



Critical Investigation on Influences from Natural Science Theories and Ideas in Development of the Classical Anthropology

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ABSTRACT

Anthropology has developed approximately over the two hundred years in the western world into separate new discipline of its own. Many theories have been formulated by classical anthropologist to explain and to study concepts of culture and human behavior. The sub-discipline, cultural anthropology emerged during the 19th century in the British then in USA. This paper presents critical investigation on to the major influences from natural science and related ideologies in the process of development of cultural anthropological theories to study concepts of culture. The historical comparative method was adopted for the said investigation. According to findings of the completed investigation, it is with enough evidences that reveal the magnitudes of the impact from natural science ideologies to develop the theories of classical anthropology. It was possible to conclude this paper with that there was enormous trend to use empirical approaches also to study human cultures and related behaviors from early ear of the discipline, anthropology, mainly due to the fact that most anthropologists have borrowed ideas from natural science in formulation of anthropological theories.

KEYWORDS: *Classical Anthropology, Idea, Natural Science, School*

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1. INTRODUCTION

In social sciences, anthropology is considered as a relatively new subject area with its major development mostly occurred in the 19th and the 20th centuries with several significant contributions from scholars mainly of western world. Due to massive development resulted with the industrial revolution in the western world, the many of European nations used even to conquer other parts of the world and colonized many African, Asian and American countries. The interest on Anthropology was emerged with the said colonization. Not like in pre-colonization era, western nations had to deal with nonwestern cultures of aforesaid countries during the period of colonization. Some means of anthropological knowledge were applied by colonial rulers in governing and in administrating their territories.

Anthropological studies during the colonial era also helped colonial administrators to get insight into and how to deal with those cultures. However, in Germany and France, significant anthropological and related studies have been reported mainly in the seventeenth and the eighteenth centuries but with different nomenclature as well as with the adoption of unique methodologies (like ethnology, *Volkskunde*, *Völkerkunde*, etc.). In English, the word 'anthropology' which is used in today, first appeared in 1805 A.D (McGee and Warms., 2012). The term of anthropology has a Greek origin. The Greek '*anthropos*' means human and '*logos*' means science and thus, anthropology represents science of human or scientific study of human being (Barnard 2000). Anthropology is 'the study of humankind in all times and places in the planet history' (McBride 2011).

As indicated above the discipline, Anthropology was emerged into separate subject area of its own due to many different reasons and thereafter, in few decades, it became a main subject which study on human beings. In generally, anthropology includes studying of the origin of mankind, the behavior of mankind, and the Physical and cultural development of humans from the evolutionary history. Western anthropologists those who involved developing this new discipline, have adopted diverse methods and methodologies with variety of philosophical basis in order to contribute to the core body of knowledge in this discipline. There was no consensus among social scientists in particular also among majority of anthropologists regarding application of social sciences and related research methods for knowledge contributions in their domains. With the technological advancements and popularity gained by (pure/applied) sciences, most of social scientists inclusive of anthropologists also tend to adopt natural sciences research methodologies and idea (concept) in their respective knowledge endeavors.

Over the last 200 hundred years, scholars all around the world who have contributed to establish anthropology as a major discipline by publishing thousands of papers and books regarding theories in anthropology and their applications in variety of societies. During the early period of development of anthropology, the many theories were created by classical anthropologist to explain the concept of culture. Like many other subjects, with the passage of time, the old theories were undergone with criticism and many new theories emerged replacing old theories. Theories in any subject are much more important to explain and understand concepts of concerned discourses.

There are many anthropological theories that were developed to explain the concept of culture. The concept of culture is central ideology in cultural anthropology that was also started in parallel as separate sub-discipline at beginning of anthropology. There were uncertainties as well as debates on methodologies to be adopted in social sciences and also about appropriate ones that can be adopted in studying cultural phenomena. The classical anthropological theories have been formulated based on diverse methodologies and methods that were in existence in literature. There was also debate among prominent social scientists and philosophers of social sciences during 16th century to 20th century, about methods of anthropology.

According to Schutz Alfred (1967), until 20th century, there was two main groups among social scientists regarding research methods which are being used in social science. The one group believes that as social scientists we should follow the research methods of natural sciences that are being used currently, because the research methods in natural sciences are evident with their maximum successfulness. Because of rapid and continuing development of natural sciences, we can borrow and follow those ideas, methods and methodologies from natural science to social science. Contrarily, the opposition group believes that social sciences should have unique research methods and methodologies according their objectives (Uyangoda 2015).

Unlike in the natural science, the philosophical interest in the social science and the social science interest in philosophy are actually not very old. It began only in the 19th century along with emergence of the idea that the study of society should be a "science". As many social

thinkers saw, great strides in the human knowledge concerning the natural world had been made by 18th and 19th century, notably, astronomy, biology and chemistry. Thus, as argument developed among some social thinkers to the effect that the methods of the natural science could fruitfully be used in the systematic study of human society as well. The emergence of modern sociology as a 'science of society' was one of lasting consequence of this shift to the adaptation of the "Scientific Method" empiricism in the study of society. Auguste Comte (1798-1857) and Emile Durkheim (1858-1917) in France were pioneers in this effort to make the study society a science, grounded on empiricist assumption.

Eventually, positivism established its meaning in the epistemological and methodological debates as the application of the empiricism in the social science society" (Uyangoda 2015). The same approach and begging was in stating anthropology as new discipline in Europe after few years, sociology was began. Not only classical anthropologist but also many of sociologist borrow both methodologies and ideas from natural sciences when the period of begging of those disciplines emerged. The discipline of anthropology and classical anthropologist got a boost from the philosophical movement of the 18th century called the enlightenment in Europe with political, economic and regional revolutions. In this paper, it is expected that to discuss how classical anthropologist borrows ideas and theories from hard science, because of that reason, over the years, can be seen the development of different schools of thoughts in the discipline of anthropology. Some important schools in anthropology which created to explain the concept of culture, were affected directly with ideas and theories from natural

science, like; school of evolutionism, school of diffusionism, school of functionalism, school of structuralism, neo-evolutionism and cultural relativism. The main theories in anthropology that are still in using were created based on those philosophical schools. The remaining sections of this article concentrate on critical evaluation on the main themes of these schools.

2. ADOPTED METHODOLOGY

As the main objective of this paper is to present how natural science ideas and theories have affected classical Anthropologist to build up classical Anthropological theories. In this study special focus has been given on to the concept of culture within the subject context of cultural anthropology. The historical comparative methodology was used for comparing theories among the social science and natural sciences. In other words, the adopted approach in the work could also be considered as ex-post facto study. Because, the work reported here is an attempt to get comprehension into consequences of adoption of social and in particular anthropological theories with the basis on natural sciences in knowledge discovering processes of these disciplines. The initiative taken in this work is to be complete a research design in line of pseudo experimental study.

3. RESULTS

School 01: Evolutionism

The school of evolutionism, was created by mainly E. B Tylor and L.H Morgan to explain the concept of culture. This school is one of very first cultural anthropological school that explains how culture is developing gradually.

The main protagonists debatable of the theory evolution are Herbert Spencer and Charles Darwin (Diah et., al 2011). Many people are talking about it's a theory whom Charles Darwin only made but Spencer was one of the principal proponents of evolutionary theory in the mid nineteenth century, and his reputation at the time rivaled that of Charles Darwin. Darwinism is a theory of biological evolution developed by the British naturalist Charles Darwin (1809–1882) and others, stating that all species of organisms arise and develop through the natural selection of small, inherited variations that increase the individual's ability to compete, survive, and reproduce (Darwin 1859). The term biological evolution represents the mechanism of gradual development of living organisms. This is the process through which simple things, over the time, become complex.

The British naturalist Charles Darwin, in his extraordinary classic titled *On the Origin of Species (On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life)* depicted the evolution of the biological organisms existing in the world. The brilliant idea of Darwin published as a book in 1859. This landmark work immensely influenced the then scientific community of that time. Darwinism also overlapped the previous theory of Lamarck is best known for his *Theory of Inheritance of Acquired Characteristics*, first presented as a book in 1801. The theory of evolution became natural science paradigm after few years and the basic philosophy in evolution has been affected many other disciplines including many social sciences. The ideas barrowed from Natural science by many social scientists. Herbert Spencer (also known as an evolutionist) is the whole thing had huge effect

in the American and the British sociology and anthropology, he applied this theory to his explanation of the gradual development of the culture of human society. Scholars like E. B Tylor from his famous book of Primitive culture (1871) was published in 1871. E. B Tylor got influenced by the revolutionary philosophical development of the nineteenth century after the enlighten period.

Manly Tylor was influenced by the Theory of evolution of Charles Darwin. If we concentrate on the world history of that point of time, we shall find out that in that particular era, English people were mainly concentrating on expanding their political territory through massive colonialism (Diah et., al 2011). The main idea of his book is to explain about the evolutionary steps of human culture; the culture was gradually developed as same way of how biological organisms were developed. To explain the cultural development, he uses the idea evolution, which he taken from natural science and apply with cultural anthropology first time in the field of Anthropology ever. Tylor proposed that the idea of unilineal evolution in the field of cultural study. According to him, a society's evolution is unidirectional and it passes through three different stages one after another: the savagery, the barbarism and the civilization. According to Scupin and DeCorse (2012; 281): "L.H Morgan was pioneer American anthropologist who also interested in the evolution of a number of specific things. He also got influence ideas from natural science in the same period when E.B Tylor was in Great British. According to theory of Morgan, he listed them as follows: Subsistence, Government, Language, the Family, Religion, House Life and Architecture, and Property". For example, in terms of the evolution of the family, by examining the

Hawaiian society, Morgan anticipated that human beings of the past used to live in the 'primitive hoards' where they used to practice unregulated sexual behavior and as a result, people could not identify their own fathers (Scupin and DeCorse, 2012). According the school of Sociocultural evolutionism, there was huge impact from Darwinism. This school is explaining how cultures in the world were made and developed. Classical anthropologist who wanted to explain culture by scientific approach. There were thinking that the best way to study the concept of culture somehow Charles Darwin explain the theory of evolution. The theory was based on many evidences and gave many explanations to face its criticism.

School 02: Sociocultural Neo-evolutionism

There were many criticisms were faced by Sociocultural evolutionism school after few years the idea was created. This school of thought is termed as neo-evolutionism because it was created for facing all criticism which evolution faced. After the Second World War, the highly criticized issue of evolutionism again got a momentum by some new anthropologists (Diah et., al 2011). The main theorist in neo-evolutionism was Leslie White was an American Anthropologist. He tried to highlight the factors like energy use and technology as the main causes of cultural evolution and change. According to White, the cultural change be subject to on the per capita use of energy in a year in society. If this per capita energy use increases, change happens rapidly. For example, in the hunter and gatherers society mainly Australopithecus society, people only used human energy and could not use any other energy like animal energy for agriculture or transportation (Diah et., al 2011). In the agricultural society, people could use their own

energy plus the energy of animals and plants. As a result, cultural change happened and had more development than past. In the modern industrialized societies, people are using diverse sources of energy like fuel, gas, electricity. As a result, there was a huge transformation and development in culture and society. The more complex the use of technology, the more complex becomes the cultural development, the type of machines, devices and tools also was changed. It is to be mentioned here that Leslie White did not mention about any particular case or culture when describing this evolution (Diah et., al 2011).

The Sociocultural neo-evolutionism was faced less criticism than evolution, but both theories were borrowed basic idea from natural science and natural scientist like Charles Darwin. The Sociocultural neo-evolutionism was used by many Archaeologist to explain how to develop the human culture from very primary stage. That school also compared the cultural development of human society and biological evolution and its relationship. This school is very impotent to explain about the development of culture.

School 03: cultural relativism

This school also created by classical anthropologist is to explain a person's beliefs, values, and practices should be understood based on that person's own culture. Albert Einstein who made of relativism it's a brilliant theory in the subject physics anyone ever had. It became the main paradigm in the hard science and it has affected so many areas other than natural science. Relativism is the idea that views are relative to differences in perception and consideration and there is no universal, objective truth according to relativism; rather

each point of view has its own truth. The theory of relativity usually encompasses two interrelated theories by Albert Einstein: special relativity and general relativity (Schiff 1960). Cultural relativism is the idea which was created based on the idea of Albert Einstein that explain a person's beliefs, values, and practices should be understood based on that person's own culture, rather than be judged against the criteria of another (Hofstede 1984).

It was established as axiomatic in anthropological research by Franz Boas in the first few decades of the 20th century and later popularized by his students. Boas first expressed the idea in 1887: "civilization is not something absolute, but ... is relative, and ... our ideas and conceptions are true only so far as our civilization goes". But, Boas did not coin the term. Neither did the 21st century relativist James Lawrence Wray-Miller. The first use of the term recorded in the Oxford English Dictionary was by philosopher and social theorist Alain Locke in 1924 to describe Robert Lowie's "extreme cultural relativism", found in the latter's 1917 published the book *Culture and Ethnology* which explain the cultural and its relativism. Relativism which originated in hard science as well as it was affected to build up the theory in anthropology.

School 04: School of functionalism

This theory was created by classical anthropologist is to explain how cultural organization are spread out, what are the duties of each cultural organization in the culture and why cultural organization are persisted in the particular society. When studying particular culture, the matters mentioned before were important. Anthropologist in the classical age, tried to explain the basic functions of each

organization in any culture. The base of functionalist theories was the organic theory that can be seen in natural science primarily. The school of functionalism has been created based on the concept of "In somewhat simpler terms: just as an individual human being constitute a finite system with a distinctive structure- each organ performing a particular activity, the function of which is to contribute to the maintenance of a system as a whole so a human society constitutes a similar system with its distinctive structure and functions" (Langness 1974; 87).

The base of functionalist theories was the organic theories. By comparing the society and its functions with the biological organisms it was said that just like a living body of any living organism, the culture also has different parts that are interrelated and each of these parts has some specific functions to be performed, and if some part in the body not working well, it can be affected to process of whole body and its function. Functionalist believed that the same way, how culture running out, if some part in the culture not working well, it can be affected to whole process of society. The functionalism was made huge influence to Anthropology, Sociology and Philosophy as well as some other social sciences. This school was thinking that the culture as organism. functionalism 'looks for the part (function) that some aspects of culture or social life plays in maintaining a cultural system' (Ember, Ember and Peregrine 2011; 21). In case of the society, these body parts are the several institutions that perform several functions. Social institutions represent a 'set of ideas about the way a specific important social need ought to be addressed'. The pioneers of sociologist like Auguste Comte, Herbert Spencer, Emile Durkheim were the main proponents of the structural functionalist

school in the subject sociology. In anthropology, the main scholars of this school are A R Radcliffe-Brown and Bronislaw Malinowski. Both of them are regarded as the leading ethnographic researchers of all time (McIntyre2002; 106). The school of functionalism was main theory in both anthropology and sociology until today. According to its meaning of the name of school, this school was created to explain the functions of part of culture. The both school which mentioned before were explained how cultures were developed but this school was created by classical anthropologist to explain the function of part of cultures. This school also created by classical anthropologist based on the idea which borrowed from natural science.

School 05: School Diffusionism

This school was created by classical anthropologist is to explain how to spread out cultural things from one to another. The meaning of term diffusion from Latin word, *Diffundere* that mean "To Spread way out" (Diah et., al 2011). The concept diffusion is in natural sciences, the net movement of molecules or atoms from a region of high concentration, to a region of low concentration, as a result of random motion of the molecules or atoms. Diffusion is driven by a gradient in chemical potential of the diffusing species. The idea of concept diffusion was applied by many other areas by many aspects to explain how things changes or happened. The anthropology application of concept of diffusion is to explain how cultural things are spread out in the world. Furthermore 'the spread of certain ideas, belief, knowledge, customs, or practices from one culture to another'. Diffusionism one of main philosophical school of anthropology thought commenced growing in the late nineteenth and

the early twentieth centuries in the western world (Ember, Ember and Peregrine, 2011). Among the school of diffusion, mainly two different school can be identified: the British school and the German school. Diffusionists like G. E. Smith and W. J. Perry from British school believed that in Egyptology and they proposed that every aspect of the civilization (from technology to religion) actually originated from Egyptian civilization and later it got spread out to other parts in the world (Scupin and DeCorse, 2012).

The ideas of British school no longer valid, because In their effort to clarify the fact that why some cultures do not possess any sign of the Egyptian culture, they said that ‘some cultures have simply become degenerate and have been made lot of their own inventions’(Scupin and DeCorse, 2012). This view was mostly criticized because it was considered as ethnocentric idea and they treated Egypt as the origin of every culture and paid less attention to other civilization and their own inventions. The German diffusionists believed that there were many powerful cultural centers in the world and cultural diffusion occurred from these powerful different cultural circles to other culture. There is another diffusion school was built in America by one led by Clark Wissler and Alfred Kroeber. The school of diffusion also criticized later by anthropologist due to few circumstances but even today, the idea is important to explain how cultural things are spread out. This school also created based on the basic idea from again natural science.

4. DISCUSSION

The main five philosophical school in cultural anthropology which help to understand the

concept of culture, were created by classical Anthropologist during the 19th and 20th century. The period of 18th, 19th and 20th centuries were important period for building up all empirical disciplines both natural and social science. Anthropology is very young discipline when compare with natural science. Many anthropologists in very early period of anthropology emerged in west, used different type of research methodologies to conduct ethnological research. Early anthropologist did not depend on field studies or any other empirical data for their research or build up theories. Those kinds of studies considered as armchair studied and criticized those theories by many later anthropologists. There were few major problems which faced by classical anthropologist.

01. what are the methodologies can be used in Anthropology?
02. what are the methods can be used in Anthropology?
03. Is it not possible or possible to use theory, idea, methodology and method which are using in natural science by Anthropologists?

Classical anthropologist who live in early period of development of anthropology were influence by natural sciences theory, idea, methodology and method. In this paper we hoped to explore how natural science ideas effected to develop theories in cultural anthropology. It's very important to re-exam the mentioned problems which faced by anthropologist during the period of beginning of anthropology. In this paper, its explored key six classical anthropology theories in cultural anthropology which help to explain culture still today. The basic table explain that how the ideas from natural science were taken by classical anthropologist.

Table 01: The type of idea from natural science borrowed by classical anthropologist to create theories to understand concept of culture.

Theory in Natural Science	Borrowed Idea	Theory in Anthropology
Evolution by natural selection	Evolution	Sociocultural evolutionism
Evolution by natural selection	Evolution	Neo- Sociocultural evolutionism
Functionalism	Functionalism	Functionalism
Relativism	Relativism	Cultural relativism
Diffusion	Diffusion	Cultural Diffusionism

5. CONCLUSION

The anthropological theories were made by classical anthropologist in the 18th, 19th and early 20th century was influenced by natural science ideas. The few matters that can be identified why that kind of influence was taken by anthropologist in that period. Firstly, the methodologies also were used by classical anthropologists were influence by natural science. The 18th century when anthropology was emerged in western world, the natural sciences have shown its maximum successfulness. The industrial revolution could change many views and knowledge regarding many other disciplines in the world. Industrial revolution could make world easy and comfortable. Anthropologist and other social scientist realized that the development of the industrial part mainly technology in the world due to the methodology which use in the field of natural science (Empirical Research). There were many theories also build up in the natural science after enlighten period (like Evolution, Relativism), those theories were able to explain many complicated things what people not able explain even by religion or any other way.

Those theories were accepted by many other scientists and consider as paradigms of knowledge. Not only scientists, but also ordinary people also accepted those theories. The basic meaning of second point is the natural science theories could help to explain many unsolved problems (Origin of modern human explained by evolution). Anthropologist also wanted to created theories to explain how culture is working and human behavior. They also wanted to generalized the human behavior by their theories and applying empirical methodologies to cultural studies. With or without field studies, classical anthropologist who created theories followed by natural science ideas as mentioned. They wanted to create universal theory for studying human behavior. But many theories were created in that period was highly criticized later. The empirical research methodology or ideas were not able to get proper knowledge on human behavior.

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