certain But the conclusion merely sums up the particulars in an abbreviated form, without giving any new information. If I observe that every student in my class is bright and then assert that the whole class is bright, this general assertion is just a concise expression or summary of what I have observed. Thus, in Perfect Induction there is no inductive leap, no leap from the known to the unknown, from "some" to "all." Hence Mill and Bain deny Perfect Induction the status of Induction proper.

Parity of Reasoning

In Induction by Parity of Reasoning we arrive at a general proposition not on the ground of our observation of particular cases but on the parity or sameness of reasoning. We suppose that the reasoning which is applied to a particular case might as well be applied to all other similar cases coming under the general proposition. For example, after proving that *A* is mortal, we may infer that this is true of "all men," not because it is true of a particular man *A* but *for the same reason* which proves it to be true of *A*. We argue that because *A* is mortal, therefore *parity of reasoning* demands that *all* men should be mortal.

It will be noted here that the universal conclusion is not believed on the ground of particular instances. We do not say that *all* men are mortal because *A* is mortal but because of the *reason* which is the ground of our reasoning in a particular case. Hence, although Parity of Reasoning looks like Scientific Induction inasmuch as it proceeds from

the particular to the general, it *lacks one funda-
mental mark of Scientific Induction, namely, basing the
general conclusion on the observation of particular facts.*
To quote Mill : <u>in</u> Parity of Reasoning "the
characteristic quality of Induction is wanting, since
the truth obtained, though really general, is not
believed on the evidence of particular instances."

Colligation of Facts

Colligation literally means binding together
(from Latin *colligare, con*, together ; *ligar*, to bind).
*Thus, colligation of facts means the process by
which many isolated facts are gathered or summed up
under a single proposition.* In colligation we
first observe the parts of a whole, separately or
piecemeal and then colligate them to have an idea
of the whole. Suppose a blind man touches the
trunk, legs, tail, tusks, etc., of an animal separately
and then sums up his partial observations in a
single proposition—This animal is an elephant.
This would be Colligation. A navigator sailing in
a sea discovers land. He cannot at first decide
whether it is a continent or an island. He coasts
along it and, after completely going round it, he
pronounces it an island. Thus, he connects
together the details of his observation under the
idea of "island." It was by Colligation of Facts that
Kepler, after observing the successive position of
Mars, inferred that it moved in an ellipse. He
simply colligated the different positions occupied
by Mars under the general conception of "ellipse".

A little reflection will show that Colligation
lacks the inductive leap, a going beyond our obser-
vations. It is merely a summary, under a general

description, of what we have observed, and does not involve an inference from facts observed to facts unobserved.

History of Induction

Deduction, in its most important features, has been pretty well recognized from the time of Aristotle. But Induction, especially in respect of its methods, scope and importance, is of comparatively recent growth. Of course, in the philosophy of Aristotle and the Scholastic philosophers of the Middle Ages, there are traces which show that they were not wholly unacquainted with Induction. But most of the work on Scientific Induction has been really done after Aristotle.

Let us briefly trace the history of the development of Induction from the time of Aristotle.

Aristotle (384—322 B.C.)

Aristotle took Induction to mean a process of ascending from the particular to the universal on an examination of all the particulars. According to him, we cannot arrive at a perfectly valid induction unless all the particulars of a class are examined. Thus, Aristotle took induction to mean Perfect Induction. He considered Induction (which meant Perfect Induction) possible with the help of a syllogism, commonly called the Inductive Syllogism. For example :

The cow, the buffalo, the sheep, etc., ruminate,

The cow, the buffalo, the sheep, etc., are horned animals,

∴ All horned animals ruminate.