

## Modern Science with Metaphysical Correlations.

- I. The ~~four~~<sup>2</sup> principal divisions of human activity and consciousness.
  - a. Physiognomic and systematic.
    1. Physiognomic relates to the domain of awarenesses that are an immediate part of life.
      - a. The inexpressible not-selfconscious Consciousness.
    2. Systematic relates to consciousness of the world as organized.
      - a. Expressible and self-conscious.
      - b. The present course falls principally within this domain.
- II. The four main divisions of the systematic.
  - A. Religion; derived from Greek root meaning "to have a care".
    1. Religion as dogma.
    2. Religion as ritual.
    3. Essential religious element is aspiration beyond one's self.
  - B. Science: root meaning is "knowledge".
    1. Specialized current usage means "systematic knowledge".
    2. A collection of unrelated facts not a science in latter sense although part of knowledge.
  - CC Philosophy; "Love of wisdom or knowledge".
    1. Where the driving motive is love of knowledge for its own sake, the scientist becomes a philosopher in the general sense.
    2. Philosophy occupies a position intermediate between religion and science.
    3. Technical philosophy today concerned with the more general knowledge disciplines.
      - a. Metaphysics, in the ontological sense.
      - b. Epistemology; the study of the nature and limits of the knowing process.
        - (1) Knowledge of this subject essential to evaluating types and forms of knowledge.
      - c. Ethics: the study of the general principles governing moral decision.
      - d. Aesthetics: study of the general principles governing the judgment of beauty.
      - e. Logic: study of the necessary forms of thought
        - (1) This will be considered more fully as the most fundamental of the sciences.
  - D. Art: execution of acts. Skill in performance.
    1. Art involves the notion of the beautiful only in the sense of fine art.
    2. Physiognomic element redominant.
- III. The stream of religion, philosophy and science.
  - A. Historically these three initially form one whole and belong to the domain of the priest and the cloister.
  - B. Separation in the disciplines becomes definite at time of Socrates, Plato and Aristotle.
  - C. Disassociation of disciplines becomes extreme in 19th century.
    1. Fight between religion and science.
    2. Antagonism between Hegelian philosophy and empiric science.
    3. Extreme sub-division of the sciences with growing lack of co-ordination

- D. Present tendencies favor a new synthesis.
1. Recognition of need of co-ordinating special sciences.
  2. Philosophic function more recognized as shown in development of scientific philosophy.

IV. General classification of the sciences.

- A. Normative sciences. Logic and mathematics.
1. Mathematical logicians have shown that pure mathematics is derivable from logical constants
  2. Formal logic or logic of identity.
  3. Inductive logic.
  4. Logic of relatives: symbolic logic.
    - a. A development growing out of a study of the logical principles employed in pure mathematics.
  5. Epistemological logic.
- B. The natural sciences. Physical science.
1. Descriptive science. Simple recording and classification of observed facts of nature.
  2. Science in the sense of formulations of relationships uniting natural phenomena.
  3. Study of the world as given directly or indirectly through the sensorium ~~xxxxxx~~ that is the common possession of the majority of individuals of a culture.
    - a. Knowledge made available through extraordinary development of an individual sensorium not a part of physical science.
  4. Physics.: The study of the general properties of matter.
    - a. Originally meant all study of matter.
    - b. Today confined to properties of matter not affected by chemical combination.
    - c. Sometimes called science of matter and motion.
    - d. Fields covered by physics:
      - (1) Mechanics. *Study of action of forces upon bodies.*
      - (2) Heat
      - (3) Light
      - (4) Electricity
      - (5) Sound.
      - (6) Intra-atomic physics.
  5. Chemistry: Science of composition and transformation of substances.
    - a. Inorganic chemistry.
    - b. Organic chemistry.
    - c. Physical chemistry.
    - d. Analytic chemistry.
    - e. Synthetic chemistry.
  6. Astronomy: study of the relationships holding between bodies forming the sidereal universe.
    - a. General astronomy.
    - b. Practical astronomy.
    - c. Astro-physics.
  7. Geology: the science of the earth.
    - a. A compound science making use of most of the other natural sciences.
    - b. Physical geology.
    - c. Historical geology.
    - d. Geo-physics.
    - e. Paleontology.
    - f. Oceanology.
    - g. Volcanology.
    - h. Seismology.

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- i. Economic geology.
- j. Minerology.
- k. Petrography.
8. Meteorology: the study of all of the phenomena of weather and climate.
9. Biology: The study of the phenomena of life!
  - a. Zoology.
  - b. Botony.
  - c. Entomology
  - d. Anatomy.
  - e. Physiology.
  - f. Bacteriology.
  - g. Toxiclogy.
10. The science of man.
  - a. Anthropology: the gener l science of man.
  - b. Ethnology: study of human races.
  - c. These sciences over-lap biology, psychology and scociology.
11. Psycholgy.
  - a. The study of the mind in so far as its functions may be regraded as an object of empiric research.
- C 12. The social sciences: pseudo sciences.
  - a. As these are not yet true sciences there is wide division into schools of thought.
  - b. Sociology.
  - c. Economics.
  - d. Politics.
  - e. History.
- D 13. The sciences of language.
  - a. Philology: laws, interrelation and history of human speech.
    - (1) Grammer..
    - (2) Rhetoric: Clear, forceful and elegant use of language.

#### V. Fundamental principles and methods of Modern Science.

- A. Dual basis of scientific knowledge.
  1. Empiric factor.
    - a. Thought all-sufficient by Bacon and the older empiricists.
  2. Contributions from logic and epistomology.
    - a. General logic: fundamental for inference and deduction.
    - b. Assumed forms of possible knowledge.
      - (1) The a priori factor (Kant).
- B. Basis assumption of the uniformity of nature.
  1. The primary conviction that all phenomena is subject to law.
    - a. Historically this contribution was brought down through the scholastics.
- C. Observations restricted to data drivable through sensory equipment of average or typical man.
- D. Hypothesäs must be such that conclusions may be drawn in such form as may be tested by observation and experiment.
- E. Question of what kind of truth above methods give and as to whether the objects studied are real belongs to metaphysics.

#### VI. Occult Science.

*and differences*

VII. Agreements between exoteric Western and Occult Science.

A. The principle of Law.

1. Both agree in asserting that the Universe is governed by Law which is not the legislative enactment of a Being or Beings.
2. Differences are found in the interpretation of the essential character of Law.
  - a. Western science holds that Law is essentially a blind unconscious form.
  - b. Occultism holds that Law is the necessary form of essentially conscious existence.
3. For both Law is understood to be such as to make accurate, calculated prognostication possible.
  - a. Hence Occultism has no fight with the purely mathematical aspect of Western science.

B. The nature of matter.

1. Both agree in regarding Matter as eternal though changing its forms and states.
2. With regard to the essential nature of matter there is wide difference.
  - a. Predominantly western science regards matter as dead, blind and unconscious.
  - b. Occultism teaches that matter is living or ensouled with consciousness.

C. The principle of Forces and causal relationships.

1. Both employ the concept of Forces and causality.
2. Divergence occurs in the interpretation of the nature of the forces and the plane or level of primary causal action.
  - a. Western science has interpreted the Forces as attributes of matter and causality as an external connection.
    - (1) Several individual scientists have opposed this view.
  - b. Occult science teaches that Forces are living conscious substances and that primary causality operates on a plane that is inward or subjective with respect to the physical plane.
    - (1) For example; attraction and repulsion are regarded as being like sympathy and antipathy

D. Methods of research.

1. Both study effects through causes and causes through effects.
2. Both employ the data of experience in combination with deduction from first principles in some sense.
3. The equipment of observation is not co-extensive.
  - a. Physical science employs only the sensory equipment of the normal or average man.
  - b. Occultism employs in addition psychical sensory equipment which is regarded as much the more important as it makes possible a penetration into the soul of things where the primary causes are said to be located.
4. The primary principles recognized not of equal profundity nor equally recognized.
  - a. Western science employs principles of logic and primary principles such as the uniformity of nature.
  - b. Occultism starts from profoundly metaphysical roots which mark it as pre-eminently a spiritual science.

E. Kind of practical control over nature secured by each.

1. Both have given man a control over matter.
  - a. The control afforded by western science is pre-eminently external and mechanical.

- B. The control afforded by Occult Science is the conscious action of Intelligence and Will upon Force.
  - (1) This produces changes in matter as effects.

VIII. On the present status of the problem of heredity.

- A. Discussion of the Darwin contribution to Biology.
  - 1. Former view that all species are fixed and now just like they were when originally created.
  - 2. Darwin found unassailable evidence of mutation causing development of new species and higher class-forms.
    - a. Direct observation of deviation of descendants from parents.
    - b. Anatomical similarity of closely related species and progressive divergence as one proceeds backward through genera, etc.
    - c. Evidence from embryology: recapitulation.
    - d. Evidence from Paleontology.
  - 3. Darwinian theory of the mechanism of evolution.
    - a. Small fortuitous variation from parent to child.
    - b. Natural competitive selection of individuals with favorable variations.
    - c. Sexual selection.
- B. Conflict on issue as to whether acquired characters are inherited or only variations in the germ plasm.
  - 1. Preponderant evidence today favors the latter view.
    - a. H.P.B. sustains Weissman as against Lamarck.
- C. De Vries' theory of radical mutation as origin of species.
  - 1. Evidence for this growing in strength today.
- D. The Mendelian Law.
- E. The chromosomes as the physical basis of heredity.
- F. The work of Morgan.
  - 1. Work on fruit flies showed frequent mutation sustained in heredity.
  - 2. Correlation of mutations with shifts in the genes.
  - 3. Mutations stimulated artificially by X- and gamma rays.
- G. Suggested implications that rays and subtle forces produce mutations in man that effect type and level of embodiment.



Questions  
Modern Science with Metaphysical Correlations.

1. Name the two principal divisions of human consciousness and activity.
2. What is meant by physiognomic?
3. What is meant by systematic?
4. Name the four main divisions of the systematic.
5. Do these fields fall exclusively in the systematic? Explain.
6. What is the essential mark of religion?
7. What, historically, have been the two principal phases of religion?
8. Is belief in a doctrine essential to religion?
9. What is the broad meaning of the word "science"?
10. In what sense is the term science largely used today?
11. Give an example of knowledge which would not be called science in the modern sense.
12. What is the etymological meaning of the word "philosophy"?
13. What were scientists called at the time of Newton?
14. What is meant by a "philosophy of life"?
15. Does it take a lot of disciplined study to acquire a philosophy of life?
16. With what broad field is technical philosophy concerned?
17. Name the subjects that come within the field of technical philosophy.
18. What was the field originally designated by "metaphysics"?
19. In the strict sense what field is covered by metaphysics?
20. Can anyone give the three sub-divisions of traditional metaphysics?
21. What kind of problems are covered by Epistemology?
22. Why is this study important?
23. What is Ethics?
24. What is Aesthetics?
25. With what is logic concerned?
26. What is the general meaning of the word "Art"?
27. What is fine art?
28. What can you say about the relations of religion, science and philosophy in their origins?
29. When do we see definite separation in the disciplines?
30. In what period was this disassociation most marked?
31. What is the present tendency with respect to syntheses?
32. What is the field covered by the Normative Sciences?
33. What is the meaning of ~~the~~ Normative Science?
34. What is the relationship of logic and mathematics?
35. What branches of logic ~~are there~~ are there?
36. Under what alternative names is "formal logic" known?
37. With what does formal logic deal?
38. What man first organized formal logic into a system?
39. With what is inductive logic concerned?
40. What two men played an especially prominent part in the development of inductive logic?
41. Which of these forms of logic do the sciences employ in general?
42. With what is the logic of relatives concerned?
43. Where do we find the logic of relatives employed most?
44. What man can you name who played an important part in the development of logic of relatives?
45. With what is epistemological logic concerned?
46. What man stands out most conspicuously in the development of epistemological logic?
47. What is the broad meaning of ~~the~~ "natural science"?
48. Give the two grand types of natural science?
49. What is meant by descriptive science? Give an example.



50. What is meant by the science of relationships?
51. Which of these two sciences requires the higher type of ability? Why?
52. What field of experience is studied by natural science?
53. Show why natural science cannot claim the whole field of possible experience, at least in the present day?
54. What is the field studied in physics?
55. Give the various sub-divisions of physics.
56. What field is studied in chemistry?
57. Give and describe the sub-divisions of chemistry.
58. What is studied in astronomy?
59. Give and explain three divisions of Astronomy.
60. What is Geology?
61. Give and describe its various sub-divisions.
62. Is geology a simple or complex science? Explain.
63. -----
63. What is the field covered by Meteorology?
64. Of what practical importance is Meteorology?
65. How would you define Biology?
66. Name and define the sub-divisions of Biology?
67. What is the field covered by Anthropology?
68. What is the special field of Ethnology?
69. To what study is psychology devoted?
70. Give the two main divisions of Psychology.
71. List and describe the social sciences?
72. Why are these called pseudo-sciences?
73. What fields are covered by the science of language?
74. What is the dual basis of scientific knowledge in the modern sense?
75. Show why experience alone can not be said to afford the sole source of scientific knowledge?
76. What is the basic assumption that lies at the root of all science?
77. What type of experience is alone employed for building scientific knowledge in the modern sense?
78. What general requirement must an hypothesis satisfy if it is to be of scientific use?
79. Can physical science alone determine the ultimate truth or reality of its determinations?

80. What is the first and most fundamental tenet of Occult Science?
  81. What is the most fundamental law of manifestation?
  82. Why is the Universe called Maya?
  83. How far does Consciousness extend in the Universe?
  84. In what order or essential way is the universe developed and operated?
  85. What is the First Cause?
  86. What are the carriers of the Archetypal Idea?
  87. What are the dual aspects of the Dyman Chohan's host?
  88. Does Matter have a beginning and an end? If not, what is it that begins and ends?
  89. What is meant when it is said that all matter is living?
  90. Does Occultism recognize the distinction between organic and inorganic matter?
  91. How far does Law act within the Universe?
  92. Is or is not this Law to be understood in the legislative sense?
  93. How was the Occult Science built up?
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94. In what respects do Western and Occult science agree relative to the principle of law?
  95. In what respect do they differ?
  96. What practical effect results from a knowledge of law within in the western or occult sense?
  97. On what important point do western and occult science agree relative to the nature of matter?
  98. How do western and occult science respectively view the living or dead state of matter?
  99. What is meant by saying matter is living?
  100. Which of these two sciences make use of the concepts of Force and causality?
  101. How does western science typically interpret Force?
  102. How does it regard causality?
  103. How does occult science interpret Force and causality?
  104. What would occult science say attraction and repulsion are like?
  105. Give the agreements in these two sciences in the methods of research?
  106. What is the difference in the equipment for observation employed employed in the two fields?
  107. What can you say about the first principles employed by the two sciences?
  108. What sort of practical control of nature is given by western science?
  109. What sort of practical control is given by occult science?

110. What was the view concerning the origin of species generally held throughout the western world before Darwin?
111. Are there any considerable groups of people who still hold this view to day? Give examples.
112. What was the fact in nature that led Darwin to question the doctrine that species were eternally fixed?
113. What is the meaning of ~~xxxxx~~ organic evolution in the scientific sense?
114. What three lines of evidence support the principle of organic evolution?
115. What is meant by "morphology"?
116. How does comparative morphology suggest that transformation and development of species is a fact in nature?
117. What is the evidence from embryology which supports the theory of evolution?
118. Show how the paleontological records support the theory of evolution.
119. Outline Darwin's theory of the methods or mechanics of evolution.
120. Just what is natural selection?
121. How did Darwin conceive variation to be produced?
122. Show how it is that Darwin's work showing evolution is a fact stands as established while his theory of the mechanics of evolution is seriously questioned.
123. What are the two theories concerning what it is that affects the hereditary chains?
124. What two names are especially connected with these two theories?
125. Which theory has research most completely sustained in the years since Darwin?
126. What is the meaning of mutation or sporting?
127. What man originated the theory that species originate through mutation?
128. What is the difference between the germ cells and the somatic cells?
129. Name the important parts of the cell?
130. What part of the cell has been found to afford the physical basis of heredity?
131. How do cells multiply?
132. Why is unicellular life called immortal?
133. Describe the process of chromosome separation in the case of the somatic cell?
134. Describe the process of chromosome separation in the germ and sperm cells when they are prepared for impregnation.
135. What are germ and sperm cells?
136. What are the genes?
137. What happens among the genes when there is a mutation?
138. By what means has it been possible to effect mutations artificially?

139. Define logic.
140. Distinguish between the fields studied by psychology and logic.
141. Define deductive logic.
142. What does deductive logic accomplish?
143. What is the value of formal logic?
144. What is the reasoning form of deductive logic called?
145. What is the primary law of deductive logic?
146. Give a symbolic statement of this law in its positive and negative forms.
147. Give the distinction between formal and real truth?
148. Name the parts of the syllogism.
149. What is an enthymeme?
150. What is the name by which the premises and conclusions of a syllogism designated?
151. Name the three parts of a Proposition.
152. What is the name given to the simplest element in logical reasoning?
153. Must a term always be but a single word? Explain.
154. What mental operation corresponds to the term? To the proposition? To the syllogism?
155. Which mental operation is most primary?

*Questions - irrational paragraph*

## QUESTIONS.

1. What is a proposition?
2. Distinguish between categorical and conditional propositions.
3. What is meant by (a) the Quality, and (b) the Quantity of propositions?
4. Arrange the following sentences in the form of logical propositions, and indicate the Quality and Quantity of each categorical proposition by the use of the letters A, E, I and O:—
  - (a) Brevity has to be sought without sacrificing perspicuity.
  - (b) He that doeth these things is like a man that buildeth his house upon a rock.
  - (c) Socrates declared knowledge to be a virtue.
  - (d) Phosphorus does not dissolve in water.
  - (e) Nearly all the troupes have left the town.
  - (f) Only ignorant persons hold such opinions. *no one who is not ignorant*
  - (g) Few persons are proof against temptation. *want p are not*
  - (h) Over the mountains poured the horde.
  - (i) Except ye repent, ye shall likewise perish.
  - (j) Neither gold nor silver is the proper standard of value.
5. How does formal logic interpret the relation between the subject and predicate of a categorical proposition? Does this view do full justice to the signification of propositions?
6. How would you represent by means of circles the proposition, 'gold is the most precious metal'?
7. What do you mean by the distribution of terms? Explain why negative propositions distribute the predicate while affirmative propositions do not.