IS SCIENCE THE NEW FUNDAMENTALISM?

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INTRODUCTION

For many, if not most people in the Anglo-phone countries there is a preoccupation with various aspects of fundamentalism. The focus is almost entirely on religious/theological fundamentalism and Islamic fundamentalism in particular. The focus is on those fundamentalists who engage in violence such as suicide bombings etc. The Taliban and Palestinian version of Islamic fundamentalism has become the public stereotype of religious fundamentalism, ignoring the fact that almost all religions have fundamentalist groupings within them.
However, there are many forms of fundamentalisms, including secular ones. These forms of fundamentalism are evident in the

- Personal
- Institutional
- National, and
- International Dimensions

TYPES OF FUNDAMENTALISM

Broadly we can identify

- Economic Fundamentalism
- Environmental Fundamentalism
- Religious Fundamentalism
- Scientific/Technological Fundamentalism

Others speak of

- Theological
- Political
- Cultural
- Global Fundamentalisms.

In each of these types there may be subdivisions such as managerial and market fundamentalism.

In this presentation the focus is predominantly on SCIENTISM, SCIENTIFIC FUNDAMENTALISM OR FUNDAMETALIST SCIENCE.

These ideologies are based on particular perceptions and interpretations of what Science is---or is supposed to be. Therefore it might be useful to examine in some detail the stated and widely “accepted” version of what Science is and what it is meant to offer.

WHAT IS SCIENCE? DEFINITION OF SCIENCE

Scientific knowledge has become the dominant discourse in the developed nations. Thus many people, scientist and non-scientists alike, view science, despite its limitations and imperfections, as the most superior form of knowledge available. Science is seen as both the accumulated knowledge derived from its enquiries and a method of gaining objective knowledge about reality through systematic observation. Science has number characteristics that distinguish it from other types of knowledge such as tradition, authority, experience, and commonsense.

Science is ***EMPIRICAL*** because it gathers evidence through the organized use of the senses, i.e., it is based on direct observation of the world. Although sense perceptions may easily be misleading in research, scientific observations are carried out according to a system of safeguards---the rules of evidence.

Science is ***THEORETICAL*** because it relies on and works with clearly stated propositions about the empirical world. These propositions or theories have, to some degree, been verified and continue to be tested through on-going empirical observations.
It is empirical verification that distinguishes scientific theory from theoretical speculations in philosophy and religion.

In science theory and fact are two parts of the same whole---there is no fact without theory and no theory without facts. Robertson succinctly states, " Facts without theory are utterly meaningless, for they lack a framework in which they can be understood.

Theories without facts are unproven speculations of little practical use, because there is no way to tell whether they are correct" (Robertson, I., 1987:29).

But theories are never true; they are merely stories that attempt to explain a selective portion of reality.

We create and rely upon theories because they usually work, most of the time, not because they are perfect or because they are the universal truth.

Science is concerned with the ***HOW AND WHY OF THINGS***. But it cannot settle debates and disputes about ethics, values and beliefs.
For example, the question of whether or not God exists is not a scientific question because it cannot be tested through observation.

It is a matter of faith, of value preferences, not of science.

HOW CAN NON-EXISTENCE BE PROVEN?

Science is ***OBJECTIVE*** and that refers to the attempt (and many claim achievement) to adopt an unbiased and unprejudiced approach in scientific research. In order to avoid the intrusion of values and biases that can lead to false conclusions, research

procedures are published so that other researchers can assess and, in some instances replicate the research.

Values and biases intrude mainly in the decision of what topics to investigate, which research tools to utilize, the interpretation of data and what is published.

Science is ***SYSTEMATIC***, that is, the procedures and research techniques employed by the scientist are oganised, methodical, public and readily recognized by others in the field.

Detailed reports on procedures used in gathering information and arriving at conclusions are made available which enables other scientists to assess whether the analysis and interpretation of data are warranted given the stated observations.

The other aspect of the systematic approach is the ability and need for REPLICATION--that is repeating studies numerous times in an attempt to reduce the chance of mistakes and misinterpretation.

Science is ***PROVISIONAL*** because scientific conclusions are always subject to question and refutation.

Science seeks to obtain ever more precise explanations without ever arriving at "THE TRUTH" or finding the ultimate and definitive solution.

Science is ***CUMULATIVE*** because the implementation of the scientific method builds on and increases existing knowledge, i.e., it is constantly added to, refined, and changed in accord with more precise evidence. In some instances this can lead to a reformulation of theory.

Science is concerned about ***CAUSE AND EFFECT.*** Scientists assume not only that the world is orderly in nature and that this can be discovered but also that all events have causes.

A few scientists, philosophers of science and sociologists have been more cautious about the fundamentalist claims of and the "objective nature"---unbiased, free of religion and/or ideologies, totally and honestly seeking the truth---of science.

Thomas Kuhn in his work *The Structure of Scientific Revolutions* makes a distinction between NORMAL AND EXTRAORDINARY SCIENCE. He points out that Normal Science tries to extend understanding and knowledge within the existing dominant theoretical frameworks, meta-theories or paradigms.

He argues that scientis are trying to match facts with the dominant paradigms----and that facts that do not fit the theory are either not seen or discarded.
Kuhn suggests that primarily science was trying to fit the pieces of a puzzle together.

So scientists essentially try to be puzzle solvers---they are not trying to solve unexpected novelties.

Outstanding scientific advances are made when a shift in the paradigm of a scientific community occurs. This "scientific revolution" normal science encounters anomalies that produce a crisis and leads to extraordinary science that produces a new paradigm which in turn becomes the paradigm of normal science.

Kuhn also suggested that, unlike the popular image of the lone, truth seeking, fearless and pioneering scientist and scientific community, a paradigm shift was always difficult and is essentially and fundamentally a political process. That is, it is a power struggle first and foremost within the scientific community and occasionally with other societal power brokers.

He also pointed out that being a scientist can be compared to being a religious person because there are paradigms held by a community of believers that takes the paradigm for granted and displays missionary zeal.

ETHICS AND SCIENCE

Despite claims to value freedom, to objectivity and so on ethics is a vital part of any scientific endeavor. Denying its existence and importance does not eradicate its existence and influence.

Ethics and values in science raise a range of important questions and issues such as which ethics.

In 1999 the World Conference on Science adopted the following as a guide to ethics in science

> *All scientists should commit themselves to high ethical standards, and a code of ethics---based on relevant norms enshrined in international human rights instruments---should be established for scientific professions.*

This immediately invites questions that require urgent answers.

> What are high ethical standards?
> Who decides this these standards?
> Who decides which ones are relevant?
> Does one ethical standard fit all cultures and societies?
> If one ethical standard fits all, who will impose mandated global ethical rules?
> Are we to create a new, global ethical police force?
> Who will be reprimanded?
> Who will report their violation?

Will the ethical standard be defined and enforced through peer review and self-regulation? We know that so far this has not been a successful approach.

CHARACERISTICS OF SCIENTIFIC/SCIENTISM/TECHNOLOGICAL FUNDAMENTALISM

A basic and strongly held part of any type of fundamentalism is the view that the "believers" are in possession of the truth and that they have the right, indeed duty to make everyone accept this and enforce conforming behaviour.

Compliance might be achieved through persuasion, psychological manipulation, economic, social and political pressure as well as brute force.

A fundamental and very important believe of scientific fundamentalism is the assumption that Science provides objective knowledge that is universally applicable and is able to solve most, if not all, problems, including prolonging life and even avoiding death and also to change gender etc.

Scientism's single-minded adherence to only the empirical, or testable, makes it a strictly scientific worldview.

Scientism argues for the rejection of most, if not all, metaphysical, philosophical and religious claims because they cannot be tested through the scientific method.

Essentially scientism sees science as the absolute and only justifiable access to the truth about the world and reality.

Scientism is also concerned with power in its various manifestations. That is, economic power, social power and very importantly power based on authority and knowledge.

In modern societies it is predominantly power derived from science—or what is defined as science, that acceptable knowledge. Thus the old adage that KNOWLEDGE IS POWER is a complex but observable fact.

Perhaps in our times we should acknowledge that a more accurate perception would be to that now it is THE CONTROL OF KNOWLEDGE THAT GIVES POWER. Tied in with this is also the notion that KNOWLEDGE IS MONEY which is exemplified by the competition among global, national and local financiers, research institutions and drug companies

Very disturbingly the scientific establishment has such power that this frequently determines scientific fact and excludes truth. Thus a relatively small number of scientists seem to control not only what may be accepted as knowledge but also huge research budgets.

This is not only detrimental to science but also constitutes a threat to democratic decision-making (Priddy,R.1999)

Scientific fundamentalism postulates certain rules that need to be followed and they are outlined below.

THE TEN RULES OF SCIENTIFIC FUNDAMENTALISM

1. Science holds the answer to all questions of life
2. Anyone who does not believe Rule 1 is not Scientific
3. Any evidence for intelligent design of the universe is not scientific
4. Any person who teaches there is evidence for intelligent design of the universe is not a scientist
5. Scientists know for a fact that matter is all there is
6. Anything which is not matter doesn't matter
7. Religion or religious impulse is the result of undesirable mutations in biological matter
8. Whatever is not science is religion
9. Only science may be taught
10. Stuff happens, but only by coincidence

(The Wall Street Journal (1993) Dow Jones & Company, Inc).

This was originally devised as joke but has, unfortunately, has become the mantra of scientific fundamentalists and atheists alike.

TECHNOLOGY

A close relative and part of scientism is the trust in technology as a means to achieving what the scientific perspective offers, asserts and promises.

Technological fundamentalism argues that like medical and other sciences it is able to provide answers for communication issues and problems, offer superior learning and teaching approaches as well as solving all of humanities problems through instant global information and various inventions and aids in medicine and other fields.

It should be noted that that information is usually ---and erroneously---identified as knowledge.

But information is not knowledge and knowledge is not wisdom.

Technology, like others sciences is depicted as being ethically neutral, distributing its largess to all who are willing to partake of it.

The faith in the benevolence of technology as well as science, and the evangelistic drive associated with this is both touching and worrying.

EXAMPLES OF SCIENTIFIC FUNDAMENTALISM AND IMPERIALISM

Science and fundamentalisms of all sorts claim to possess THE TRUTH and that this is globally correct and both perceptions and procedures are universally applicable. Cultural diversity and the like are simply unimportant.

HOMOSEXUALITY

For long historical periods homosexually was either classified as a sin or a psychiatric illness. With the claim by scientist to have detected the homosexual gene this "illness" could now be treated---and even prevented---through either genetic manipulation and/or other forms of medical intervention. For example, injecting pregnant women at the right time with male hormones---so it was claimed—homosexually could be avoided. The focus here is ---and remains--almost totally on males. Female homosexually was, and is not, not seen as an issue that requires treatment.

MALE VIOLENCE

Arguing that male violence is due to an extra chromosome, which means XYY genetically, conditioned those with this abnormality to violence—not much choice here. Can we change the chromosome? Well, this was abandoned largely because the claimed findings were based on a small sample of prisoners who served substantial sentences for violent behaviour.

GENETIC DETERMINISM/MANIPULATION

This is a favourite in Evolutionary Psychology and among a whole host of other scientists who claim that they can pretty much predict future behaviour, illnesses etc and argue for various forms of intervention. Genetic manipulation, organ transplants and the like now enable a women long past her fertile period to carry a fetus to term---and indeed there is the claim that it will be possible for men to carry fetus to term in their own bodies. So far the latter has not been tested empirically through a lack of volunteers.
Issues of Alzheimers, Cancer etc

GENDER

The scientific worldview defines and sees the human body as an object made up of transferable bits and pieces. Body components can be exchanges and replaced like spare parts.

Plastic surgery, breast and penile implants etc means that the body can be disassembled and reassembled as we see—or the scientist sees fit.
One of the very interesting arguments made by some prominent scientist and gynecologists is that
MENSTRUATION IS AN UNHEALTHY, UNNECESSARY AND UNNATURAL PROCESS.
IT IS SUGGESTED THAT THE MEDICALLY MOST ADVANCED TREATMENT FOR MENSTRUATION IS THE TOTAL CESSATION IN ALL WOMEN OF REPRODUCTIVE AGE.
A number of reputable magazines and papers have lauded this as a breakthrough for the improvement of women's lives.

The argument for this is on the assumption that in the Stone Age women did not menstruate monthly because they were always pregnant or lactating. (Lactation does not prevent menstruation or pregnancy.)

The answer to the "finding" that menstruation is"unnatural" and pathological" is that science needs to find a cure. And it has in the form of DEPO-PROVERA injections and the Pill.

There is already a brand name pill on the market to suppress menstruation and this is already promoted in the media.

Interestingly the promotion of hormone treatment to suppress menstruation comes at a time when senior women are encouraged to abandon HRT because of its dangerous effects on women's health.

In Japan female menstruation is seen as positive—entering the prime in a woman's life-- with few if any of the symptoms reported in other cultures.

Obesity issues

QUESTIONS

Who funds these scientists?

Is this really science –or the imposition of normative paradigms that are based on patriarchal assumptions.

A careful appraisal of the "facts" and "evidence" offered shows that they are more fundamentalist and patriarchal conjecture than objective empirically tested investigations and findings.

However, because scientists support this notion many people think that they are presented with real scientific results and with what is "real science".

CRITIQUE

In the Age of Science it is scientism's shamans who command our respect and veneration, e.g. Stephen Hawking. Many people have his famous book but very few seem to have read it and even fewer still claim to have understood it.
But Hawkins's fame is such that any of his pronouncements on a variety of subjects are taken as being scientific etc.

Some of the undue and overstated acceptances of so-called scientific utterances are certainly due the bestowing such esteem on scientists.

And in Hawkins case is part of admiration for the way he dealt/deals with his illness/disabilities.

Nevertheless scientism and technological fundamentalism strongly defend their position and claims.

With scientism as the foundation of the human story scientist can be seen as the Premier mythmakers of our time.

Science today has become magical and religious

> "Particle accelerators are cathedrals,
> Men in white coats are priests,
> The scientific literature is the gospel, and
> Television is the pulpit where scientists promise miracles in one breath and doom in the next." (Schwartz, J. 1992).

Scientific fundamentalism binds its adherents in the same way that religious fundamentalism does---by convincing them that their beliefs are the only correct ones.

But scientism is more dangerous than any other sort of fundamentalism because we are deprived of the means of recognizing it for what it is(Sadar,Z. 1999)

SUMMARY AND CONCLUSION

The natural science community is controlling much of societal opinion through the media, employment, lobbying etc. and this has a negative and narrowing effect on culture.
But this community seems to be virtually free of all but the obvious and peripheral democratic controls.
And yet science continues to be funded by governments and private corporations in areas that are profitable.
By contrast, sciences with critical and humanistic elements are significantly under-funded—if funded at all.

At its worst science is a new kind of repressive colonialism, imposing its mentality and aims via developmental aid on other cultures.

It would be well to remember "anytime we believe something, anytime we identify with a particular explanation, theory, equation, statement, myth, grouping, label or expectation, we are placing an extra filter between your perceptual systems and the fundamental nature of your reality (Hunter, M. 2003).

We often react strongly against religious fundamentalism, but we seem ever ready to swallow all varieties of scientific fundamentalisms.

Why is this so?

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