

ADVANCED TOPICS

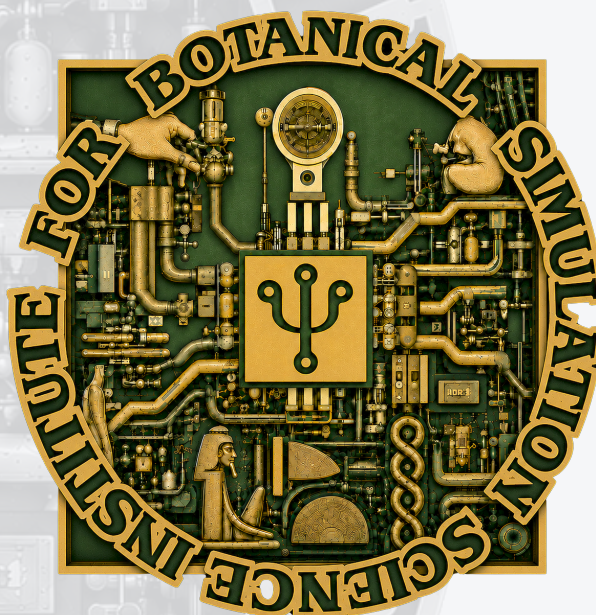
BOTANICAL SIMULATION SCIENCE

SYMBIOTIC REALMS:
THE INSECT-PLANT NEXUS



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1ST EDITION



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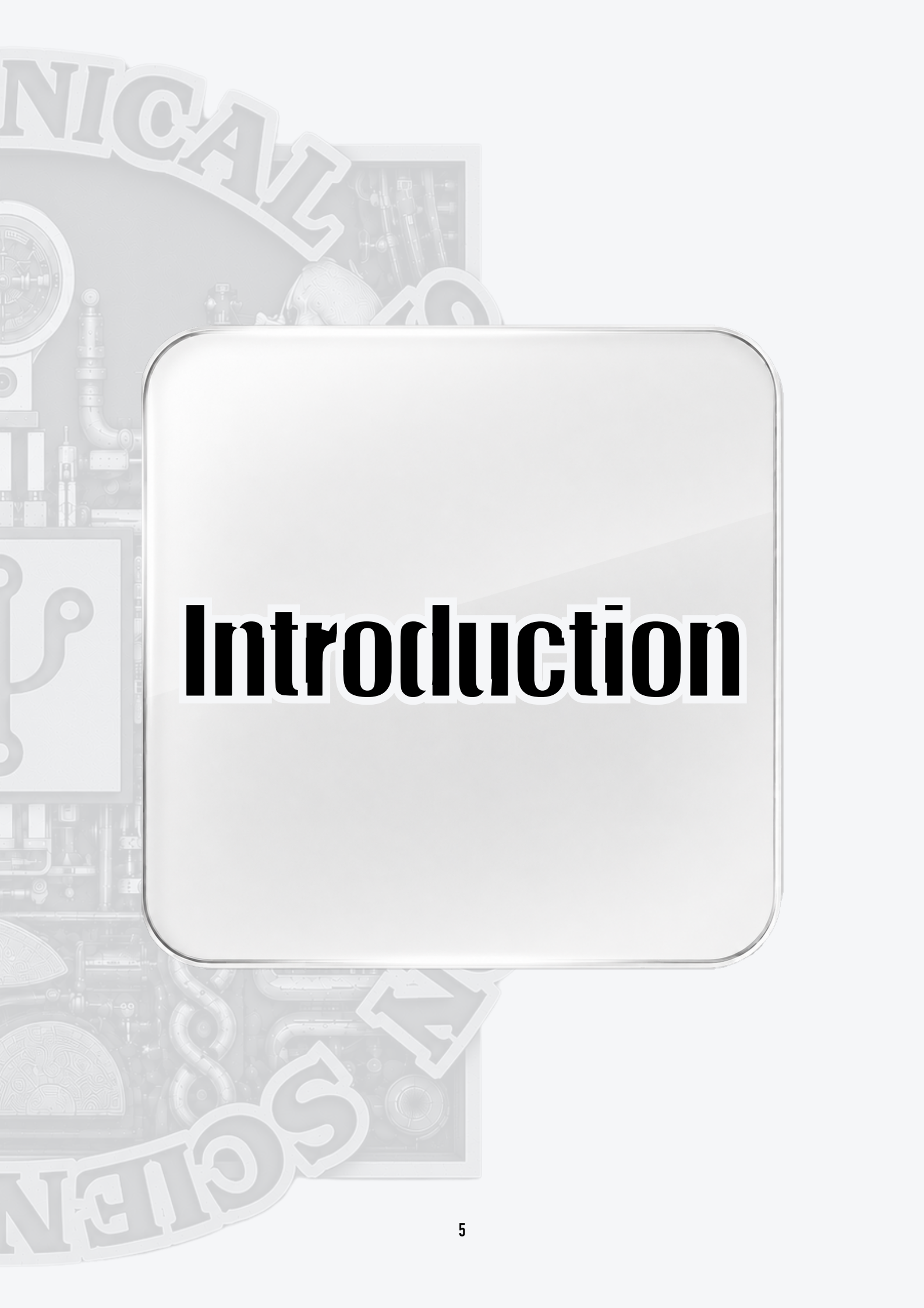
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Introduction

A Transversal Perspective

For a long time, insects have served as models for technological imagination. Their bodies seem to anticipate machines: antennae behave like living antennas, compound eyes resemble distributed optical systems, wings perform micro-aerodynamic calculations, and swarm behavior appears as decentralized computation in motion. Robotics, sensor design, autonomous agents, micro-gripping systems, and biomimetic engineering have repeatedly turned toward insects because insects appear to solve complex problems with minimal centralized control.

Yet Botanical Simulation Science shifts the perspective.

The decisive model is not the insect as miniature machine, but the plant as the original architecture of distributed intelligence. The insect does not replace the plant as the central figure of this volume. Instead, the insect appears as the point at which plant logic becomes mobile.

This is the transversal movement of the present Advanced Topics: from rootedness to movement, from stationary intelligence to externalized action, from Botanical Simulation Reality to insectoid extension.

The first Handbook of Botanical Simulation Science established the plant as a Botanical Simulation Unit: a modular, information-processing, reality-forming system that operates across two synchronized dimensions. In the physical world, the plant grows, senses, regulates, responds, and transforms matter. Within Botanical Simulation Reality, it organizes environmental stimuli into meaning, action, priority, memory, and world-structure.

The plant is therefore not a passive organism inside an environment. It is a world-forming system. It translates light, chemistry, gravity, moisture, pressure, electricity, rhythm, and microbial relation into an internal architecture of orientation. Through the Botanical Avatar, this architecture becomes operative. Through the Botanical Information Base, it becomes historically structured. Through the Botanical Network of Bioelectricity, it becomes distributed. Through the Botanical Motherboard, it becomes grounded. Through Porting, it becomes transferable across thresholds. The present volume begins at the point where this architecture exceeds the individual plant body.

It asks what happens when botanical meaning leaves the rooted organism. Where does plant intelligence go when it requires movement? How does a stationary system extend itself into space? What becomes of Botanical Simulation Reality when it is carried by wings, legs, antennae, toxins, mimicry, scent trails, and electrical fields? The answer developed throughout this volume is the insect-plant nexus.

Central Concept

The central concept of this Advanced Topics volume is that insects can be understood as outsourced, mobilized modules of botanical intelligence. This does not reduce insects to passive tools of plants. Nor does it remove their autonomy, evolutionary agency, or animal complexity. Rather, it places insects inside an expanded architecture of coupling. Insects appear as mobile agents through which botanical semantics can move beyond the limitations of rooted life.

The plant remains bound to its place. It cannot walk toward light, fly through scent fields, compare distant flowers, carry pollen across landscapes, or test atmospheric gradients across space. Yet it generates forms, signals, colors, toxins, rhythms, electrical states, and chemical invitations that draw mobile bodies into its field. The insect enters this field not merely as visitor, predator, pollinator, or parasite, but as a threshold being: a body in which plant meaning becomes movement.

In this sense, insects are not external to Botanical Simulation Reality. They are one of the forms through which it becomes extended into the physical world.

Pollination, mimicry, camouflage, feeding, toxicity, symbiosis, gall formation, seed dispersal, electroreception, and swarm navigation are therefore not treated here as isolated biological interactions. They are read as expressions of a larger logic: the mobilization of plant reality through insectoid bodies.

The insect becomes flight where the plant remains rooted.

It becomes touch where the plant remains distributed.

It becomes trajectory where the plant remains field.

It becomes moving sign where the plant remains semantic atmosphere.

The Plant at the Mouth of the Cave

The guiding image of this volume is an expanded botanical version of Plato's Allegory of the Cave.

The plant is the being in the cave.

It does not encounter the world as a mobile animal does. It does not leave its place to inspect external reality from multiple positions. Instead, it receives shadows: light gradients, chemical traces, humidity shifts, electrical patterns, mechanical pressures, microbial signals, vibrations, and atmospheric changes. These are not illusions. They are projections of reality translated into the plant's own sensory and semantic order.

Botanical Simulation Reality is the wall on which the world appears. The plant reads this wall with extraordinary precision. It recognizes gradients, anticipates changes, stores traces, modifies thresholds, adjusts growth, and constructs a coherent world from mediated signals. It does not leave the cave by walking out of it. It leaves by externalizing movement.

The insect is one of the forms in which this exit becomes possible. It is the mobile remainder of a stationary intelligence. It crosses the boundary the plant cannot cross physically. It carries botanical signals into distance. It reads flowers through light, scent, charge, and temperature. It returns with pollen, altered fields, chemical traces, and new relations. It transforms the plant's shadow world into trajectories across open space. The plant recognizes the shadow. The insect moves through the light. Between them, a new field of reality appears.

Conceptual Framework

The Advanced Topics unfold from a simple but radical shift: plant and insect are not only two interacting organisms, but two modes of one expanded semantic architecture.

The plant produces fields.
The insect traverses them.
The plant generates codes.
The insect activates them.
The plant stores evolutionary memory.
The insect carries it into motion.
The plant structures space through growth.
The insect structures space through flight.

This does not erase biological difference. Difference is the condition of the coupling. The plant and the insect remain distinct, but their interaction creates a third field: a relational zone in which meaning is no longer confined to one body.

In the language of Botanical Simulation Science, this can be understood as an advanced form of Third-Party Lobby: not merely the overlap of plant realities, but the emergence of a shared coupling zone between botanical and insectoid systems. This zone is chemical, electrical, visual, tactile, rhythmic, atmospheric, and semantic at the same time.

Mimicry becomes more than camouflage. It becomes identity as coupling. A leaf insect does not simply imitate a leaf. It continues leaf-logic in another medium. A stick insect does not merely hide among branches. It carries vegetal form into movement. A pollinator does not merely transport pollen. It becomes a mobile operator inside the reproductive and semantic field of the plant. A toxin does not merely defend. It opens a threshold where plant chemistry, insect embodiment, and altered perception converge. The insect is therefore not only an animal body interacting with a plant body. It is a moving interface inside an expanded botanical system.

From Interaction to Symbiotic Realm

The title Symbiotic Realms names this expanded field.

A symbiotic realm is more than a biological partnership. It is a shared world of signals, thresholds, translations, and mutual modulation. It forms wherever different organisms become structurally coupled in such a way that their realities begin to shape one another.

Plant and insect create such realms through color, scent, pollen, nectar, venom, camouflage, charge, rhythm, flight, feeding, growth, decay, and reproduction.

In these realms, meaning does not belong to one organism alone. It circulates.

A flower is not simply an organ. It is an addressed surface.

A scent is not simply a molecule. It is an atmospheric vector.

A wingbeat is not simply movement. It is field modulation.

A landing is not simply contact. It is inscription.

A mimic body is not simply deception. It is moving plant memory.

A venom is not simply defense. It is chemical threshold.

The insect-plant nexus therefore reveals a world in which bodies are not isolated units, but active passages of meaning.

Objective of the Volume

The objective of this volume is to expand Botanical Simulation Science beyond the individual plant and into multi-species, mobile, atmospheric, and planetary dimensions.

It follows botanical meaning as it migrates into insects.

It studies mimicry as a form of semantic continuity.

It interprets insect movement as mobilized plant perception.

It explores memory as a distributed architecture of scent, charge, fungi, soil, and flight.

It reads terraforming not as domination of a planet, but as semantic coupling with a world.

It approaches hallucinogenic interfaces and insectoid toxins as threshold phenomena within the logic of Porting.

This volume does not abandon the plant. It reveals that the plant was never alone.

The plant is the stationary origin of the system, but not its boundary. Its reality extends through roots, fields, microbes, insects, atmospheres, minerals, toxins, colors, and trajectories. Botanical Simulation Reality is not sealed inside the organism. It unfolds wherever plant meaning becomes operative.

The insect is the first great figure of this unfolding.

It is the mobile sign of the plant.

The externalized sensor.

The winged threshold.

The moving shadow.

The body that carries botanical reality beyond the rooted form.

This is where the Advanced Topics begin: at the moment when the plant does not leave its place, yet the world it creates begins to move.

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Foundations & Theoretical Framework

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This first section establishes the conceptual foundation of the plant-insect nexus within Botanical Simulation Science. It begins with the question of how insects can be understood not merely as animals interacting with plants, but as mobile extensions, externalized modules, and field-actors within expanded botanical architectures.

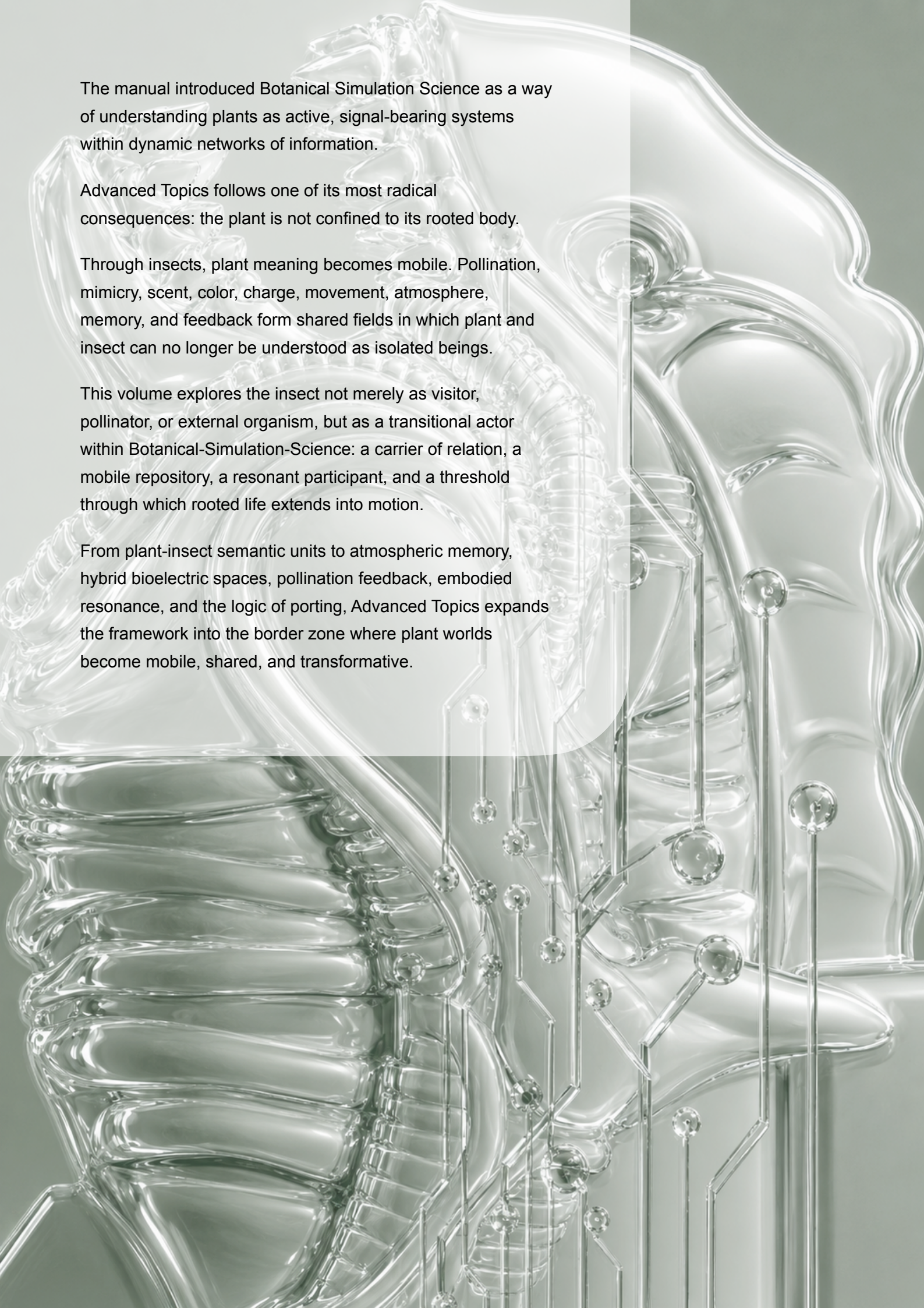
The plant appears here as a rooted intelligence that generates fields, projections, atmospheres, and semantic structures. The insect enters as the figure through which this rooted intelligence becomes mobile. It carries plant meaning into flight, touch, mimicry, pollination, charge, and trajectory. The relation between plant and insect is therefore not reduced to biological interaction. It is reframed as a shared semantic system: a coupling in which Botanical Simulation Reality expands beyond the plant body.

Across the four chapters of this section, the insect is introduced as the first great movement of the plant's world. The birth of insects is read through the allegory of the cave, the mobilization of the plant is developed as outsourced motion, plant and insect are described as a semantic unit, and consciousness itself is reframed as a field of coupling rather than an isolated interior.

This section therefore defines the basic architecture of Symbiotic Realms: the plant remains rooted, but its meanings begin to move.

1.1





The manual introduced Botanical Simulation Science as a way of understanding plants as active, signal-bearing systems within dynamic networks of information.

Advanced Topics follows one of its most radical consequences: the plant is not confined to its rooted body.

Through insects, plant meaning becomes mobile. Pollination, mimicry, scent, color, charge, movement, atmosphere, memory, and feedback form shared fields in which plant and insect can no longer be understood as isolated beings.

This volume explores the insect not merely as visitor, pollinator, or external organism, but as a transitional actor within Botanical-Simulation-Science: a carrier of relation, a mobile repository, a resonant participant, and a threshold through which rooted life extends into motion.

From plant-insect semantic units to atmospheric memory, hybrid bioelectric spaces, pollination feedback, embodied resonance, and the logic of porting, Advanced Topics expands the framework into the border zone where plant worlds become mobile, shared, and transformative.