I. Aristotle

A. Biographical data
1. Macedonian, from Stagira; hence often referred to as "the Stagirite".
2. Dates: 384-322 B.C.
3. Student at Plato’s Academy for twenty years
4. Left Athens at Plato’s death, and remained away for twelve years, during which he was the tutor of Alexander the Great.
5. Returned to form his own school, the Lyceum. During the years in which he headed the Lyceum the Macedonians (under Philip and Alexander) put Greece, Persia, Egypt, Afghanistan, and part of India under their domination.
6. At Alexander's death Aristotle was accused of impiety and fled Athens. He died a few months later.
7. His nephew Theophrastus succeeded him as head of the Lyceum.
8. Throughout the ancient period, his followers were known as Peripateticians (those who walk around (??)).
9. The Arabic- and later Latin-writing Medieval philosophers regarded Aristotle's thought as practically synonymous with scientific knowledge. [The early Arabic-writing philosophers were deceived by the existence of some Neoplatonic works which had been erroneously ascribed to Aristotle, and thus mixed their Aristotelianism with Neoplatonism.]
10. An important aspect of the growth of modern science has been the overthrow of Aristotelianism in various fields—cosmology, biology, logic. In various ways, however, the present states of these sciences still retain Aristotelian conceptions.

B. General aspects of his thought
1. In Topics he divides philosophical questions into logical, ethical, and physical. This forms a good framework for discussing his philosophizing.
   a. Logic—was the first to develop a system of logical laws—syllogistic or Aristotelian logic.
   b. Ethics—developed a so-called virtue-based ethical system (as was that of Plato/Socrates) in which virtue is the ability to perceive and follow the mean
between excess and defect in action. Ethics includes politics--the purpose of the state is to foster virtue.

c. Physics--developed a theory according to which motion was reality, not appearance. Also a detailed cosmology. Also classified by Aristotle as physics (the science of nature) are:
   (1) Biology--extensive works on the anatomy, functioning, and habits of animals.
   (2) Psychology--theory of sensation and thought.
   (3) Astronomy--theory of the physical composition and motions of the heavens.

d. First Philosophy (not a part of the classification in the Topics). An attempt to formulate a supreme science, the science of being as being, which would know the first principles of all science. [In translations of Aristotle, the Greek episteme is usually translated "science"--this same word, with roughly the same meaning, is customarily translated "knowledge" in translations of Plato.] First philosophy is set forth in the Metaphysics (Greek Ta Meta Ta Physica, what comes after (in some sense) physics)--hence first philosophy came to be known as metaphysics. The term "first philosophy" means "philosophy in the primary or most fundamental sense".

e. Miscellaneous
   (1) Constitution of Athens--a history of Athenian laws.
   (2) Poetics--an analysis of poetry--all that survives is his analysis of tragedy.

2. A general characterization of his philosophy
   a. Philosophical analysis of the views of his predecessors, using logical tools developed by Plato/Socrates.
   b. Empirical observation an essential component in any investigation. The goal is reduce observations to a logically coherent system which is founded on self-evident principles.
   c. A notable departure from Plato's philosophy: Rejected theory of ideas. There are no
archetypes of things separate from the things themselves.

C. Logic
1. General
   a. As tradition has understood it, it consists of three parts:
      (1) Theory of terms (nouns and verbs)---set forth obscurely in Categories.
      (2) Theory of propositions---set forth in On Interpretation.
      (3) Theory of inference or deduction---set forth in Analytics.
      (4) [The second part of the Analytics, known as the Posterior Analytics, sets forth a theory of knowledge which builds on his theory of deduction.]
      (5) [The Topics, of which the Sophistical Refutations is really a part, is a handbook of dialectic in the sense of general argumentation, whether in science or in rhetoric.]
      (6) [The Rhetoric is a handbook of rhetoric, which is conceived by Aristotle to be a branch of applied logic.]
      (7) These works (the logical works) are traditionally known collectively as the Organon (instrument).

   2. Grammar
      a. [This is a theme I'm doing research on.]
      b. The theory of propositions is developed in a grammatical framework which is partly set forth in On Interpretation, but wholly only in very brief form in Poetics 20.
      c. Poetics 20--the "parts of speech"
         (1) Letter--smallest component of language
         (2) Syllable
         (3) Conjunction--links logoi together
         (4) Article--marks the beginning, middle, and end of logoi
         (5) Name or Noun--smallest component of language significant in itself--no temporal significance
         (6) Verb--smallest component of language significant in itself--has temporal significance
(a) Note: names or nouns and verbs are the only parts of speech that are descriptive. Names clearly include what we call adjectives and descriptive adverbs. Verbs include verbal phrases such as "is tall".

(7) Inflection--case, mood, tense, etc. endings

(8) Logos (Phrase or Discourse)--significant in a compound way

(a) [Note: propositions are a kind of logos--those having truth or falsity.]

(b) Logoi in general and propositions in particular are divided into simple and compound.

d. The "parts of speech" that we learn in school are a historical development of this concept.

3. Theory of propositions On Interpretation

a. Compare Sophist 261ff.

b. Chapter One

(1) Four-level semantics: things, thoughts, speech, writing

(2) Things and thoughts are the same for all, speech and writings are conventional symbols respectively of thought and speech. [This view is implicit in Plato's Cratylus.] Thoughts are likenesses of things thought.

(3) Truth and falsity apply to thoughts and names only in combination (a view also implicit in Plato in the Cratylus and Sophist).

c. Chapter Two--definition of noun--made complicated by the necessity of having to account for compound nouns--"significant piece of language (phone) having no part significant in itself, and which does not consignify time."

d. Chapter Three--definition of verb--same as that of noun (name) except that it does consignify time

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(1) Note: this is difference from the Sophist passage, where a verb is said to signify an action.
(2) Note: implicit in these chapters is the statement from the Sophist that every proposition must contain a noun and a verb.

e. Chapter Four
(1) Definition of logos (which in Ackrill translation is translated "sentence")--significant piece of language having parts which are significant in themselves
(2) Division of logoi into propositions and others. Propositions are distinguished from others by the fact that they have truth or falsity (it pertains to them to have truth value, as modern logicians would say).

f. Chapter Five
(1) Four-fold division of propositions into
   (a) Affirmation/negation [elsewhere this distinction is explained as that between a mental composition and a mental separation of noun-subject and verb.
   (b) Simple/composite--a single simple proposition is one that "reveals one thing"--i.e., the unity between noun subject and verb--a single composite proposition consists of several simple propositions joined together by "conjunctions" (connectives).

g. Chapter Six
(1) For every affirmation there is an opposed negation, and vice-versa. I.e., affirmations and negations come in matched pairs.
(2) An affirmation and its opposed negation Aristotle calls a "contradiction".
(3) An affirmation and its opposed negation affirm and deny the same thing of the same thing.
   (a) Note: this is slightly obscure in light of the next chapter. The most natural interpretation is that this statement applies both to contraries and contradictories
(which are shortly to be distinguished).

h. Chapter Seven....

II. 1. Theory of terms or categories
   a. Alluded to throughout Aristotle's works, but set forth (obscurely) only in the Categories.
   b. A classification of the kinds of attributes a thing can have.
   c. Conceived by Aristotle to be in some way analogous to the Pythagorean table of opposites.
   d. List
      (1) Substance (ousia)-that which is in the most fundamental sense
      (2) Of some kind--or Quality
      (3) So much/many--or Quantity
      (4) In relation to something--or Relation
      (5) In some place
      (6) At some time
      (7) To act--or Action
      (8) To suffer (in the sense of being acted on)--or Passion
      (9) To have--or Habit or State
      (10) To be posed--or Position
   e. These are the fundamental ways in which one concept or form can relate to another (or in Plato's terms "mix" or "have communion").
   f. I have a theory that they are based on grammatical inflections.
   g. Fundamentally, a thing is a substance--subordinately it has attributes from the other categories--this priority of substance applies both to being and to becoming.
   h. The idea of substance is fundamentally a logical idea--the deduction that there is substance seems to be a priori--if there were not, the order of predication would proceed to infinity. [Text?]

III. Aristotle's classification of theoretical sciences
   A. Each science has a certain kind of thing which is its proper subject of investigation
   B. Things that can be studied can be divided into
      1. Things that can exist without matter and those which cannot
      2. Things which can be defined without matter and
those which cannot
C. There is nothing that can exist without matter but
cannot be defined without matter
D. Thus the three kinds and subject and their sciences are
   1. Nature--Physics
   2. Quantities--Mathematics (it is possible that logic
      falls in this heading, depending on the kind of
      sense we make out of the statement that thought
      (discourse?) is a quantity.)
   3. Separate intelligences--First Philosophy or
      Metaphysics

IV. Physics, Book I
   A. We must investigate the causes, elements, and
      principles of nature (phusis, birth, coming-to-be)
   B. We must begin with what is most knowable to us, go to
      what is most knowable in itself
   C. How many are the elements and principles of nature?
      1. Either one or many
      2. If many, either a finite or an infinite number
      3. From a single principle nothing can come
      4. An infinite number would be unknowable
      5. Therefore, a finite number
   D. Review of predecessors' views
   E. Aristotle's view:
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      1. In number, the principles are two (before and
         after)--example: man not knowing music and man
         knowing music
      2. In definition the principles are three--matter,
         form and privation--example: man, knowing music,
         not knowing music

V. Physics, Book II--causes
   A. Four kinds:
      1. Matter
      2. Form
      3. Agent
      4. End
   B. Each can be further divided in three ways:
      1. Universal/Particular
      2. Per se/Accidental
      3. Actual/Potential
   C. What about chance and spontaneity?
      1. Luck concerns the ends of rational agents while
         spontaneity concerns the ends of nature.
      2. They are both accidental
      3. Art is distinguished from chance and nature from
spontaneity by whether they occur always or usually (art and nature) or neither always nor usually (chance and spontaneity.

4. The only necessity in nature is conditional necessity

VI. Physics, Book III--motion, infinity
A. Motion
1. Definition: motion is the actuality of what is potential in the respect in which it is potential
2. Something can be only in the senses of the 10 categories. Hence also something can become only in these senses. Motion is a kind of becoming.

B. Infinity
1. There is no body of infinite size. (Arguments complex--gist seems to be that if there were, there would be no absolute directionality: up-down, right-left, forward-backward.
2. The infinite is a successive posting of which there is no end--it exists in two ways: time and the divisibility of magnitude
3. In neither case does an actual infinity of parts come about: in time, the earlier parts perish; in division the process is never complete

VII. Physics, Book IV--place, void, and time
A. Place
1. Place is the interior surface of a containing body
2. Thus the universe is not in a place, although it is of finite size
3. [Up and down are absolute directions, equivalent to away from and toward the periphery.]
4. [All forms of matter have natural places, to which they are drawn by various intensities of gravity or levity]
5. [Heavier bodies fall faster than lighter ones.]

B. Void (or Vacuum)
1. There is no void. Nothing could move into it because there are no intermediate places between the point at which the body enters the void and
2. Time is the number of motion in respect of before and after.

VIII. Aristotle's proof that there exists a first mover of the cosmos which is without parts and without magnitude. (Physics, Books VII and VIII)
A. General framework: hypotheses:
1. Everything is at rest
2. Everything is in motion
3. Some things are at rest and some in motion—sub-
   hypotheses of this:
   a. Some are eternally in motion while others are
      eternally at rest
   b. All things alternate between rest and motion
   c. Somethings alternate while others do not

B. Aristotle will try to prove hypothesis 3(c).

C. Proof that motion is eternal.
1. First proof
   a. Suppose motion came into existence. Then
      either
      (1) What was first moved has always existed
      or
      (2) What was first moved came into existence
   b. In case (2) there was a prior motion, that
      which brought the entity into existence.
   c. In case (1), the potential mover and thing
      moved had to be brought into the proper
      relationship or proximity in order for the
      motion to be actual—so here too there was a
      prior motion.
   d. Thus there was no first motion.
2. Second proof
   a. Every moment of time is a now, separating
      past and future
   b. If motion began, then so did time (since time
      is the number of motion with respect to
      before and after)
   c. But if time began, then the first moment
      could not have been a now.
   d. Thus motion did not begin.
3. Proof that everything which is moved is moved by
   another thing.
   a. ["Self-movers", so called, are living
      things.]
   b. Motion is either per se, incidental, or
      partial
   c. All partial and incidental motion is
      dependent on per se motion.
   d. Per se motion is divided into
      (1) Natural and violent
      (2) "Self-motion" and non-"self-motion"
   e. All self motion is natural, so there are
three classes—natural non-self motion, natural self-motion, and violent non-self motion

f. In all violent motion what is moved is moved by another (example, throwing a heavy object).

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g. In self motion, the thing moved must be resolvable into what is per se moved and what is not (though the second thing is moved incidentally—it is predicated of what is moved per se).

h. In natural motion which is not self motion (the motion of "elements" to their proper places) the remover of obstacles is an incidental (?) mover while the agent which produced the matter in this form is the per se mover.

i. [This is a proof by induction.]

4. Proof that every series of movers and things moved terminates in a primary mover

a. If all movers were dependent or instrumental, there would be no sufficient cause of the motion.

b. [This appears to be based on Aristotle's theory that causes are facts from which the effect logically follows. Dependent causes are conditional and thus do not constitute logical grounds for the effect.]

5. Proof that the cosmos has a primary mover which is not moved even incidentally.

a. A mover which is moved incidentally need not stay in the required relationship with that which it moves.

b. An eternal motion is the motion of one thing in a continuous manner, by a necessarily unfailing mover.

b. Thus the mover cannot be movable, even incidentally. (Because otherwise the necessity of the motion would not be deducible from it, since it could fail.)

6. Proof that the first motion is the motion of the sphere of the fixed stars

a. Of the three kinds of motion, motion in place is primary (it is required for the other two, which are alteration—change in quality—and
growth/diminution—change in quantity).

b. All motion in place is a combination of rectilinear and circular motion.

c. The only kind of change in place which can be continuous forever is circular motion.

d. The only constant circular motion which we observe is that of the fixed stars.

e. [There is some doubt here due to the question of whether any of the other celestial motions can be reduced to combinations of circular motions. It might be that there is more than one elementary circular cosmic motion.]

7. Proof that the first mover is without magnitude.
   a. The first motion, being eternal, requires infinite power.
   b. A power residing in a magnitude cannot act for an infinite time (because any power in a magnitude is proportional to the magnitude, and power and the time required to accomplish a given effect are inversely proportional.)
   c. No infinite power can reside in a finite magnitude (same sorts of considerations).
   d. Therefore, the first mover is without magnitude (or parts).

8. [Thus hypothesis 3 (c) is proved.]

9. [Thus there is a science beyond physics("metaphysics").]