HFT ORC

HFT ORL , 12

HFT ORL , 12A

HFT ORL , 12B
12B

HFT ORL , 12C

HFT ORL , 13

HFT ORL 14

HFT ORL 15

HFT ORL 16

HFT ORL , 19

HFT ORL , 26

HFT

Note :

   I finally stapled in some
loose cards and materials, and
made trivial changes in arrangement,
13 Jan 67. Hence cards of this
number.

POT THIS AT BEGINNING 1892

HFT
OUTLINE.

Intro.   Novelty?

Penetration. Trivialization. Whimper, not bang.

FILE STRUX FACILITY.

IR, CAI, ~~ER~~.

Htxts

Hgrams

perception 🐷

Computer Publishing. FANTICS. Big machines.
Danger of loss.
Probs. for civil liberties. Crypton and first mate.

HFT

"Hard and Fast Thoughts for a Softcopy World" (Formerly OWA)

"the other way around"

Lecture to be given at the Rand Corporation

22 September 1966

Beginning.

The line I'm going to take in some ways resembles that of Herman Kahn: that is, the possible worlds that lie before us are diverse and drastically different from this one, and decision and effort will be needed to obtain the better. Or I could compare my opinions to those of Timothy Leary: that is, I believe a blissfully better world is obtainable, that in this new world we will communicate better both with inanimate things and with each other, but that this world will result from turning on machines rather than people.

CORPORATE PHILOSOPHY OF A MAJOR COMPUTER FIRM

In a way this turns the ~~IBM~~ corporate philosophy on its head: the ~~IBM~~ philosophy
is to shape an existing system to fit a new problem. What we need are new systems
made to fit the range of humanistic purposes now becoming evident.

Sometimes, I think that when Americans see a beautiful
stretch of road they just naturally want to fill it up with Tastee-Freeze
stands. And I think this is what has happening to the field of computer display.

The

A number of alternatives-- of technological alternatives-- that are ever tried is

perhaps

~~extremely~~ narrow. I can't help thinking that a lot of things are uninvented that

might have changed the world 200 years ago. For example, could not the ~~Hover~~

hovercraft

~~Craft~~ have ~~not~~ been discovered before the development of the automobile?

The on-line computer has been until now used as a glorified desk

'ME TARZAN, YOU COMPUTER' level

now

calculator or maybe an instantaneous librarian.

HFT

(Keep repeating),

but ~~and~~ of course, these
things are only
novelties.

We can have animated
line drawings of
machines. (")

Line drawings of architectural
structures through which
the ~~~ user may move (")

Instantaneous transmission to your
screen of any written
information stored in the
computer system. (")

Essentially, there are two possible views to take with regard to computer display. The first

is that the CRT is a novelty-- as soon as the airline market is saturated it will

pass over; perhaps the banks will be automated, perhaps there will be some use of

computer-driven programmed learning, but life will be 90% unaffected.

~~On the other hand, the people who pay lip service to what is called~~

On the otherhand, the people who are paying lip service to what is being

called "artificial intelligence" seem to believe that machines will become

smarter, communicate among themselves, and write our novels, plays and books.

Men will lie in hammocks and think beautiful thoughts. I have heard such people

attribute only one human activity to be worthy of man's mind after that time,and

that will be proving beautiful math theorems. Things will be 99% changed.

My view is somewhere between these: that is, I think things will be

90% changed. We will ~~travel~~ to a softcopy world, where it becomes largely

unnecessary and hampering to commit anything to paper, displays will be with us

every where we go, either mounted, fixed, in our rooms, or carried as part of our

equipment in briefcases, or even clothing. I say things will be 90% different

because America will still have an economy, business, marriage, professionalism,

slums and prejudice.

Many people expect a high computer penetration of our daily lives, but

evidentally few anticipate great impact on arts and letters. But I believe

that this, when it occurs, will be the computer's greatest effect. The grubby

little business applications will seem as nought.

These applications may just shut out the computer people, too.

Apparently there is some disgruntlement in the computer community at the fact that computers are becoming more accessible to the uninitiated, and they can now be used more easily for a variety of purposes. Indeed, DATAMATION reports a complaint from the floor of a recent conference about the use of mightly-on line systems for "pipsqueak data."

But the use of "pipsqueak data" for piddling purposes is in a way the measure of the successful penetration of technology in our lives; this is my basic point.

Last night, 35,000 feet in the air and at a speed on the order of 600 miles per hour, I and a various other people sat and were treated to a film entitled "The Ugly Dachsund."

The trivial uses of the telephone, the radio and TV are by now very well-known to us. The trivialization of the computer display should be a similarly disappointing triumph. The world will be revolutionized not with a bang, but a whimper.

PIPSQUEAK

'CREATIVE FILE STRUCTURE' ;
slides, ~~printout~~

8

A great deal of money and

attention is now going into what I would call sow's ear systems. Let me discuss

two of these: "information retrieval" and programmed learning, or CAI-- Computer

Assisted Instruction, if that is not now a proprietary term.

IR Slides (Pt.I)

CAt Sl.RoS

BORING

Now to speak of programmed learning. Programmed learning today is chiefly

in a restricted tutorial format, which interposes between the student and the

material a new obstruction, different from the old obstruction of the classroom

scene but in my mind not very much better. IBM's hottest, new offering, the 1500

instructional system, is built around just such a vision; and the sorts of approach

which I am proposing, making large amounts of insightful material directly accessible

to the student, can not conveniently be implemented on this system or any other

system so conceived.

It is an interesting comment on the perverse ~~use~~ resilience of the American professional

system that despite this bad start, computer-assisted instruction is slowly rotating

in the direction I am propose.

"Scientific " CAI is about as scientific as objective tests are objective.

Grading in general is a nice example of how pseudo-exactness becomes a playing

field for the clashes and machinations of personality.

What do we really need in teaching? Real needs are the hardest thing to assay

in any area. They can always be swept under the carpet, and their manifestations

interpreted as calling for more of the same remedy or system which has been current.

For example, the increases in crime appear to most people simply to call for more

police. Another nice example is the problem of the number of doctors. I believe that

the number of doctors being turned out by American medical schools has not increased

substantially in the last fifty years, though the population of the country has

more than doubled. Neither has the building of hospitals at all kept pace with the

expansion of the population. Yet where is the "need" for more of these facilities

and people felt? Answer: it is not felt, it is not organized; people just die

needlessly and unsung, from worse and worse treatment ~~and to~~ under poorer and

poorer circumstances, but there is no documentation of this, there is little to

be heard or seen even if you are in the crowded ward where this is happening.

The "needs" of education are a matter of fad, taste and rearing, as

perversely amplified in the conservative men who reach school boards. The

"real needs" are unfelt; what might be possible and excellent is very hard to

find out;

certainly, "normal" education has no more justification than any other. And

the notion of the class of 20 pupils, confronting a teacher within a context of

lecture and "class discussion" is less ~~than~~ a justified system than an image

clamped on the American mind.

But in fairness it should be said that what's his name at the other end of the

log had surely no more justification.

9D

6-year-olds in Japan are
expected to know 1500
or ideograms

→ That would be about
11th grade level here.

1738

OWA

Sylvia Ashton-Warner machine!
Kid types word, it guesses word
and pronounces.
Gives list of words, pronounces each;
lets kid choose.

HTXT slides

IR slides (Pt. II)

HGRAM slides

HFT QRL 17

HFCM slides

OWA

Television analogy: "suppose it's 19<u>28</u>."

etc.

1683

OWA

Who is going to pay for it?

Well, who ~~buys~~ pays?

When educators see what these systems can do, they will HOLLER UNCLE. And Uncle will buy. 1735

BNW slides

12

(When introducing term "fantics"-- mention " mediatronics", "ideatechnics.")

(SCREENS)

When I throw out dates and predictions I realize I am at the Delphi of that

numbers racket.   (DO SO)

Licklider has estimated that the cost of storing all our information

digitally, and making it available through vast feeder networks, is _identical_

to that of the systems now employed in all of publishing and letter writing.

But of course, the problem there is that the number of vested interests that

exist. If we were to adopt Licklider's suggestion, the money would go to all

different people, and I don't think anyone is going to ask for that very soon.

The system and techniques I am proposing do not ~~needxartxfixxi~~ push the state of the art.

~~intelligence~~ Tremendously sophisticated programming techniques are unnecessary.

They do not need artificial intelligence. They do not need question answering

systems. They do not need sentence parsing parapher/nalia. They do not need to

recognize voice or handwriting. They do not need to play chess or translate

other languages. No glamorous ~~gills~~ skills or break-through kinks are necessary.

In an important sense, all the new good things will be <u>like the old</u>.

Hypertexts will be more like books and plays than they will be like ~~catalest~~

Socratic computer setups; hypergrams will be more like movies/than they will or diagrams

be like chess-playing routines or categorization ~~jex~~heur/istics.

But just as the good things I forsee are simple extensions of the

things that already are, so are the bad. We will be in a new information

environment, but the problems that confront us in the new information environment

will be simple extensions of the older problems. However, the guidelines and

arrangements that provisionally guard against these problems in the existing

circumstance will be ~~wiped~~ swept away, and the attendant dangers of these changes

are past reckoning.

I am going to say a word or two now, not about the sorts of display media

which a world of on-line information will make possible, but about the unfortunate

consequences of a world of such information.

What was so bad about George Orwell's world of 1984? Was it that the   HFt
                                                                        21

nation was eternally engaged in a war which no one could fathom and about which

                accurate
no ^ news could be had ~~nexaeexxaxe~~? No. Perhaps the greatest affront to our view of

human dignity in <u>1984</u> was that individuals could be anonymously harried and

threatened by members of the central authority through tele-communication

systems.   HARASSMENT (Marg. cost lower
                                            Schelling
                                    Police budget)

This is probably inevitable, and will be most disagreeable.

                                                   has
Why is it inevitable? Because, as Harold Lasswell ^ pointed out, there will

                                                 banks
be no safeguards against the accumulation of vast data ~~banks~~ containing considerable

information on all the individuals in the nation. These data banks will include

not simply changes of addresses and telephone numbers, but listings of peccadillos

                                                          and SAMI
and liabilities, abilities and shortcomings. If computer-aided instruction becomes

widespread, as it will, it seems likely that the most detailed information on usage

and response will be kept by the system and linked to the name of individuals.

If we come to have thorough on-line softcopy libraries, exactly the same circumstance

will pertain with regard to the books a man reads and the notes he takes. Can this

be prevented? I am hard put to say how it can. For one thing, the persons in

charge of the facility will want operating information on which to judge their own

success. And the information once gathered will past through many hands. USE IN SCHOOL RECORDS

What are the concrete motivational dangers attendant to these developments?

They are:

the natural intolerance of the custodial classes

the righteous indignation of the ~~affected~~ effective public

the self-interest of occupational groups

the self-service of individuals, cliques and clans.

I am saying that we need some kind of statuatory blocks to the use of

information-- that is, blockages of the records-- corresponding to, but far more

far reaching than, the way in which police records are locked up when an individual

reachs the age of 21. But how administrable thresholds and guidelines can be

acquired is beyond me.

This past
last July Congress debated and rejected (apparently in principal), a

common data pool for tax, census, and other information. Presumably that will

happen again, and the Congress will not wittingly set up such a thing soon.

But such a thing will come to be, Simply with the information accessible in

parallel systems, it can be accessed and inter-compared by anyone who may

jointly use these different systems.

Another problem, distinct from the willful misuse of information, is the

problem of the inevitable misuse of information that is simply present, because it

is there. Trivialities about people which are written down, and available ~~in summary form~~ while

decisions are being made, cease ~~seem~~ to become trivial; they are attended to regardless how

trivial . Minor disciplinary infractions, for example, look very bad on a man's

record. The point can be best illustrated by an old anecdote that my grand eat

grandfather used to tell about the captain and the first mate of a ship.

On the first mates's birthday he had a drink too many ~~for~~ before standing watch, and the

next day he found that the captain had written in the ship's log: 'The first mate

was drunk last night." The first mate went to the captain and asked that this be

stricken from the log, ~~log,~~ since it would have a serious effect on his career. The

captain said, "What is in the log is in the log, and after all, it's true isn't

it?"

The next morning the captain found written in the log, 'The captain was

sober last night."

NASTY PHONE CALLS
not new, but much on
the rise.

→ COST OF
HARASSMENT LOWER

Consider ① Economists
the economics of harassment
and the marginal propensity
to be nasty!
POLICE BUDGET also scary here

1743

ETHICAL CODES OF
THE BOOKKEEPING
OF PERSONAL RECORDS.
(→ but how?)

← 22

We also need statuatory <u>non</u>-blocks: if we are to have real education

through computer display, it is going to be necessary that the real information

be made available, and this is not now the case in our educational system.

The fact that evolution can not be taught in the schools of Tennesee, at least

legally, is an absurd example of a far more widespread thing. The real contro-

versies are simply made inaccessible at the elementary level, the real information

is simply impossible to get hold of for children or beginners. This is the

difference between the real subjects and the kid stuff; the disposition of those

who would teach is to water down. After all, we are told on every hand that

(most scientists believe in God.) The other falsehoods so widely promulgated within

our educational system

political information

medical information is an interesting example of material which is forbidden to

the general public. Now, more than ever, there is a pressing need for various

types of medical information which are being suppressed: for example, more than
esp.

ever, the teenagers need birth control information to say nothing of supplies.

                                                          brave   *that*
Another question very much up for grabs in our ~~brand~~ new setup is ~~the~~ traditionally

called   *and*
freedom of speech ~~in~~ the press-- though if these rights were exercised I doubt that

anyone would recognize them.

                                            freedom of
        How ~~attenuated~~ seem the rights of speech *and* the press when the channels of

distribution are so easily controlled. We know what happens ... *free Press: Daily*

~~Important points.~~

These are not to be facilities but _media_. The important distinction is this:

Facilities contribute, media re-form.

My view differs from that of these other prognosticators mainly in degree and

emphasis.

Will such a world be depersonalized? This appears to be the view of people

who have been working in information retrieval and computer-assisted instruction.

(or what they turn into)

~~this--and~~ I think further that these fields will be extremely personalized. Let

us consider the movie and the automobile. For both of these, I believe it was

predicted that the human element would die out: indeed, at first all Fords were

black and no movie-makers were ever identified, but that is not the case today.

Indeed, the automobile is one of the principal forms of expression of personality:

in

~~In~~ the style of driving, in the decorations-- from the grill of the Rolls Royce

HUGE DANGLING DICE MADE OF   AND OF COURSE MOVIE DIRECTOR.

to the danglingpolyurethane foam dice-- and in the things that you want to do

there. And of course movies we all know: every single part of a movie wears

the personal stamp of the man who made it, the director, and the people who played

the parts.