

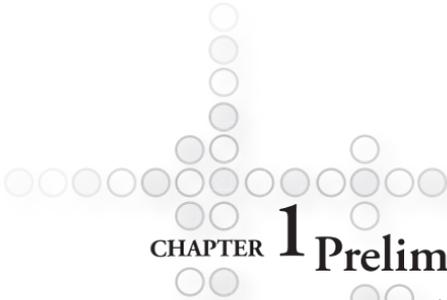
CONTENTS

Preface.....	11
Preface to the English Edition	13
1 Preliminary Remarks about the Concept of Information	15
Part 1: Laws of Nature	
2 Principles of Laws of Nature	27
2.1 The Terminology Used in the Natural Sciences	27
2.2 The Limits of Science and the Persistence of Paradigms.....	30
2.3 The Nature of Physical Laws	31
2.4 The Relevance of the Laws of Nature	38
2.5 The Classification of the Laws of Nature.....	40
2.6 Possible and Impossible Events	43
Part 2: Information	
3 Information Is a Fundamental Entity.....	49
3.1 Information: A Fundamental Quantity.....	49
3.2 Information: A Material or a Mental Quantity?	50
3.3 Information: Not a Property of Matter!.....	52
4 The Five Levels of the Information Concept.....	55
4.1 The Lowest Level of Information: Statistics	58
4.2 The Second Level of Information: Syntax	60
4.3 The Third Level of Information: Semantics	71

4.4	The Fourth Level of Information: Pragmatics	74
4.5	The Fifth Level of Information: Apobetics.....	76
5	Delineation of the Information Concept.....	83
6	Information in Living Organisms	89
6.1	Necessary Conditions for Life.....	90
6.2	The Genetic Code	93
6.3	The Origin of Biological Information.....	97
6.4	Materialistic Representations and Models of the Origin of Biological Information.....	99
6.5	Scientists against Evolution.....	104
7	The Three Forms in which Information Appears.....	107
8	Three Kinds of Transmitted Information	111
9	The Quality and Usefulness of Information.....	115
10	Some Quantitative Evaluations of Semantics	119
11	Questions Often Asked about the Information Concept.....	123

Part 3: Application of the Concept of Information to the Bible

12	Life Requires a Source of Information.....	135
13	The Quality and Usefulness of Biblical Information.....	139
14	Aspects of Information as Found in the Bible	143
14.1	God as Sender — Man as Recipient	143
14.2	Man as Sender — God as Recipient	153
14.3	The Highest Packing Density of Information.....	156
15	The Quantities Used for Evaluating Information and Their Application to the Bible	159



CHAPTER 1 Preliminary Remarks about the Concept of Information

By way of introduction, we shall consider a few systems and repeatedly ask the question: What is the reason that such a system can function?

1. The web of a spider: In Figure 1 we see a section of a web of a spider, a *Cyrtophora* in this case. The mesh size is approximately 0.8 x 1.2 mm. The circle in the upper picture indicates the part which has been highly magnified by an electron microscope to provide the lower picture. The design and structure of this web is brilliant, and the spider uses the available material extremely economically. The required rigidity and strength are obtained with a minimal amount of material. The spiral threads do not merely cross the radial ones, and the two sets are not attached at the points of intersection only. Rather, they run parallel over a small distance, where they are tied or “soldered” together with very fine threads.

Every spider is a versatile genius: It plans its web like an architect, and then carries out this plan like the proficient weaver it is. It is also a chemist who can synthesize silk employing a computer controlled manufacturing process, and then use the silk for spinning. The spider is so proficient that it seems to have completed courses in structural engineering, chemistry, architecture, and information science, but we know that this was not the case. So who instructed it? Where did it obtain the specialized knowledge? Who was its adviser? Most spiders are also active in recycling. They eat their web in the morning, then the material is chemically processed and re-used for a new web.

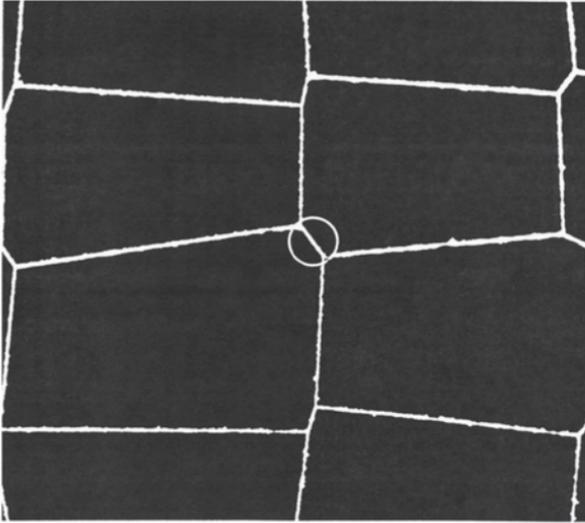
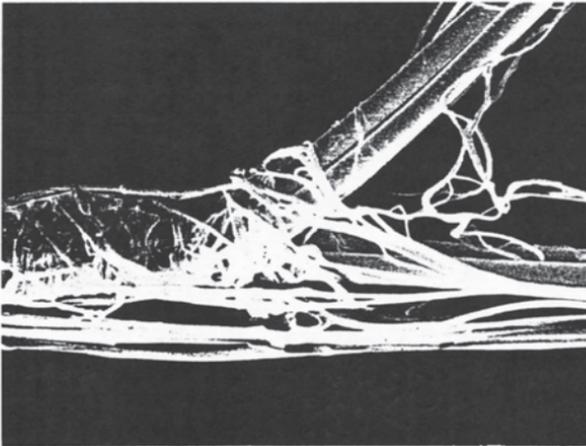


Figure 1:
The web of a
Cyrtophora
spider.



The answer to the question of why everything works in this way is unequivocally that *information* plays an essential role.

2. **The spinnerets of *Uroctea*:** The spinning nipples of *Uroctea* spiders are shown in Figure 2 under high magnification. The female has 1,500 spinnerets, only a few of which appear in Figure 2, where threads can be seen emerging from two of them. Silk having the required tensile strength is produced in the “factories” located directly below the spinnerets. All these complex processes are computer controlled, and all the required equipment is highly miniaturized. How is it possible that such a complex and minutely detailed manufacturing process can



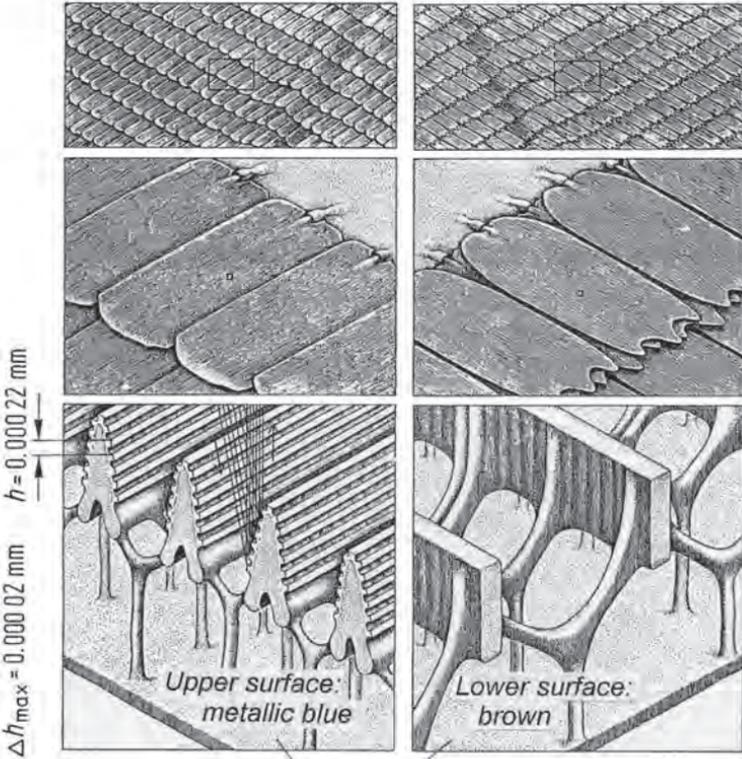
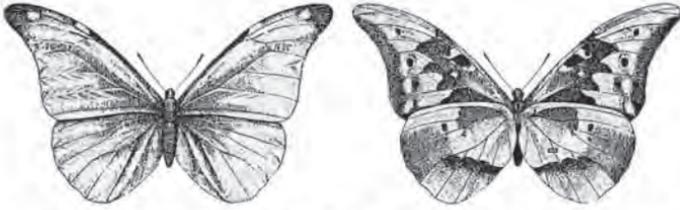
Figure 2: The spinnerets of *Uroctea*.

be carried out without mishap? Because the system contains a controlling program which has all the required processing information (see chapter 7).

3. The *Morpho rhetenor* butterfly: The South American butterfly, *Morpho rhetenor*, is depicted in Figure 3 under various magnifications so that the detailed structure of its wing scales can be seen (*Scientific American*, vol. 245, Nov. 1981, p. 106). The wings exhibit marvelous colorful patterns; metallic blue above (top left) and brown underneath (top right). The wings were analyzed for pigmentation, but none was found. How can this colorful beauty then be explained?

The detailed structure of the wings becomes apparent in three magnification steps, namely 50 x, 350 x, and 20,000 x. At the lower magnifications, the structure resembles roof tiles, but when the magnification is 20,000, the secret is revealed. The structure is quite extraordinary: a

Morpho rhetenor



Magnification: 20,000 times

Figure 3: The South American butterfly *Morpho rhetenor* with wing surface sections under different magnifications.