

# **Is Philosophy of Technology a Fourth Stage of Comte's Philosophy development?**

**M. I. Sanduk**

**Faculty of Engineering and Physical Sciences, CORA  
University of Surrey, Guildford Surrey GU2 XH, UK  
[m.sanduk@surrey.ac.uk](mailto:m.sanduk@surrey.ac.uk)**

## **ABSTRACT**

In his consideration of thought development August Comte has been proposed a three stage model of thinking development. The way that led to any new type of think may repeat itself to produce another new type. So the way that led to philosophy of science may be repeated. It perhaps to attribute the mechanism of thought evolution to a process of accumulation of unanswered questions which is flowed by a declination in that type of thinking interest. One can say that the accumulation of unverified huge new physics theories and ideas; leads to a declination in physics interest and that may lead to a new type of philosophy. The proposed new type is the philosophy of technology, and probably can be considered as the fourth stage according to Comte model.

**Keywords:** Philosophy of technology, Physics crisis, Three stage model, New scientific spirit.

## **1. INTRODUCTION**

In his idea of the law of three stages [1], August Comte considered way of development of thinking through three theoretical stages of developments. Those are the theological, metaphysical, and positive stages. These stages are corresponding to fictitious; abstract; and scientific way of thinking, and may refer to the development of society as well.

The recognition of each phase is quite recognized from its domination in its era. In the present work the transition process of the phases is regarded to be as it is governed by accumulation process and declination mechanisms; the accumulations of questions (or accumulation of unconvincing answers), and the declination of interests. The accumulation is one of the materialism proposition states that the mere augmentation of a thing or things produces a change of quality, of characteristics, and, conversely, that a qualitative change produces a quantitative one [2].

In the last century Relativity and Quantum physics made great revolutionary achievements in pure physics, and as a result pure physics became the main branch of physics that built the modern history of physics. There was an excellent agreement between the theoretical predictions and the experimental investigations. This led to a great support for that branch of knowledge (Pure theoretical physics, PTP). The enormous accumulations of achievements of PTP during the first three decades of the last century were behind Gaston Bachelard's declaration of his new scientific spirit [3], or a new a philosophy of science. That regarding of a new philosophy of science was owing to the accumulation of new proposals of Quantum mechanics. But at that time there was not any recognised obstructions in front of Quantum physics.

## **2. THE ACCUMULATION & DECLINATION**

During the first half of the nineteenth century the scientific environment became more distinguishable for the following reasons:

- 1- Science was able to explain nature in a more convincing way than that of metaphysics or religious theories.
- 2- Scientific studies became more favourable and popular than theological or metaphysical studies. Before that most of the universities turned gradually from theological to scientific studies.
- 3- There were large developments and accumulations of scientific achievements.

That means a large and distinguishable accumulation of science achievements. This new type of thought rose as new challenger for the dominant theology thought. This led to a slow growth or relative declination in metaphysical (abstract) works and intrestes (in compeer with science achievements). The process of accumulation and declination may marks an era of new thinking.

The declination of theological (fictitious) interests in favor of metaphysical (abstract) works, and the declination of metaphysical in favor of scientific thoughts might led Auguste Comte to his proposal of thinking development. Fig. 1 represents the flow of thought, obstruction, and accumulation effect for the three type of thinkings.

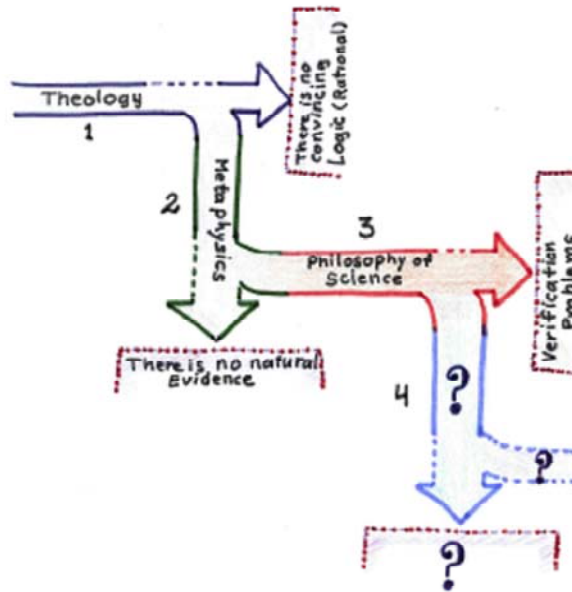


Fig. 1 The evolution of thought, obstruction, and accumulation for three type of thinkings of Comte.

In accepting the cyclic feature for evolution process, Comte's law of 'Three Stages', marks only three stages, but those may be followed by many next stages.

As a conclusion, one can say that the advancement and accumulation of any thoughtful achievements (science, in this case) leads to a new system or way of thinking (philosophy). Since there is always a new accumulation and declination, so the evolution of thinking may lead to many new phases of philosophies.

### 3. PHILOSOPHY OF TECHNOLOGY

John Dewey in late of the nineteenth century and the early of twentieth century was optimistic for the role technology [5]. His thinking was of pragmatic view.

The intensive interest in this type of thinking has been started about of the middle of the last century, when the technological achievements appeared to be accumulated with some serious effects on human society, like the problems of Second World War. Those effects are quite distinguishable in Martin Heidegger works [4].

Interested in technology thinking was adopted academically as many philosophers now are regarded to be technology philosophers. Most of the works of those philosophers concern social or humanitarian effects and history of technology. But technology is more complicated than these limited considerations. The new generation of engineers and technologists are interested in the philosophical background and the social impacts of their works or innovations. Some of the new engineers or technologist can not distinguish between the logic of science and the logic of engineering & technology.

However, owing to the new application or dealing with science a new type of logic [6] has been started effectively (since last century). Technology depends on engineering, science, trade, politics, sociology, etc. As the science has its methodology, technology has its logic of work as well, note Fig.2.

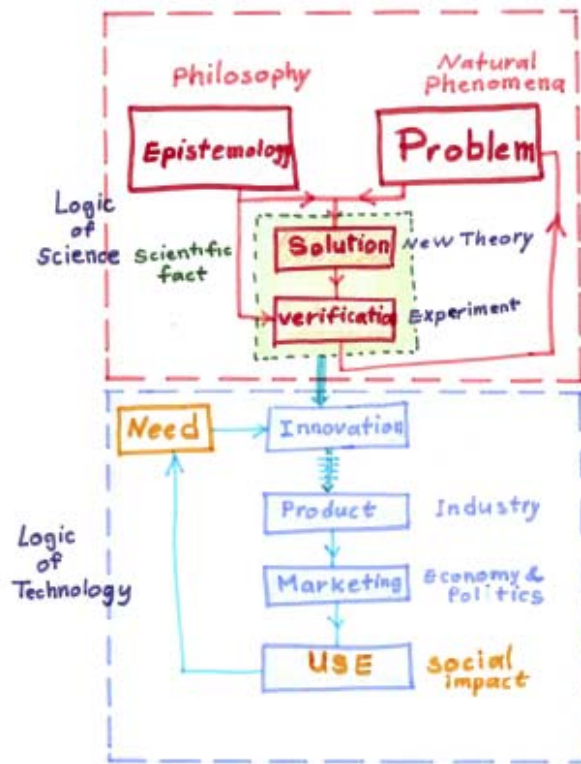


Fig.2 The Logic of Science and Technology

Philosophically speaking, a distinguished type of thought has been started, and be apart from the philosophy of science. Figure 3 represents the development of the three levels of thought with time and the relationship between them.

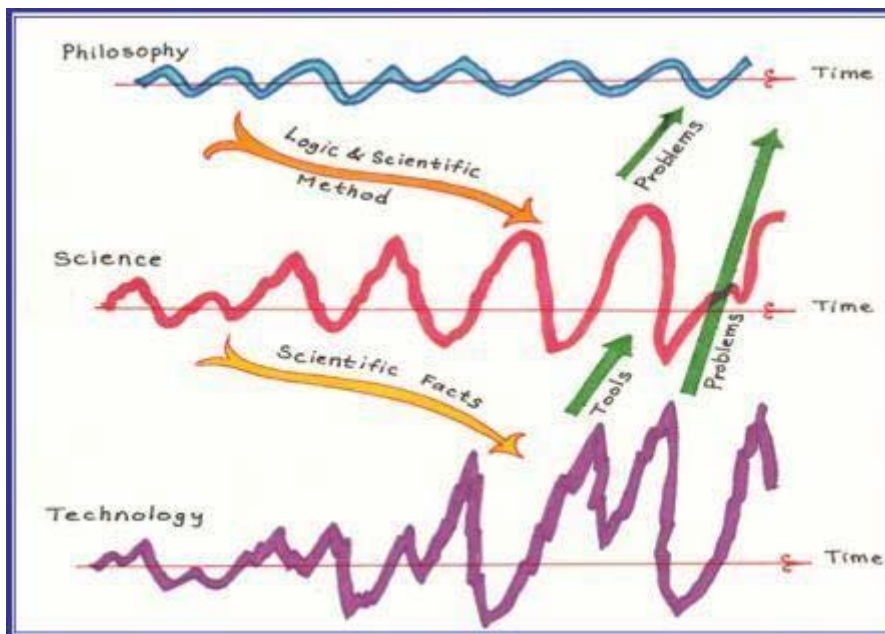


Fig.3 The development of the three levels of thought with time and the relationship between them [6].

#### 4. THE PROBLEM OF PHYSICS

Since the time of Newton's classical physics till relativistic physics and quantum theories; these great revolutions of physics [7], had been established a deep relationship between science and philosophy, and supported the philosophy of science to be a well distinguished branch of philosophy.

However, the great achievements of PTP made it very popular. The PTP projects gained extremely huge numbers of research grants during the last century. That honeymoon of PTP did not continue. It reached its maximum level around the second half of the twentieth century, when a declination started to appear. During the nineties of the last century the declination (interest in physic) has been noticed. As an example, note Figs 4 and 5 [8, 9]. The declination is quite obvious and still affecting [10]. This is a global phenomenon. In other word it is a natural logic of thought evolution.

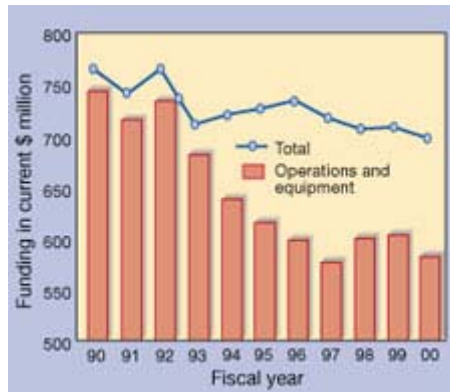


Fig.4 The declination of grants [8].

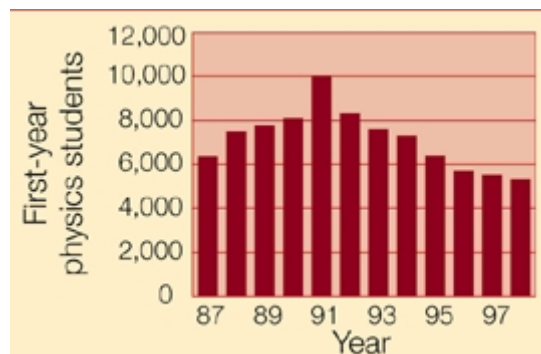


Fig. 5 The declination in physics students [9].

Most of the theoretical predictions of PTP in the second half of the twentieth century, in both contradicted levels (microphysics (like the String Theory...[11,12,13]) or cosmology (like Black Hole theories, Black matter,...)) faced and still facing large obstructions in experimental investigations side . Theoretical works accumulates and grow rapidly in relative to the level of the technology of the experimental investigations. The main experimental problems that might be behind the decline of PTP are:

- 1- either the needed technology is more advanced, and sophisticated.
- 2- or the needed technology is beyond the present level of science (like space travels of superluminal velocity...).
- 3- or the proposed theories went deeply in its work without continues experimental investigations in each step.

Owing to these problems, one might be say as "**there are boundaries for our knowledge**"; note Fig.6, it represents the limits of our world. These boundaries look like limits, in both microscopic and cosmological levels. That means we are facing an end to our usual probing investigation. In theoretical physics now a huge amount of theoretical work is carried out without investigations and great numbers of research articles around the world are looking for experimental evidence.

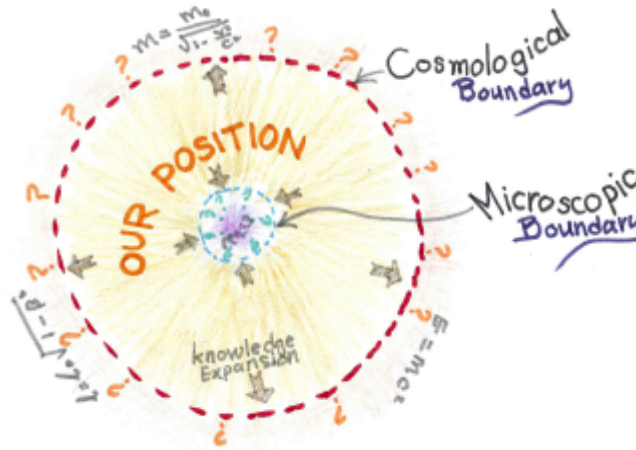


Fig.6 The limits of our world.

This case is similar to the situation of the inability of metaphysics (Fig. 1) to prove their theories, and the result of enormous accumulations of theological and metaphysics theories without evidence.

## 5. THE FOURTH STAGE

The relationship between science and technology is of a historical deep. With development of science the technology grows more and more, and the achievements of PTP are behind many applications. With the growth of industrial applications of scientific theories, considerable numbers of students in technology or applied sciences will grow as well. This is similar to the domination of scientific studies over metaphysics; when the academic approach turned to science in preference to metaphysics or theological studies, during the seventeenth to nineteenth centuries.

Now there is less interest in PTP and a reduction in careers in physics fields. In present time most of physics researches, conferences, and institutions are supported by industry, or other organizations looking for applications. In other words, physics now is controlled by technology.

These problems may put PTP in a situation similar to that of metaphysics during the first half of the nineteenth century. The technology became more and more demandable, with great growth, and has overtaken PTP. It is clear that there is a new era for pure science in general, and particularly for physics! This raises the following questions:

- Does this new distinguishable development in technology lead to a new type of philosophy?

- Does the new thinking have systematic features of philosophy?
- Is this new thinking another a step in addition to the previous three steps of August Comte? Note Figs. 1& 7.

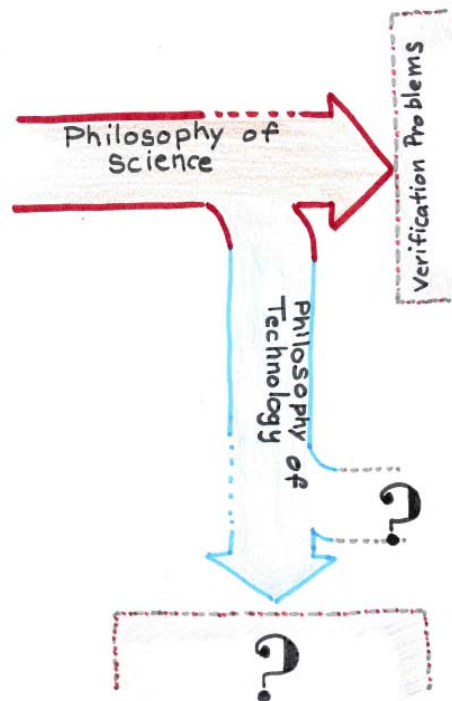


Fig.7 The possible forth stage.

However, these problems of PTP may lead to its decline, in preference of applied physics or engineering physics in the third millennium; but the real growth will be for advancements in technology. Owing to the complicated structure of technology (Available of scientific facts, Engineering, politics, trade...), the development of technology grows exponentially and rapidly with time.

The fields of Comte's three stages are to improve and develop the understanding of nature and existence, whereas, the forth phase looks as for using the knowledge (applications).

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