CHAPTER 1: THE REFORM OF FUNDAMENTAL CONCEPTS

Detailed Analysis and Summary

SECTION 1: CHAPTER POSITION AND OVERVIEW

Role in the Book's Overall Argument

Chapter 1 functions as a programmatic introduction to *Holism and Evolution*. It does not yet present Smuts's positive theory of Holism (which begins in Chapter V), but instead performs essential preparatory work: diagnosing the intellectual problems that necessitate a new theory, critiquing the conceptual errors of nineteenth-century science, and announcing the methodological approach that will guide the subsequent investigation.

The chapter establishes that the book will address what Smuts considers the most fundamental problem in philosophy and science: the apparent unbridgeable gaps between matter, life, and mind. His central claim is that these gaps are not real features of nature but artifacts of defective concepts—and that accepting Evolution as fact logically requires reforming these concepts.

High-Level Summary

Smuts opens by observing that despite enormous advances in knowledge, matter, life, and mind remain "utterly disparate phenomena" with no apparent bridges between them. Yet this cannot be genuinely the case, because all three exist in experience, all three intermingle in the human being, and Evolution demonstrates their genetic connection. The problem, therefore, lies not in nature but in our concepts.

The chapter proceeds to diagnose two fundamental errors in nineteenth-century thought: (1) a rigid, deterministic concept of causation that made creative evolution impossible, and (2) the systematic elimination of "fields"—the surrounding zones of influence through which things actually interact. Smuts argues that the analytical method, while necessary for science, produces characteristic errors: the "error of analysis" (losing something in decomposition) and the "error of abstraction" (treating analytical elements as more real than concrete wholes).

The chapter concludes by announcing that the following chapters will show matter, life, and mind to be "a more or less connected progressive series of the same great Process"—a unified cosmic evolution that current concepts cannot accommodate.

Relationship to Subsequent Chapters

This chapter prepares for:

- **Chapters II-III:** The reformed concepts of space, time, and matter
- **Chapter IV:** The organism as a whole (cell and organism)
- **Chapter V:** The formal introduction of Holism as the underlying principle
- **Chapters VI-XII:** The application of holistic principles across the entire evolutionary series from matter to personality

SECTION 2: KEY CONCEPTS

2.1 The Three Series: Matter, Life, Mind

Definition: The three fundamental domains of reality that appear utterly unlike each other, creating "great breaks in knowledge" and separating knowledge "into three quite different compartments."

Smuts's Usage: These are not merely classificatory categories but represent what appear to be ontologically distinct orders of being—the physical, biological, and psychical/mental. The problem is that despite their apparent disparateness, they "actually intermingle and co-exist in the human."

Inter-relationship: Smuts insists these three are "genetically related"—life appearing to arise "in or from matter," and mind "in or from life." This genetic connection through Evolution is the key fact that demands conceptual reform.

2.2 Evolution (Creative vs. Mechanical)

Definition: Smuts distinguishes two conceptions of evolution:

- **Mechanical Evolution:** The nineteenth-century view in which "the absolute equation of cause and effect" holds, meaning "there could be nothing more in the effect than there was in the cause." On this view, evolution is merely the rearrangement of what already exists.
- **Creative Evolution:** The view Smuts endorses, in which "genesis which by its very nature is epigenesis"—genuine novelty emerges, and effects can exceed their causes. "We believe in the growth which is really such and becomes ever more and more in the process."

Terminological Note: Smuts's "creative Evolution" echoes Bergson's *L'Évolution créatrice* (1907), though Smuts will later distinguish his position from Bergson's. The term signals that evolution is not merely explicative but genuinely productive of new realities.

2.3 Fields

Definition: "Round every luminous point in experience there is a penumbra, a gradual shading off into haziness and obscurity. A 'concept' is not merely its clear luminous centre, but embraces a surrounding sphere of meaning or influence of smaller or larger dimensions, in which the luminosity tails off and grows fainter until it disappears."

Similarly for things: "A 'thing' is not merely that which presents itself as such in clearest definite outline, but this central area is surrounded by a zone of vague sense-data and influences which shades off into the region of the indefinite."

Technical Precision: Smuts explicitly draws this concept from electromagnetism ("Fields of force which has become customary in Electro-Magnetism") but generalises it universally: "Every 'thing' has its field, like itself, only more attenuated; every concept has likewise its field."

Causal Function: "It is in these fields and these fields only that things really happen. It is the intermingling of fields which is creative or causal in nature as well as in life."

Terminological Note: This is perhaps Smuts's most important conceptual innovation in this chapter. The term "field" in 1926 physics referred to electromagnetic and gravitational fields—regions where forces operate without direct contact. Smuts extends this to all entities

whatsoever, including concepts and persons. Modern readers should note this is not metaphorical but ontological: fields are real features of things.

2.4 The Error of Analysis

Definition: "In every case of analysis and reconstitution of a concrete situation something escapes which makes the artificial situation as reconstructed different from the original situation which was to be explored and explained."

Technical Explanation: When we analyse a complex situation into component factors, we necessarily isolate elements that do not exist in isolation in nature. The "fields" that connect them are eliminated. Recombining the analysed elements never fully recovers the original whole.

2.5 The Error of Abstraction (or Generalisation)

Definition: "After the analysis and investigation of the isolated elements or factors [we are apt] to look upon them as the natural factors of the situation, and upon the situation itself as a sort of result brought about by them."

Technical Explanation: This is an "inversion of reality." We begin with concrete wholes, analyse them into abstract elements, and then treat the abstractions as fundamental and the concrete whole as derivative. "Thus scientific entities like electrons and protons, and the physical energies or forces which they represent, are taken to be the real entities in nature, and sensible matter or bodies as something derivative."

Result: "The whole as so understood is confined to its parts and comes to suffer from the same limitations as its parts. For the full concrete reality comes to be substituted a more limited scheme or pattern of parts, an aggregation rather than a natural organic synthesis."

2.6 Causation (Reformed Concept)

Definition: Smuts rejects the nineteenth-century view that "cause and effect" are two sharply defined, isolated events connected by some mysterious "efficient activity."

Reformed View: "A 'cause' ... was not taken as a whole situation which at a certain stage insensibly passes into another situation, called the effect. No, the most outstanding feature in the first situation was isolated and abstracted and treated as the cause of the most outstanding and striking feature of the next situation."

Against this, Smuts proposes that cause and effect are "not at arm's length but interlocked, and embrace and influence each other through the interpenetration of their two fields."

2.7 Fluidity and Plasticity of Nature

Definition: The character of reality as it actually presents itself in experience, before being rigidified by abstract concepts.

Smuts's Usage: "Our experience is largely fluid and plastic, with little that is rigid and with much that is indefinite about it." The task is to "return to the fluidity and plasticity of nature and experience in order to find the concepts of reality."

Contrast: Against "the hard and narrow concept of causation," "hard impenetrable inert matter," "rigid categories," and "precise limitation and demarcation of ideas" that characterised nineteenth-century science.

Inter-relationships Between Concepts

The concepts form a systematic structure:

1. **Matter, Life, Mind** appear disparate because of conceptual errors
2. **The Error of Analysis** and **the Error of Abstraction** eliminate fields and invert the priority of whole over parts
3. Without **Fields**, things cannot interact, making causation unintelligible
4. The rigid concept of **Causation** makes **Creative Evolution** impossible
5. Only by returning to the **Fluidity and Plasticity** of nature can we see **Matter, Life, Mind** as continuous phases of one Process

SECTION 3: DIALECTICAL CONTEXT

3.1 Views Being Critiqued

Nineteenth-Century Materialism: Held that matter is ontologically primary and that life and mind are "mere epiphenomena, as appearances on the surface of the one reality, matter." Smuts accepts their claim that life and mind evolved from matter but rejects their conclusion that this makes them subordinate.

Nineteenth-Century Spiritualism: Denied Evolution precisely because they accepted the materialist premise about causation—"if matter caused the soul, there could be nothing more in the soul than there already was in matter." Smuts argues they were right to resist materialism but wrong to reject Evolution.

Mechanistic Biology: The view that "although the kingdom of life is fully recognised, its government is placed under the rule of physical force or Mechanism. Life is practically banished from its own domain, and its throne is occupied by a usurper."

Abstract Analytical Method (when taken as complete): "The rigid categories of physics were applied to the indefinite and hazy phenomena of life and mind."

Simple Location (Whitehead's term, cited approvingly): The "mistaken belief that a thing or event, as it appears in a definite space at a certain time, is all there is of it, and that it has nothing to do with other spaces or other times."

3.2 Thinkers Engaged

Positively:

- **Darwin:** Evolution as "a new viewpoint, from which vast masses of biological knowledge already existing fell into new alignments"
- **Copernicus:** Model of conceptual revolution through new perspective rather than new data
- **Einstein:** "General Relativity in the physical universe ... is a new viewpoint from which the whole universe and all its working mechanisms acquire a new perspective and meaning"
- **Newton:** Grouped with Einstein as discoverer of new clues from "crucial dominant facts"
- **Whitehead:** Lengthy footnote comparing their approaches to the "simple location" problem; Smuts sees his "fields" as accomplishing similar work to Whitehead's re-examination of Space-Time

Negatively:

- **Scholastic philosophers:** Committed "the error of abstraction" by "attribut[ing] reality to universals instead of to concrete particulars"
- **Physical materialists:** Treated matter as "hard impenetrable inert"

3.3 The Problem the Chapter Addresses

The fundamental problem is what might be called the *integration problem*: How can matter, life, and mind—which appear utterly unlike—be understood as continuous with each other, given that Evolution demonstrates their genetic connection and human existence demonstrates their actual unity?

Smuts frames this as simultaneously a problem for science (which requires reformed concepts of matter, life, and mind), for philosophy (which requires a reformed concept of causation), and for our world-view generally (which requires abandoning both materialism and spiritualism for a new synthesis).

SECTION 4: MAIN ARGUMENTS

ARGUMENT 1: The Argument from Unity in Experience and Existence

Premises:

6. Matter, life, and mind appear utterly disparate in thought
7. Yet all three arise in experience and cannot therefore be utterly alien
8. All three "actually intermingle and co-exist in the human, which is compounded of matter, life, and mind"
9. "If indeed there were no common basis to matter, life, and mind, their union in the human individual would be the greatest mystery of all"

Reasoning: What is actually united cannot be absolutely separated in thought "unless thought and fact are absolutely incongruous."

Conclusion: "Some sort of a bridge between them must be possible, unless we are to assume that our human experience is indeed a mere chaotic jumble of disconnected elements."

ARGUMENT 2: The Evolutionary Transformation Argument (Central)

Premises:

10. "It is generally accepted that life has in the process of cosmic Evolution developed from or in the bosom of matter, and that mind itself has its inalienable physical basis"
11. "If we believe that life and mind come from matter, if they are evolved from matter, if matter holds the promise, the potencies of life and mind, it can for us no longer be the old matter of the materialists or the physicists"

Reasoning: "Matter discloses a great secret; in the act of giving birth to life or mind it shows itself in an entirely unsuspected character, and it can never be the old matter again."

Conclusion: "The full and complete acceptance of Evolution must produce a great change in the significance of the fundamental concepts for us."

ARGUMENT 3: The Anti-Mechanist Argument

Premises:

12. If Evolution is accepted, "life and mind are developments in and from the physical order"
13. If they are developments in that order, "they are in that order"

Reasoning: "It obviously becomes impossible thereupon to proceed to erect an all-embracing physical order in which life and mind are once more declared aliens. This cat and mouse procedure is simply a case of logical confusion."

Conclusion: "If Evolution is right, if life and mind have arisen in and from matter, then the universe ceases to be a purely physical mechanism, and the system which results must provide a real place for the factors of life and mind."

ARGUMENT 4: The Causation Critique

Premises:

14. Nineteenth-century science held as "fixed dogma that there could be no more in the effect than there was in the cause"

15. This made "creativeness and real progress" impossible
16. Both materialists and spiritualists accepted this premise
17. "Hence those who affirmed the theory of Evolution logically tended to be materialists, and those who were spiritualists were logically forced to deny Evolution"

Reasoning: "Without their knowing it the great battle raged, not over the interpretation of Evolution, but over a metaphysical theory of causation in which they both believed and were both wrong."

Conclusion: We need creative Evolution: "We believe in genesis which by its very nature is epigenesis. For us there is no such thing as static evolution, a becoming which does not become."

ARGUMENT 5: The Fields Argument

Premises:

18. Traditional concepts have "hard definite contours" that wipe out "their indefinite surrounding 'fields'"
19. Without fields, "cause and effect" confront each other "like two opposing forces" with no way to understand how one passes into the other
20. "There is no such thing as absolute contact even in the elements of the most closely packed situation"
21. Fields of force in electromagnetism demonstrate that influence operates through surrounding zones

Reasoning: "Conceive of a cause as a centre with a zone of activity or influence surrounding it and shading gradually off into indefiniteness. Next conceive of an effect as similarly surrounded. It is easy in that way to understand their interaction, and to see that cause and effect are not at arm's length but interlocked."

Conclusion: "It is in these fields and these fields only that things really happen. It is the intermingling of fields which is creative or causal in nature as well as in life."

ARGUMENT 6: The Error of Analysis

Premises:

22. To understand complex situations, we analyse them into component factors studied in isolation
23. This is "not only quite legitimate, but the only one possible"
24. However, "in the original analysis something may have escaped"
25. "In every case of analysis and reconstitution of a concrete situation something escapes"

Conclusion: Analysis produces "an element of more or less error" that "makes the artificial situation as reconstructed different from the original situation."

ARGUMENT 7: The Error of Abstraction

Premises:

26. After analysis, "we are apt ... to look upon [analytical elements] as the natural factors of the situation, and upon the situation itself as a sort of result brought about by them"
27. "As a matter of fact, just the opposite is the case. We start in nature with the complex situation or sensible phenomenon as the reality to be explained"

28. The analytical elements "are merely the result of analysis, and might even be merely abstractions"

Reasoning: "Because they are simpler and admit of closer scrutiny and experiment, we have come to look upon them as real or constitutive, and upon the situation from which they were abstracted or analysed, as artificial or constituted."

Conclusion: "The abstract thus becomes the real, the concrete is relegated to a secondary position. This inversion of reality is very much the same procedure as was followed by the scholastic and other philosophers who attributed reality to universals instead of to concrete particulars."

SECTION 5: EVIDENCE AND EXAMPLES

Empirical Evidence Cited

29. **Human personality:** The most direct evidence that matter, life, and mind can be unified, since humans embody all three in actual existence
30. **The evolutionary series:** "Life appearing to arise in or from matter, and mind in or from life. The actual transitions have not been observed, but are assumed to have taken place under certain conditions"
31. **Recent advances in physical science:** "Unprecedented recent advances in physical science, and especially in our knowledge of the constitution of matter" (Smuts will develop this in Chapter III)
32. **Developments in Genetics:** "The trend there has been steadily away from the mechanical physical conceptions which dominated Biology more than a generation ago"
33. **Fields of force in electromagnetism:** The scientific model for the generalised concept of fields

Illustrative Examples

34. **The lyre and its music:** Platonic figure used by materialists—"the lyre was the substantive and abiding reality, and the music a mere passing product"
35. **Electrons and protons:** Example of how "scientific entities" become treated as more real than sensible matter
36. **Copernican revolution:** Model of conceptual revolution through new viewpoint rather than new data
37. **Darwin's theory:** Another example of revolutionary new viewpoint reorganising existing knowledge
38. **Einstein's General Relativity:** Contemporary example of "a new viewpoint from which the whole universe and all its working mechanisms acquire a new perspective"

Scientific and Philosophical Sources Invoked

39. *A. N. Whitehead, Science and the Modern World* (lengthy footnote): Parallel analysis of "simple location" error; Whitehead's approach through Space-Time re-examination compared to Smuts's "fields"
40. **Leibniz's Monadology:** Noted (in footnote) as resembling Whitehead's results

SECTION 6: KEY QUOTATIONS

On the Problem of Disparate Concepts

> *"Matter, life, and mind remain utterly unlike each other. Apparently indeed their differences are ultimate, and nowhere does there appear a bridge for thought from one to the other."*

On Evolution's Implications for Matter

> *"If we believe that life and mind come from matter, if they are evolved from matter, if matter holds the promise, the potencies of life and mind, it can for us no longer be the old matter of the materialists or the physicists."*

On Creative Evolution

> *"We believe in Evolution, but it is no more the mechanical Evolution of a generation or two ago, but a creative Evolution. We believe in the growth which is really such and becomes ever more and more in the process. We believe in genesis which by its very nature is epigenesis."*

On Fields

> *"Every 'thing' has its field, like itself, only more attenuated; every concept has likewise its field. It is in these fields and these fields only that things really happen. It is the intermingling of fields which is creative or causal in nature as well as in life."*

On the Error of Abstraction

> *"The whole as so understood is confined to its parts and comes to suffer from the same limitations as its parts. For the full concrete reality comes to be substituted a more limited scheme or pattern of parts, an aggregation rather than a natural organic synthesis."*

On Fidelity to Experience

> *"Our experience is largely fluid and plastic, with little that is rigid and with much that is indefinite about it. We should as far as possible withstand the temptation to pour this plastic experience into the moulds of our hard and narrow preconceived notions."*

On the Book's Programme

> *"Matter, Life, and Mind, so far from being discontinuous and disparate, will appear as a more or less connected progressive series of the same great Process. And this Process will be shown to underlie and account for the characters of all three, and to give to Evolution, both inorganic and organic, both psychical and spiritual, a fundamental unity and continuity."*

SECTION 7: ADVANCEMENT OF TIER 1 CONCEPTS

Holism

Not yet explicitly named or defined, but the conceptual groundwork is laid through:

- The critique of analysis and abstraction as producing mere "aggregations" rather than "natural organic synthesis"
- The emphasis on "the concrete whole of a situation" as prior to its parts
- The announcement that a "great Process" underlies matter, life, and mind

The Whole

Implicitly established as ontologically primary through:

- "We start in nature with the complex situation or sensible phenomenon as the reality to be explained"
- "The analytical elements or factors are merely the result of analysis"
- The whole is not confined to its parts; parts "suffer from the same limitations" when the whole is deduced from them

Fields

Major development in this chapter. The concept is:

- Introduced and defined extensively
- Grounded in physical science (electromagnetism)
- Generalised to all things, concepts, and persons
- Given causal function: "the intermingling of fields which is creative or causal"
- Distinguished from Whitehead's alternative approach (footnote)

Creative Evolution / Synthesis

Established in opposition to mechanical evolution:

- "Genesis which by its very nature is epigenesis"
- Effects can exceed causes
- The evolutionary series produces genuine novelty
- Will be developed as the mode of operation of Holism

Mind

Positioned within the evolutionary series:

- Evolved from life, as life evolved from matter
- Not an "importation from some other universe"
- "Mind or soul is not an importation from some other universe ... There is nothing alien in them to the substance of the universe"
- Needs a reformed concept that brings it closer to reformed concepts of matter and life

SECTION 8: CONTEMPORARY RELEVANCE MARKERS

This chapter's arguments anticipate and resonate with several developments in contemporary science and philosophy:

41. **Systems biology and emergence:** The critique of analysis/abstraction parallels contemporary arguments that emergent properties of biological systems cannot be predicted from molecular components alone.
42. **Field theories in physics:** Smuts's generalisation of the field concept anticipates the centrality of field theories in modern physics (quantum field theory, gauge fields).
43. **Anti-reductionism in biology:** The argument that biology cannot be reduced to physics because acceptance of evolution transforms what we mean by "physical" parallels Denis Noble's arguments about biological relativity.
44. **Extended Evolutionary Synthesis:** The emphasis on creative evolution and genuine novelty aligns with contemporary critiques of gene-centric neo-Darwinism.
45. **Downward causation:** The argument that wholes cannot be deduced from parts anticipates contemporary discussions of strong emergence and downward causation.

46. **Process philosophy:** The emphasis on fluidity, plasticity, and "becoming" connects to Whitehead's process philosophy and contemporary process-relational approaches.

— End of Chapter 1 Analysis —