



# Rain and Resurrection

## How the Talmud and Science Read the World

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**I**run R. Cohen, MD, was born in Chicago IL, USA, on 1 September 1937. He and his wife of 50 years have 3 children and 9 grandchildren. He was trained as a physician at Northwestern University Medical School and did a residency in pediatrics at the Johns Hopkins Hospital. Since 1968, he has been involved in research in immunology. He has been the Mauerberger Professor of Immunology at the Department of Immunology of the Weizmann Institute of Science; Director, European Collaboration on T Cell Vaccination; Director, Robert Koch-Minerva Center for Research in Autoimmune Diseases; Director, Center for the Study of Emerging Diseases, Jerusalem; Chairman, Committee for the Re-accreditation of Israeli Medical Schools; and Director of the National Institute of Biotechnology in the Negev, Ben-Gurion University of the Negev.

For his work on autoimmunity, Cohen has been awarded the Robert Koch Prize (Germany), the Teva Founders Prize, the AESKU Prize and a European Federation of Immunological Societies Prize. He is a Highly Cited Researcher (ISI Web of Science: over 19,700 citations; h index 70), with over 500 professional publications, including the book *Tending Adam's Garden: Evolving the Cognitive Immune Self*.

### About the Artwork

The artwork for the book was graciously provided by artist Eleanor Rubin, who creates prints, drawings and watercolors. Her art can also be seen in permanent collections at the Museum of Fine Arts, Boston, MA; the Boston Public Library, Boston, MA; the Institute for Research on Women and Gender, University of Michigan, Ann Arbor, MI; the Alzheimer's Association, Cambridge, MA; and on her websites: [www.ellyrubin.com](http://www.ellyrubin.com) and [ellyrubinjournal.typepad.com](http://ellyrubinjournal.typepad.com).



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### CONTENT

#### Part I. Preamble

*This introduction tells you why I wrote the book and how the book is organized. We discuss the unspoken ideology of science: individuality (Person), intervention in nature (Place), and progress (Time).*

- §1 Narrator
- §2 Ideology of science
- §3 Talmudic probe
- §4 Book organization

#### Part II. Talmudic Texts

*We begin with a few words about texts in general and proceed to an introduction to the Talmud, to the logical structure of the Hebrew language, to Jewish texts, and to translating such texts. We then interpret Talmudic texts related to three subjects that intersect with science: Person, Place and Time.*

- §5 Text, signifier and signified
- §6 The Talmud
- §7 Cinematic Talmud
- §8 Translating the Talmud
- §9 The Hebrew roots of interpretation and reality
- §10 Levels of Jewish text
- §11 The Yeshiva
- §12 Disclaimer

#### Subject One: Person

*Here are some Talmud texts that explore the concept of individuality. Every human is the center of a universe and a special creation. But every individual lives within a society, a collective of individuals. Both the individual and the collective have rights and responsibilities.*

- §13 Rain and resurrection
- §14 Abel's blood
- §15 Another's blood
- §16 Life and water
- §17 Individual name
- §18 Weaving texts

*contents continued on back*



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## Subject Two: Place

*Place is a name of God. Place is a part of space defined by events. Place is the aspect of nature accessible to humans. We define the meaning of "holy" and discuss Talmudic texts that explore relationships between humans, nature, the supernatural, the devil and the creative urge.*

- §19 Place names
- §20 Holy discrimination
- §21 Akhnai's oven
- §22 Rabbi Eliezer, Jacob of Kfar Sekhaniah and Jesus of Nazareth
- §23 In the toilet and under the bed
- §24 Constraints on power
- §25 Creative urge
- §26 The devil and the urge
- §27 Human creator
- §28 Yeshiva in Heaven

## Subject Three: Time

*This section is divided into four parts. Language and time sets the stage by comparing the sense of time inherent in the tense structures of Hebrew and English. Time is central to Judaism. Indeed, God's personal Hebrew name designates a type of existence in time. Varieties of time defines chronological time, natural time, historical time and existential time. Texts of time shows us Judaism's interest in existential time. Holidays of time discusses the concepts of time—historical and existential—inherent in the character of the Jewish holidays.*

### Language and time

*The tense structure of your language affects your sense of time; language creates your world.*

- §29 Hebrew time
- §30 God's personal name

### Varieties of time

*Time is variable; there are different ways to feel it and to measure it.*

- §31 Progress
- §32 Four kinds of time
- §33 Chronological time
- §34 Natural time
- §35 Two faces of nature
- §36 Mythology: The wheel of natural time
- §37 Historical time
- §38 Existential time

### Texts of time

*I interpret Talmudic texts related to time, existential time in particular.*

- §39 Shma: Time begins in darkness
- §40 One face of nature
- §41 Associations
- §42 Love thy neighbor
- §43 Blessings acknowledge time
- §44 Blessing time

## Holidays of time

*The Torah replaced the ever-cycling natural time of mythology with the progress of historical time ruled by One God. The Talmud proceeds to transform the historical message of the Biblical holidays into existential time. Existential time is the time of the individual.*

- §45 Replacing nature
- §46 Sabbath cycle
- §47 Passover and significance
- §48 Telling the *Haggadah*
- §49 Narrative and narrator: Telling and hearing
- §50 Meta-(meta-text)
- §51 Shavuot: And fulfillment
- §52 Biblical Shavuot: Receiving
- §53 Talmudic Shavuot: Choosing
- §54 Halakhah: Interpreting Torah
- §55 Ninth of Av: Day of loss
- §56 Rosh Hashanah: Day of judgment
- §57 Torah texts for Rosh Hashanah
- §58 Shofar: The trumpet
- §59 Memories
- §60 Kingship
- §61 Yom Kippur: Day of atonement
- §62 Yom Kippur: Day beyond time
- §63 Sukkot: Returning to time
- §64 Hanukkah: Days of light
- §65 Purim: Coming of age
- §66 Does the world make sense?
- §67 Talmudic hermeneutics

## Part III. Texts of Science

*This section presents the idea that science, like the Talmud, depends on skillful interpretation of a received text. The text of science is nature, and science reads and writes this text according to paradigmatic rules. We discuss interpretation, understanding, signification, meaning, communication and data. We explore the idea of free will and compare the interpretation of meaning done by systems of cells with that done by collectives of people.*

- §68 Interpretation

### Understanding

*Understanding involves metaphor, prediction and know-how. To understand a thing is to be proficient in interacting with it. Understanding causality, complexity and free will challenges both science and the Talmud.*

- §69 Understanding by metaphor
- §70 Prediction and understanding
- §71 Utility and understanding
- §72 Understanding causes
- §73 Emergence of free will

### Signification

*Science uses the controlled experiment, an artificial slice of nature, to study nature as she really is. This strategy of signification is not unlike the art of the cinema.*

- §74 Signification in science
- §75 Cinematic science

## Meaning

*We define meaning as emerging from a process of interaction. We discuss how science tests, validates and up-dates the meaning of scientific information and scientific paradigms. Interpretation is essential to the evaluation of meaning. Biological systems create meaning through democratic process.*

- §76 Types of meaning
- §77 Meaning for science
- §78 Validation of meaning
- §79 Biological interpretation of meaning: Co-responsence
- §80 Power of pluralism
- §81 Paradigms
- §82 Tests of truth

## Communication

*Texts are central to the scientific enterprise.*

- §83 Communications of science

## Data

*Science generates data, enduring information about the facts of nature. But a fact of nature will not become accepted as part of the database unless the fact is noticed, interpreted and communicated by prepared minds.*

- §84 Database
- §85 Creating the database

## Part IV. Postamble

*This book has connected Talmudic texts with ideas related to science. In closing, we consider some agreements and some conflicts between the two systems of thought—religious and scientific.*

- §86 Definitions: Religion and science
- §87 Science in action
- §88 Talmud in action
- §89 Creation
- §90 Human uniqueness
- §91 Einstein and Freud

## Artwork by Eleanor Rubin

Person  
Place  
Consensus  
Creative Urge  
Time  
Progress  
The Day Begins in Darkness  
Blessing  
History  
Judgment  
Atonement  
Suffering  
Hermeneutics  
Texts of Science  
Understanding  
Signification  
Meaning  
Data  
Creation