

## The Symbiotic Relationship between Liberal Studies and Science

Jim I. Unah, Professor of Philosophy, University of Lagos, Nigeria

### Abstract

The **Artistic** and **Humanistic** studies (liberal studies) and the **science** and **technology** disciplines (science) constitute the two dominant cultures in a modern university. Subsumed in these cultures are the professional disciplines of law, architecture, engineering, medicine, accounting, administration and a few others. Essentially, the university idea emerged from the desire to integrate all academic cultures. However, an emerging trend of erecting a dichotomy between these cultures, is beginning to spin controversy, brew academic suspicion and slice off the integrative intentions of the university idea.

The responsibility of **liberal studies** is to develop the academic disposition, to awaken human curiosity, inquisitiveness and creativity, by promoting human values and expressing the spirit of man. **Science** and **technology** culture is to leverage on the **artistic** and **humanistic** orientation to elevate our standard of practice, our ways of doing, to higher pedestals.

This paper argues that neither the **liberal** orientation alone nor the **scientific technological** culture exclusively could guarantee the well being of humankind. While it is the responsibility of the **humanities** to elevate the individual to freedom, it is the obligation of **science** and **technology** education to catapult humanity to its proper comfort and happiness.

While **artistic-humanistic** productions should more radically envision a world of mutual interdependence, of shared values, of reciprocal solidarity and a commitment to the aspirations of a common humanity, **scientific-technological** studies and proposals should demonstrate how outputs-outcomes are adverted to the promotion of human values and virtues, and how they assure the survival of the human race.

This paper likens the emerging dichotomy between the **two cultures** to the dichotomy between **mind** and **body**, a dichotomy that developments in cybernetics and parapsychology appear to be grappling with. The **two cultures** have the obligation to develop the two parts of human nature. To develop one part to the detriment of the other is to demonstrate prejudice in examining the **mind-body** relationship and, by extension, to seek to abolish a vital part of our humanity.

### Introduction

Coming from a third world University, though rated as one of the best in our clime, I count it an honour to be invited to this edition of the Oxford Round Table to rub minds with you on one of the crucial issues in the front burner of university education in the world today. Indeed, it is because I count it a great honour to be here that I was able to squeeze water out of rock to generate fund to attend this forum.

Income in many African universities is meagre, and by extension, funding for this sort of academic intercourse is grossly inadequate [Osuntokun, A., 2006, p.16]. To add insult to injury, you are further depressed if you are a scholar of one of the disciplines in the liberal arts (say, Philosophy) considered by many in our shores, including colleagues in the sciences and professional studies as recondite. Liberal arts is perceived as a luxury and a troublesome and meddlesome academic endeavour because of the inquisitiveness and critical attitude of its practitioners; characteristics that, in other climes, endear Liberal Studies to humanity.

These preambular statements may seem out of character, but they serve to illuminate one of the key points of this paper that deliberate under-funding arising fundamentally from ignorance which has considerably diminished the significance and contribution of liberal studies to society,

whereas in point of fact, it (liberal studies) ought to be the animator, illuminator, guide and guard of science and mankind.

It is to the task of calling attention to the need to liquidate ignorance and cultivate the intellect to capture the symbiotic relationship obtaining between liberal studies and science that this paper is directed. Accordingly, I begin by expressing my understanding of the concept of the university. I lay out the scholastic components of the university and the structural content of the two major cultures of liberal studies and science therein I highlight what I consider to be the responsibility of and the relationship between liberal studies and science, which ought to elicit fair and equal treatment of the two cultures. I connect the tension between the two cultures to the mind-body problem. And finally, I show that developments in cybernetics and parapsychology or psychical research have thrown new insights that attenuate the mind-body dichotomy, which, by extension, ought to ease out the tension between liberal studies and science.

### **The Concept of the University**

Historically, the concept of the University developed from a humble beginning with the establishment of the Academy by Plato in the Olive grooves of Academicus on the outskirts of Athens (Greece) in the 4<sup>th</sup> Century B. C. In the Academy, Plato taught courses in all branches of Philosophy including Mathematics and studies of natural phenomena, “using observation and deductive reasoning as tools of analysis” (See Ajayi, J. F. A., 2001, pp. 1-2; Osuntokun, A., 2006, pp. 10-11).

However, the culture of debate and critical enquiry amongst the Greeks started with curiosity and wonder about natural and social phenomena and about the meaning of concepts culminating in the birth of the Academy and the Lyceum, institutions in Ancient Greece historically acknowledged as precursors of modern universities.

The pre-Socratics, [i.e. the Milesians, the Eleatics and the Sophists] all wondered aloud in the village square about the ultimate constitution of the universe, about the ultimate nature of things, about the nature of concepts and about the structure of the human society. They wondered about the fundamental building block of the universe, what constituted valid public information (knowledge) which can be stored and transmitted to generations and what constituted the bond that bound society together [Russell, B., 1979, pp. 44-48; Cf. Omoregbe, J. I., 2002, pp. 3-29]. Plato and Aristotle reasoned that the best way to immortalize the intellectual curiosities and wonders of the Athenians was to create the suitable ambience to formalise and integrate all forms of knowledge. This was how the great Academies and Lyceums and the universities of mankind developed.

Ever since then the university has come to be conceived, as an “open community” where the culture of teaching, learning and research under a master professor result in the cultivation of the intellect, the liquidation of ignorance and the dispelling of illusions. What defines the character of a university professor professionally is not that he is a husband of one wife or that he is a good father of children or that he hails from a dominant ethnic nationality. What defines the character of a university professor professionally is that he is a principal expositor of a system whose

intellectual outputs result in the liquidation of ignorance and in the dispelling of illusions (Cf. Fahm, L. A., 1978, pp. 3-4).

Jacques Barzum and Robert Oppenheimer have been quoted to have characterized the university as the institution of scholars and students from everywhere for the fostering of a tradition of explicitness, of clear expression and articulate precision, of inquiry and debate — a place to develop the ability to judge experience wisely, with a capacity to weigh the implication of actions and utterances of others; a place “to develop matured convictions and gaiety of mind, intellectual passion and search for essence”. It is “... a place where the individual man can form new synthesis, where the accident of friendship and association can open a man’s eyes to a part of human life remote and perhaps superficially incompatible, which can form in men their harmony and their synthesis” (Cf. Fahm, L. A., 1978, p. 4).

Fahm sums up the matter thus: “the primary responsibility of the university to itself is the fostering of a true tradition of intellect. The foundation of this tradition is understanding; understanding in its widest dimensions: understanding nature, understanding human nature, understanding the material nature, understanding what is the essence of life. The quest for understanding requires systematic explorations, which are necessarily centralized where, learned men are together — that is, in colleges and universities, which are, by virtue of their tradition, “open communities” (Ibid. p. 6).

Furthermore, the university has been conceived as a place for the cultivation of “minds eager and able to test claims and theories against observed facts and adjust beliefs to the evidence, minds capable of logical analysis and fully aware of the nature and virtue of exact measurement” (Cf. Oladipo, O., 2007, p. 11). In Oladipo’s view, a university takes proper shape if it is conceived in terms of a culture of systematic investigation of natural and social phenomena which employs reason to conceive the possible solutions to problems; a culture that promotes a “clear awareness of the intercourse of disciplines and a strong appreciation of the need for a rational, analytical and scientific orientation in education” (Ibid. p.10).

In Joseph Kenny’s adumbration of John Henry Newman’s conception of the role of a modern university, the following points consistent with earlier submissions are worthy of attention: The university is a place in which to teach universal knowledge (not necessarily a haven for research) where universal knowledge embraces all knowledge from literature and history (the story of man), science (the story of nature) to theology (the story of God), with interdisciplinary intercourse to transcend the mere acquisition of professional skills and narrow competencies such as the cramming of facts to a liberal, synthetic, critical mind attracting students and renowned professors from far and wide (Kenny, J. O. P., 2007, p. 19).

The point in all of these is that generally, the universities are or should be designed to accommodate a wide range of courses in their academic offerings, embracing courses in the Humanities and the Sciences. In all of the above conceptions, there is no suggestion that some disciplines are more worthy of pursuit than others. Rather, what is envisaged in all of the above conceptions is the emergence of recipients of university education who embody the syntheses of the two cultures in their vision of life and society.

## **The Unity of the Arts and the Sciences**

Liberal orientation rekindles human curiosity and inquisitiveness, which animate the spirit of inquiry and creativity. This is why the sciences and the humanities were originally united in the activities of early Greek thinkers, and the offerings of THE ACADEMY. The seeds of curiosity and inquisitiveness sown in the intellect cultivated by liberal orientation germinated scientific and technological rationality and inventiveness. The Greeks were both rationalistic and scientific. Originally, Philosophy encompassed all forms of knowledge from rhetorics (eloquence of speech) through history, theology and logic (organum) to algebra, astronomy, mathematics and nature study. The philosopher was a human encyclopaedia of knowledge because he was versed and versatile and was supposed to be on familiar terms with everything.

In course of time, however, there arose the need for division of labour and specialization of functions. The universe was becoming increasingly difficult and complex to grasp by the “epistemological resources of a single, isolated knowing subject”. Reality was becoming ever so fluid in the Heraclitan universe of flux, which made it impossible for any one individual mind to arrest, digest and regurgitate. Consequently, Philosophy, the parent discipline, inevitably fragmented into regional specialities resulting in the emergence of Liberal Studies and Science. And so it happened that the great Academies and Lyceums of the ancient world and the modern universities developed to integrate and teach universal knowledge. Universal knowledge should embrace “the rational, the analytic and the scientific” as well as the “synthetic and creative, the free and constructive”.

Gradually, with the passage of time, the University idea became more clearly defined to embrace studies in Liberal Education and the Natural Sciences.

Liberal Education consisted of studies of the Classics, Philosophy, History and, of course, Religious Studies... Professional courses such as Engineering and Medicine were new additions to academic offerings in the University system.

In modern times, courses such as Political Economy... have been included in the University curriculum as Political Science and Economics. Even the study of History has now produced off shoots in Sociology, Anthropology, International Relations and even Strategic Studies... Without the knowledge of History so much would be missing in terms of human civilization because advancement in knowledge is based on what happened in the past. It would not matter whether we are talking of Medicine or Engineering. In other words, all knowledge is historical (Osuntokun, A., 2001, p. 11).

The point of interest in Osuntokun’s intervention here is that all academic pursuits originated from or are off shoots of Liberal Education. The point made about all knowledge being historical is even more valid for Philosophy and Language Studies. Debates and decisions about first principles, about fundamental assumptions and presuppositions, about methodology of enquiry, that is, about deductive and inductive inferences and about clarification of concepts in any

discipline are philosophical. And to the extent that all thinking and theorizing are communicated in language, Language Studies become indispensable tools in the study of science. This is why we often speak of the grammar or language of science. No science can be a science if it is not communicated in language with the appropriate linguistic registers of liberal offering. Concepts and the sentences in which they are presented constitute the metalinguistic input into science without which no science can take its rise.

Again, to draw valid conclusions from observations of phenomena and, by extension, to arrive at “quantitative laws governing a number of isolated particular facts” [Russell, B., 1962, p. 21], you need to present them in time sequence, in temporal phases, and this is historicity in science. This is added to the earlier point made that progress in scientific knowledge is built on the foundation of the activities of scientists and even of non scientists alike, in the past, thereby making all scientific episodes and epochs; and indeed, all knowledge, historical.

Consequently, abstract ideas of pure reason (arising from philosophical disputations) communicated in language (arising from language studies) and presented in time sequence (arising from historical understanding) provide the platforms for scientific activities and accomplishments. The Science and technology encyclopaedia, for instance, underscores the instrumentality of language when it states that a science is characterized by the possibility of making precise **statements**, which are predisposed to some sort of check or proof.

Interestingly, early attempts of man at the development of the scientific outlook are traceable to the Greeks such as Thales, Anaximander, Anaximenes and Heraclitus who ridiculed the gods and the priests for their avarice, caprice and impotence. Greek science started as cosmology (inquiry into nature), which consisted of subjecting observations of natural phenomena to analysis and deductive reasoning.

In its early days, science was the product of curiosity, that is, the product of the urge to know. Science meant, (and still means), commitment and devotion to research. It is the “seeking spirit” for evidence and facts and concerned with what is “true or false”. It has been described as “trained and organised common sense”, the “critical and accurate observation and description of things and events” (Titus, H. H., and Smith, M. S., 1974, pp. 284-285). Science is the search for the kind of knowledge that establishes general laws governing a number of individual isolated facts. Strictly speaking, science is the “quantitative and objective knowledge of nature”. It is knowledge for its own sake without due regard for practical consequences.

This conception of science by the Greeks made sense because they had no need to explore the practical side of science. For with the exception of Archimedes who built an armoury through the elementary knowledge of science, the early Greek cosmologists did not see science as a technique or a way of doing things. They saw science purely as disinterested knowledge of nature. It is from this early Greek experience that modern universities developed the idea of science as those disciplines of mathematical, physical, chemical and natural sorts, which make a claim to exactness, objectivity and methodological uniformity. These sciences demand rigour and exactness and most of them lend themselves to laboratory experimentation. The social sciences are later additions to an expanded curriculum of science education.

From this, it is evident that the concept of science did not originally include or extend to the power and technique of manipulating things. The Greeks did not attach more relevance to one branch of knowledge over against another. The various branches of knowledge complimented one another in an amazing universe of diversity. The theoretical attitude was devoted entirely to making meaning and sense of an apparently meaningless and senseless universe. The Greeks, whose tradition tremendously influenced the Western European intellectual culture and humanism, never conceived knowledge in purely utilitarian terms. In one of Plato's dialogues, for example, the suggestion by one of the interlocutors that knowledge meant the acquisition of some skills met with the stiffest rebuttal ever [Cf. Cornford, F. M., 1967, pp. 21-22].

### **The Spread of a Dangerous Fallacy, Arrogance and Tension**

Thus, the interest of the Greeks in their scientific efforts was animated by a desire to assist men to have certain and genuine knowledge of things. As I mentioned earlier, the Greeks survived well on slave and exploited labour and so did not need to apply science as a technique for manipulating and controlling things. However, according to records, the first human beings to employ science as a technique were the Arabian alchemists who wanted to discover the elixir of life by attempting to transmute base metals into gold (see Jeans, 1961, p. 282). By pursuing such a line of enquiry, the Arabs discovered many facts about chemistry even though they did not arrive at quantitative, valid laws, upon which future predictions could be made. From this crude elementary effort it became evident that the link between science and technology is the link between knowledge of facts and the application of such knowledge to the development of skills and techniques to increase the quantity of things and reduce drudgery (Easlea, B., 1973, p. 276).

It is from this attempt to apply scientific findings to increase the quantity of goods and services and reduce drudgery that science became interlinked with technology. The interlinking and deliberate application of scientific findings to deal with a wide range of socio economic and political problems caused the relative balance between the Humanities and Science and Technology education to be thrown into a state of disequilibrium. Henceforth, the notion that a pecking order of relevance exists amongst the disciplines gradually began to spread. The assumption, for example, that Science and Technology education produce effects that are of more beneficial consequence to mankind than Liberal Education began to gain currency.

Differently stated, the notion that some disciplines are more important than others became widespread when the result of the findings of science began to be applied as technique for controlling and manipulating things. The outcome of that endeavour was so immense and dazzling that the worthwhileness of any theoretical pursuit began to be measured in purely utilitarian terms, giving rise to all variants of pragmatism, instrumentalism and the crass materialism of our time. Henceforth the relationship between Science and Technology education and Liberal Studies deteriorated from one of symbiosis to one of competitiveness and tension. Henceforth, research was deemed to make no contribution to knowledge if it did not appeal to the analytical and the empirical or if it did not address immediate material concerns. Proposals from the Humanities were required by Governments and funding agencies to square up with scientific paradigms of enquiry, and to demonstrate how the findings of philosophical research or historical study or, indeed, literary criticism, for that matter, would result in the aforesaid of the Sahara desert. On this Godwin Sogolo has the following to say:

The humanistic studies had to adjust to...new demands and values by seeking to formulate laws, which govern human behaviour and the organization of society. The new values imposed by this scientific revolution were utilitarian and a subject was deemed worthwhile of study if it imparted knowledge or skills that were of material benefit to man... the non-academic technical or vocational studies, which satisfied more, directly the demands of the new order were given priority in the educational curriculum. In today's society this has culminated in an alarming tendency to mechanical materialism, the assumption that science and technology alone are sufficient for man's development [Sogolo, G., 1981, p. 111].

Consequent upon the foregoing, Liberal Studies began to lose development and research funds to the more aggressive and more practical oriented Science and Technology disciplines. It is this, in my view, which partly form the background of the ongoing discourse on the **tension between the two cultures**. Thus, since mankind is inebriated with the explosive impact of modern science and technology especially those in the funding agencies, the **conversation** has become one of demonstrating the practical irrelevance of Liberal Studies, on the one hand, and that of accentuating the importance and dominance of Science and Technology education, on the other hand.

In short, according to Sogolo, as far back as the mid nineteenth century, Thomas Huxley and Herbert Spencer both English and probably Oxfordians played a spoiler role by enunciating a pecking order of worldwideness for the disciplines, resulting in the downgrading and relegation of the Artistic and Humanistic disciplines. Huxley and Spencer had argued that there was a way of conducting an experiment to establish the "value of disciplines so as to know which of them was more worthy of study". The way to accomplish this was to determine the comparative usefulness of any given discipline in the promotion of human happiness. Accordingly, Spencer set out five criteria for judging the value of academic subjects and placed the humanities at the bottom of the scale as "dispensable luxuries which can be neglected without loss", thereby spreading what has come to stay as "a dangerous fallacy of our time" (Cf. Sogolo, G., 1981, pp. 108-109).

The import of this is that the "overwhelming authority of science... has shoved aside the humanity of man and has made him an object that can be manipulated like any other part of nature" [Ibid.]. Yet, man's needs are many. The needs of man, which are basically satisfied by science and technology education, are largely material needs. But man's spiritual and intellectual needs and curiosities are left uncatered for even in the midst of material abundance. What this shows is that the nature of man which scientific and technological pursuits attend to is essentially different from the human nature that Liberal Education helps to develop. Thus, the view that academic pursuits whose results and benefits are quantifiable, measurable and calculable are the only ones worthy of our attention is indeed mistaken.

## **New Conversation and the Easing of Tension**

Unfortunately (or is it fortunately?), however, recent developments in Science and Technology education show that the **conversation** about relevance is changing even in the domain of the conquering disciplines in Science Education. A recent survey carried out in the United States of America shows that Engineers are rated lower than Scientists, nurses, teachers and medical doctors. This matter has become such a serious concern that “hundreds of millions of dollars are spent in the United States” annually to improve public perception and understanding of engineering.

As we speak today, according to the survey, engineers and engineering educators and their representatives are working in concert to let people know what engineers do and to foster a more accurate and positive impression of the engineering profession [Internet, 2008]. Now that the American publics have a poor perception of the engineering profession usually classified as part and parcel of Science and Technology education, would this warrant the under-funding of engineering programmes in the American Universities? Far from it. Instead, as the survey shows, more and more funds are being invested to improve public impression and understanding of engineering. This is how it should be. A similar attitude should be adopted towards Liberal Studies.

What should be of interest here is not the low rating of the engineering profession in the classification of Science and Technology education. It would tantamount to academic sadism for those of us in Liberal Education to take solace in the low rating of engineering. Two things are of interest here: The first is that any group of academics and their calling may be in danger of being downgraded or of extinction at any time depending on the mood and perception of worthwhileness or relevance by the dominant interests in society. The second point of interest is that the task of educating the public of the worthwhileness or relevance of any discipline and of promoting and sustaining it lies squarely on the shoulders of academics in the field in question.

Again, all pursuits are worthwhile and relevant. Is there no way of presenting a theology programme in the Universities to make it retain much of its strictures and simultaneously make it win respect, recognition and relevance both in town and gown? Are Philosophy, History and Language Studies not relevant and worthy of pursuit in our era? These questions are not necessarily for society and funding agencies. They are largely for academics in these fields.

Even if we can establish beyond reasonable doubts that different roles are assigned to the different disciplines whether they be Theology, History, Philosophy, Mathematics, Medicine or Engineering, academic disciplines cannot, on their own, promote themselves. Nursing and Medicine may be more directly related to saving lives. But a poorly constructed hospital or medical school to which the builders did not apply the strictures of engineering designs, civil, mechanical or chemical, may collapse and destroy valuable properties and even compel the nurses, doctors and their patients to join their ancestors prematurely. In the same vein, how do we solve the uncertainty principle of the quantum theory in science without recourse to philosophy? How do we account for the progress recorded in science without the assistance of the historian? It goes without saying therefore that scientific activity is a human activity affected by the offerings of the humanities or liberal studies.

## **The Role and Responsibility of the Two Cultures**

Nowadays, disciplines have a responsibility both to themselves and to society. Basically, the function of Liberal Studies is to raise consciousness in every sphere of human endeavour. But consciousness raising is possible only when the mind or the intellect has been fully cultivated to think organized thoughts, which makes the synthesizing of experience possible. Organized thinking makes possible the organization of facts and the extraction of general principles or quantitative laws governing facts, which facilitates future predictions. In short, structured thinking makes analytic and scientific activities possible.

However, for the mind to be fully developed for organized thinking, it has to be rigorously exposed to experiences in all areas of human transactions. The task of exposing the mind to a wide range of experiences is best achieved through a broad based general education in History, Literature, Philosophy, Religion, Language Studies and the Creative Arts, which form the nucleus of the Artistic and Humanistic Studies, or Liberal Education. Exposing the mind to a broad based general education stimulates the urge to know and the spirit of inquiry, which promotes scientific and technological activities. Organized thinking therefore provides the intertwining of liberal humanism with scientific rationality.

It is the task of a fully developed mind or a highly evolved consciousness to awaken the synthetic and creative, the free and constructive in human beings to make the rational, the analytic and scientific activities of man possible. As a people thrive better on the material resources generated through the great accomplishments of its scientists, so will they depend upon the “mental horizons of its best or most educated” in searching for human values and the essence of life. So, the university must “generate a sense of human and social growth and development” by ensuring a balanced funding of both Liberal Studies and Science education. For, as Oladipo says, to fund science generously at the expense of liberal education would be “to prepare solely servants of the machine and the industry”, which would ultimately emasculate and disempower a whole people.

It has further been contended that while it is true that scientific and technological activities increase the quantity of goods and services for the comfort and happiness of man, it is the humanities that help to set the goals and ends to which scientific and technological accomplishments must be directed. Consequently, since human values power and drive the engine of scientific civilization, it is pointless to attempt to promote science by stagnating the humanities. It is not even possible to engage in scientific and technological activities if one is totally bereft of every iota of humanity. For, to become a natural scientist or socio scientist, one must first of all become man, and he cannot succeed in doing so without orientation in the humanities (Cf. Sogolo, G., 1981, p. 1).

Sogolo later classified human needs into the intrinsic and the extrinsic. The extrinsic needs, according to him, are within the province of science to satisfy. Such needs include material and physical comfort. But the spiritual, the intellectual and the moral needs of man are outside the constituency of science, and they have long been assigned to liberal education according to the history of scholarship (Ibid. p.112). And those intrinsic needs may even be stretched to

encompass the satisfaction of tastes and feelings, or the gratification of the senses, which Huxley and Spenser had derogatorily assigned to the humanities.

It can even be shown that the cultivation of tastes and the gratification of the senses may have some utilitarian value. A psychologically disoriented individual or a person who can hardly express himself clearly in any language or a man who is incapable of structured thinking, for example, cannot succeed in becoming a scientist. Perhaps more importantly is the final point made by Sogolo, that certain intrinsic values and virtues such as paying one's debt, keeping a promise, finesse of character, eloquence of speech, intellectual refinement and candour are treasured in human civilization for their own sake, beyond which further questions of worthwhileness or relevance is meaningless (Ibid. p.110).

Finally, Olatunji Oyesile reminds us that, "if we consider the limitations of science and technology inspite of their numerous advantages, we would be quick to realize that other methods of knowing are as important as the scientific method. Granted that the body needs material things, the soul also needs nourishing" (2007 p. 95). In concluding, Oyesile directs our attention to the insistence of Bertrand Russell that there is an over arching need for the evolution of a valuable society, in these words,

If we are not to fail in our endeavour to determine the value of philosophy, we must first free our minds from the prejudices of what are wrongly called 'practical' men. The 'practical' man ... is one who recognizes only material needs, who realizes that men must have food for the mind. If all men were well off, if poverty and disease had been reduced to their lowest possible point, there would still remain much to be done to produce a valuable society (Cf. Oyesile, O., 2007, p. 95; Russell, B., 1985, p. 89).

Russell himself had called attention to the need to check the increased manipulative power derived from scientific technique, and I quote:

Man hitherto has been prevented from realizing his hopes by ignorance as to means. As this ignorance disappears he becomes increasingly able to mould his physical environment, his social milieu and himself into the forms, which he deems best. In so far as he is wise this new power is beneficent; in so far as he is foolish it is quite the reverse. If, therefore, a scientific civilization is to be a good civilization it is necessary that increase in knowledge should be accompanied by increase in wisdom. I mean by wisdom a right conception of the ends of life. This is something which science itself does not provide. Increase in science by itself, therefore, is not enough to guarantee any genuine progress, though it provides one of the ingredients which progress requires (1962 pp. ix-x).

Elsewhere, Russell had cautioned against the rampaging science and technology culture (1976) and advocated the cultivation of political wisdom and political intelligence to prevent the

application of scientific technique from destroying all lives on earth, and assigned the task of breeding “men that would be less terrible than Tigers” to social and political philosophy (1961).

The summary of all this is that while science and technology education is about conquering and mastering nature for man’s development, empowerment, comfort and happiness, Liberal Studies is about consciousness raising and about the cultivation of the intellect to orient it towards wisdom and the “transvaluation of values” with a view to elevating the individual to freedom and society to a valuable community. None of the two university cultures, working exclusively, one in isolation of the other, can assure the comfort, happiness and the survival of the human race.

Perhaps, a fundamental way of calling attention to the need for equitable and generous funding of Liberal Studies and Science to ease tension and engender a culture of fruitful dialogue and robust academic intercourse would be to connect the matter to the mind body problem in philosophy, since it (Philosophy) is the base and the apex of all intellectual endeavours.

### **Liberal Studies, Science and the Mind Body Problem**

I see this whole competition for attention between Liberal Studies and Science as an extension of a more fundamental disagreement about human nature, that is, the disagreement between idealists and materialists about the actual composition of the human person. From antiquity, our thought processes and linguistic conventions recognize the different existences of mind and body, how be it, uncritically. This is what is regarded as the common sense view. It was, however, Rene Descartes who introduced and orchestrated the dualism of mind and body in Philosophy, which, curiously, later resulted in the popularisation of the creed that a symbiosis of mind and body establishes personal identity. In other words, there appears to be a structural interconnection between mind and body in such a way that a detachment of the one from the other would result in the loss of personal identity.

But the classic ‘mind-body problem’ has to do with the nature of the mind itself. In particular, are cerebral phenomena in any sense material? Does thinking work exclusively of the body? If so, *how* do thought and consciousness arise out of the same body?

Like some of those who are concerned about the humanities-science dichotomy, many of those working on the mind-body problem today believe that the mind is in some sense corporeal; but there is much disagreement about the outcome. For instance, some present the *mind-brain identity theory* to argue that mental states are simply special physical states: akin to the argument that liberal studies are subsumed in science and as such, they (liberal studies) do not require any special recognition.

Others argue that, although the brain produces mental phenomena, they (mental phenomena) cannot be explained in physical terms. Analogous to this in the humanities-science dilemma is that science cannot explain and control the process and relevance of liberal studies.

In philosophy, metaphysics provides the battleground for the mind-body imbroglio where the idealists and the materialists still struggle for an upperhand over each other. Idealism or the idealist emphasizes the fundamental role of ideas in the constitution of the world and in

mankind's explanation of experience. Idealism holds that ideas, as products of the mind, govern the world, and accounts for all objects in nature. Arguments soliciting the supremacy of liberal studies over the sciences (in the university) are neo-idealist. Idealism is opposed to materialism. Materialism is the doctrine that all of reality is essentially of the nature of matter, that ideas cannot be completely explained in their own terms without reference to the physical, and any idea or even any supposed ideal, which cannot be explained by means of physical proof, stands rejected. Those who supervene sciences over humanities in the university community are neo-Materialist.

It seems, however, possible, in an egregious sense, for us to speak of the mind of Plato separate from the body of Plato, as for instance when the content of the mind of Plato has been articulated in language and stored in a retrieval system such as books, journals, video tapes, CDs, et cetera, and, in short, used independently of the body of Plato in lectures, conferences, research libraries, et cetera. Such a content of retrieved mind may be regarded as intellectual property, which is, nowadays protected by law. In this sense, mind can exist independently of and outside the body, even in perpetuity. Intellectual property is the product of the human mind and such a property would remain in use regardless of whether or not the body of the mind that produced it had atrophied.

This line of thinking seems to subscribe to the creed of the immortality of the mind, where mind can be used interchangeably with soul. In my view, this is rather a thisworldly way of demonstrating the survival of the mind after the ceasure of bodily existence. Such a view would seem to satisfy the intellectual curiosity of persons who are not otherworldly oriented. Plato conceived a world in which eternal ideas constituted reality, of which the ordinary world of experience is a shadow. In modern times, idealism has largely come to refer the source of ideas to man's consciousness, whereas in the earlier period ideas were assigned a reality outside and independent of man's existence. In modern thoughts, the mind and the body, ideas and matter, idealism and materialism co-function in one form of symbiosis or another, as developments in cybernetics and parapsychology amply demonstrate.

## **Developments in Cybernetics and Parapsychology**

Cybernetics has been described as a science of control, which studies stability of the human body, based on the concept of feedback. Richard Gregory explains developments in Cybernetics thus:

Stability of the human body is achieved by its static geometry and, very differently, by its dynamic control. A statue of a human being has to have a large base or it topples over. It falls when the centre of mass is vertically outside the base of the feet. Living people make continuous corrections to maintain themselves standing. Small deviations of [posture](#) are signalled by sensory signals ([proprioception](#)) from nerve fibres in the muscles and around the joint capsules of the ankles and legs, and by the *otoliths* (the organs of [balance](#) in the inner ear). Corrections of posture are the

result of dynamic feedback from these senses, to maintain dynamic stability. When walking towards a target, such as the door of a room, deviations from the path are noted, mainly visually, and corrected from time to time during the movement, until the goal is reached. The key to this process is continuous correction of the output system by signals representing detected errors of the output, known as ‘negative feedback’. The same principle, often called *servo-control*, is used in engineering, in order to maintain the stability of machinery and to seek and find goals, with many applications such as guided missiles and autopilots.

The principles of feedback apply to the body's regulation of temperature, [blood pressure](#), and so on. Though the principles are essentially the same as in engineering, for living organisms dynamic stability by feedback is often called ‘[homeostasis](#)’, ... In the history of engineering ....

Servo-systems using feedback can make machines remarkably life-like. The first feedback device to be mathematically described was the rotary governor, used by James Watt to keep the rate of steam engines constant with varying loads....

The essential cybernetic philosophy of neurophysiology is that the brain functions by such principles as feedback and information, represented by electro-chemical, physical activity in the nervous system. It is assumed that this creates mind: so, in principle, and no doubt in practice, machines can be fully mindfu (Gregory, R. L., 2008).

The summary of Gregory’s explanation is that cybernetics entails the view that the activity of organisms, especially living organisms, could be explained wholly in mechanical, electrical and chemical terms. In other words, that “machines have been shown to display certain marks of behaviour which are hitherto regarded as characteristic of living things only” (Sluckin, 1960: 35). In Gregory’s words, machines are minds.

Cyberneticians maintain that the working of analogue and digital machines resemble the way that organisms work. They employ a whole range of discoveries from Psychology and Neuroscience as well as electrical, chemical and mechanical engineering to establish this point of view. This is to be expected because cyberneticians are largely physicalists (materialist in outlook), who are forever seeking an absolutely materialist foundation of things. However, its importance lies in the fact that it (cybernetics) is a convergence of several ideas from different, though related, disciplines. Its emergence has tended to provide new impetus and enthusiasm in research to overcome the “often deployed danger of narrow over specialization” (Ibid. p. 233).

The implication of the cybernetic theory that minds are similar to machines is that all earlier objections to a materialist theory of mind such as epiphenomenalism, it would seem, have been

severely undercut. Sluckin could not have put it any better when he wrote: “Thus, the objections of both the idealists or mentalists in psychological metaphysics, and the vitalists in biological-cum-psychological metaphysics to any form of materialism are undermined directly or by implication. By implication, although not explicitly, the answer is supplied to the whole system of philosophical disputes over the nature of causation, substance, consciousness, and volition, etc” (Ibid. p. 321). From this it is easy to see that cybernetics is a sophistication and perpetuation of the materialist tradition.

Fortunately, the cybernetic project does not imply that mind does not exist. It merely suggests that the mind is the product of physical processes of control and negative feedback mechanism. Even if it could be conceded that mind is the product of the working organisms of the body, does it imply that intellectual pursuits assigned to the humanities should be dispensed without loss? Even if the supposition that mental activities are generated physically is taken in good faith would that suggest that mental activities do not point to and even establish the existence of a realm(s) beyond the physical? Are there no mental preoccupations that account for occurrences that are not obtainable through the usual sensory abilities, that is, occurrences that are not accounted for by natural law and knowledge? Psychical research or parapsychology has answers in the affirmative.

There are paranormal phenomena and preternatural occurrences, which do not learn themselves easily to the usual explanatory models of science. The method of having access to them is called **extra sensory perception (ESP)**. These are the sort of things that psychical research or parapsychology deals with. Indeed, sundry items fall under extra sensory perception in parapsychology and they include all anomalous processes or outcomes generally called (psi), as expressed below:

- (i.) experimental study of purported psychic abilities such as **telepathy** (the knowledge of human thoughts with out sensory communication);
- (ii.) **clairvoyance** (the knowledge of physical objects without sensory aid);
- (iii.) **psychokinesis** (the ability to influence an object physically without contact with it), and
- (iv.) **precognition** (the knowledge of future events). [Internet 2008].

From the foregoing, it follows that parapsychology or psychical research is the study of human subjectivity beyond the conscious levels of memory, will power, thought and imagination to that subliminal level of the unconscious or subconscious mind. A normal act of consciousness will rely on the five senses to supply the intellect and the imagination raw sensory data so that we can idealize, contemplate or intellectualize. But in paranormal act of consciousness, we begin by shutting our physical senses out so that we can blank out our perceptive, imaginative and intellectual abilities from interfering with the process of subliminal meditation. Courtney Brown describes the process thus,

In normal waking consciousness, the mind is flooded with inputs from the five senses: sight, hearing, smell, taste, and touch. Most of our mental activity uses information from these senses. The raw inputs from these senses feed intellectual activities such as logic

and imagination. During meditation, however, the volume of these senses in the mind diminishes until they are eventually silent. At this point, logic and meditation also cease. What remains is not an empty mind, what remains is the mind's connection to what many meditators call a "field of consciousness" (1996 p.39).

In contemporary times, parapsychological (psychic) practice has found its way into science as a handy tool by the US to improve her spy network on enemy targets and on Extraterrestrials. The problem as it relates to spying on enemy targets is that: "Technological devices—no matter how cleverly they were concealed—could still be discovered, and the agent's life and information jeopardized, the challenge then is to develop a 'means of communicating information to Washington, D. C., without any physical apparatus'" (p. 39). In order to accomplish this task, there was the need to explore the world of parapsychology where training is gathered on how to "transcend conscious sensory processing by turning one's awareness away from the senses in order to perceive that which is nonphysical" (p. 39). This new process of spying on enemy targets and on Extraterrestrials is known as Scientific Remote Viewing.

As it is to be expected parapsychological efforts have attracted damaging criticisms in scientific and academic circles. Largely because of its uncritical association with other curiosities such as voodoo, occultism, unidentified flying objects (UFOs), abduction by extraterrestrial beings (which some have surmised to be witchcraft) and so on and so forth, parapsychology has been labeled as pseudoscience and the product of brain wave. In spite of this, organized psychical research gathered momentum as far back as 1885 with the establishment of the American Society for Psychical Research championed, at that time, by William James.

The parapsychological programme even attracted funds and fellowships in Harvard, Stanford and Clark early in the twentieth century. It was, however, Joseph Banks Rhine and his associates in the department of psychology in Duke University that promoted and popularized interest in psychical research Rhine is reported to have conducted thousands of tests with the students of Rhine University, some of whom achieve extraordinary result in card guessing. The results were later published and the methods used by Rhine and his students became standard experimental procedure and the term ESP came to be associated with psychic abilities (Internet, 2008). Experimental work was soon to be broadly diversified with researchers from different disciplines such as physiology, psychiatry and animal science attempting to apply the method of parapsychology (Ibid.).

## **Conclusion**

From the foregoing discussion, it is evident that neither mental (psychical) studies nor material science (accentuated by cybernetics) exclusively can claim a monopoly of knowledge of our ever unfolding and complex universe. Quite often, it is the so called brain wave stimulated in the non scientific realm of Liberal Studies that triggers off scientific inquiry. Quite often too, scientists at the behest of the humanities do take over the hunches, the curiosities and the "tentative guesses" pointed out by the latter to chart a new course and expand the horizons for further scientific accomplishments. The job of arousing curiosities and pointing out hunches and tentative guesses cannot be wished away or, rather, thrown away without loss to humankind.

Consequently, the practice of promoting Science and Technology education at the expense of Liberal Studies, and of generously funding the one and starving the other is ultimately not in the interest of humanity.

### **Postscript**

The next worry is this: Even if the point about the symbiotic relationship between Liberal Studies and Science is well taken and accepted as sacrosanct in academic circles, how do we sell the new conversation (conviction) to industry, employers of labour, funding organisations and government agencies who seem to have a preconceived notion of what they want and where to commit their scarce resources?

This question is important lest anyone be deceived that once academics unanimously agree that there is a need for equitable and generous funding of both Liberal Studies and Science, that such a conversation would be embraced easily by funding agencies.

The way to get around this problem, in my view, would be for academics in liberal education to get their acts together and be more proactive in designing multidisciplinary postgraduate curriculum and research proposals that neatly polish off the essentials of the specialized sciences and professional disciplines with three components namely (i) relevant ontological/methodological/axiological component, (ii) disciplinary content and (iii) practical orientation.

In this arrangement, section A of any given course should be taught by academics in the Humanities (say Philosophy), section B to be taught by academics in the discipline in question (say Business Administration or Engineering) and section C should be taught by any distinguished captain of industry where the knowledge acquired from sections A and B would be applied. Such programmes should be interlaced with the values and virtues of mutual interdependence, reciprocal solidarity, honesty, integrity, civility and courtesy.

Similarly, science and technology education programmes especially at the postgraduate level should be required to demonstrate how their outputs could promote emancipatory and liberatory values and how the outcome of such effort would result in the evolution of a “valuable society” in which human life is respected and preserved. Details of how such a curriculum could be crafted can be worked out by a Committee on Higher Education or an Academy closely associated with a prestigious society such as the Oxford Round Table. I understand that academic programmes in some universities have been redesigned to connect ontology to engineering. Such interfacing and networking of the disciplines would produce fruitful interdisciplinary dialogue between Liberal Studies and Science and hopefully result in the production of university graduates that are circumspect, well organized, and guided by reason.

However, the preference of postgraduate education to facilitate the new conversation in this intervention is supported by three reasons: The first reason is that postgraduate education is less subsidized, if at all, by governments and, therefore, less susceptible to strangulating control and regulation than undergraduate programmes. It gives academics and administrators more elbow room to manoeuvre and decide what they want and what would work. Secondly, in government controlled universities, especially African universities, postgraduate education is fee paying and

can easily sustain and fund itself relatively adequately. Thirdly, and, perhaps, more importantly is the fact that recipients of postgraduate education have greater capacity and maturity to absorb the fusion of the idealistic humanism of Liberal Studies with the mechanistic materialism of science education to power and drive industry and society with the synthesis and synergy of mind and body.

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