not and cannot explain them, because the true cannot be explained by the false. The absurdity of principles is thus a proof that a hypothesis is not good. It is thus proven that you have not struck home.

As for what you say about a supposition being bad solely because it is inadequate to explain phenomena, I make the following distinctions: the hypothesis is bad if this inadequacy stems from the very foundation of the supposition itself so that its nature makes it unable to explain phenomena. But if this inadequacy comes from the limits of our mind and from the fact that we have not yet acquired enough knowledge to use it to explain everything, it is false that the hypothesis is a bad one. For example, I recognize only a single first principle because by your own admission it is the clearest and most certain idea. But I am unable to grasp the ways of this supreme being, my intelligence is insufficient to explain his works. I limit myself to gathering the different truths that come within my ken and I do not undertake to connect them and to make them into a system explaining all the contradictions that you imagine you see in the universe. In fact, for the truth of the system that God has prescribed, where is the necessity that I be able to understand it? Therefore, agree that the fact that I cannot explain phenomena with a single principle does not warrant your concluding that there are two of them.

You would have to be very prejudiced not to realize how much sounder than Zoroaster’s is this reasoning of Melissus.

Physicists have contributed more than a little to giving currency to the principle that “it is enough for a system to explain phenomena.” They needed it, especially when they tried to explain how God created and preserved the universe. But if to construct a system we can propose all sorts of principles, take the most absurd ones as the most evident, and entangle various causes without reason, what merit can there be in books of this kind? Would they even be worth refuting if they were not defended by famous authors?

Nevertheless, however clear this abuse, you need only be versed in philosophers’ writings to be convinced of how little care they take to avoid it.

Here is the behavior of those who want to create a system—and who does not want to do so? Prejudiced in favor of an idea, often without knowing why, they first take all the words that appear to be related to it. He who tries to work on metaphysics, for example, seizes on the following: “being, substance, essence, nature, attribute, property, mode, cause, effect, freedom, eternity,” and the like. Then, on the pretext that we are free to attach to terms any idea we wish, he defines them according to his whims. The one precaution he takes is to choose the definitions most convenient for his purpose. However odd these definitions, he can always find relations among them. This is what gives him the right to draw conclusions and to reason as far as the eye can see. If he goes back over the chain of propositions he has forged in this way, he will find it hard to believe that definitions of words could have led him so far. Moreover, he would scarcely suspect that he had reasoned wholly in vain. He thus concludes that the definitions of words have become definitions of things, and he admires the profundity of his supposed discoveries. As Locke observed about such cases, however, he resembles people who, without money or knowledge of legal tender, would count large sums with tokens that they would call louis, pound, or crown. Whatever calculations they made, their sums would always be mere tokens. Whatever reasoning a philosopher such as the one I am speaking of conducts, his conclusions would never amount to anything more than words.

And that’s the story with most, or rather all, abstract systems that involve mere sounds. The same terms are usually found in all, but because each author believes himself justified in defining them in his own way, we outdo each other in drawing very different conclusions, and we seem to suppose that truth depends on the vagaries of our language.

For instance: let *man* be that concerning which you would by these first principles demonstrate anything, and we shall see, that, so far as demonstration is by these principles, it is only verbal and gives us no certain, universal, true proposition or knowledge of any being existing without us. First, a child having framed the *idea* of a *man*, it is probable that his *idea* is just like that picture which the painter makes of the visible appearances joined together; and such a complication of *ideas* together in his understanding makes up the single complex *idea* which he calls *man*. Whereof white or flesh-colour in *England* being one, the child can demonstrate to you that *a negro is not a man*, because white colour was one of the constant simple *ideas* of the complex *idea* he calls *man*; and therefore he can demonstrate, by the principle, *It is impossible for the same thing to be and not to be*, that *a negro is not a man*; the foundation of his certainty being not that universal proposition, which perhaps he never heard nor thought of, but the clear, distinct perception he hath of his own simple *ideas* of black and white, which he cannot be persuaded to take nor can ever mistake one for another, whether he knows that maxim or no; and to this child or anyone who hath such an *idea* which he calls *man*, can you never demonstrate that a *man* hath a soul, because his *idea* of man includes no such notion or *idea* in it. And

therefore, to him, the principle of *What is, is* proves not this matter; but it depends upon collection and observation, by which he is to make his complex *idea* called *man*.

Secondly, another that hath gone further in framing and collecting the *idea* he calls *man*, and to the outward shape adds *laughter* and *rational discourse*, may demonstrate that infants and changelings are no men, by this maxim, *It is impossible for the same thing to be and not to be*; and I have discoursed with very rational men who have actually denied that they are *men*.

Thirdly, perhaps another makes up the complex *idea* which he calls *man*, only out of the *ideas* of body in general and the powers of language and reason, and leaves out the shape wholly;⁷ this man is able to demonstrate that a man may have no hands but be *quadrupes*, neither of those being included in his *idea* of *man*: and in whatever body or shape he found *speech* and *reason* joined, that was a *man*; because, having a clear knowledge of such a complex *idea*, it is certain that *What is, is*.⁸

I have cited Locke's example at some length because it shows clearly how absurd the use of abstract principles is. Here it is easy to be persuaded of this fact because the principles are applied to familiar things. But when we are dealing with abstract metaphysical ideas, with the indefinite expressions that fill this science, how many contradictions and absurdities will these principles lead to?

The method I am criticizing is too widely accredited not to remain an obstacle to the art of reasoning. Suitable for proving all sorts of opinions at will, it gratifies all the passions as well. It dazzles the imagination by the boldness of the conclusions it leads to. It beguiles the mind because we do not reflect when imagination and passion oppose reflection; and as a necessary consequence, it gives rise to and nourishes a commitment to the most monstrous errors, a love of dispute, and the bitterness with which it is maintained, a disinterest in the truth or insincerity in seeking it. Finally, if the philosopher is in a critical frame of mind, he begins to perceive the uncertainties to which this method leads. Then, convinced that there can be no better method, he no longer adopts any system, he goes to another extreme, and he affirms that there is no knowledge to which we can lay claim.

⁷"I can well imagine a man without hands, without feet; I could even imagine him without a head if experience had not taught me that it is there that he thinks. It is thus thought that creates the essential being of man and without which man is inconceivable." *Pensées* of Pascal, Chapter 23, Number 1.

⁸Locke, *Essay on Human Understanding*, Book 4, Chapter 7, Sections 16, 17, 18. We see that Locke was aware of one of the main abuses of abstract principles. Everything he says on this topic comes down to that. It would have been desirable for him to undertake an analysis of the techniques of systems that bear on these kinds of principles.

If philosophers were concerned only with purely speculative matters, we could be spared the trouble of criticizing their performance. It is the least we can do to allow people to speak nonsense when their errors are inconsequential. But we should not expect them to be any wiser in their thinking about practical subjects. Abstract principles are a rich source of paradoxes, and the paradoxes are all the more fascinating as they concern everyday affairs. Consequently, what abuses this method must have led to into morality and politics!

Few philosophers study morality, which may be a blessing. Politics is the prey of a greater number of minds, because it either flatters their ambition or their imagination finds more pleasure in the greater issues that are its object. Moreover, there are few citizens who do not take some interest in government. Unfortunately for the people, this science must thus have more abstract principles than any other.

Experience teaches only too well how political maxims that are true only in certain circumstances become dangerous when taken as a general rule of conduct. And everyone knows that the plans of those in power are defective only because they are based on principles that are only partially understood. History teaches us about the misuses of these systems. Abstract principles are strictly mere jargon. We can already see this and it will be even clearer in the following chapters. This is a confirmation of a great truth that I have proven⁹, “that the art of reasoning reduces to a well-formed language.”

⁹*Logic.*

4

First and Second Examples of the Misuse of Abstract Systems

Philosophers owe their reputations to the importance of the subjects they treat rather than to the way in which they handle them. Few people would be justified in scorning the blindness that so frequently makes philosophers attempt things beyond their abilities; and the common run of men believe them great because they apply themselves to great subjects. With this prejudice we cast aside all possible suspicions about their enlightenment. Against all reason we suppose that some knowledge lies beyond the grasp of any intelligent mind. And we attribute the obscurity of writings that we do not understand to the profundity of the subjects. Indeed, so much attention is required to guard against a vague notion, a meaningless word, or some ambiguity, that we have admired rather than criticized these writings. Thus the more difficult the questions raised by philosophers, the more secure their reputation. They themselves sense this and without understanding it too well, they are led, as if by instinct, to delve into things that nature tries to hide from us. But let us draw them away for some moments from these depths, where they can only get lost. Let us apply their way of reasoning to familiar objects, and the flaws in their procedure will become clear. With this in view, I have chosen for this chapter two examples whose absurdity will immediately be clear to everyone's eyes. The most everyday beliefs will provide me with examples for what follows. In another chapter I will describe errors that common people and philosophers seem to disagree about. Finally, I shall set forth beliefs that, although held only by philosophers, are no less false or absurd. My purpose here is to show that the philosopher and the common man are led astray for the same reasons. This will confirm what I have

already proven elsewhere.¹⁰ I shall cite a great number of examples because nothing seems to me to be more important than to get rid of our predilection for abstract systems.

Someone born blind, after much questioning and thinking about colors, concluded that he perceived the idea of scarlet in the sound of a trumpet. No doubt he needed only to be given eyes to make him realize how ill-founded his certainty was.

If we want to investigate his way of reasoning, we will recognize that of philosophers. I suppose that someone told him that scarlet was a brilliant, vivid color, and he reasoned like this: I have the idea of something brilliant and vivid in the sound of a trumpet; scarlet is a brilliant and vivid thing; thus I have the idea of scarlet in the sound of a trumpet.

With this principle the blind man could equally well form ideas of all other colors and lay down the basis of a system in which he proves: (1) that melodies could be played with colors, as they are with sounds; (2) that a concert could be performed with differently colored objects as it is with musical instruments; (3) that melodies could be seen, just as they can be heard; (4) that a deaf person can dance in tempo and perhaps a thousand other things each more novel and curious than the next.

The blind man would surely exploit the potential advantages of his system; he would exaggerate the drawbacks of a hearing loss in professional dancers and singers. He would overlook no platitude on this topic and he would teach us how we could use our eyes to compensate for our ears. What would he not say about the way to mix these two harmonies, about the art of measuring the relation between colors and sounds, and on the marvelous effects that music coming to the mind from two senses at a time would produce? With what cleverness would he not conjecture that we will probably find some music that will reach the mind through an even greater number of senses? And with what modesty would he not leave the result of this discovery to those shrewder than he? He would no doubt be in wonder that it was given only to him to discover things that escaped all sighted people. He would find his principles confirmed by considering the conclusions he would have drawn from them, and would certainly be regarded as a genius by those who were similarly handicapped, but his triumph would be only among blind people.

There is a harmony among colors; that is, our visual sensations have certain relations and pleasant proportions. For this reason, the sensations of touch, smell, and taste also have a certain harmony. But whoever wants to

¹⁰*The Art of Thinking*, Part 2, Ch. 1. Also see the *Logic*.

create melodies for each of these senses reveals that he is more attached to the sound of a word than to its meaning.

In truth, the establishment of such a system would scarcely be surprising. We have always been led to suppose true music in every case where we could use the word “harmony”. Was it not on this basis that people believed that the movement of the stars formed a perfect concert? They could even find reasons for this conception if they wanted at all to apply their imagination to discovering relations among musical elements and parts of this world. I am going to do this, and thereby derive my second example.

It is obvious, I remark first, that if there are seven tones in music, there are also seven planets. Second, I can suppose that experts on the sizes of these planets, their distances, or other properties would find proportions similar to those among seven sonorous objects in the diatonic order. That being so (for we can suppose everything that is not impossible; and who, for that matter, could prove the opposite?), nothing would prevent us from recognizing that celestial bodies form a perfect concert.

We should be all the more inclined to accept this as a true proposition as it becomes a rich and fertile principle leading us to discoveries that we would never have dared aspire to without its help.

Everyone agrees that the fixed stars are just so many suns. I take care not to suggest anything arguable. Now it would doubtless be interesting to know how many planets each star illuminates. Everyone will admit that no astronomer or physicist has hitherto been able to resolve this question, but in my system the issue is explained quite simply and naturally. For if the celestial bodies are in perfect harmony and if music has only seven fundamental tones, each star must be encircled by seven basic planets.

If some uneasy mind, unaccustomed to grasping and savoring these sorts of truths, thought there could be more planets, I reply that what he takes for basic planets are merely satellites.

Moreover, whom would this music be for? I note here that there are creatures very much larger than we. No doubt, those destined to enjoy this celestial harmony have ears suited to these concerts and hence ears larger than our own, larger in fact than any philosopher’s. Oh, what a happy discovery! But further, their ears are proportional to their other bodily organs. The size of these creatures thus surpasses ours in the same measure as the heavens surpass our concert halls. How immense they must be! This is where “the imagination stands amazed; this is where it gets lost—a convincing proof it has no part in the discoveries I have just made. They are the work of pure understanding, they are wholly spiritual truths.”¹¹

¹¹Here I add a famous man’s conjectures about the inhabitants of the planets. These conjectures prove that there is nothing exaggerated about the absurdity of the systems I have imagined here.

jesting aside, for I do not know whether the reader will excuse this playfulness in such a serious work, people should be cautious in using metaphorical expressions. We soon forget that they are merely metaphors. We take them literally, and we fall into absurd errors.

In general, nothing is more ambiguous than the language we use to talk about our sensations. The word *doux* (“sweet”), for example, contains nothing precise. A thing can be *doux* in many respects—to sight, taste, smell, hearing, touch, to the mind, the heart, or the imagination. It has such a different sense in every case that we cannot judge one by the other. It is the same way with the word *harmonie* and many others.

Analogy leads us to judge that life exists on the planets. We know how gracefully this argument unfolds in the *Plurality of worlds*. But M. de Fontenelle is too philosophical to draw unwarranted conclusions from a principle. Huyghens and Wolf were not as wise. According to them, the stars are peopled with men like us, and Wolf further believed he had good reasons to specify even the size of these extraterrestrials. “In my opinion” (*Elements of astronomy*, Geneva: 1735, Part 2) “it is almost beyond doubt that the inhabitants of Jupiter are much taller than those of the earth; they must be giants. In fact, the pupils dilate or contract as the light is stronger or weaker. Now the light on Jupiter is, at the same height of the sun, weaker than the light on the Earth, for Jupiter is much farther from the sun. Consequently, the Jupiterians must have larger pupils than earthlings. Now experience clearly shows that the pupil is proportional to the eye, and the eye to the rest of the body, so that animals with larger pupils have larger eyes and, having larger eyes, they have a larger body. The Jupiterians are thus taller than we. I even have reasons to prove that they are the same size as Og, the king of Bazan, whose bed, according to Moses, was nine cubits long and four cubits wide. For Jupiter’s distance from the sun is to the earth’s distance from the sun as 26 is to 5. The amount of sunlight on Jupiter thus is to the amount of sunlight on the earth as 5 times 5 is to 26 times 26. But experience teaches us that the pupil dilates less in proportion as the amount of light decreases; otherwise a distant object and a nearer one could appear to have the same illumination. The distant one, however, appears to be much less illuminated. Thus the pupils of the Jupiterians, when either maximally contracted or maximally dilated, must be smaller relative to those of earthlings than the proportion of 26 times 26 relative to 5 times 5.” (Here I am extending Wolf’s reasoning somewhat, for it did not seem to be sufficiently explicit.) “Hence it follows that the diameter of the pupil of the Jupiterians will be smaller in relation to that of the pupil of earthlings than 26 is to 5, for the sizes of the pupils are like the squares of the diameters.”

“Let us then suppose that the ratio of the two diameters is 10 to 26, or 5 to 13; that being so, the size of the earth’s inhabitants being usually five Parisian feet $7/32$, or 7515 particles, of which the Parisian foot contains 1440 (I myself am of that height), we see that the normal Jupiterian height must be 19,539 particles or 13 feet $819/1440$. Now according to M. Eisenschmid, the Hebrew cubit contains 2389 particles of a Parisian foot: the length of the bed mentioned by Moses is then some 21,456 particles. Let us subtract one foot, or 1,440 particles, and the height of Og is 20,016 or 13 feet $1296/1440$. We can see how close this measurement is to the height of the Jupiterians, since it is 13 feet $819/1440$.

5 Third Example: On the Origin and Development of Divination

The mind of the common man is systematic like that of the philosopher, but the principles that lead it astray are less easy to identify. Its errors accumulate in such great numbers, and sustain themselves by analogies that are at times so subtle, that the man himself is not capable of recognizing his own work in the systems he has fashioned. The history of divination offers us a very clear example of this phenomenon. I am going to reveal the train of ideas from which so many superstitions have arisen.

If the life of man were only one continuous sensation of pleasure or pain, in the one case happy with no idea of unhappiness, in the other unhappy with no idea of happiness, he would enjoy his happiness or suffer his unhappiness without casting around to discover if some being watched out for his survival or worked to do him harm. The alternation between these states leads him to reflect that he is never so unhappy that his nature does not allow him to be occasionally happy and also that he is never so happy that he cannot become unhappy. Whence arise his hope of seeing an end to the evils he suffers, and his fear of losing some good he enjoys. The more aware he becomes of this alternation, the more he sees that its causes are out of his control. Each circumstance teaches him his dependence on all that surrounds him. And when he knows how to guide his reflection to trace effects back to their true underlying cause, everything will indicate or prove to him the existence of the first being.

Among the evils we are heir to, for some the causes are evident, while for others, we do not know what to attribute them to. The latter evils were a source of conjectures for people who thought they were examining nature when they were merely consulting their own imaginations. This way of

satisfying one's curiosity, still so common today, was the only one for people unenlightened by experience. This, then, was the first intellectual undertaking. As long as the evils affected only a few individuals, none of these conjectures gained enough ground to become generally held beliefs. But are they more widespread? Is it the plague, for example, that devastates the earth? Then, this phenomenon holds everyone's attention and men with imagination succeed in getting their systems adopted. Now to what cause can still-primitive minds attribute the evils assaulting us if not to beings who find pleasure in inflicting misery on mankind?

Nevertheless, it would have been terrible always to be afraid. Thus, hope was not long in coming to modify this system. It led men to imagine more benevolent beings who could offset the power of the evil ones. People believed themselves loved by these beings as they believed they were hated by the others.

These two kinds of beings were multiplied according to circumstances. Airy spirits and genies of every kind filled the air. Houses were opened to them; they were the household gods. Finally they were dispersed to the woods, the waters, everywhere, because fear and hope accompany people everywhere.

But it was not enough to people the earth with friendly or hostile beings. The sun's influence on all existing things was too great to go unnoticed. No doubt this star was early on assigned to the benevolent stars. Nor did people take long to imagine that the moon had an influence; these influences were gradually given all the clearly observable stars. Then the imagination freely imputed a good or malign character to this influence, and ever since the heavens appeared to conduce to the happiness or unhappiness of mankind. Nothing could happen there without being significant. People studied the stars and attributed their different influences to their different positions. People did not fail to attribute the most important events—famines, wars, the death of kings, and the like—to the rarest and most extraordinary phenomena such as eclipses and comets; imagination easily supposes some relation between these things.

If people could have thought that everything in the universe is connected, and that what we take for the action of a single part is the result of the combined actions of all its parts—from the largest bodies down to the tiniest atoms—they would never have thought of regarding a planet or constellation as a basic cause of what happened to them. They would have realized how unreasonable it was in explaining an event to take account only of the smallest part of its contributing causes. But fear, the first principle of this prejudice, does not allow for reflection; it shows the danger, magnifies it, and we are only too happy to be able to ascribe that danger to any cause whatever. It gives us a kind of relief from the evils we suffer.

So people recognized the influence of the stars, and the only question

remaining was to divide up among them the allocation of goods and evils. Here is the basis for this division.

Familiar with the language of articulate sounds, people judged that nothing was more natural than to give things the names that had been given them from the first. They thought this way because these names seemed natural to them; they had no other reason and that is what led them astray; moreover, this opinion doubtless had a basis in reason. In fact, it is certain that when people tried to name things, the need to make themselves understood forced them to choose words with the greatest analogy either to their ideas or to the language of action that presided over the formation of languages.¹² But people imagined that these names recalled what objects were in themselves, and consequently they judged that only the gods could teach these names to men. For their part, philosophers, who were too biased or too conceited to suspect the limits of the human mind, did not doubt that the first inventors of languages understood the nature of beings. The study of names must thus have seemed a highly appropriate means for discovering the essence of things; and confirming this opinion was the fact that among the names peoples saw many that still clearly indicated the properties or character of objects. As this prejudice was still generally received, it was not difficult to determine the influence that could be attributed to each planet.

Men who achieved fame were ranked with the gods and after their deification were ascribed the same earthly character. Either because their names were given to stars during their lifetime out of flattery or because this was done only after their death to mark the place that would receive them, divinities and stars had the same names in common.

Thus, one only had to refer to the character of each god to guess the influence of each planet. Thus Jupiter signified high rank, great care, justice, and so on; Mars, strength, courage, vengeance, rashness, and the like; Venus, beauty, grace, sensuality, hedonism, and similar qualities. In short, each planet was judged by the idea of its divine namesake. As for the signs of the zodiac, they owed their virtue to the animals who were their namesakes.

People did not stop there. Once some power had been attributed to the stars, there was no further reason for restricting their influence. If some planet produced a particular effect, why should it not produce another closely related one? As astrologers' imaginations proceeded in this way from one analogy to another, it is no longer possible to discover the different connections of ideas on which their systems were constructed. The same planet had in the end to produce entirely different effects, and the most opposed planets to produce very similar ones. Thus everything will be

¹²*Grammar*, Part 1.

confounded by the same way of reasoning that first dispensed a particular power to each star.

This influence could not be accorded indifferently to every part of the heavens. It was natural to believe that those parts with no observed variation had no influence or if they did have some, they tended to keep things always in the same state. That is why astrologers, limiting everything to the revolutions of the zodiac, usually attributed influence only to the twelve signs and the planets that course through them.

Since in this system each planet had its own particular power, it was natural to infer that they mutually modified their action according to their location in the sky as well as their interrelations.

It should thereby have been concluded that a planet's power changes at every instant. But it would have been impossible to determine this power, and astrology would have become impracticable.

This was not the account given by astrologers who had a stake in taking unfair advantage of people's simplicity, nor that given by those who, acting in good faith, were the first to be deceived. To judge the influence of the planets, then, it was established that they did not have to be observed at all the points of the zodiac, and people confined themselves to the twelve principal positions of the signs.

Another difficulty was circumvented in the same way. It was not enough to have determined the constellation in which each star should be observed. It still had to be decided whether we should take account of our location on earth. On what basis would it have been supposed that a planet has similar effects on a Chinese and a Frenchman, since the direction of the sun's rays is not the same for both? But such precision would have made the calculations too involved. In view of its distance from the heavens, the earth was considered as a point, and it was decided that the different direction of the rays was so negligible that it should be not taken into account.

But what could trouble astrologers most was that in their system the stars had to influence an animal at every instant, from the moment of conception to the end of life. Astrologers saw no reasons for suspending this action up to a certain time after conception, nor for stopping it entirely before the moment of death.

Now the planets, alternating between a state in which they exercise all this power and a state in which they can do nothing, would thus have successively cancelled each other out. We would have experienced all the vicissitudes inevitably produced by this conflict, and the series of events would have been about the same for every person. If there had been some difference, it would have been only insofar as the stars whose influence was experienced first made impressions so deep as never to be entirely eliminated. Then, to determine this difference, we would have had to ascertain the exact moment of conception; we would even have had to go further back in time. For why

would it not have been said that the action of the stars prepared the seed long before the animal was conceived?

We cannot guess how the astrologers would have overcome these difficulties if a certain prejudice did not come to their aid. Happily for them, people had always been convinced that throughout the course of life we are only what we are born. Consequently, astrologers laid down the principle that it was sufficient to observe the stars relevant to the moment of birth. We can sense how much this maxim eased their minds.

Nevertheless it was still very difficult to determine exactly what a person's moment of birth was. Even if the most precise astronomer had observed it, we could not be certain that there was no error. Now an error of a minute, a second, or even less, is enough for the influence to be different. But astrologers were far from pursuing such precision which would have made their art impracticable. People who were curious to hear about their future and consulted them were satisfied provided that something had been predicted. So astrologers usually confined themselves to the day and hour of birth, as if events had to be the same for all persons born the same day and hour. If some astrologers seemed to pride themselves on greater precision, the purpose was to cause their charlatanery to be believed.

As this astrological system took shape, predictions were made. Among the many, some were confirmed by events, and astrologers took advantage of them, while others were not a blow to the system at all. Instead, people put the blame on astrologers who were held to be uninformed; or if they were considered skilled, they were excused by attributing to some calculation error what was due to a defect in the whole art; more often yet, people paid no attention to incorrect predictions. Once people indulge in superstition, they simply stray from one error to another. Of a thousand observations, 999 could have saved them from error; they make only one, and that is the one they latch onto.

There is a stratagem that has often succeeded for astrologers, which is to deliver their prophecies obscurely and ambiguously, and to leave to events the trouble of clearing them up. But they do not always need to be this clever, and sometimes they expect their prophecies to be fulfilled only in the imagination of the people concerned. Prophecies threatening some misfortune are more commonly fulfilled than others because fear has much greater power over us than hope. The examples of this are legion.

For believers in astrology, there is thus some danger in having one's horoscope drawn. I add that it can even be imprudent for an unbeliever. If unpleasant things are predicted for me that are connected with the various circumstances that my way of life leads me naturally to encounter, each of these circumstances will remind me of them despite myself. These sad

images will trouble me the more vividly I remember them. The impression will be strong, especially if I believed in astrology as a child. For imagination retains the power over me now that I am rational that it had when I was not. In vain will I tell myself that there is madness in worrying: philosophical enough to know how ill-founded my anxiety is, I will not be sufficiently so to dispel it.

I have read somewhere that a young man destined by birth and talent to take part in the government of the republic began to enjoy some favorable regard there. To be agreeable, he accompanied two or three friends on a visit to an oracle. They urged him to take his turn at having his horoscope drawn, but he refused. As convinced as anyone could be of the futility of this art, he answered only by ridiculing the sibyl. "You may joke, you may joke," replied this woman, annoyed, "but I tell you that you will lose your head on the scaffold." At the time the young man did not think that this utterance made the slightest impression on him. He laughed at it and, without being troubled, took his leave. Nevertheless his imagination had been struck, and he was amazed that at every opportunity the soothsayer's threat came to mind and tormented him as though he believed it. He fought this madness for a long time but the slightest disturbance in the republic evoked it and made all his efforts useless. Finally, he found no other remedy than to give up public affairs and to go into exile from his country to live under a more peaceful government.

We could conclude from this that philosophy involves making us distrust ourselves enough to avoid situations that can haunt us, rather than flattering us that we can always master the anxiety imagination can arouse.

When the astrologers could cite a few predictions confirmed by events, they boasted that a long series of observations testified in their favor.

I shall not pause here to refute such a claim; its falsity is evident. It is undeniable that the precision of astrological observations depends on knowledge acquired in astronomy. Modern progress in astronomy thus clearly shows how for many centuries astrologers were ignorant of many things required for their art.

Nevertheless they did not hesitate to create systems. The Chaldeans and Egyptians each had their principles. The Greeks who inherited this ridiculous art from them made some changes in it, as they did with everything they borrowed from abroad. The Arabs in turn took similar liberties with Greek astrology and transmitted systems to the moderns which all of them add to and subtract from according to their pleasure. Astrologers agree only on one point, which is that there is an art of knowing the future by the inspection of the stars. As for the laws to follow, every astrologer prescribes a set peculiar to him, and condemns those of the other astrologers.

Nevertheless, the common man, who did not see how little intelligence prevailed among the astrologers, believed that all the tales told him were truths confirmed by extensive experience. He did not doubt, for example, that the planets divided up the days, nights, countries, plants, trees, minerals, and that since each thing was under the domination of some star, the sky was a book in which could be read everything that had to happen to empires, kingdoms, provinces, cities, and individuals. We can see from astrological works that the only basis for this division was some imaginary relation between the character given the stars and the things people wanted to put under the star's protection.

Merely to have provided in this way for the regulation of the world was a lot, but there still remained one drawback, a considerable one no doubt, to astrologers' eyes, which is that the benevolent stars sometimes encountered obstacles to making us feel the effects of their influence. Remedies were sought; and as people believed that the stars were gods, or at least that they were controlled by intelligences to which the care of world had been entrusted, they imagined that we had only to call these spirits down to earth. This is what was called "evocation."

It was suggested that the stars were happier in those locations from which they had a stronger influence, and that they had a particular propensity for the objects under their protection. Consequently people invoked the stars in the name of these things; and, to pray with more hope, people procured a stick with which they sketched the shapes of these everyday objects—in the air, on the ground, and on the walls. This was, I think, the origin of magic. As this superstition probably arose while the language of action was very familiar, it was natural for a person to attach magical power to certain movements.

More was done. People believed that if it were important to be able to summon these beings, it was even more important always to carry on oneself something continually assuring their protection. People reasoned according to the same principles as before, and concluded that it was sufficient to engrave the same shapes that were sketched customarily to evoke the spirits and the prayers offered them. No one doubted that this device would succeed, provided that one took the precaution of choosing the stone and metal appropriate to the planet whose assistance was desired, engraved them with the day and hour assigned to the planet, and above all chose the moment when it was in the celestial position where it enjoyed its full powers. This is the origin of *abracadabra* and *talismans*.

Another cause contributed a great deal to maintaining and spreading these prejudices.

Since the establishment of alphabets made people completely forget the