SECTION IV.

ANTECEDENT PROBABILITY, EXAMPLE, SIGN.

The classification of arguments as deductive and inductive, though primarily useful to a student of logic, is not without value to a student of rhetoric, since it helps him to test the validity of his own or another's reasoning. A classification more convenient for our purposes is that which distinguishes arguments according to the sources from which they come, — according as they are derived (1) from the relation of cause to effect, (2) from the resemblance which persons or things bear to one another in certain particulars or under certain aspects, (3) from the association of ideas. Arguments of the first class are called arguments from ANTECEDENT PROBABILITY; those of the second class, arguments from EXAMPLE; those of the third class, arguments from SIGN.

Three classes of arguments.

No form of argument is in more frequent use than the argument from ANTECEDENT PROBABILITY. This argument is employed in reasoning either from the present to the future, or from the past to the present or the future.

Argument from antecedent probability.

We argue from antecedent probability that the superior skill which has enabled a base-ball nine to win successive victories will enable it to win again; that a habit (bad or good) once formed will continue; that a national peculiarity which has been shown in military affairs will be shown in civil affairs when opportunity arises. Shrewd observers of the condition of things in France in the middle of the eighteenth century argued from antecedent probability that a revolution was at

hand. Statesmen who had studied the English character and the course of events in the American colonies anticipated, long before (antecedently to) the actual struggle, that there would be a conflict between those colonies and the mother country. A few far-seeing Americans anticipated before Fort Sumter was fired upon that there would be an attempt to separate the slave States from the free. Any one who knew the Puritan character might have foreseen very early in the seventeenth century that if the Puritans came into power they would close the theatres. A student of English literature might have foreseen that the Elizabethan era would be characterized by the predominance of the drama; and this general probability would have been strengthened by the special probability furnished by Queen Elizabeth's liking for the theatre combined with her love of the classics. In each of these cases, the argument from antecedent probability is a means of inferring what is likely to be from what is or from what has been. The argument rests on the generally-accepted belief that certain causes tend to produce certain effects, that what Matthew Arnold calls "the stream of tendency" will continue to flow in the direction once taken.

The argument from antecedent probability is also used as a means of accounting for what has already happened. A reasoner, assuming a proposition to be true, tries to show how it probably came to be true. If a loaf of bread which had been within reach of a starving man were to disappear, an argument that the starving man was the thief might be based on knowledge of the fact that he was starving; for experience shows that a starving man is likely to lay hands on anything eatable that comes in his way. This probability existed before

the disappearance of the loaf: the cause was in operation before the occurrence of that which had to be accounted for. In accounting, then, for what has already happened, as well as in inferring what is likely to happen, the argument rests on the probability that certain causes will produce certain effects. An argument of this class is used by Mr. Galton to prove that there was a larger proportion of color-blind men among the original Quakers than among the people from whom they separated themselves: —

"I may take this opportunity of remarking on the well-known hereditary character of colour blindness in connection with the fact, that it is nearly twice as prevalent among the Quakers as among the rest of the community, the proportions being as 5.9 to 3.5 per cent. We might have expected an even larger ratio. Nearly every Quaker is descended on both sides solely from members of a group of men and women who segregated themselves from the rest of the world five or six generations ago; one of their strongest opinions being that the fine arts were worldly snares, and their most conspicuous practice being to dress in drabs. A born artist could never have consented to separate himself from his fellows on such grounds; he would have felt the profession of those opinions and their accompanying practices to be a treason to his æsthetic nature. Consequently few of the original stock of Quakers are likely to have had the temperament that is associated with a love for colour, and it is in consequence most reasonable to believe that a larger proportion of colour-blind men would have been found among them than among the rest of the population." [1]

Use of antecedent probability by science.

The argument from antecedent probability is used by the man of science when he frames a hypothesis to account for a phenomenon hitherto unexplained. It was by this argument that Newton accounted for the fall of an apple from a

[1] Francis Galton: Inquiries into Human Faculty and its Development; Unconsciousness of Peculiarities.

tree when he framed the hypothesis which has led to what we call the law of gravitation. It was by this argument that Darwin accounted for certain observed facts when he framed the hypothesis that "natural selection" explains "the survival of the fittest." It was an argument of this sort which led to the discovery of argon. The fact that the nitrogen obtained from chemical compounds is lighter than atmospheric nitrogen raised an antecedent probability that the latter contained some element other than nitrogen. This probability was strengthened by a series of experiments that resulted in the separation from atmospheric nitrogen of a gas hitherto unknown, which the discoverer has named argon.[1] Further evidence was derived from the fact that similar experiments with chemical nitrogen yielded only a very small amount of the new gas, so small that it might have leaked in from the atmosphere.

Use of antecedent probability in fiction.

The writer of fiction uses the argument from antecedent probability in the construction of a story. He may bring any characters he chooses upon the stage; but those whom he does bring there should be natural, — that is, they should talk and act as such characters would be likely to do. He may invent any series of events; but he should take care not flagrantly to violate probabilities familiar to his readers. He should prefer an impossibility which seems probable to a probability which seems impossible;[2] for he aims at universal, not at particular, truth.[3]

The necessity of paying attention to antecedent probability in the conduct of a fictitious narrative has been recognized by all great novelists. It was recognized by

[1] From ἀ privative, and ἔργον, work.

[2] See Aristotle: Poet., xxv. xvii.

[3] Ibid., ix. iii.

Richardson when, in spite of numerous protests, he let Clarissa Harlowe die; the fact that his readers foreboded the death of Clarissa tended to prove that the course of the story would naturally lead to her death. It was recognized by Dickens when he paid no attention to the general demand that little Nell should not die. It was recognized by Hawthorne when he wrote that it was impossible to end "The Blithedale Romance" in any way but that dreaded by his readers.

What is true of all fiction is especially true of so-called "novels with a purpose," — novels written to establish a certain proposition. They succeed or fail according as they do or do not square with the facts of human experience. Fiction can help us more clearly to understand what we believe or more firmly to hold our beliefs; but, the premisses of fiction being arbitrarily selected, its conclusions can be binding upon those only who admit the premisses.

Need of argument from antecedent probability.

In every piece of reasoning some argument from antecedent probability should be adduced if possible; for it is difficult to create a belief in the existence of anything that cannot be accounted for. It is difficult, for example, to convict an accused person unless a sufficient motive can be discovered for the crime with which he is charged. In the famous trial of Levi and Laban Kenniston, indicted for highway robbery on the person of Major Goodridge, Webster based his argument for the defence on the hypothesis that Goodridge robbed himself. The main difficulty with this hypothesis was that of assigning a sufficient motive for such an act. This difficulty is apparent in Webster's argument: —

"It is next to be considered whether the prosecutor's story is either natural or consistent. But, on the threshold of the inquiry, every one puts the question, What motive had the prosecutor to be guilty of the abominable conduct of feigning a robbery? It is difficult to assign motives. The jury do not know enough of his character or circumstances. Such things have happened, and may happen again. Suppose he owed money in Boston, and had it not to pay? Who knows how high he might estimate the value of a plausible apology? Some men have also a whimsical ambition of distinction. There is no end to the variety of modes in which human vanity exhibits itself. A story of this nature excites the public sympathy. It attracts general attention. It causes the name of the prosecutor to be celebrated as a man who has been attacked, and, after a manly resistance, overcome by robbers, and who has renewed his resistance as soon as returning life and sensation enabled him, and, after a second conflict, has been quite subdued, beaten and bruised out of all sense and sensation, and finally left for dead on the field. It is not easy to say how far such motives, trifling and ridiculous as most men would think them, might influence the prosecutor, when connected with any expectation of favor or indulgence, if he wanted such, from his creditors. It is to be remembered that he probably did not see all the consequences of his conduct, if his robbery be a pretence. He might not intend to prosecute any body. But he probably found, and indeed there is evidence to show, that it was necessary for him to do something to find out the authors of the alleged robbery. He manifested no particular zeal on this subject. He was in no haste. He appears rather to have been pressed by others to do that which, if he had really been robbed, we should suppose he would have been most earnest to do, the earliest moment." [1]

Preponderance of probability.

Arguments from antecedent probability may be adduced in support of each side of a case. Whenever such arguments conflict, we compare them and decide according to the preponderance of probability.

One may argue that in a lottery there are as many chances of drawing a prize as of drawing a blank, —

[1] Daniel Webster: Legal Arguments; Defence of the Kennistons, April, 1817.

and so there are as between a prize and any one blank; but, if there are twenty blanks and one prize, a ticket-holder has only one chance in twenty-one of drawing the prize, since each of the twenty blanks represents one chance against his drawing it: the preponderance of probability is, therefore, in favor of a blank. The apparent footprints found by Robinson Crusoe on the sand might possibly have been made by the fortuitous action of the waves; but the probability that the sand should have arranged itself in this way, rather than in any other of the many possible ways, was exceedingly small as compared with the probability that the marks had been made by a human foot. Those who disbelieve in the Christian miracles argue from antecedent probability that what science calls "the order of Nature" cannot be disturbed; those who believe in the miracles argue that there was an adequate cause for them: in this instance, the preponderance of probability is to some minds on the side of belief in miracles, to other minds on the side of disbelief. The following examples of conflicting probabilities are given by Cardinal Newman: —

"His [Alexander's] notorious bravery would be almost decisive against any charge against him of having on a particular occasion acted as a coward.

"In like manner, good character goes far in destroying the force of even plausible charges. There is indeed a degree of evidence in support of an allegation, against which reputation is no defence; but it must be singularly strong to overcome an antecedent probability which stands opposed to it. Thus historical personages or great authors, men of high and pure character, have had imputations cast upon them, easy to make, difficult or impossible to meet, which are indignantly trodden under foot by all just and sensible men, as being as anti-social as they are inhuman."[1]

[1] Cardinal Newman: An Essay in aid of a Grammar of Assent, chap. ix. sect. iii.

The common fallacy in reasoning from antecedent probability consists in adducing as argument that which has no basis in experience.

Fallacious arguments from antecedent probability.

"The fable of the countryman who obtained from Jupiter the regulation of the weather, and in consequence found his crops fail, does not go one step towards proving the intended conclusion; because that consequence is a mere gratuitous assumption without any probability to support it. In fact, the assumption there is not only gratuitous, but is in direct contradiction to experience; for a gardener *has*, to a certain degree, the command of rain and sunshine, by the help of his watering-pots, glasses, hotbeds, and flues; and the result is not the destruction of his crops."[1]

Arguments from EXAMPLE may be divided into two classes. In one class, examples are cited as instances of the operation of the law or principle which they are adduced to prove. In the other class, called argument from parallel cases or from analogy, the examples cited are also instances of the operation of a general principle, but that principle is usually not expressed; the reasoner seems to leap from one case to another.

Arguments from example.

In arguments of the first class, it is important to distinguish between examples which are merely illustrative and those which are argumentative. A supposed case under a general principle which is itself in dispute, though it may make the principle more intelligible, does not tend to prove its truth. Cicero's proposition that nothing is expedient which is dishonorable is explained, but not established, by the example he gives, — an example drawn from Themistocles's project of burning the Spartan fleet. This plan Cicero, in opposition to Aristides, maintains to be

Illustrative distinguished from argumentative examples.

[1] Whately: Elements of Rhetoric, part i. chap. ii. sect. viii.

inexpedient because dishonorable;[1] but no one who had not already assented to the general principle would be convinced of its soundness by this example.

An actual instance of the operation of a principle has, on the other hand, the force of an argument. Such an argument is given in a criticism of Sir James Fitzjames Stephen's "History of the Criminal Law of England." In answer to Sir James's proposition "that unanimity of jurors is essential to trial by jury: that if *that* is to be given up, the institution itself should be abolished," his critic refers to the fact that in Scotland, where a majority of jurors decide, trial by jury succeeds as well as in England. Another example is given in the following passage: —

"The outcry of a suffering beast may be no measure of its distress. That outcry, like all else in nature, is of a strictly utilitarian character. But it was not developed in the first place as an appeal to the sympathy of man, and therefore man's senses and intuitive judgment cannot be trusted to interpret it aright. The pig squeals aloud when he is hurt, and advertises his woe over half the parish, because, in the wild state, his comrades were sworn to rescue him from a foe or die. Many a hunter who has been treed by a herd of peccaries, after wounding one of them, has had convincing proof of their magnificent *esprit de corps*. The sheep is dumb before her persecutors because, when wild, there was no hope of salvation from the scared flock, fast fleeing to inaccessible hills as soon as the wolf began his raid. The Virginian opossum, when playing that part in the world's drama which he has made peculiarly his own, will allow his limp carcase to be mauled to an incredible extent without moving an eyelid. He acts his lie with Cretan facility, and sticks to it with more than Spartan fortitude. Yet he is silent for exactly the same reason that the pig is so shrilly vociferous, viz., because this has been proved the best way to preserve his precious life."[2]

[1] See Cicero: De Officiis, iii. xi. 9–13.

[2] Louis Robinson, M.D.: Every-day Cruelty. The Fortnightly Review, July, 1894, p. 107.

Still another example is the little essay by Charles Lamb on the popular proverb that "of two disputants the warmest is generally in the wrong": —

"Our experience would lead us to quite an opposite conclusion. Temper, indeed, is no test of truth; but warmth and earnestness are a proof at least of a man's own conviction of the rectitude of that which he maintains. Coolness is as often the result of an unprincipled indifference to truth or falsehood, as of a sober confidence in a man's own side in a dispute. Nothing is more insulting sometimes than the appearance of this philosophic temper. There is little Titubus, the stammering law-stationer in Lincoln's Inn — we have seldom known this shrewd little fellow engaged in an argument where we were not convinced he had the best of it, if his tongue would but fairly have seconded him. When he has been spluttering excellent broken sense for an hour together, writhing and labouring to be delivered of the point of dispute — the very gist of the controversy knocking at his teeth, which like some obstinate iron-grating still obstructed its deliverance — his puny frame convulsed, and face reddening all over at an unfairness in the logic which he wanted articulation to expose, it has moved our gall to see a smooth portly fellow of an adversary, that cared not a button for the merits of the question, by merely laying his hand upon the head of the stationer, and desiring him to be *calm* (your tall disputants have always the advantage), with a provoking sneer carry the argument clean from him in the opinion of all the by-standers, who have gone away clearly convinced that Titubus must have been in the wrong, because he was in a passion; and that Mr. ——, meaning his opponent, is one of the fairest and at the same time one of the most dispassionate arguers breathing."[1]

Arguments of this class vary greatly in force. A single carefully-guarded experiment in natural science by a competent observer may be enough to establish a general proposition; but in human affairs several observed instances are rarely enough.

Argumentative examples vary in force.

[1] Lamb: The Essays of Elia; Popular Fallacies, vii.

When Newton had analyzed one ray of sunlight into the prismatic colors, he justly concluded that the same analysis would apply to all other rays of sunlight;[1] but several cases like that of Richard III. are by no means sufficient to establish a connection between physical and moral deformity. "One man is not as exactly similar to another man, one race of men is not as exactly similar to another race of men, one political community is not as exactly similar to another political community, as one piece of platinum is to another piece of platinum, or as one vial of oxygen is to another vial of oxygen."[1]

Argument from *analogy* — the other kind of argument from example — is defined by Whately as that "in which the two things (*viz.*, the one *from* which, and the one *to* which, we argue) are not, necessarily, themselves alike, but stand in similar *relations* to some other things. . . . Thus an egg and a seed are not in themselves alike, but bear a like relation, to the parent bird and to her future nestling, on the one hand, and to the old and young plant on the other, respectively; this *relation* being the genus which both fall under."[2] A better definition is Professor Minto's: —

Argument from analogy.

"In a strict logical sense, however, as defined by Mill, sanctioned by the previous usage of Butler and Kant, analogy means more than a resemblance of relations. It means a preponderating resemblance between two things such as to warrant us in inferring that the resemblance extends further. This is a species of argument distinct from the extension of an empirical law. In the extension of an empirical law, the ground of inference is a coincidence frequently repeated within our experience, and the inference is that it has occurred or will occur beyond that experience: in the argument from analogy, the ground of inference is the resemblance between two individual objects or kinds of objects in a certain number of points, and the inference is that they resemble one another in some other point, known to belong to the one, but not known to belong to the other. 'Two things go together in many cases, therefore in all, including this one,' is the argument in extending a generalization: 'Two things agree in many respects, therefore in this other,' is the argument from analogy.

"The example given by Reid in his *Intellectual Powers* has become the standard illustration of the peculiar argument from analogy.

"'We may observe a very great similitude between this earth which we inhabit, and the other planets, Saturn, Jupiter, Mars, Venus and Mercury. They all revolve round the sun, as the earth does, although at different distances and in different periods. They borrow all their light from the sun, as the earth does. Several of them are known to revolve round their axis like the earth, and by that means have like succession of day and night. Some of them have moons, that serve to give them light in the absence of the sun, as our moon does to us. They are all, in their motions, subject to the same law of gravitation as the earth is. From all this similitude it is not unreasonable to think that these planets may, like our earth, be the habitation of various orders of living creatures. There is some probability in this conclusion from analogy.'"[1]

Abraham Lincoln argued from analogy when, on being advised to change generals in the midst of a campaign, he replied by asking his advisers whether they would swap horses in the middle of a stream. A sentence in one of Patrick Henry's famous speeches (1765) contains an argument from analogy: "Cæsar had his Brutus, Charles the First his Cromwell, and George the Third — may profit by their example." Had Henry not been interrupted by cries of "Treason!" he might possibly have brought

[1] Sir George C. Lewis: Observation and Reasoning in Politics, vol. ii chap. xv. sect. i.

[2] Whately: Elements of Rhetoric, part i. chap. ii. sect. vii.

[1] William Minto: Logic, Inductive and Deductive, book ii. chap. x.