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Scientific Culture: A 21st Century View*

by
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to be presented at a function organised
by the National Centre for Science Communications
(NCSC) on the International Day of Scientific
Culture - A Plenary address.
on 28 Sept 2021

(Organised by NCSC and Guru Nanak
College of Arts, Science & Commerce)

Ther
Sukos, AP, Jayan
→ Speakers → scholars & praction

Much of what is in the 21st

Century now has been due to the
science, technology and industries which
began gained momentum during the
the early 20th Century, and they
had immense acceleration during
the second half the 20th century.

The nuclear bomb exploded
over Japan was in a ^{way} bad metaphor

miss
the expecte
of being with
many of you

for the ~~and an~~ explosive growth of human capabilities and activities.

Even human population grew from then to now ~~to~~ about 500% more. The 1957 space era saw a tremendous boost to ~~the~~ S&T, and associated industries and a major arms race, and "science" race. Many or

Many newly liberated nations saw S&T as a panacea for their economic growth and removal of ~~poor~~ poverty. Look at the number of statements by their political leaders. Thus ~~poor~~ grew a huge infrastructure for S&T and industries and agriculture with the use of S&T and health care services.

All the world's nations ^{together} ~~are~~ have about 7.5 billion population and

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~~many~~ may even reach 10 billions in a few decades.

What ~~the~~ are the new factors that are facing us now in 2021 and beyond, impacting what was called "scientific culture" or "science communications" as conceived in Europe, USA more than a century ago. One can write an ~~at~~ essay on it. I will mention a few here:

(i) There are many millions of scientific workers now using a broad ~~term~~ ^{meaning} of science including industries, health care ~~etc.~~ Many billions of people are benefiting from the fruits of their work, without any idea of what is the 'science' behind them. Many of them are also ready to believe that there are many ills coming from 'science' be it a flood,

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or a new disease etc. See for example the 'vaccine hesitancy' in the most advanced countries which were 'avant-garde' for "scientific revolution".

(ii) There are many nations which are, even perhaps 'anti-science', using ~~A~~ ^{merely} S & T_H as a machine for economics, military strengths and for keeping ~~the~~ population under severe ~~state~~ State control through tools of science. In this process, one of key assumption of scientific culture, that is, individual freedom is essential for ~~scientific~~ growth of science, discoveries and innovation, is under severe question, for those who have truthful mind.

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(iii) A large part of scientific knowledge is not ~~freely~~ exchanged due to the controls by the States, funding industries and various forms of Intellectual Property Rights (IPR) protections.

Also the dominant institutions of science, technology & innovation (STI) and the journals, mostly in the Western world ~~and their~~ ~~over~~ are suspected to be having their own opaque peer reviews and editorial practices of the journals. & COVID has exposed many of these faultlines.

(iv) The social sciences which have tried to adopt the scientific methods from the natural sciences appear to be split in many

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ways into 'ideological positions' rather than 'openness' to different approaches.

(v) Within this milieu comes the explosive growth of internet, mobiles, and various Apps to assist instant communications. They have also created a culture of 'instant gratification' 'one click' approach to many things in life, including the 'truth' as they want to get. Very few have the patience to read or listen to a full treatment of a subject. In the process minds of billions of persons including many youths are

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Conditioned, in a variety of ways. Algorithms by the tech-giants have become 'indoctrinators' as well.

Situation is such that many millions of 'elites' and 'opinion makers' ~~are~~ somewhat akin to the extremists who are trained in fundamentalist ~~and~~ hate-thoughts right from their childhood shutting out other ideas. They can still use all ~~gad~~ tools and ~~gad~~ gadgets of ~~S&T~~ derived from S&T!

It is important that persons who are behind these laudable endeavours, as in this seminar to address the scientific-culture, the gains of the approach,

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address the issues, I have listed
before with open mind. If my
facts are wrong or fears
exaggerated, I am open to
correction, even condemnation.
If I am wrong on all points,
I will be the happiest person.

What I have listed
about have been in my mind
for more than ~~a~~ quarter century
through ~~my~~ actual experiences and
writings of great stalwarts
of science. I have written
about them in my book
Empowering Indians ^{published} ~~by~~
~~Har Anand (2001)~~ with Economic,
Business and Technology
Strengths for the 21st Century
published by Har Anand (2001) Ref 1

Reviewed
by Dr.
Jeyaraj
in English
& Malayalam

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I ideally I would like to read out the full quote by Murray Cellman in his "Quark & Jaguar" (1994) (Ref. 2) which is in my book. Time is the limitation.

So I give some snippets of the "Quote" Unfortunately, that information explosion is in a great part a misinformation explosion. All of us are exposed to huge amounts of material, consisting of data, ideas, and conclusions — much of it wrong or misunderstood or just plain confused. There is a crying need for more intelligent commentary and review.

Then he describes in detail how incentives in academic systems are skewed against ^{quote} "that very

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~~act~~ creative ~~act~~ act, the writings
or serious review articles and
books that distinguish the
reliable from the unreliable...^{linguistic}
Efforts in this direction has
been ~~the~~ less because academic
systems have not adopted it as
a part ~~of~~ of regular academic work
as much as original research.

Some global efforts like
Wikipedia have attempted it.
I ~~use~~ ^{they have done a good job} use them. I found in
some of them 'ideological skews'
or 'biases of blinkers'. I had
cross checked with facts. I found
that I was not alone. I would
like to quote from ~~a~~ a report
in Epoch Times "Wikipedia Co-Founder
Warns; "Wikipedia Is More One-sided

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"Than Ever" by Jack Phillips
July 5, 2021, updates July 6, 2021 (Ref 3)

I quote from the report:

"Sanger, in particular, took issue with how some Wikipedia entries are sourced. " In short, and with a few exceptions, only globalist, progressive mainstream sources — and sources friendly to globalist progressivism — are permitted" he wrote in an article on his website "

I find such an approach to not just limited to social sciences and ~~the~~ such ^{unique} ~~ideas~~ 'ideology' spills over to other areas of sciences as well as their sourcing are limited.

We have seen a number of retractions in esteemed journals especially on COVID related matters. But the retractor papers, which were

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falsehoods are still in the web without any marker on the fact it is wrong. Many future researchers would use them. In such papers, one suspects a pattern of being influenced by commercial competitive interests and biases against some nations.

These are serious matters as they get reported in ~~new~~ regular news media, in a different forms and in social media with ~~a variety~~ of many variants. The net result is the loss of 'trust' in what scientists say. Most people ~~don't~~ do not have time to find out what the truth is.

I quote from my book again which gives a quote from Sergei Kapitsa which is from

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an article in Current Science: ^{Vol 61, Number 12,} ~~Anti-Science~~
Trends, which was written.

Escape from Reason: Antiscience
Trends in the USSR" (25 Dec 1991)
(Ref. 4)
written before the collapse of Soviet Union.

A great article. I quote only
a small part:

Quote: "A point one must bear
in mind is that the message of
the populariser of science is in most
cases taken on trust. The layman
believes in what he is told, as the
proof is obtainable only through
education. Thus, the trust in message
of science demands great responsibility
on the part of the messenger.

On the other hand, the persuasive
power of the media, especially
of television, is remarkable
and the misuse of its potential

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is a matter of great ethical importance to the society" *Unquote.*
He had written before the social media explosion!

Have we as Science-communicators have done something? Instant experts during COVID have almost annihilated that trust. Many ~~common~~ laypersons look at science ~~practitioners~~ ~~communicators~~ no better than the politicians who look for their own self-interests. Or just use something that looks nice for them, which is far away from truth!

Carl Sagan had foreseen ^{situation} this in his book "The ~~Do~~ Demon-Haunted World" I have not read it. But seen some ~~except~~ excerpts

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from a book by Richard Dawkins
The Oxford Book of Modern
Science Writing (2008) p. 239-243

~~The whole extract needs (Ref 5)~~

Book title "The Demon-haunted

World: Science as a Candle in
the Dark" (1996). ^{He drew of cancer in 1996.} See some

extracts I ~~have~~ ^{am sharing} made now.

Quote: I have a foreboding of an
America in my children's, grandchildren's
time - when the United States
is a service and information
economy; when nearly all the key
manufacturing industries have
slipped away to other countries,
when the awesome technological
powers are in the hands of
a very few, and no one
representing the public interest

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can even grasp the issues

The dumbing down of America
is most evident in the slow
decay of substantive content
in an enormously influential
media, the 30-second sound
bites (now down to 10 seconds
or less), lowest common
denominator programming

of leave
some
part for
want of
time

but especially a kind of
celebration of ignorance. "Inquire
~~See with~~

But He does not want ~~an~~
~~an~~ autocratic censorship and
a scientocracy? ~~See~~ See
one more quote! Quote:

"Humans may crave ~~for~~
absolute certainty; they may
aspire to it; they may pretend,

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as partisans of some religions do, to have attained it. But history of science — ... teaches that the most we can hope for ~~it~~ is successive improvement in our understanding, learning from our mistakes, an asymptotic approach to the Universe, but with a proviso that absolute certainty will always elude us." unquote

How ^{many} practitioners of science, would openly say this!

In the ~~for~~ passing I was pained to ^{read} an introductory remark by Dawkins to this article. Quote "Quite apart from his ~~understanding~~ outstanding

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contributions to public understanding of science, Sagan's own research contributions to planetary science would have been fully enough to ensure his election to ^{the} National Academy of Sciences, and it is widely believed that envy at his massive success in communicating science to millions was the direct cause of his being blacklabelled for election to the Academy" ~~the~~ Uniqule

Having seen many things in India over past several decades, I was not surprised. But at the world level, has such a "ganging together by the scientists who are paras- that - be", killed many

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green shoots of Carl Sagan's in their early stages of their careers? Point to ponder! #

Lastly I will briefly touch on another point, ~~the~~ It is much more relevant because of millions of practitioners of science and billions of consumers of its products are from different cultures. Many of them are different from Europe based concepts of Scientific Culture. I quote Murray Gellman.

(See Ref. 1 & 2)

Quote "Many of the local patterns of thought and behaviour are associated not only with harmful errors and destructive particularism but specifically with harassment and persecution of those who espouse the universalising

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scientific and secular culture with its emphasis on rationality and the rights of the ~~right~~ human individual.

And yet it is within that very culture that one often finds people concerned, as a matter of principle, with the preservation of cultural diversity.

Somehow the human race has to find ways to respect and make use of the great variety of cultural traditions and still resist the threats of disunity, oppression, and ~~obscurantism~~ obscurantism that some of those traditions present from time to time. "Unique ^{now in present context}

I would add that it will include some modern forms of autocratic regimes.

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The ways of blending local cultural traditions with modern ~~&~~ ^{dominant} eurocentric LST systems is given in a highly researched book by Susantha Goonatilake "Toward A Global Science, Merging

Civilisational Knowledge" Vistaan

Publication (1998) Ref 7. Actually

I need to explain in some detail

But due to time constraints I

quote only a small part:

Q "Grafting knowledge onto the dominant ~~base~~ knowledge

tree can be ~~considered~~.

accomplished in two broad ways

One is to splice in, directly, existing material that has demonstrable,

direct validity. The second would be

to bring in, as metaphors, elements

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of other traditions that could nudge the imagination and give rise to new concepts" Ungku

He has given several concrete examples from the ^{of such grafting} past between East and West that exists from ^{the} early times and has indicates several examples to further ide. for the future as well.

This ~~to~~ ^{not only} form of cultural diversity is crucial for the growth of S, T, I but also ^{because it} makes it acceptable, in fact if I may say loveable and trustworthy in many parts of the world. It is not just our Science versus others. But all of us growing

I am
glad that
Dr. Shanada
Srinivasan
is here.

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into the dominant tree of modern science.

In my writings quoted before, I have given detailed steps to cope up with the

~~massive information explosion~~
~~I can add only one more now can we have all~~
and ~~any~~ ~~not~~ replacing agents.
I can add one more with ~~an~~ ~~extra~~ ~~bit~~.

But I find that the progress in that direction, is rather slow.

New generations, ~~may not~~ look even the most educated among them, ~~may not~~ see the excitement of science, its beauty but use it as a ~~tool~~ practical tools towards narrow ends.

I thank the organisers again for letting me share my ideas.

⊗
ONE
CLICK
~~SEVERAL~~
APPS
to reach
our links for
balanced
views on
many
matters
of importance
to
lay persons?
Even for
experts.