Philosophical Background to the Development of Bacon's "New Method": An Introductory Analysis

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Abstract:
In the history of development of scientific method there were mainly three philosopher who tried to develop a scientific method. Mainly Bacon, Galileo and Descartes. This paper explores the philosophical background of Francis Bacon's 'New Method', a groundbreaking scientific approach that stresses the importance of induction, experimentation, and understanding the laws of nature. By analyzing Bacon's ideas, this study reveals how his work challenged medieval scholasticism and paved the way for the scientific revolution. The impact of Bacon's ideas on subsequent scientific developments also demonstrating his enduring influence on modern science.

Keywords: New Method, Scientific Method, Progress of Science, Rejection of Scholasticism, Empirical Observation, Induction

Introduction:

Both Bacon and Descartes thought a lot about 'method'. However, their thoughts on what constitutes a scientific 'method' were very different. Bacon was a proponent of the inductive approach, which is the process of deriving conclusions or decisions from the vast amounts of evidence that may be gained by evidence that can be obtained by collecting information and conducting extensive experiments. Descartes thoughts that intuition or pure intuition, had a great deal of power. According to him, if thinking is clear or pure, everything that is possible to know can be known. For him, the place of experimentation was only a secondary, auxiliary to deductive thinking. However, the main difference between the two was that Descartes try to Form a new way of thinking to understand the universe and its laws. But Bacon did not give birth to any such new system of thought. He stopped at only proposing to form an organization for the sake of science. An organization that would act as an organization for the purpose of bringing together new ideas. He thought that his only task was to give a new tool to the inventors of that new though. He tried to explained new system of reasoning in the book Novum Organum.

Theme of the paper:

'My work is to ring the bell to unite the minds of others.'[1] Bacon used to say that the true and just purpose of science is to enrich human life with the help of new discoveries and powers. He considered himself not so much a scientist and inventor but as an inspirer of science and inventors. Bacon's philosophy of life is expressed in the wonderful saying quoted by Benjamin Farrington in his excellent book *'Francis Bacon, Philosopher of Industrial Science' (1951)*- "Of all the good that can be done for mankind, the best is to improve human life by the invention of new techniques, new qualities and products. The savages of primitive times considered inventors and discoverers to be virtuous souls and honored them and placed them in the seat of gods."[2] However, according to Bacon, "The greatest benefit of all will be done by him who, instead of merely inventing a useful thing, can light a light in nature and society. With the touch of that light, the dark regions that lie at the twilight border of our present knowledge will become bright. Soon the hidden secrets of the world will be revealed before our eyes like the light of day. He who can complete this work will be celebrated as the benefactor of all mankind. He will be worshipped as the helper of the expansion of man's empire in the universe. He will be worshipped as the guide of human liberation, the conqueror of the means of living."[3]

According to Bernal, Bacon was the first great man who showed science a new path, reexamined it. He says, 'Bacon and Descartes (1596-1650) appeared at the turning point of the path from medieval science to modern science. Both of them were visionaries and messengers.'[4] Bacon and Descartes are the foremost of those who thought deeply not only about how the progress of science that has been possible in the long four hundred years from the thirteenth to the sixteenth centuries can be continued, but also about how man will

finally be able to grasp all the unknown mysteries of nature and have complete control over it. Sardar Fazlul Karim says that Francis Bacon is a pioneer of the materialist and scientific approach in the field of philosophy and knowledge. Will Durant said, 'Here for the first time, are the voice and tone of Modern Science.'[5] Bertrand Russell said of Bacon that Bacon has permanent importance as the founder of modem inductive method and the pioneer in the attempt at logical systematization of scientific procedure.[6] The sixteenth and seventeenth centuries saw a surge in the study of science in Europe. According to H. Butterfield, Francis Bacon led the movement of science in the first half of the seventeenth century.[7] Sir William Cecil Dampier put it more beautifully, "Impressed by the failure of the scholastic philosophy to advance men's knowledge of and power over nature and seeing the irrelevance of Aristotle's. 'Final cause' in science, Francis Bacon set himself to consider the Theory of this new method of experiment. In order to 'extend more widely the limits of the power and greatness of man' he mapped out a course which progress towards a mastery over nature might be made move sure."[8]

'Novum Organum' in which he evolved a new conception of tasks of science and the foundation of scientific induction. Bacon gained more fame for this book among the books written by Bacon. Bacon's scientific and philosophical thoughts are well-organized in this book. It is true that Bacon himself was not a scientist, but it is undeniable that he was the originator of the modern scientific view. Bacon's harsh critic MacLeod also said, Bacon's greatest performance is the first book of the Novum Organum. Will Durant said that if someone wants to learn logic, he must start with this book[9]. Bacon was surprised to think that science had made little progress in this long time since its beginning in ancient times. Bacon searched for the reason. According to him, philosophy up to now was barren. A fertile philosophy is now needed for the progress of science. The Greek philosophers made a big mistake. They gave more importance to theory than to observation. Bacon thinks that thought can only help observation but can in no way replace observation. Therefore, he emphatically says, 'Man knows only as much of nature as he observes it. He knows no more.' He does not acquire the ability to know. Butterfield tells us that Bacon used to say that although mankind lost the dominion promised by God over this created world as a punishment for Adam's foolishness and fall, it had the possibility of establishing partial dominion. That possibility has not disappeared. If enough effort was made, that dominion could have been his destiny, but man has neglected it. Bacon is not surprised that philosophy has made little progress since Aristotle's time.

Bacon'S Contribution and Criticism:

He says that the attempt to surpass Aristotle by Aristotle's method is ridiculous. It is like a borrowed light surpassing its source. Logic, influenced by the methods invented by Aristotle, has sunk so low in the last two and a half thousand years that it can no longer be respected. Bacon attacks Aristotle very cruelly[10] He understands that science cannot advance unless Aristotle's science, philosophy and worldview are destroyed. So he firmly tells us to forget those ancient theories, promises and arguments and start anew. He thinks that the pre-Socratic philosophers started right. Especially Democritus. But Plato and Aristotle ruined everything. They stood in the way of the progress of science. According to Bacon, they were charming and light. That is why they were able to float for so long. For this He blames ancient philosophy and logic. The proponents of that conventional false philosophy and logic want to explain the nature of the world by spreading their web of imagination like spiders. But according to Bacon, it is not possible for knowledge to advance in this way. Real knowledge begins with doubt and questioning. Bacon established the scientific basis for acquiring knowledge. He declared that man acquires knowledge in order to know and subdue nature. This is the main purpose of acquiring knowledge. The only way to achieve this purpose is to uncover the true causes of changes in the changing universe through observation and experimentation. Therefore, he strongly opposed the influential philosophy of his time, Scholasticism.

It Is true that his philosophical views were not without flaws. Bacon's devotees must admit that the man who planted the seeds of modern science with his own hands could not keep up with the scientific progress of his time. He rejected the theory of Copernicus. But he agreed with Kepler. He probably did not know about Vesalius, the father of modern anatomy, but he praised Gilbert's work on the magnet. But the most surprising thing is that he was completely in the dark about the work of William Harvey. Although Harvey was his personal physician, he did not conduct any scientific experiments himself. Yet he opened the door to modern science. His critics called his method a mere variation of Empiricism. Through it, only mountains of information can be built up. But whether the web of nature can be torn apart is doubtful. The weakness of the experimental method in scientific research cannot be denied. But Bacon did not only praise the method. In

one place of Novum Organum, he says, 'The ant only collects, the spider weaves a web of the same thing over and over again. But the work of the bee is in between these two, it collects materials from flowers and turns them into honey. The work of a real scientist is much like that of this bee.'[11] Through this statement, Bacon clearly highlights his thinking. He believes that the real work of a scientist is to collect information and interpret it correctly. Both are equally important. The progress of science is not possible by the random experiments of a few scientists. He emphasizes the usefulness of pre-planned and well-controlled experiments. His New Atlantis Solomon's House bears that indication. Later, many believe that the Royal Society of London and the French Academy of Sciences are the fruits of that thought.

Bacon did not differentiate between knowledge and power. According to him, knowledge is power. With the help of the power that man will gain through knowledge, man will one day be able to establish dominance over nature. Bacon firmly believed this. Prophetic prediction! There is no doubt that such a view created a buzz in scientific research in the context of the seventeenth century.

Refutation Of Scolasticism:

According to Bacon, our fault is that we habitually believe in certain assumptions and conjectures for which no real foundation can be found. We do not discover any new truths, because we believe in certain axioms without any doubt, which we do not want to subject to observation or experiment. He says, If a man begins with a strong belief, he may end up in a circle of doubt, while if someone begins with doubt, he may arrive at an axiom. According to him, in the field of knowledge, four types of beliefs (idols) have taken a seat in our minds.[12] Idols of the tribe, Idols of the cave, Idols of the market, Idols of the theatre. These beliefs or idols have taken the place of ingrained beliefs in the minds of people. Bacon said that in order to do something new, those idol-like beliefs must first be destroyed. Bacon claims that he has done just that. His contribution to the development of philosophy can be seen in two ways. First, he revived the old materialist tradition and from there he judged the theories of the ancient era. Second, he gave birth to his own materialist philosophy of nature. He believed that matter is made up of tiny particles and nature is made up of matter with different properties. Motion is an important property of matter. He did not limit that motion to mechanical motion only. He explained nineteen types of motion. Almost everyone has drawn our attention to the unacceptable aspects of his philosophy. They certainly seem unacceptable today. But in the social, economic, political and cultural realities of the seventeenth century, those mistakes were inevitable. Despite the path he showed to science, European philosophical and scientific thought continued along the path of Bacon.

Comments and Observations:

In Newton's time and well into the eighteenth century, there was a rivalry between Bacon and Descartes in the philosophy of England and France. Naturally, at first the French bias was in favour of Descartes. But in the middle of the eighteenth century, the French encyclopedists placed Bacon far above Descartes, a position that had not been given to anyone else before. If we sit down to write about the philosophy of science, we cannot write without mentioning Bacon. Especially his 'Novum Organum'. So without further ado, let's take a look at Bacon's Novum Organum. But one thing must be remembered. Before we can find Bacon's mistakes, his unscientific conclusions, and the religious influence on his conclusions, we must go back to the seventeenth century. Why not just go back to the seventeenth century? We must go even earlier. The task is undoubtedly very difficult.

Bacon worked at a time when everything was boiling in a hot cauldron. All the beliefs, philosophies, sciences, and even religious beliefs of the past were being questioned and faced with doubt. But no new scientific method had been discovered yet, while people's respect for the old was gradually decreasing. The conflict between the new and the old sometimes took on a serious form. Bruno was burned at the stake in 1600 AD. But people wanted a revolutionary change. At that time, not only was the explanation of the errors of the old worldview prevalent, but the demand for a new method, a new science was becoming more and more intense day by day. Many were becoming aware of the situation at that time and were starting to talk about new scientific movements. But they were still failing to distinguish between the new and the old. They thought that the scientific revolution would be completed within a generation. Everyone thought that all that was needed was to dethrone Aristotle. But few people understood that it was not easy. At the end of the seventeenth century, it was seen that they were giving birth to a flourishing future, and modern science was still rocking in its cradle.

In the 16th century, it became the centre of not only scientists but also ordinary thinkers and philosophers' thoughts. In this situation, first Bacon, then Descartes, announced their methods. Before entering the seventeenth century, it is clear that the time has come. Human knowledge has reached the right place for all the far-reaching projects. But one important thing to remember is that its basis was still mythological knowledge, not modern science. It was in the sixteenth century that the debate over the method of science began.

Conclusion:

In conclusion, Francis Bacon's "New Method" marked a significant turning point in the history of science, shifting the focus from medieval scholasticism to empirical observation and inductive reasoning. By emphasizing the importance of experimentation and the formulation of hypotheses based on observed data, Bacon laid the groundwork for the scientific revolution of the 17th century. His philosophical approach not only challenged the prevailing Aristotelian views of his time but also paved the way for subsequent scientific advancements by thinkers such as Galileo, Newton, and Darwin.

The implications of Bacon's method extend beyond the realm of scientific inquiry, influencing broader intellectual and cultural developments. His emphasis on empirical evidence and systematic observation has had a lasting impact on various fields, including philosophy, medicine, and technology. Furthermore, Bacon's ideas about the progressive nature of knowledge and the potential for human improvement through science resonate with modern notions of scientific progress and innovation. However, it is also important to recognize the limitations and criticisms of Bacon's method. Some scholars have argued that his emphasis on induction and experimentation led to an overly simplistic view of scientific inquiry, neglecting the role of theory and conceptual frameworks in shaping our understanding of the natural world. Others have pointed out that Bacon's ideas about the relationship between science and power, as well as his views on the natural world, reflect the cultural and historical context of his time. Despite these criticisms, Bacon's "New Method" remains a foundational text in the philosophy of science, offering valuable insights into the nature of scientific inquiry and the development of modern scientific thought. As we continue to grapple with the complexities of scientific knowledge and its applications in the modern world, Bacon's ideas remain a relevant and thought-provoking point of reference. So in the history of development of scientific method Bacon was main philosopher who tried to develop a scientific method and criticized previous theories.

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