CHAPTER VIII.

Of Mediate Inferences or Syllogisms.

Section 540. A Mediate Inference, or Syllogism, consists of two
propositions, which are called the Premisses, and a third proposition
known as the Conclusion, which flows from the two conjointly.

Section 541. In every syllogism two terms are compared with one another by
means of a third, which is called the Middle Term. In the premisses
each of the two terms is compared separately with the middle term; and
in the conclusion they are compared with one another.

Section 542. Hence every syllogism consists of three terms, one of which
occurs twice in the premisses and does not appear at all in the
conclusion. This term is called the Middle Term. The predicate of the
conclusion is called the Major Term and its subject the Minor Term.

Section 543. The major and minor terms are called the Extremes, as opposed
to the Mean or Middle Term.

Section 544. The premiss in which the major term is compared with the middle
is called the Major Premiss.

Section 545. The other premiss, in which the minor term is compared with the
middle, is called the Minor Premiss.

Section 546. The order in which the premisses occur in a syllogism is
indifferent, but it is usual, for convenience, to place the major
premiss first.

Section 547. The following will serve as a typical instance of a syllogism--

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              Middle term    Major term   \
  Major Premiss. All mammals are warm-blooded  |  Antecedent
                              >    or
              Minor term    Middle term    |  Premisses
  Minor Premiss. All whales are mammals      /

              Minor term     Major term   \  Consequent or
         .'. All whales are warm-blooded  > Conclusion.
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Section 548. The reason why the names 'major, 'middle' and 'minor' terms
were originally employed is that in an affirmative syllogism such as
the above, which was regarded as the perfect type of syllogism, these

names express the relative quantity in extension of the three terms.

[Illustration]

Section 549. It must be noticed however that, though the middle term cannot be of larger extent than the major nor of smaller extent than the minor, if the latter be distributed, there is nothing to prevent all three, or any two of them, from being coextensive.

Section 550. Further, when the minor term is undistributed, we either have a case of the intersection of two classes, from which it cannot be told which of them is the larger, or the minor term is actually larger than the middle, when it stands to it in the relation of genus to species, as in the following syllogism--

  All Negroes have woolly hair.
  Some Africans are Negroes.
  .'. Some Africans have woolly hair.

  [Illustration]

Section 551. Hence the names are not applied with strict accuracy even in the case of the affirmative syllogism; and when the syllogism is negative, they are not applicable at all: since in negative propositions we have no means of comparing the relative extension of the terms employed. Had we said in the major premiss of our typical syllogism, 'No mammals are cold-blooded,' and drawn the conclusion 'No whales are cold-blooded,' we could not have compared the relative extent of the terms 'mammal' and 'cold-blooded,' since one has been simply excluded from the other.

  [Illustration]

Section 552. So far we have rather described than defined the syllogism. All the products of thought, it will be remembered, are the results of comparison. The syllogism, which is one of them, may be so regarded in two ways--

  (1) As the comparison of two propositions by means of a third.

  (2) As the comparison of two terms by means of a third or middle term.

Section 553. The two propositions which are compared with one another are the major premiss and the conclusion, which are brought into connection by means of the minor premiss. Thus in the syllogism above

given we compare the conclusion 'All whales are warm-blooded' with the major premiss 'All mammals are warm-blooded,' and find that the former is contained under the latter, as soon as we become acquainted with the intermediate proposition 'All whales are mammals.'

Section 554. The two terms which are compared with one another are of course the major and minor.

Section 555. The syllogism is merely a form into which our deductive inferences may be thrown for the sake of exhibiting their conclusiveness. It is not the form which they naturally assume in speech or writing. Practically the conclusion is generally stated first and the premisses introduced by some causative particle as 'because,' 'since,' 'for,' &c. We start with our conclusion, and then give the reason for it by supplying the premisses.

Section 556. The conclusion, as thus stated first, was called by logicians the Problema or Quaestio, being regarded as a problem or question, to which a solution or answer was to be found by supplying the premisses.

Section 557. In common discourse and writing the syllogism is usually stated defectively, one of the premisses or, in some cases, the conclusion itself being omitted. Thus instead of arguing at full length

  All men are fallible,
  The Pope is a man,
  .'. The Pope is fallible,

we content ourselves with saying 'The Pope is fallible, for he is a man,' or 'The Pope is fallible, because all men are so'; or perhaps we should merely say 'All men are fallible, and the Pope is a man,' leaving it to the sagacity of our hearers to supply the desired conclusion. A syllogism, as thus elliptically stated, is commonly, though incorrectly, called an Enthymeme. When the major premiss is omitted, it is called an Enthymeme of the First Order; when the minor is omitted, an Enthymeme of the Second Order; and when the conclusion is omitted an Enthymeme of the Third Order.