Washington University, St. Louis. 24 Feb 1971

Evarts (Ambrose) Graham Lecture

Introductory Remarks

Have been reading about Dr. Graham.

A very different person from myself.

EAG — Medically Qualified
an outstanding surgeon

— Teaching and Medical Administration

— probably a very different temperament.

FREE — A physicist, turned to biology

— neither, except v. occasionally. mainly interested in research

Admire such people v. much, because the solid conduct of the world depends upon them.

What, then, should I talk about.

~~Though~~ Not really competent to lecture on a purely medical theme.

But note that am and have been supported by the (British) MRC.

Thus thought it best to give a personal account.

I was interested to see if any general conclusions would emerge from it.

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~~Definition of~~

Why does anyone study a particular subject?

① "Follow his nose" — inate talent, — Dr. Graham wrote ~~to~~ have character made ~~a contribution~~ his mark ....
early influences
easy opportunities

in England, boy with general scientific interests,

go to chemistry + physics — biology less likely
I did this.
Lavatory joke.

② Strong interest as a child.

Jim W. as bird watcher.

Butterfly farm — insect lovers.

Botanists (my first prize)
but due to where I lived

③ Desire to do good eg. to become a doctor
cure cancer
more recently, ecology

My own case.
my career — at first, follow my nose.
physics, "research", the war, weapons,
post-war. ago of 30 [compare Dr. Graham + chemistry at the U. of Chicago]

Had to make a late choice.

How does one make a late choice?

Find what one is good at
important to enjoy one work.

Look for some significance (nowadays relevance)

would have been eg. fundamental particles
cosmology + astronomy.

but actually concentrated on
living – non living
consciousness.
eg vitalism
anti-influence of
christian upbringing.

decided on "molecular biology"
(Hamilton Hartridge temptation)

Molecular Biology
fortunate to choose this,
as subject would soon become ripe
(but I didn't know this!)

genes, replication, expression
proteins, nucleic acid.

present situation: major probs. solved in outline
but much filling in eg. DNA replication
also eucaryotes.

My new interests

physical chemistry of ~~the~~ proteins + DNA —

Origin of life — difficult to get evidence

~~ess~~ nervous system — both overall behaviour
and mol. biology — and in between

embryology = developmental biology.

shape and structure of organs + tissues

how cells interact, etc.

(incl. embryology of the nervous system)

What problems does one hope to solve?

If a real medical lecture, ~~would~~ this would be the main part.

ie. Applied biology in the wide sense
some well-known recent issues.

eg. population : environment

cancer : distressing disease, much feared.

more obsession with curing things
life is a ~~better game~~ challenge
a game
a battle
a medical condition.

eg. little research into good psychodelic drugs.

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My own interests

my motivation really elsewhere

(above topics more from a sense of duty)

could be more easily classed as philosophy & religion

① Trivial example birth date

astrology

books on campus.

complete nonsense – meets a need (coin tossing)

should such people be at a university?

"Levitation" tests.

come beat them – join them. Logical ~~Ast~~ Astronomy.

② Major biological conclusion

Natural Selection

rôle of chance (only true novelty) phase-space

open-ended – but "structural stability"

eg. "human nature" [eg going to the Moon]

profoundly anti-religious, in the conventional sense

really a new religious attitude.

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So far would have applied to plants

(3) psychological matter.

really a profound mystery.

can we be regard as "machines" in

the new sense? a research problem.

examples prayer - the silent testimony of

the medical profession.

- life after death

(pub. less important now

many other aspects of human behaviour.

Genetic component to IQ

mental health

creativity

(compare the four humours)

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Biology in politics

at present trying to to

tinker with the social system.

"all men created equal" — no biological ban.

our future in our own hands

but with restraints.

eg. medical research make the world safe for sensitivity.

no discussion (except underhand) ~~at~~ about long-term aims.

either be beautiful ~~before~~ after birth = "adult"

OR before birth

e. who is to be born?

to have children?

to inherit the earth?

Conclusion

Biology is a revolutionary subject.

Medical men must in future have a wider outlook

not ~~near~~ merely social impact, but social ends.

otherwise

money: millionaires + senators — minority groups needing education

& Drugs education mainly needed in basic sciences from

a whole culture point of view — hence this lecture