Theology on the Web.org.uk

Making Biblical Scholarship Accessible

This document was supplied for free educational purposes. Unless it is in the public domain, it may not be sold for profit or hosted on a webserver without the permission of the copyright holder.

If you find it of help to you and would like to support the ministry of Theology on the Web, please consider using the links below:

A table of contents for *Theological Students Fellowship* (TSF) *Bulletin* can be found here:

Computers and Clerics

By D. M. MACKAY BSC PHD FINSTP,
*Professor of Communication in the
University of Keele. The first of two
articles on computers and theological
questions.*

ASKED TO WRITE something on the
recent use of a computer to 'test' the
authenticity of Pauline Epistles, I found
myself wondering what a layman could
say to theologians on the matter to fill
more than a column. I venture there-
fore to enlarge the scope of this article
to cover the wider area in which it
seems likely that computers may soon
find themselves under the scrutiny of the
pulpit, if they lie not there already.

LITERARY ANALYSIS

Let us begin with the much publicized
efforts of the Rev. A. Q. Morton and
his collaborators. It might be an under-
statement to say that the presentation
of his results in *The Observer* and his
subsequent defence of them showed
some lack of scientific objectivity, as
well as of Christian charity to those who
questioned his interpretation of them.
But to one who takes computers at their
face value the near-tragedy of the affair
was not that these devices had found
their way into such sacred preserves,
but rather (with apologies to Mr Morton)
that they had had such a splenetic in-
troduction as to rob them of the
welcome they deserved.

Applied to the statistical analysis of
biblical text, a computer is no more than
a God-sent labour-saving device, able to
perform in seconds or minutes the kinds
of laborious calculation that scholars (of
any persuasion) recognize as legitimate
and potentially valuable, but which could
never before have been completed in a
lifetime. It is greatly to be hoped that
those who recognize the authority of
Scripture as God-given will soon be
among the foremost in exploiting this
new way of increasing our understanding
of its composition.

What then can be established by such
statistical methods? Basically, they
make explicit the habits of sentence for-
mation and choice of words which are
exemplified in the document under ana-
lysis. Many writers, if left to themselves,
show a fairly stable pattern of prefer-
ence in such matters, which can be de-
tected only after totting up material
from thousands of word-samples. One
can choose among a vast number of
criteria for evaluation. Not only the
relative frequency of favourite words,
but more abstruse things like the fre-
quency with which words such as ' but '
or ' and ' appear at particular locations
in a sentence, may prove diagnostic of
a certain author at a certain time — if
one's sample is long enough.

The difficulty here is twofold. First,
if the total available sample is small
(as in a short letter) the risk of being
deceived by statistical accidents cannot
be eliminated by any amount of com-
puting. Secondly, the similarity or dis-
similarity one finds between two samples
of text may be affected crucially by one's
choice of criteria. The temptation to
indulge in wishful thinking here can be
very great, unless one is fully alive to
the subtleties of statistical evaluation —
or even if so.

Clearly, as soon as a writer is express-
ing the ideas of someone else, we are
likely to find the impress of the new
personality on his choice of words —
if we know how to look. In the extreme
case of strict dictation, of course, the
word-statistics should reflect the habits
of the originator rather than the writer
— though even here we should not
neglect the possibility that the choice of
scribe might react in subtle ways upon
the author's choice of words. In a less
rigid relationship between author and
writer, the statistical picture presented
by text expressing the ideas of one and
the same author should show a variabili-
ty indicative of the degree of freedom
allowed to his different amanuenses.

If then two documents, which have
claims on other grounds to common
authorship, show statistically significant
variations in word-frequencies, the first
question raised by this is not one of
their authenticity, but of the nature of
the link between author and scribe. With
letters written at different times under
various stressful circumstances to differ-
ent foreign communities, there is the
further question whether the statistical
pattern of the author himself would be
as stable as that of a non-traveller who
enjoyed a relatively unruffled existence.

It is not impossible that further com-
parative studies among ancient writings
should enable intelligent guesses to be
made on such matters. There is much
scope here for computer studies by open-
minded scholars with less blatant inten-
tions to grind theological axes. The
important thing is to realize both the
scope and the limitations of these
statistical techniques, especially when
applied to short documents. Always the
scientist's question has to be, ' How often
would I have expected these differences
(or resemblances) to turn up even if my
hypothesis were wrong?' It is in honest-
ly answering this question that he may
most need the help of critical colleagues.

ARTIFICIAL INTELLIGENCE

Numerical hackwork of the foregoing
order represent perhaps the lowest grade
in the scale of ' artificial intelligence '.
The next generation of computers are
likely to tempt pulpit comment by more
spectacular performances. Already a
universal computing machine can be pro-
grammed not only to perform routine
calculations, but also to find proofs of
geometrical theorems, play original (and
victorious) games of draughts against
human champions, and indeed when
equipped with adequate sense organs, to
replace men in a wide range of actively
' intelligent ' functions.

The temptations here may be to ' de-
fend human dignity ' by searching for
' something you can never get a com-
puter to do '. But this would be a
blunder; for as soon as a specification
has been written down in precise logical
terms, that same specification can in
principle be used to programme a
general-purpose computing machine to
meet it.

The real difficulty lies not in the imi-
tation of human performance once it has
been specified, but in the framing of any
exhaustive specification, in purely be-
havioural terms, of ' what it is to be a
man '. The barrier here is not mechani-
cal, but conceptual; and it is one which
no development in the powers of com-
puters can remove. Always we shall be
left with the unresolvable question
whether some vital aspect of the speci-
fication has never occurred to us, because
(being only men ourselves) the concep-
tion of it escapes our mental capacity.

An important philosophical point
often overlooked is that it is not ideas,
but tokens for ideas, that computers are
designed to handle. The same can be
said, for that matter, of the nerve cells
of the human brain itself. It is not
brains, but people, who think. The
common claim that ' computers think '
is not so much a falsehood as a solecism.

All this, of course, does nothing to
foreclose the possibility *in principle* that
a suitably-designed artificial organism
might ' embody ' a conscious personali-
ty in the same sense that our brains do.
However absurdly beyond our practical
resources, this would seem to be some-
thing which both philosophy and Scrip-
ture simply leave open, and on which
pontification is therefore out of place.
The *creation* of man, which is the divine
prerogative, must not be confused with
the *reproduction* of his kind, whether
by natural or artificial means. What is
eternally significant about a man is not
the physical mechanism by which his
body came into being, nor the stuff of
which it is made, but the nature of the
personality that is expressed in and
through it. The mystery of our human
nature is not eliminated by any mechani-
cal explanation of our bodily organiza-
tion; so its dignity need not be defended

by any attempt to prove *a priori* that human bodily organization could not be reproduced artificially. All such empirical questions we can peacefully leave to settle themselves.

In summary, then, I am suggesting that any anti-Christian aura surrounding the powers of computers, now or in future, must derive from and reflect only the prejudices of particular users. Christians must be prepared to call the bluff of anyone who represents these powers as in themselves an embarrassment to biblical faith; for from a biblical standpoint our greatest mistake would be to neglect to exploit them to the full for legitimate ends, ' with thanksgiving '.

Note: Some of the issues raised briefly here have been discussed more fully in the following papers by Professor Mackay:

' Mentality in Machines ', *Proc. Aristot. Soc. Suppt. XXVI*, 61-86 (1952).

' From Mechanism to Mind ', *Trans. Vict. Inst., 85*, 17-32 (1953).

' On Comparing the Brain with Machines ', *The Advancement of Science, 40*, 402-406 (March 1954); also *American Scientist, 42*, 261-268, (1954); and *Ann. Report of Smithsonian Inst.*, 231-240 (1954).

' Complementarity II ', *Aristotelian Soc. Suppt., 32*, 105-122 (1958).

' Man as a Mechanism ', *Faith and Thought, 91*, 145-157 (1960).

' Information Theory in the Study of Man ' in *Readings in Psychology* (John Cohen, ed.), 214-235, Allen & Unwin, 1964.