Charles Van Doren, Seminar for Atari Research

December 20. 1982

BS: Historic event. . . It may be the first event that people can say was
planned for as part of the Encyclopedia Project. I think most people know
who Charles Van Doren is, he has been planning enclyclopedias for most of
his adult life, and I think he is almost delighted to be here as we are to
have him here, to share some of this with us.

CVD: That couldn't be so. I am really delighted to be here, and if this
does represent some kind of formal event in this project, then it will
be one of the most important events in the history of the world, because
when this thing becomes realized, when it becomes perfected, which it will
not for a long time--it may exist in some form which is imperfect, but when
it becomes perfected, it is going to be one of the great products of all
time, something that gives us incredible pleasure to have the privilege of
working on. In 1965, when it became known that the Encyclopedia Britannica,
among a small group of people, was going to produce a 15th edition, that
news could not be widely disseminated because if it had been, people would
have stopped buying the 14th edition, and we would have gone broke.
     But when it became important among those to whom it was important to,
they began to flock to us, from all over the world to work on it--another
edition, one hoped the best edition, of the best encyclopedia. Even the
best people failed to make it the best encyclopedia, and we are now remaking it,
in its 16th edition. But it will still not be perfect. This is a human work--
this encyclopedia, of which that is one volume--a work that is too big and
complicated for the human mind to do really, really well. And probably the
Intelligent Encyclopedia is much too difficult for the human mind to do really,
really well. But the opportunity to take a stab at it is something that
I hope nobody who has a chance to do it, and understand what it ~~really~~ means,
will turn down. I'd like to begin the seminar in what I think is an unorthodox
way, although Bob says he understands seminars to be connected in this way,
by making a short talk, a presentation to you, about the history of knowledge
in the form of some distinctions which I hope you will keep in mind over the
next 10 or 15 years--distinctions which should always be present in any
deliberations on the content of the Encyclopedia, and I think ~~that~~ also
~~about~~ its manner of presentation in which the IE is going to have to be
presented to the public in some way, or in some number of ways.
     We were talking this morning about multiple ways of presenting it,
and that will probably be the way it will turn out to be. But these
distinctions have to be borne in mind when you consider distribution as
well as content. They are distinctions that present questions to you,
which you have to be answering, which you have to be aware of the kind of
influence and importance of in the work that you do. There are seven of
them. They are connected, and in a sense, they may all be one distinction,
although I'm not sure that that's so, but they all have to do with various
kinds of knowledge. We have the community of people in the world who deal
with knowledge, who have been aware of knowledge in the approximately 2500
years since knowledge was invented. Knowledge was invented by the Greeks,
600 B.C., there was no knowledge before that, there was no self-conscious
knowledge

It is coherent, consistent, coordinated coverage of the entire world of learning, of the entire world of systematic organized knowledge. Not coverage of the entire world. It is coverage of what we know about the world in an organized and systematic way. We know lots of things in an unorganized way and I talked about that yesterday and that distinction between principle and substance or between form and matter is germaine. On the other hand, it is not an encyclopedia in the very narrow sense of the word. It is not, and therefore, the name of it might not be encyclopedia. It's certainly not a book. The essay that Alan and I are going to try to write about will start out by saying that this is the first non-book and that it will be that.

The word museum was...Sally, was that you who used that?

Sally: I think it was Craig's term.

It's a very, very good word. As long as you add some such adjective as "living." There are museums and there are museums. There are museums that are as dead as doornails. In Tehran there are two museums on either side of the street. One is a museum of everything since 1000 B.C., and the other is a museum of everything before 1000 B.C. The one before 1000 B.C. is a much more living museum. It's a marvelous museum. One of the reasons to go to Tehran is to get there nowadays. The one on the other side is totally uninteresting. This is not the work of a creative imagination.

It is not an epic. It is not a novel. It is not an imaginative history. It is not a Hitchiker's Guide To The Galaxy of the kind of Doug Adam's book. Although, it might very well be a Hitchiker's Guide of a more utilitarian, practical sort. These are quite personal judgments.

It is, on the other hand, a knowledge game that you can play in an indefinite number of ways and the top score, which is infinite. There is no limit to how well you can do. I would expect that using what we ultimately make, and it may be our successors who make it, not ourselves because we may not live long enough to make the ultimate thing, that there will be people using that who will expand the possibilities of the human mind. We are what we can imagine of ourselves.

On the other hand, it is not a children's encyclopedia. It is not any kind of special encyclopedia. If it is an encyclopedia at all, it is an encyclopedia. Simply, a general encyclopedia. It might start out as a children's work of some kind and I will talk about that. But, it must grow into a work which is has all maturity and adulthood. It is not a Britannica. Most definitely not.

Everything that Britannica is, in fact, in reality, we want to avoid. Everything that Britannica seems, everything that's in the image of Britannica, we want to capture. But, the actual dead weight of Britannica as it stands, we want to avoid.

It is, in my view, and I hold to this most strenuously and believe in it very deeply, Paideia. It is that...the Intelligent Encyclopedia...is and makes possible, that general knowledge, that general learning which was described in that opening paragraph of Aristotle's book in the (   ). A person trained, a person with a Paideiac education, is a free man or a free woman. He is not a slave of the kind of ignorance that people are slaves of if they simply don't know how certain things work, how certain things are done and are scared to ask. The Paideia trains a child or grownup and they are just not scared. He knows that he knows enough to know whether somebody is bullshiting him or not. I think there is no more fundamental freedom in our society. On the other hand, this is not a university or even a liberal arts college because universities and liberal arts colleges are so pathetically less than what they should be to produce Paideia. Nor is it a textbook or a set of textbooks. Nor is it a collection of epistemes, of scientific treaties and discourses, an anthology of the last words on any number of subjects. Nor is it a collection of nouses – of definitive, categorical statements that cannot be questioned or denied. It is neither one of those things.

On the other hand it is a commercial venture and it is a business. If it isn't, it won't be. Although we can't have that at the forefront of our minds, somebody has to be thinking about that steadily and well for the next ten or fifteen years. We must never let it be forgotten that this is something to sell, that this must be something that people want and are willing to pay money for. That's why it's not a scholarly exercise. It isn't a $200 million research project because $200 million research projects are only done by the government for so-called national security and this is not that. We haven't got the government behind us. This is not an MX. It is something that must be this or it won't be: it is a self-correcting, updating reference system; it must be self-correcting in two senses. It must be corrected by its readers, by its users, and it must be able to be corrected by its editors who must edit it continuously. You must never stop defending it. It cannot be allowed to live on its own. The idea that you can create programs, computer programs that would in effect, know enough to read all the newspapers and all the magazines and talk to all the experts in the world and be in touch with Britannica editors and so forth, in order to be able to be (   ), I don't think is too (   ). You're going to have to have continuous human care. At least for 50 years. Maybe in 50 years the computer can do this.

Craig: Does it have to be a single person as editor like we have as editors today or can it be distributed?

It can be distributed, yes. It can be distributed all over the world. Maybe you can have an electronically connected...and this question I have down here is germaine to that...whether or not the IE is an electronic community. It may very well turn out to be that, more than anything else. But I don't know whether that's technically possible within the necessary limits of the people who're involved.

Paideia, that it is an encyclopedia, that it is Paideia and that it is an electronic community would be my top three priorities. But, I don't know whether we can do that. It it certainly an always up-to-date almanac. It must be. An almanac is an encyclopedia of current information. There pretty good. There are two or three of them in this country and then there are several in other countries. One of the best of them is the Statesman's Yearbook, published in England. The World Almanac has pretty good information. They have a lot of accurate and useful information. For the most part, it really is dependable. That must be built into the IE. Somehow or other, that dimension must be there and it must be dependable. These people must come to depend on that.

Whether it is an information system with absolutely current information in it, I don't know. It would be wonderful if you could ask the encyclopedia what the weather is going to be like. Or it would be wonderful if you could ask it what planes are flying to Milwaukee tomorrow. But I don't know whether in the long run it's going to be worth the effort and time to do that. I don't know whether people would use it in that way, but it's certainly something we should be thinking about. And certainly whether it's a newspaper; whether it's a newspaper designed for you, a personalized paper. It might be that you could train your IE to print out 8 pages of news that you were particularly interested in and put it on your dining room table and discuss it over breakfast. It's perfectly possible that could be so, but I'm not sure that that would be worth doing.

On the other hand it's not something that's a great temptation to make it a narrative history or a taxonomy of the world of learning or an anthology of the world of learning. I suppose there is one temptation that we have to face and I hope that we will resist and that is to just throw everything into it, because we can't. Quality rather than quantity is the secret of success in this business. Just having a lot ( ).

It is a design, a work of art. It is not, and this is the most important negative of all, it is not a "taste" of...It is solid, genuine education, solid, genuine knowledge, and solid, genuine information, in that order.

Okay. That's to shoot at. That's to ignore. That's to deny. That is to add things to if any would like to do it.

Alan Borning: I have a bunch of comments that I jotted down. I think that we're alright here, but I'm slightly worried by the, "is... commercial venture business/is not research project" in that without knowing the people here, I would say that means

we'd better only do tried and true things that we know will be a commercial success and we shouldn't do research. But, indeed, it should be a research project in the real sense.

That's what I meant. It is not a scholarly exercise or a research project only.

Alan Borning: Okay. Then it has definite goals. There are a bunch of computer sciency things that need to be on the "is" and "isn't" lists. For example, mail systems, editors, programming language, operating system, hardware research project. My feeling is that it is not any of those, per se, but, it will involve all of those, but those should not be the primary focus.

There are a lot of things that are in it. I was trying to be grammatically correct. For example, the IE is...Each one of these is a sentence and if you can't add something that is a sentence to it, then it doesn't belong in this list. Although it can belong in the secondary list of things that are neces- sary traditions; sine qua nons and certainly the four things you mentioned are sine qua nons. Now are any of those fit to sentence form? The IE is...?

Alan Borning: No. I think none of them are inclusive enough. You could say the IE includes the x for each of those four.

There are inclusions over here.

Alan Borning: Part of what I'm getting at is that we've been worrying over the past months about the project getting so all- inclusive that it gets deluded.

It's not this. And that's why I've got these in question marks. Because these may be Red Herrings. They may be things that ( ), and I know Alan wants them. Alan would love to have the IE satisfy all human information needs in the widest, highest, broadest sense of information. That's a spacious dream. I think this part of it is more possible than adding that.

Robert Stein: Part of the question I have is trying to figure out what the world is going to look like 50 years from now. If you can imagine that literally everything that's important in the world to be known or found out is electronically available to you. You have encyclopedias, news, games, banking, airline res- ervations, everything; your mail. Is there going to be a case where each one of those aspects of my life, I call a different telephone number and go into a different system, or, is there going to be one way into everything with one interface that I'm used to and such, that I don't have to change gears everytime I want to get something different? To me, the encyclopedia pro- ject has two aspects to it: one is I feel like we're working on the question of the interface to that whole system. You know,

your home, your basic home information utility. And the ency-
clopedia itself, seems to me to be a subset of that. Although,
the interface itself comes out of the work on the encyclopedia
project. And that's why I have problems with the question of
inclusivity, because on the one hand, I can imagine the encyclo-
pedia doesn't have to be all-inclusive, but it seems to me we're
mucking around in fact, in the entire information knowledge space
which is all-inclusive.

David McDonald: We're doing something additional on top of that,
though. Everything that we've talked about has had this strong
sense of personalization. You have particular things that you
know about already. You learn at a particular individual pace
and the difference between a 4-year old and us is going to be
dramatic when presenting the very same basic information. But,
that's got a very serious limitation on whether it's a panacea
because we can only achieve that by putting some deliberate,
heavy work into the authoring of the articles that go in there.
Without the extensive annotation, which is a piece of research
right now, you can't support the personalization. Until every-
one who contributed information to the world authored with this
means, or that that annotation was available, then some things
just could not be personalized.

Jim Dunion: I think there's still a point missed here that I
agree exactly with Bob and I think that it's...we're not pro-
jecting quite far enough to see. It's not unlikely that in the
future there will have virtually every type of electronic infor-
mation gathering distribution that we can imagine, ranging from
topics on various sub-scientific levels to culture and so forth.
The task of the system then as it is now with intelligent systems
is not primarily know the knowledge, but to know how and where
to gather the knowledge. Indeed, I think much of the efforts
can legitimately get spent trying to figure ways to acquire and
to make some sort of judgment about the sorts of different know-
ledges and to have easy, ready access to them. There is absol-
utely no reason we shouldn't have things like weather reports.
It's just as simple as calling up a number. And if I can do that
electronically now, we can certainly do that. It's absolutely
necessary that the system provide that. I think we just have to
change our concept of what the system is. It's not a static body
of knowledge.

I didn't put it on the blue side. I put it on the green side.
And if you can do it, if it can be a current information system,
a newspaper, I think you'll like. Maybe a buying system, too.
It would be wonderful if it had all those aspects to it. It
doesn't seem to me however, that although I know that in designing
the system you would want to design it so that it incorporated
those things, to supply that kind of information. That informa-
tion has to be supplied. You have to get it from somewhere. Maybe
you'll make a deal with AT&T, so that they put weather information
into your system automatically. Maybe they do that. I don't know.

But, somebody has to supply that. It's an entirely different kind of job to supply that information, that content, from supplying the content of the encyclopedia. That's what I mean. That's why I draw a little line there.

Alan Borning: Also, it seems to me that you could make a good case for saying the project should be focused on the encyclopedia aspect and the links to the other information sources should be secondary, in that if you started out with the primary goal being to make a general browser for all types of information, you immediately plunge into the sort of, well how do I interface all these different things and how do I make a user interface that lets me look at different people's data bases and I think you might sort of get into the wrong research areas. That if you start out saying that we want to make an encyclopedia, we have to figure out how to represent knowledge, how to structure it so I can browse it and then hang these other things on it.

Sally Hambridge: I think the library project is going in that direction, anyway. I mean, that's...there will be that research going on concurrently, but it will be separate but linked up to.

That has to do with this very strong negative in my mind. It is not a narrative history or taxonomy or anthology of the world of learning. It is not just a collection of entities. That it's not the source and the (   ) of Dialog. It's not just those things. Those things are available now and nobody uses them joyfully.

Sally Hambridge: That's true.

Jim Dunion: By the same token though, if we get back to what we just said that in a sense it represents an instance of knowledge, that you kind of take away some of the mail system needs for an encyclopedia in a very real sense because part of what we're saying is that we do not have to be dependent upon other sources of knowledge for the encyclopedia itself.

Alan Borning: Say that again. I didn't understand quite clearly.

Jim Dunion: Well, the first thing about the mail system, for instance, that what that ties right in again is the electronic connectiveness of this device and I think that what we're also saying right here is that we can't assume that. We have to assume that in a sense it is a repository of knowledge. It is not dependent upon outside sources in its most permanent instance. If that's the case then maybe the mail system et al are also ancillary things. That they're not part of the primary.

An encyclopedia is an independent work. It is an autonomous work. Up to the level which it serves, which should be the same in all areas if its well done, it is sufficient to your needs that you understand what that level is. It doesn't mean that a good encyclopedia doesn't have all kinds of other arrows out the other further different sources of information and knowledge. We were

talking yesterday about where the How-To information should be,
for example and one place it should be is as (   ), accessible
through the same system, yes, but not part of the encyclopedia.
I think that's what you're suggesting now. There is a universe
of stuff that's outside, that's connected, but is not part of
the coherent thing.

Susan Brennan: One of   the metaphors you've been using for
this project also is the idea of the park, in that that would
include more playful things, it might include a taste of things,
or more frivolous things. It would include the communication
systems and maybe other kinds of simulations and   it would
also include the encyclopedia. So, I sort of see this as something
that's complete in its own way, but the mail system is a huge poin-
ter with some parallels.

My saying that it's not a taste of...I mean that grammatically,
I mean that that's not all it is. Only is to be understood for
every one of those sentences. There are many tastes in it. Of
course there are many tastes in it, just as there are many illus-
trations that taste, there are many examples in it. They are
part of the encyclopedia itself. They are not outside. There
are a vast number of things in this world that cannot be caught
without examples and you need the examples. It is not just a
collection of tastes itself.

Alan Borning: I see the...this mail system question is very
interesting to me because I see that as a bit more central than
you might imagine and that one of our big projects will have to
be creating tools for authors, writing an entry in this thing is
going to be a very different operation than writing a piece of
text and authors will need to communicate with each other, look
through their old things. Readers will respond to articles saying,
Why didn't you put this in or, Here's a mistake. Authors will
update that. If those kinds of links are well integrated, that
seems to subsume a lot of the mail system stuff.

I feel it quite relevant to remind you of the story I told you
yesterday about how the 15th edition was created. I mean, our
relationship with authors was utterly different from any that had
ever existed before the encyclopedia. We literally told the
authors what kind of an article to write, how long to write it,
what the order of the subjects should be, and what the subjects
in the article should be. We outlined the articles for them.
Most authors accepted that. Now, we're going to have to go be-
yond that. But, it is possible. You know, it really is quite
possible. I'm certain that can be done.

Jim Dunion: I think what we're coming down to is just an under-
standing that there's, from your standpoint, a body of knowledge
that is embodied by this and then there's another main portion in
the system which allows us to edit that body of knowledge or to
change its presentations or something. There are two parts to the
system, one of which is just the encyclopedia, I think as you're
primarily used to thinking about it, and another as its gotten to
be in regard to this whole project. It's clear, as we're saying,

that there has to be this on-line mechanisms for continual editing.
Indeed, to make things clear, we have to spend more time planning
for change than anything else.

Jim, I don't...that's not quite right. I'm perfectly aware...an
encyclopedia...my understanding of the word encyclopedia includes
a system of editing, keeping it up to date, keeping it constantly
changing. That's part of the idea, so that the management programs
for the encyclopedia, for the IE, are as far as I'm concerned,
included in it. But, what I'm talking about, these other things,
these ancillary things that are outside it are all the other sys-
tems of knowledge and information that are not included in the
encyclopedia itself. It's either the system itself or the con-
tent. And libraries is one example. There should be access to
all the libraries in the world. There is an access to the Nation-
al Union Catalog, access to the Library of Congress, access to
the (   ). All those things are accessed by this system, but on
a secondary basis. And all the How-To books there are...I mean
How To Pump Iron, if you want to do that, if you want to get a
videodisc for that and so forth, okay. You can do that in your
home, but it's not part of the encyclopedia. Weightlifting is a
subject that's treated, but not How-To....

Ann Ross Marion: But, we're trying to talk about mechanics.
I mean...Do..Are you saing we can do that all by paper mail and
so we don't talk about a mail system with an encyclopedia?

No. I think a mail system is fine. Sure. You have to have it.

Ann Ross Marion: You have two facets: one that's for the
public, that's (   ) listing, who don't get a mail system, and
there's other portion being management, an encyclopedia portion.

Sally Hambridge: I'm not sure we want to exclude to public
from the mail system.

Robert Stein: I want to propose this for the sake of discus-
sion. If you take "A" as the entire Domain of Knowledge...
"B" is a Knowledge Information Utility. The telephone analogy
is an important one in the sense that I think that the business
we are potentially are putting Warner-Atari, perhaps is some-
thing that is equivalent to the telephone communication system
of the future, except it is a real Knowledge Information Utility
which includes an encyclopedia, news, weather, airline reserva-
tions and very importantly, communication with everyone else on
the planet. Brenda one day, accused me of wanting to network
everyone in the world. I don't think that's something we don't
want to do. It's something we do want to do. And subset of "B"
is the encyclopedia that has particular meaning and then certain-
"B" and "C" have links to as much of "A" as possible. It seems
to me that we are working on both of these and at some point, the
differences will separate. We'll set up the Atari Encyclopedia
Institute in New York to do the content of "C", at the same time
time some major Atari force is working on creating "B".

CVD: I must say I personally don't care about "B" at all. I would love to have it, but I don't care about it. I don't want to produce it. I have no interest in organizing it or anything of the sort and I'm not talking technically. Technically, it's a fascinating problem, but the information is trivial and uninteresting. Airline reservations are the dullest thing in the world. The weather is the dullest thing in the world. Yesterday's weather I couldn't care less about.

Ann Marion: In what context of "B" do we have to talk about today in the context of "C"?

CVD: I think none.

Susan Brennan: I think mail might be the only one that I think...

CVD: Tell me what you mean by mail.

Susan Brennan: Well, I think that it's really important for the user to have some effect on this body of knowledge or, at least some way communicating it to other people, which will have an effect on them. What interests me the most about this is not working on the airline reservations, but someone else is going to do that. I don't have to put in any effort on that, but I'm very interested in working on the agent that presents the IE to the user and that agent also has to take into account where these other things are and how to plug into them.

CVD: And I'm going to do that.

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Susan Brennan: And as things happen and there's something more static about that thing that's happened, but the way of interpreting it is always fluid.

CVD: Let me warn you, I think I have the right to warn you, again for the very greatest of all dangers which is the editorial principle: "Let's have an article on..." You wake up and the Editor and Chief who has the right of life or death on the encyclopedia and you wake up in the morning and say, "Gee, we don't have an article on 'X'" And he goes in and says, "Let's put it in." And you can put them in. Of course, in this encyclopedia it's very easy to put them in. You can do that endlessly. You can end up with a taxonomy of the world of learning. You can end up with a narrative history. You can end up with an anthology of the world of learning and you haven't got an encyclopedia. The...I think that the rules for modifying and revising and updating and correcting this encyclopedia by outsiders must be very strict. I mean...it must be possible. It's a wonderful idea; an electronic community where people revise it and correct it at all times. They must be able to do that. But, they must not be able to say, "I'm just gonna add an article." You can add an article to your version of it maybe, but you can't add an article

to everybody's without the editor saying yes, that's part of the
encyclopedia. There has to some electoral constitution like the
Table of Contents, like the Propaedia. The thing has to hang
together. You have to keep control of it and not let it get
control of you. It's a monster that can take over your mind and
your world if you're not careful.

Sally Hambridge: Could I draw an analogy? That are, that
exist in today's world, things where libraries that are sheer
cataloging utilities, where you can dial up and get cataloging
reference for books that may be in your library. A lot of
them are contributed from the Library of Congress, but in at
least one utility, anybody that belongs can contribute records.
They are marked as to who contributes them and they are...this
particular utility which is OCLC makes no attempt to edit them.
It says right out...you know, this is a dirty data base. You
get what you pay for. You can take whatever record you want
out of it so long as you know that it's not an authoritative
record and you can edit it to fit your library and whatever.
There are others of them that say, we will not allow that. Any-
thing that comes in as edited so that it's in a certain format
and then they present these back out. Although, you can put
editing changes on-line that are maintained. And I think, that
we're talking maybe, in the encyclopedia about very similar
kinds of things. We can have a shared data base of publicly
contributed articles on anything in the whold world that may one
day be incorporated into the encyclopedia. I don't think we
want to say, we can't let read each others articles.

CVD: But we don't want a dirty database either.

Sally Hambridge: Ulitmately, no.

Mike Naimark: I'd just like to point out a number of years
ago a favorite pastime at a large graduate school university
was adding books to the library. The library being go big that
anybody could put a book in a random shelf, put a card in the
catalog and it would...I'm sure they're all still there...you
know, go undiscovered for years and years. And I think that's
maybe a not bad example of the opposite of what you're suggesting.

Sally Hambridge: But, that's not what a catalog is.

Robert Stein: I agree entirely that the "C", encyclopedia,
should be inviolate in the sense that it's created, it has
intellectual integrity. That doesn't mean that it doesn't...it
can't...right...tremendous amount of change coming from readers
and experts, etc., which comes I think, in the context of "B"...
it comes through "B". But, still, also in "B" not only should
the user be able to affect the content over time, that I've al-
ways thought it real important that the users be able to talk to
each other while using the encyclopedia. You know, I'm study-
ing about whales and I've discovered this and I want to talk to
you about this. That should be in "B". That should be in the
shell.

Steve Weyer: I see that as sort of there's an encyclopedia discussion group that's kind of on the side or there's an encyclopedia magazine where people write articles about it and share things with people - an encyclopedia review.

Sally Hambridge: Could I initiate you further into the land of libraries by saying that a sheer cataloging database is not a catalog. It is not a catalog because it has no kind of structure to it. It's just a lot of records stuck in the database and so that ultimately...

CVD: It is an encyclopedia, it is an anthology of articles, more or less intelligently chosen, but just put in because they happen to interest somebody. And that may be the editor. You see, I'm forbidding the editors to act in this way as well. I'm not saying the editors may just add subjects at will. They have to do that within the overall structure and to know why they're adding it. If they propose adding 5 articles of a certain sort, they then have to satisfy some other editorial board or something like that, that the structure itself doesn't have to be changed to accommodate members. And very often the structure itself will have to change. I think it has to continuously change.

On the other hand, I'd like to tell you about a device that Britannica is adopting now. Living in that primitive world that they live in with printed encyclopedia, we seem to be bound by the fact that we can only change the physical thing once a year. The things that change the fastest are numbers in an encyclopedia: statistics, populations, lengths of the Amazon River, so forth and so on. we, for a long time tried to figure out a way to segregate those so that they...It's very expensive to go in and change one number on a page. Terribly expensive. It costs about $150 a page just to do it, just to change one number. To do more on the page, it'd cost more that $5200, $5400 a page. On the other hand, if you could gather all those numbers together in one place with a lot of numbers on one page, then you could change a lot of numbers for $150 or maybe $175. It would not be in any way, near as much trouble. We've tried various ways to do this. We are going, starting in 1985, publishing in a new format of the encyclopedia, a statistical summary volume, which will be about 600-700 pages long which will be almost nothing but numbers. It will be dated and we'll issue a new one every year. Whenever you buy the encyclopedia, you will be buying the encyclopedia as up-to-date as we can make it as a whole, plus an absolutely up-to-date number volume. And in fact, you can subscribe each year to a new number volume if you want to and the articles within the encyclopedia will refer to tables and so forth, in that stat summary. For the population of New York, see Stat Summary Volume. There'd be an article on New York which will be in more general terms that would say there were 7½ million people in 1980, but for the latest population, see Stat Summary Volume. Then you don't have to go into that New York article and change the population figure. I think that devise...there are analogs of that devise in the IE. I think the connections may be

invisible, but there are more and less volatile parts of the database that is the encyclopedia itself. There are much more volatile parts and there are much less volatile parts. What we want to say or show and tell about ancient Persia is not going to change very much.

Ann Marion: So, what we are saying is there is certainly utility for this within the editorial board and the management. And the internal guts of the encyclopedia has to have all these things in "B" and we also might want to discuss those relevant to users. But, I'm wondering in the next hour what should we center our conversation on. It seems like there are lots of...

CVD: Well, I would like to...if these is's and isn't's and Bob's drawing and Alan's additions there and on the mail system, it looks like it's getting pretty close to being within the limits of is's, if they are reasonably satisfactory, of course ( ), I would really like to spend a few minutes going over that essay that I'm here to tell you what I think for these two days and what I think will change based on what you think, I'd like to share this article that I wrote on The Idea Of An Encyclopedia.

Steve Weyer: There are two more things I want to add to see if they already fit into something on the list. One of them was was the notion of what other ( ) existing serve as a laboratory and I was trying to think of whether I thought of a laboratory as being more episteme or more paideia. That is, can you use it to sort of make observations and look at data or do you use it to come up hypotheses or theories that help you understand the universe. That kind of thing. That might fit into the idea of museum if you're fairly flexible with the museum and it has a lot of interactive exhibits and you might think of that as being your basement science laboratory.

CVD: I see no reason whatsoever not to put that word up there. I like it very much.

Steve Weyer: The other one...This kind of fits in...

Craig Taylor: I was just going to...I mean why is that systematic...I mean, the one thing I hear you saying that...One question I have is, what I perceive this group wants to do and what I hear you saying is the big difference of this notion of being systematic; of being organized. Having a laboratory where the user can go in there and do what they want and discover what they want seems to me to violate this whole principle of systematic...

David McDonald: I think the laboratory that you're thinking of is more like the Froeschner Physic's Lab where we would walk in and have a very specific set of experiments. That is, there are only so many things one can do. Now, when you actually got there, how you did it and how you timed yourself through it and whether you did all the 5 variations...whether you've thought something up on the fly once you've been there, you still had a very struc-

tured set; that you went through these, you went through those. They were very carefully coordinated with what was going on in lecture.

CVD: To me, the word laboratory as it stands up there now refers to my notion of interactivity of the encyclopedia. I think it must be interactive in the best possible way that we can't even imagine now which means it must allow you to experiment with the information that's in it. You must be allowed to make hypotheses and get them confirmed or denied by the encyclopedia. To me, that's what interactivity means. You have to ask questions which are sometimes counter in your first view, counterfactual, and may turn out to be factual or you may be confirmed in your view that they are counterfactual. I understand the word laboratory to mean that. I don't mean that you can go in and just play around with test tubes. That's only secondarily what a laboratory is. A laboratory to me is a place where you can do research on your own. This encyclopedia is a place where you can do research on your own. It is connected to the idea of Paideia.

Craig Taylor: No. Let's stop there. Read this notion of research. I think of research as discovering something new.

CVD: New to you.

Craig Taylor: Well, okay. New to me. The encyclopedia wants to stamp, wants to form knowledge into a very particular format.

CVD: No. It simply wants to report it, but it wants to report all of organized and systematic knowledge. It does not want to count all the hairs of all the people in the world, but it does want to say the 70% of all the people in the world have black hair, and 28% have brown hair, and 2% have blonde hair. That's an item of organized and systematic knowledge. The other is unorganized and unsystematic, although one could count all the hairs of all the people in the world. To do research within the field is what you do; you do research within the field of organized and systematic knowledge. That's your world. That's the world you live in. I'm not talking about any strange or foreign place.

Ann Marion: Why do you object to the word laboratory?

Craig Taylor: Because I'm trying to understand why isn't a "taste of" perfectly legitimate under the "is" column. I'm having a hard time seeing these borders.

CVD: It is not a "taste of" things only; it is not only a "taste of" things.

Craig Taylor: Well then, I was really looking for some strong "isn'ts". What are some really strong "isn'ts";not "isn't" completely? I can put "only" after almost all of those. For example, it's not only a textbook; but, it might act a little like a textbook.

CVD: I know that there is a temptation to make it "only" all of those things because many encyclopedias have been only all of those things starting with the first one. A poem or a novel, there's half an encyclopedia that will produce works of creative imagination. That's all they were. They were not reporting the world of knowledge. Collections of nouses and collections of epistemes, those things "only"; there is some episteme in the encyclopedia, there is some, at least nouse is reported, but it is not only that.

Craig Taylor: That I understand. But, then all of a sudden it's the "isn't" becomes completely muddy; all the boundaries are gone because with my understanding, it can't only be a novel, but it can partially be a novel and it can be partially all these things. That's sort of what I was after was, this boundary is very gray to me in several aspects. One, I can't see what it "isn't"; definitively "isn't".

Ann Marion: It's part of an aesthetics that you understand very well and we all have a sense that there's some aspect of each of these things that we would like to have. Like, some of us, we would like a "taste of", see it as a systematic way of looking through someone else's eyes. An example. And in that sense it's okay. In some other senses, it's not. Should we go through and divide?

CVD: I don't think so. I don't think it's as confusing as you say, Craig.

Craig Taylor: Okay. It's not confusing to me.

CVD: Negatives are always to some extent, less certain than positives. When you...non-being is a very curious animal, philisophically speaking. When you say that something is "X", you are saying it is not all the other things in the world. That's a gigantic proposition. The history of negative and positive predications...the theory of them is complex and we shouldn't get into it here. To me at least, it is clear, that I put "only" or "not" there doesn't make any difference as far as I'm concerned. I understand it grammatically. I read each of those sentences, It is not a book encyclopedia. It is not that. It may even have a book in it. So I would say, alright, it's not only a book encyclopedia; but, it is not that. That's not what we're making. We are not making a scholarly exercise. We are not doing a narrative history of anthology or taxonomy. If there are aspects of that in it, we can't avoid them. But, that's not what it essentially is.

Alan Borning: Also, it seems to me that this criterion of being systematic and complete can be applied to the laboratory part. That means that if you're doing that, then it shouldn't just have a Physics Laboratory, but a Chemistry, a Biology, a Music, a Mathematics Laboratory. If we can get our research done we should have a History and try out hypothetical situations, and so forth.

Scott Fisher: I'm not clear on this point. Are images within the realm of organized knowledge? In other words, looking at some kind of film or presentation of an event.

CVD: Of course it does. Knowledge is conveyable in words, in pictures, in music, through feeling, etc. I would expect that the pictures are organized in any encyclopedia and they reflect a world of organized knowledge. They can be much more organized or expansive than their scope can be; enormously greater in an encyclopedia, but, they're still dealing with organized knowledge. The encyclopedia is not about everything; it's not about "A". It's about a subset of "A". The only trouble with that picture is I think there ought to be 4 boxes. "C" is the world of organized knowledge. It's much less than the world of knowledge as a whole. And "D" , or "C Prime" is a little tiny thing in the middle of that which is a reflection of the whole thing.

Susan Brennan: One thing I like about the spacial metaphor is that maybe the things on the "isn't" column all go on the boundaries of the world of organized knowledge or right on the side and the difference between them and whatever else is or isn't is a spacial thing. One thing I'd like to add to the "isn't" column is a magazine because I definitely think it should not be a magazine. That's somewhere in "D" somewhere. That's something that's a throw-away; sort of a random presentation of things to you that may or may not fit with your current interests and I think that any kind of magazine-like thing that the encyclopedia might point to would be a very personalized thing so it doesn't really fit any magazine that we have today even if it's a highly specialized one.

Craig Taylor: That sounds right, but what about the newspaper over on the "is".

Susan Brennan: Newspaper, I think should probably go over on "B" and we could probably cross that off the other. That may include a real current analysis of an historical event that's going on right now and so, in that respect it's sort of on the border. But in terms of ( ) and stuff, that belongs on "B". I would like to see a little layer right outside of the IE that I would call, just for lack of a better word, a workspace and that's where you take all the things that are inside the encyclopedia and play with them, apply them and maybe you'd mail them to someone else. Maybe that's where your laboratory is; you have all the principles that have been discovered so far in the world of Physics and you take those out and begin to play with the Smalltalk-like simulations.

Alan Borning: I guess I see the laboratory as much more central. That if we leave that part out than what this thing is is a very one-way flow of information.

Robert Stein: I think that's in the shell. Not the laboratory but everything else you said.

CVD: I agree with Alan, very strongly that the laboratory which allows you a way using an encyclopedia that a printed one doesn't

allow. You haven't got that. You can't ask it questions and have them answered. You can't play with it.

Susan Brennan: I think that's where mail goes too, then.

CVD: Well maybe. But, mail is a device for doing that, for using it. It's a device. A laboratory....all these are metaphors and I think it is correct to say that the whole thing is a laboratory in the same way that we say that it's a museum, or a knowledge game. Laboratory is another fine word to use. It is a place where you can do knowledge work, or knowledge play.

Ann Marion: Well, there are two levels of laboratory, here. One is embedded within an article on Physics is a little interactive experiment. It tells you a little something a particular point in Physics. The other level is a workspace in which you compare information from one article.

Susan Brennan: And the workspace could be the authoring tool, as well so you can begin to author your own personal line of research which, if you worked on it sufficiently, could get it to the Editorial Board to become part of the body of knowledge.

Robert Stein: But, the reason why I'm saying that workspace should be outside encyclopedia itself is that I think you'd want to take something out of the encyclopedia and take something out of the newspaper and out of a book out of the library and put all those in a workspace.

Mike Naimark: Charles, your ( ) of encyclopedia is generally meant as timeless as opposed to timely.

CVD: I said it's an always up-to-date almanac.

Mike Naimark: Yea, but that's different. But that's updating something timeless as opposed to the news which is very local fluctuations and a lot of what seemed to be on the "is" and "isn't" very coarsely, is timeless versus timely.

CVD: No, it isn't. Epistemes and nouses are certainly not timely and I've got a nouspaper that notion of a nouspaper, with a quesion mark, a personalized nouspaper. But, the self-correcting, up-to-date reference is an always up-to-date almanac. There are aspects of an encyclopedia that must be there. Those are both timely and timeless. An encyclopedia is both. Timeless does not mean unchanging. This is not an immutable thing. It is not carved in stone, even when it is printed and certainly it's not when it's electronic. It changes in two ways. It changes in detail and it changes in its structure continuously. Both of those changes occur all the time, they never stop. Ultimately, I suppose ( ) we can turn it over to a computer to do it itself, but for a long, long time, we're going to have to tend it, water it, feed it and keep it what we want it to be. Keep it the best that can be thought and said in our society.

Robert Stein: I suggest that we let Charles take us through his article and we go back for the last hour or so and work on this

list again.

Steve Weyer: Let me just ask whether it's a tutor or not? It has to do with maybe the whole presentation style being separate from the encyclopedia, but it may be that it's so integral...

Alan Borning: You can't see it without some presentation.

Susan Brennan: Could you put tutor/agent there? On the green side? And Charles as far as your article is concerned, I'm particularly interested in your notion of the encyclopedia as a work of art and what you mean by that.

Craig Taylor: Put "presentation" down, Steve, because that's clearly the issue here; let's see how we can just wash this away.

Steve Weyer: It's sort of pedagogy presentations.

David McDonald: Well, the tutor aspect has a...is it a schoolteacher...who (   ) have a mandate to not let you get away unless you learned it.

Sally Hambridge: That's not true.

CVD: You're destroying the grammar of this thing. It is a tutor, but it is not a pedagogy or a presentation. That's not english. The rule is going to be that whenever we do this kind of thing, we obey the rules of the english language. I don't know where you want to put that.

Steve Weyer: That's true. We don't want to say it's a style.

CVD: And I didn't say it is a Paideia, it is Paideia. And I really mean it is.

David McDonald: In order to bring it off, one has to understand what's involved in the presentation very richly. It's like saying it's flat screen...

CVD: What do you mean by an agent, by the way?

Susan Brennan: I guess it has to do with enabling the user to find things easily and more than that, being conscious of what the users needs are.

CVD: I would prefer to use, instead of tutor, to use "knowledge coach" because I think it's absolutely crucial that "it" as a good teacher, be able to drill you, be able to correct your work. Because there are times when I think you are going to want to use the encyclopedia in that way.

Susan Brennan: I think it should help you formulate what your problem is and then, take you one step further if it's truly an intelligent thing.

CVD: Okay. This article was written a long time ago. It was written in 1960, in fact. When I first went to work for the Board of Editors at Encyclopedia Britannica, Robert Huchins who was the chairman said, "Go and look at all the encyclopedias in the world and tell me about them; summarize. Write an article about all the encyclopedias you could see." I had a wonderful 6 months. I went to the New York Public Library and just looked at encyclopedias in every language. Not every language I could read, but I soon began to be able to understand how they were organized from knowing how others worked. I became particularly fascinated by (   ), which was published in France around 1930, under the direction of a few men, (   ).

Fuvre was a very great historian, the founder of Anale Distoire, which is a revolutionary magazine of history and began to appear in France in 1929. Fuvre and his star student Bordel, were extremely concerned that the world of history was being broken up into so many specialties that not even different historians could talk to each other, to say nothing of historians talking to sociologists or sociologists talking to statisticians or statisticians to computer scientists. Anale Distoire was an attempt to bring a unity, an overall unity to history. These guys very great historians in the tradition of (   ), who thought the history was the (   ) discipline and that they thought that the Anale Distoire could bring unity to intellectual life. They proposed to a publisher that they produce on the same principle, a great encyclopedia that was to be...

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I think it may still be there, I'm not sure if we have it in the library at the Britannica. I haven't looked at it for 10 or 15 years, but I did pay very close attention to it at that time and it made me feel that there are 5 fundamental goals that an encyclopedia should serve. They are goals that I present in the article in a way to suggest that they are different from the goals that are buried in most encyclopedias.

The first of these was, as I say on the first page, the primary aim of an encyclopedia is to teach. It should take only secondarily to inform. Now only secondarily doesn't mean that it shouldn't do that. It should, of course, inform. It should be a reference book, but it should...(   ), that's what Fuvre had said. And we were talking yesterday about the difference between understanding something and recognizing it or knowing it in the sense that a father knows his son or that I know that you are Jim Dunion. I don't know you, but I know that you are Jim Dunion. I recognize you.

The encyclopedia should do more than merely answer questions of fact. It should also have to make you understand what those facts mean; what is the connection between them. I think we probably all agree that that is a fundamental requirement of this IE.

The second was: an encyclopedia should be primarily a work of
art; it should only secondarily be a work of reference. Now,
Susan asked me what I meant be this. Have you read the article
on the encyclopedia in the Britannica? You realize what hap-
pened in the 1870's almost simultaneously with the publication
of three encyclopedias: one was the French work, (   ), the
second was the Encyclopedia Britannica and the third was (   ).
They are three entirely different things. Leaving aside (   )
for the moment, which did not survive. I mean its form didn't
survive. There's nothing like it today, although what we're
doing may be very much like it in other ways.

The two models of encyclopedias today are still Britannica and
Brach Haus. Brach Haus is an ideal; a perfect reference set.
It is designed to answer your questions. Ideally, it answers
all the questions that can be asked as long as those questions
are questions of fact. Every question that's asked in Brach
Haus is a simple question and every answer is a simple answer.
No answer goes beyond the simple meaning of the question itself.
There are all kinds of questions, but they are taxonomic. They
are not intellectual. There is a large class of these questions
in the encyclopedia and you can go and look at all the others
of this class, but it's one dimensional. It's flat land. You
never go up above and look down on it or go under it to look up
at it. Brach Haus to me, is an abomination. It's a tragedy that
it is so successful and that so many encyclopedias have imitated
it.

There are, in fact, many people who think that's the only thing
an encyclopedia can be. There are many buyers of an encyclopedia,
there are many salesmen of an encyclopedia and many editors of
it who think that is the only thing it can be or should be. If
they ever become dominant over Britannica, then they will cease
to be anything but one kind of encyclopedia in the world - the
Brach Haus type. It's a maudlous instrument, but it has no
mind in it at all.

Sally Hambridge: What about users. Is there any kind of data
on what people expect when they go to an encylopedia?

CVD: They expect Brach Haus, but they must not be allowed to
have only what they expect. If you can't give people more that
what they expect, what kind of business are you in? To say that
an encyclopedia like Brach Haus or that it is like the 14th edi-
tion of Britannica is to say that it is not a work of art. It
has no cohesive structure. It is not designed, it is simply col-
lected. It is not created, it is simply gathered together as
an anthology of facts, even an anthology of articles. Even an
anthology of expert statements. No library is a work of art, at
least no public library, no big library any more. Some small
libraries are or can works of art. The books are gathered accor-
ding to certain principles. They are organized and personalized.
But, certainly no national library can be because it simply has
two copies of every book that's been published. Those are dep-
ository libraries. They are the very opposite of an encyclopedia
as a work of art can be.

Now a work of art does not mean a work of the creative imagination. It doesn't mean a novel or a poem. It means an artifact, which is what the encyclopedia is, having a design and which was in the mind of the maker before he made the thing. The design is the end. The design is the ultimate goal. It is the reason for which the thing exists. It is in that sense that I say the encyclopedia, that the IE must be a work of art and only secondarily an answer to all the questions that were asked. It must be that too, but that's not number 1.

Susan Brennan: One thing about a work of art that is why I asked that question is that people respond to it in very different ways. While there is the intent in the mind of the artist, included in that intent is the variety of personal responses. I was wondering if your definition includes that.

CVD: You must not think of it as a work of art. It is not a work of fine art. You don't make it just for the sake of making it. It's a work of practical art.

Susan Brennan: In it, some of the topics of the encyclopedia are there only for comprehension. Someone may, that whole year, never look up that item. It may be there for the sake of the printing, in that's it's expressing (   ) body of knowledge.

CVD: You're quite right. That's central to the notion of a work of art. The fact that it's a work of art means that it is designed, that it is structured, that it is coherent, that it's cohesive, that it's coordinated throughout and therefore, that it has things in it, that nobody during this year is going to use. If you don't want to do that, if you want to make only a distorted thing full of holes that only reflects what people use, then you're not going to make a work of art. You're making a public library. A public library that has 20 copies of the latest novel because that's what people want to buy. If you had a lot of money you could make a library that has 20 copies of the latest bestseller. But most libraries choose not to be works of art.

Most encyclopedias choose not to be works of art and although they may start as works of art, they cease to be because the editors have neither the courage nor the conviction and the publishers don't have the staying power.

Jim Dunion: I think there's another element too, particularly with (   ) with images, possibly dynamic images much more heavily now than in the past, than this selection or the creation of this imagery, is a practical artistic aspect of it that's not quite the same as just the (   ) of this body of knowledge, but how well it's expressed too, that's much more a part of the next edition , I think the 15th edition of the Britannica was until we get the artistic element at that level in just expressing that body of knowledge.

CVD: Yes, but you keep thinking of art as (   ). There are 3 orders of human activity: the order of doing, the order of know-

ing, and there's the order of making. Those are the three
things that humans do in a systematic, organized way. The
order of making is the world of art and things are made for
two different purposes. Things are made to be used or they
are made for their own sake. The world of fine art is the
world of things that are made for their own sake. Fine is not
fine in the sense of excellent or anything, it's fine in the
sense of end. The Latin word, fine, that is involved in that
word fine art. Art that is an end in itself. A painting is
not to be used for anything. You can look at it, but you
don't have to look at it. The reason you paint the painting
is to paint the painting.

Now there is a whole other aspect of art that is represented
by the Greek word, (   ), where what you make is to be used.
The purpose of making it is to use it. It has a purpose beyond
itself and we have, unfortunately, lost this distinction. We
can't refer anymore to an automobile as a work of art because
we think art only means fine art. But, in fact, an automobile
is just as much a work of art as a painting.

Mike Naimark: Well, if you've gone this far, you might as
well go the third step that art comes from the Latin word,
artist, which means skill.

CVD: Yes, sure. But skill in making, not skill in doing and
it's not skill in knowing. It's skill in making. The universe
of the made is the world of art. An encyclopedia is a work of
art in the second sense, in the sense of (   ), not in the
sense of fine art. It is a tool created by man to be used for
understanding, but one can make such a thing well or badly. One
can make it by simply gathering and collecting a whole bunch
of stones together and piling them up. Or, you can make a pyra-
mid. The encyclopedia is more like a pyramid than simply a pile
of stones no matter how beautiful the stones or how glittering
they are.

Scott Fisher: But, when you say useful does that mean that it's
totally accessible to everyone or that it's useful in the sense
that it makes people think more about what they are looking at.

CVD: No. I mean only that it has a purpose beyond itself. Only
that it has a purpose beyond itself. That's what it means to
be useful with regard to things that are made. There are things
that man doesn't make and there are things that he does make.
But with regard to the things that he does make, some he makes
for their own sake and others he makes for another purpose beyond
themselves. This is elementary and the encyclopedia is in the
last class. It is one of those things that man makes for another
purpose beyond itself to be used for X, Y, and Z. Just like a
car or a government or a house or a system of laws. All those
are artifacts and they're all practical artifacts. They are
all useful. I quite specifically site examples of government
or a system of laws because not all things that are made are
material and I'm not sure this thing we're making is material.
It may not be material in some sense, but it nevertheless should

be a work of art, of conscious art. In other words, it's got to have something like the Table Of Contents and that Table Of Contents has to be its intellectual constitution as opposed to its technical constitution. There have to be two constitutions to this work. Just as a government that just comes into being isn't a work of art in this sense; it is something that just grows like (   ), whereas a government with a constitution is a true work of art, of human art.

Craig Taylor: But, I think what Jim was getting at was, even an art to be used, there are still things that you do to it to make it for its own sake, prettier. You polish a piece of metal, which is completely independent of its use. It's no more useful - shiny metal versus dull metal. I think that's what Jim was after was that the things that we present inside also ought to be very pretty, that they ought to have some depth. Is that what I heard you say?

CVD: Great. Of course I agree with that. It must be elegant. This encyclopedia must be elegant. In Mathematics as you know, a proof is better if it's elegant. It's better Mathematics. It's not just more beautiful.

Sally Hambridge: Every programmer here will agree that programs are better when they're elegant, too.

Jim Dunion: Would you say that the encyclopedia is a story? Or a collection of stories, possibly?

CVD: Well, I said it's not a narrative history. I'm very apprehensive about that. That makes me very uncomfortable to say that. No. I wouldn't want to say that. I have a pretty clear idea of what it's supposed to be.

Mike Naimark: How about religion?

CVD: No. It's not a religion.

Susan Brennan: The story metaphor is more like your (   ).

Sally Hambridge: A story has a beginning, a middle and an end. I don't think you can say that of encyclopedias.

Jim Dunion: But it does, though, because it's a circle of knowledge.

CVD: But, there's no beginning, middle and end. Is an automobile a story? No. An automobile is not a story. It has a front and a back, but...I mean, if you think what an automobile is, then an encyclopedia is like that.

Jim Dunion: I think an automobile is like a story.

David McDonald: Well, what would you have to do to it?

Steve Weyer: Well that actually a game and the encyclopedia

couldn't really be a game, since a game has to have some
boundaries to it for it to be a game rather than just sort
of random play.

Alan Borning: A game can have rules, for example, I can have
a scavenger game that allows me to go anywhere in the world
to gather my things.

Sally Hambridge: And rules can be self-imposed.

Craig Taylor: That's not the encyclopedia. That might be a
way of using it. That might be in the "B" shell. That has
nothing to do with the encyclopedia, though.

Susan Brennan: There is a whole class of things that needs to
get worked out and one is a story and how you generate intelli-
gent and it has a beginning, middle, and end. Maybe that's
even a browsing strategy that generates (   ).

CVD: Sure. I don't say that individual elements in it are not
stories. It's possible that some of them are. But, it is not
a story itself. There is no narrative of the world of knowledge.
There is no place where you must start and no place where you
must end, although that's a great temptation. Whether there
are stories in it is another matter.

Susan asked me what I meant by a work of art. I said it. I
can only say it again. There are 3 orders of activity: the
order of knowing, the order of doing, and the order of making.
The order of making is divided into two classes: the making
of their own sake and the making of things for a purpose other
than its own sake. The distinction is in terms of the end.
You can say to me there is always an end outside itself and
according to Christian theology, there is because when a painter
makes something not for himself...not for itself, but for the
glory of God. But, forget that. Leave that out. A painting
is made for no other than for itself or for the glory of God.
It's not made to be used.

Works of fine art can turn out to be used and works of practical
art can turn out to be works of fine art. You can take a chair
that was made to sit in and put it in a museum to look at and
there are all kinds of crazy things that can happen of that sort.
You can take this encyclopedia and make it beautiful as well as
useful. I think it'll be more useful if it is beautiful. I
happen to think that the outline of knowledge is inexpressively
beautiful, but then you may not agree with me.

Susan Brennan: I have another question about these five points.
These seem extremely good and idealistic and very unlike even
the Britannica I grew up with, certainly. I just wondered if
you were sort of a radical in your group or this was the main-
stream of the group you were in.

CVD: No. That's not the mainstream. With regard to two, cer-
tainly those of us who thought that to be correct were in the

mainstream in the making of the 15th edition. That was one of
the primary criticisms of the 14th edition - that it was not a
work of art. It was merely a pile of stones. With regard to
one, I guess Dr. Adler and I, Mr. Hutchins were the leading pro-
ponents of that position. I think that it was not the dominant
position. With regard to 3, I think we were again in the major-
ity and this is an important and rather difficult point to get,
but it's worth struggling with it a little bit. The point of
view that the encyclopedia should be primarily human. It should
be only secondarily historical and/or scientific and/or literary
and/or 50 other adjectives you could put. It's very easy to
say I'm just going to make that collection. I'm going to make
my encyclopedia a collection of histories. I'm going to do it
from an historical point of view. Or, I'm going to do it from
a scientific point of view. Or, I'm going to do it from a lit-
erary point of view. To do it from a human point of view is to
always view the world through human eyes. Now, of course, with
a history, a science, a literature or art, also creations of
human beings...in a sense you're looking at the human eyes when
you make a collection of historical articles. But, the structure
of the Table Of Contents, the Propaideia, reflects the fact that
man is at the center of the Britannica as it should be at the
center of this thing. The Table Of Contents starts with Part
One, The World and Subordinate.   Part

The Table of Contents starts with Part One, the world and subor-
dinate. Part Two is The Earth as a planet, as an inanimate
thing, a place where we live. Part Three is Life On Earth, but
exclusive of man. It is the biosphere that surrounds the geo-
sphere. Part Four is Human Life, man viewed/considered as an
animal. Man's history on earth, man's health, his sickness and
other things like that. Man as an animal, as one of the number
of animals on the earth. Part Five is Human Insitutions, man's
institutions. These are his greatest artifacts, his greatest
creations. They are the ways that he has designed in order to
be lived, in order to live on the earth. That part's divided
up into education and laws, etc. Part Six is Art. Part Seven,
Technology. Part Eight, Religion and Part Nine, The History.

Part Four, Five and Six are the very heart and soul of the ency-
clopedia and they are man's (   ). You could design (   ) and
I think you should not and by man I don't mean males. I mean
man and women and children and old people. But, the focus and
the primary concern of the encyclopedia I believe, is always man
and his activities. If we don't do that, we're not going to
have as good an encyclopedia. The editors of the 15th edition
Britannica paid lip service to that and as far as the Outline
Of Knowledge was concerned, we agreed with it. But, I'm not
sure that they ever really understood. Some of the things that
are said in the article that I wrote attempts to explain that.
Messiuers Fuvre and (   ) agreed that the point of view of their
encyclopedia should be humanist and not literary. The distinction
may mean more to a Frenchman than to an American. Humanist became
a questionable word in the Western Hemisphere, partly because we
were subjected to so much nonsense about human values in our phil-

osophy. Nevertheless, the tone of the American encyclopedias is often fiercely inhuman. It appears to be the wish of some contributors to write about living institutions as if they were pickled frogs outstretched upon a (   ). To tell you the truth, this is a place where your tastes of become very important to talk about Sufism, or Judaism, or welfare, or immigration, or any other thing that people are involved with, with people actually talking to you about how they have experiences. That is to make the center human and I hope there is a great deal of that in the encylopedia.

The third point: The ideal reader of an encyclopedia should be primarily the curious, average man. He should be only secondarily, the specialist. I would say now he is not ever the special-] ist and/or the high school student. Although this encyclopedia that we're making can deal with people at all levels of age and sophistication, the one kind of reader or user that we should take more is the specialist, except in the shell, except in the "B" cube. We can get out there if we want to. We can access all kinds of databases of expert scientific information episteme, but this should not be part of the encyclopedia itself. This is a fundamental tenet of the 15th edition of Britannica. Whether curious average or curious intelligent layman...curious, average man or curious average layman, they may mean slightly different things. In a broader sense, they mean the same. They mean the non-specialist. An encyclopedia was written by specialists for laymen.

Steve Weyer: By intelligent layman, do you have a particular age or education level in mind?

CVD: No.

Scott Fisher: This is kind of a scary issue, but I've been curious about it. Would that include being accessible to other than people? For example, machines.

CVD: Why not? I mean, this is exoteric. It's not esoteric. We're not banning access to it by any means or anybody. We're not ashamed of what's in it.

Scott Fisher: But, in terms of the form, that would have to take that into account.

CVD: Well, I think so. But, that's entirely up to you. I think it should be universal. I think it should contain an automatic and mechanical translating machine which would allow you to read it in any language. I wish it could do that. Reading it in Assembly Language or Basic we're all sure could be possible, but...

Alan Borning: I think that all fits in rather nicely with the electronic community metaphor in that presumably there has to be a general notion of agent which is either a representative of a person or an artificial entity and I, for example, if I have enough resources, turn an electronic agent loose in this thing looking for things for me and telling it to report back to me after a month. What interesting connections it's gotten.

CVD: Why not? That's part of the knowledge game, I think.

Susan Brennan: For some future session, maybe not today, I'd
like to go through the agent part of it. I'd like to describe
some of the functions of agent. It is pretty much everything,
but I'd just like to make mostly an "is" column.

CVD: The last point is the one that I think attracts Bob more
than any other and it attracts me more than any other...I said
the encyclopedia should be a revolutionary document the way
(   ) was a revolutionary document. (   ), I think, is the great-
est encylcopedia ever produced because it created a better world.
It was a very interesting encyclopedia in its own right, very
useful to a lot of people. But, it had a name beyond itself
that was not just that of informing or teaching. It was also
of modifying and improving the world in which it existed. It
sure did it. France, in the 19th century was a better world
than France in the 18th century. It went through a terrible
turmoil and ordeal to get there, but it got there.

An encyclopedia should be primarily a document to change the
world for the better. And only secondarily a document of
accurately (   ) knowledge (   ).   It should be that, too.
But, it should also have the revolutionary, the radically pro-
gressive note in it.

Now, I don't know what that means. I think I would have to
respond ad hoc to a whole bunch of questions, proposals, forms,
and so forth, in order to put real content and meaning into
that statement. There is a part of me that intuitively believes
it to be important and correct. That's about all I can say
right now.

Susan Brennan: I think that attracts most of us to it, too.
I know that Alan's metaphor is coined: our research in fantasy
and sharing, which could be described as the individual (   )
to use this and have better his own life, his own expression,
and also his ability to communicate.

CVD: To better your life...yes, I quite understand that and
I think that's included in any idea of an encyclopedia. But,
to make a better world, the electronic community is the closest
that I can come to saying something about that. The world is
a terrible place. It's full of violence and cruelty and uncaring
and people are starving to death and dying of ignorance. Dying
because they don't know the simplest things. This encyclopedia
has the capacity to alleviate many of those ills.

Scott Fisher: Yes, but it's also a great place and it has the
capability of pointing out those things that are really incred-
ible.

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Sally Hambridge: I'm worried about that because I think that
and I think we need to hear this worry that this assumes that
we all have the same goals. If you say we hope to change the

world for the better, then that means that we have to define
what the better is. That means we all have to have some sort
of agreement that the direction that the world takes is the
right one.

Alan Borning: I don't think it's quite that dangerous.

Sally Hambridge: I think it can be.

Alan Borning: One way in which it can very dangerous is if
everybody said here's the ( ). All the articles have to
be written according to this ( ) and if they don't subscribe
to socialism or right wing whatever, we'll leave it up to you.
But, another way of saying we'll improve the world for the
better is by doing what Carnegie did when he said he'd put a
library in all these thousands of libraries and they'll have
a variety of different kinds of information in them but, the
belief is that if people have access to more information that
that will change things for the better.

CVD: You know, UNESCO just announced that there were four things
that if people did, they would save 200,000 lives per day. And
it would cost very little. They could be done ( ). One is
that babies should be washed when they're first born and there
were three other things as simple and as down to earth as all
that; the last was that all babies should be immunized. Now,
the cost of doing those four things, if people knew they should
be done, is tiny compared to the amount of money they spend on
a lot of less important things. But, they would save 200,000
lives a day. Maybe we don't want to save 200,000 lives a day
in one sense because 200,000 more people alive everyday is
( ). But, that's not relevant. It's none of our business
to say those 200,000 children should die today.

Now, I think that this little encyclopedia (little compared to
the universe that we describe and the human population that it
serves) has the capacity for reaching out and teaching people
things like that as well as what happened in the year 500 B.C.
in ( ).

Robert Stein: The word "revolutionary" has extremely scientific
meanings to me which I don't want to go into, but I'm not so
concerned about this ( ) revolutionary instrument. I think
what attracts you at this ( ) part is the idea that what we're
...that the encyclopedia should be self-conscious about the
fact that giving people access to information and knowledge is
very important and in fact, a radical thing to do. It's that
relationship between people and knowledge/understanding that I
think is relatively radical and that I think the encyclopedia
needs to be self-conscious about. If you don't see that as
important then you make a lot of decisions along the way that
I probably wouldn't be that excited about.

Susan Brennan: In a sense, that's what our nouse is going to
be and if you acknowledge it, then hopefully, it won't become
damaging.

CVD: That's right. We have ideals. I'd like to read you the last paragraph which is mine; mine more than anything else.

"Finally, it is important that the work is attempted and be thought of as a kind of message for the future. This is the way it was, you would say. We give you this world, now make it your own. It'd speak to the next century rather than to this. It would attempt to interpret the 20th century for the 21st. Such a document would provide an educated synthesis from which the curious average man can successfully encounter the novel complexity of the present and build a future that is good for man."

I just as deeply believe that now as I did 20 years ago when I wrote it. I don't think we did that in the 15th edition. I don't think we had any interest in that whatsoever. I would like to feel that we shared in that desire. This is a message for the future. In fact, it's even better than that because it's a continually updated message. It is not a one-time statement. It's always changing and always improving. Always being more an accurate reflection of the best that is known.

Steve Weyer: I don't know if I really see it as a real evolution to the long-term thing or if it's really kind of a dead end, an evolutionary dead end. The reason I'm sort of bringing it up again is Charles asked me to write a proposal to (   ), telling them what we really want to do if we got the text. And, I starting thinking I was starting to come up with some research questions that we could answer if we put up some kind browsers on the text.

David McDonald: As an evolutionary dead end you still have to ask how many years away is the dead end coming and if it's coming 20 or 50, then it doesn't matter.

Susan Brennan: I think what really scares me about this project is the breadth of the project because I can certainly deal with the depth approach. I think it's really important to have that information available, even if we decide not to use it in its current form. In order to satisfy the requirement of breadth, it is important that we at least explore the database.

Steve Weyer: I guess what I was getting worried about was I was starting to form research questions and I was thinking it was part of the condition of getting it from Britannica, the fact that we have to answer all these questions or do we sort of change our minds later on and say, gee, we think these aren't the right questions now that we've had some experience with this.

CVD: Of course it isn't. You know perfectly well it isn't. How can something that happened afterwards be a condition of something that happened before? The condition of getting the thing is that you do what I suggested you do, but whether that will work or not, I'm not sure. But, I think it is a condition.

What questions you actually answer, that's up to you.

Susan Brennan: What's our condition again, Charles?

CVD: To say what you want to find out.

Sally Hambridge: It might be fun, for example, to say that we're going to explore what Michael was talking about, the way that people browse something like...

Steve Weyer: I'll basically write up an outline and pass it around for people. We have to do something by the middle of January. It only has to be a few pages long, but...

Scott Fisher: It would also be fun to take a given topic and see how many different ways we can represent it, for example with images or simulations or non-textuals.

Steve Weyer: These are sort of decorating articles, you mean? Or, even re-writing them.

Scott Fisher: Yes. Almost representation, whatever that means.

Jim Dunion: Particularly for those items that we've identified as sub-databases that we can start customizing on. We might want to look at a database (   ).

Steve Weyer: But there are some depth versus breadth questions because say for example, that we really wanted just a view of whales. Maybe we don't need very much of the Britannica in order to look at whales, but if we really want to address brow-sing and breadth questions, then we want more. Actually, that's some of the issues we need to address more. We need to justify why we want all as opposed to part of it, or why we want it in... there's typographic information that might tell something about whether something is a footnote or a heading. So, we might want to say something about that too. That we want that infor-mation there as opposed to have them strip that out because they're worried about (   ).

CVD: Thank God there are no footnotes in the Britannica.

Susan Brennan: I see almost two strategies, then. One would be dealing with the browsing issue and the other one would be examining a specific area with the hope of not only representing it in many different ways, but coming up with a style that can be extrapolated to other subjects of the same class. The topics that Kristina's proposed that we investigate, we came up with a list of between 3 and 5, hopefully, will be generalizable to other things. And that's where their chief value lies. And I think we should re-examine that list and make sure that it satisfies that (   ).

CVD: Examine the list and are the results applicable to other cases and does the particular example require the possession of the entire database? You don't want to suggest a bunch of research projects that could be done having nothing but the "A's". You're not going to have any fun that way.

Susan Brennan: Certainly not.

Scott Fisher: Cross referencing, too is...

Steve Weyer: Once you want to do cross referencing, I think that argues for having the whole thing because it's really hard to isolate one section of this that doesn't tie in with anything else.

David McDonald: For that matter, to anticipate all the pieces you wanted, even if you were only going to work on one problem, as long as you were prepared to deal with the edges of it, and with the casual browsing effect, then you couldn't specify what parts you wanted. That would be answers that you wouldn't have until you actually were doing the research.

Steve Weyer: I'm pretty sure that's not, even if you could, it wouldn't be tied to the alphabet at all.

Susan Brennan: Another thing that I'd like to ask (   ) at some point, when we're in a more detailed work session, is what he thinks are the topics that the encyclopedia (   ) works on and why that is. Like are there things that are much more difficult to represent in the current printed style and how can we exploit all the resources at our disposal and represent concepts that are much more difficult to represent. That ties in with what you were saying about representing things that aren't traditionally, successfully explained in encyclopedias. And whether those should be part of it at all, which I think that they should.

CVD: Part of Mathematics, Physics, Chemistry...most of what, which may be inherently difficult, presented in the general encyclopedia, our greatest problem is lack of wit. We didn't know enough. We worked as hard as we could seven days a week for about seven years, but we didn't know enough. We didn't have the time. So, Psychology in the encyclopedia is not very good right now. It's going to be much improved.

Sally Hambridge: What kind of wit do you mean?

CVD: Smarts.

Sally Hambridge: But, you're not talking about being witty. Your not talking about Alexander Pope, are you?

CVD: Yes, I am. Alexander Pope meant by wit, just as general intelligence.

Sally Hambridge: True wit is nature to advantage stressed. What oft was thought, was ne'r so well expressed.

That's from The Essay On Man, folks. One of those little things I picked up in my travels.

Susan Brennan: One of the topics that have to be proposed may be one of those things that might not be located within an encyclopedia, although I hope it is, but I'm not sure. And that is the subject of humor. And Jim in particular is interested in a joke generator aspect of that and a lot of us have been working on that. What place does humor have? Is that the style of presentation? Is that a topic?

CVD: There is a very good article by Arthur Kessner on humor in the Britannica, excellent article. You can make the encyclopedia funny, but the idea makes me very leary. If you can, great , without ruining it.

Susan Brennan: You're description of the article on the novel that you mentioned yesterday in a sense, maybe that falls into what I would classify as funny, in that he uses style to express it.

CVD: But, you don't want to only article to be funny is the article, Humor. There are jokes in the article. Some of the jokes are very good.

Steve Weyer: (   ) humor is very serious - one of the most serious articles.

CVD: There is an article about very funny things, but that's what an encyclopedia should be. Now, whether the article, Nuclear Fission is funny, whether you can make it funny, I don't know. If you were using a joke generator, I suppose you could.

Steve Weyer: You know what one atom said to the other atom? Let's split.

CVD: That's the kind of humor that the computer...that's about as far as it would go.

Susan Brennan: In that I've always thought that a sense of humor was a sign of intelligence.....I think if the IE is truly intelligent and not just some kind of mechanical text search or random database structuring element, I think that if it has the ability to present the information in a playful way, as opposed to only in one other way, then it's truly an intelligent encyclopedia.

CVD: That's wonderful and I think you should make it a goal.

David McDonald: It's a very high goal. It requires knowing... the hard thing is doing it straight and very well because the humor has to be apt and it very carefully has to reflect what the person knows and doesn't know and if you're tutoring and laugh at the wrong time, the person is just crushed. It's a very delicate notion of what they know and what they should know next to put the humor in the right place.

Susan Brennan: Right. But, in the IE you have to be able to make associations that no other currently existing machines make among all of that information. That's a lot of what I see humor as being; it's really apt association.

Ann Marion: I think we should discuss what the product is that you foresee and what are the kind of research interests we have. I'm not also sure what kind of time frame we're thinking of. I know that most of us (   ) are research orien- ted and we have an interest in seeing products happen, but it might be worthwhile to frame certain types of research projects with respect to having it relate the near-term product.

CVD: I don't know what you're going to do. I think if you said I want to do this or that, I would know whether it was relevant to my idea of what the ultimate thing is, but it seems to me that there's no question that the end is a prod- uct. A product that can be sold. Probably it's sold in the form of a service rather than a material thing. It's not a thing, it is a service that is sold. You'd probably pay for it on a monthly basis or something like that. You'd probably pay for it all your life. It is as much a part of your life as is the telephone and you pay the bill every month as you pay the telephone bill. I think this is likely to be the form of sale and payment. Whether when you purchase the IE, you also purchase the terminal, a special terminal, I don't know. But, there is some kind of terminal in your home. There is some kind of delivery device, maybe as a DYNABOOK. Maybe it's a wall, maybe it's a continuously changing wall. Maybe it's one wall of whatever room you're in. I don't know. I mean, there are lots and lots of ways I suppose you could do it. But, there must be some terminal. Your home becomes a terminal.

Ann Marion: Are you involved with the...I guess I'm, I don't know the whole history of the EB project, but is there a sche- dule involved here?

Susan Brennan: We argue about that a lot.

Robert Stein: Is there a schedule for what?

CVD: For this product, I think there is certainly not. But, there is a general feeling that it's not something that will happen very quickly. Whether there shouldn't be something that does happen quite quickly, is another question. I feel quite strongly that something should happen quite quickly, but I'm also quite certain it's not this that can happen quite quickly. And we're talking here about a number of years. I shoot for the year 1999. If you miss it by a year, you've got an inter- esting thing. 1999, I would say, is the target date. I don't see how it can be possibly done earlier than that because, al- though I think we can begin now to create the database, the content, we can probably get the content done in 5 years, 6 years, 7 years. It'll take that long. It took us about 7, but it wasn't this big. But, we know more about how to do it now. I think there are other aspects of it. I mean the del- ivery system, the programming and the technical constitutions

that just don't exist at all. And they're going to take longer than any of you realize. So, 1999. I lay that on the table as a date to...

Robert Stein: As far as short-term products, I think that we have basically made a decision to take the idea of doing a short-term on-line encyclopedia and putting it into a research category and think and play for a year with the possibilities and see if we can come up with a product that makes sense giving this new technology 3 years from now and existing communications systems, etc., and make a decision sometime in the next whether or not we want to go ahead and develop such a product.

Susan Brennan: So at some point we should sit down and decide what are the minimum things that would have to have to be worth anything to anyone which I think, we're going to have a lot of differences of opinion in because at one point, we raised the issue of whether it would be any good if we just made some videodiscs and stuck together with Nexis on-line text search and most of us gagged. So, that's another issue we have to work out. Like, what is the level of acceptability that we have to set up so that people don't get really disappointed and turned off by the whole idea. That's a real important thing. Once again, since you have Atari-Britannica linked up, you don't want to send out something that's worth ( ).

CVD: On the other hand, you cannot afford to wait until you have something that would satisfy you. You cannot wait to ( ). I have a pretty clear idea of what would satisfy you and I think it's going to take too long to make. So, you have to start, to put it very crassly, selling something less than what would satisfy you in order to justify going on to do the thing that will satisfy you.

Susan Brennan: Do you want to talk about that now?

Craig Taylor: What's your feeling of what a minimum is?

CVD: I think a minimum is a very much smaller database than the Britannica and I suggested to Bob that it could something like Britannica Junior Encyclopedia which is about 6-7 million words or somewhere in that range. But, it is a general encyclopedia that covers everything only at the level...it's called Britannica Junior Encyclopedia For Boys And Girls. That's the title of the whole thing. Now, one of the advantages of the encyclopedia is that the text is fairly up-to-date and the pictures are, for the most part, very old fashioned. We've discontinued publishing it, but we like it very much. There's a great deal of nostalgia about this encyclopedia which we've been producing now since 1933.

A first product which would be specifically, expressively for young people, boys and girls, the first electronic encyclopedia for boy and girls, could be produced from that. It would be produced by a process of ( ), it would not really be a work of

art. It would be an on-line text database, much modified from
what it is now, but that would have to be done with all kinds
of illustrative enhancements. It's my guess that you could
make something that would be not what would satisfy you, but
that would be useful, exciting, and desirable to a lot of
people 14 and upward. I think it could serve as the stopgap
that I think is absolutely necessary between say 1988 and 1999,
because something has got to be in existence. Something has
got to be being sold; something has got to be being the basis
of a business during those years in order to ensure the con-
tinuation of the research that will lead to the ultimate
product. I know it's so. All the experience that I've got
of life, of business, tells me that that is so.

Ann Marion: So, 5 years.

CVD: I think that one of the things that should happen. No
more than a 5 year development.

Ann Marion: It includes rewriting and updating.

CVD: Yes. And a reasonably good...

Ann Marion: ...and an opportunity to do some work with the
(   ), you know lab style.

Susan Brennan: I agree with the philosophy of a 5-year devel-
opment thing. Certainly that adds vitality to the research
being done, but I also wonder whether it's better to take the
children's encyclopedia instead of something like one of those
volumes that you outlined in the Propaedia and developing that
for adults and for everybody.

CVD: I don't think you're going to be able to sell that. I
mean, take one of them. Take Education, take medicine, take
Human. As soon as you limit it in that way, you have enormous-
ly limited the others. The guy in the home will say that he's
not interested in Medicine and you've got no place to go. The
wonderful thing about an encyclopedia is that nobody can say
they're not interested in an encyclopedia; that they're not
interested in what it covers because that's to say they're not
interested.

Now, this product is another (   ) in my view because it would
be used by Britannica as a wonderful premium for selling the
print set for a long time and Britannica feels that it doesn't
have to face the demise of the print set too soon, it's going
to be a lot more (   ), what you're doing is really (   ).
The Britannica would become a major marketer of this entity.
I can suggest it's not as interesting a thing to do as IE; it's
not the IE. There's no question that it isn't that. It's a
smart little kid set. That's what it is.

Jim Dunion: One thing that you touched on several times today
and that I've really been thinking about is, Will the encyclop-
edia, as we've come to envision it, have a life that's indep-
endent of networks? Will there be a self-contained device
that has at least the main corpus in item "D" there that is not

dependent upon random access broadcasting or networks or a
huge, tremendous file ( ). I think that the best of all
possible worlds, it has to have some sort of independent ex-
istence.

CVD: I think it does, too.

Jim Dunion: I think that kind of narrows some of the goals
right there.

CVD: The advantage to this strategy which may not work, but
which has a better chance than anything we've thought of so
far, is that you begin with something that is in the first
place, a very positively received thing among librarians in
schools because they like Britannica Junior. It already has
a very good reputation. It's got that name, Britannica, but
it's not Britannica itself. It's has a nice relationship to
the big print set and yet it's not the big set. You're not
faced at the beginning of your work with the overwhelming mass
of 43 million words and 33,000 pages of material, which is
unassimalible until you've had some experience with dealing
with encyclopedias. You're biting off more than you can chew.
That's not true with Britannica Junior.

Susan Brennan: Is it like the Micropaedia except with simpler
vocabulary.

CVD: No. It's not. It's like the 14th edition. It has some
long articles and a lot of short ones. It has ready references
with a lot of 2 or 3 line entries for the little tiny bits
of information. It's a nice, little set.

Mike Naimark: This is not of primary importance. If it had
a major component that was visual, would your preference be
that it shows you words or that it talks to you.

CVD: Talks. Well, I'd love it to be able to do both. But,
I know what you mean. I think it being able to talk to you
( ). Is voice synthesis good enough to do that now?

David McDonald: It'd be in 5 years. Right now the kids probably
couldn't understand it if it was going to read raw text, the
kids couldn't understand it. Well, they might learn to under-
stand it. You or I could learn to understand it.

CVD: But, you don't want to obliterate...You don't want to
remove all reading ( ).

David McDonald: But, I think 5 years is ample time.

CVD: Every teacher in the country will ban it. I mean, it's
got to teach reading as well as be spoken. You must have a
written text.

Craig Taylor: Oral traditions, I don't find as successful as
written in a lot of ways. You can't back up with oral stuff.
It's very difficult to communicate to the system what you want.

Plus, I find oral presentation very slow. Once you understand the essence, I tend to sort of move through the paragraph very quickly and there's no way to speed it up.

Susan Brennan: But, it's a good way of presenting information simultaneously. For instance, you can have the printed information up there and you can have highlights coming into your ear. It's a separate channel that you're making available.

Steve Weyer: Or maybe like annotation figures where you don't want to read text at the bottom and then keep looking back up to the picture.

David McDonald: There's a heavy graphic component.

Robert Stein: (   ).

David McDonald: Right. Then you can keep it around. Just because you have the speech coming, you can have the print there or off to the side and I think there are ways to deal with it.

Craig Taylor: I wouldn't mind having both. I wouldn't mind having a diagram explained to me. I wouldn't want to have it read out loud to me. My point is, there's no question, we'd never replace written words.

David McDonald: You'd never read the text out loud. That would be wrong. It wouldn't feel good.

CVD: It adds another dimension. It's another dimension of the thing. It's not a replication.

Ann Marion: It should only be in sense of a guide, I think.

Jim Dunion: On the other hand, you definitely want your agent to tell you a little bit about this body of knowledge.

Susan Brennan: And the only place where it might be in text out loud would be in the first grade when the kid's just learning to read and he's going through Phonics, which are just so awfully boring as represented now in terms of sounding things out. If you could have an oral component of a word and a visual component and maybe a picture...

CVD: ...What it might be that the article, that the entry, reading, which could be accessed by a number of different phrases as how to read, how can I read, can I learn to read, as long as you've got words in there somehow or other, you'll get to that...

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CVD: If we do decide to propose this to Britannica, I think it has a fair chance of success, being accepted by them and then I think it's a pretty canny business idea. I don't think,

there are other ways to make a smaller database. Take the
Micropaedia only, for example. But, the Micropaedia, with
150,000 entries is also an almost assimilable bunch of stuff.

Another thing is to take Compton's Encyclopedia, which Britan-
nica is now revising. But, Compton's is not, I think, the
right kind of encyclopedia for this because too few articles,
it has too few , long articles and they're tough to handle
in what is a relevant primitive electronic form that you're
going to have to use. The Britannica Junior is pretty close
to being the right kind of thing that you'll want to do. You
might enhance it by doing something called the (   ) Encyclop-
edia, which (   ).

Alan Borning: There's a whole other...This is sort of assum-
ing that things will be rewritten substantially. I don't know
whether this is a good idea or not, but there's this whole other
route which is taking existing Britannica and not just doing
Nexis on it, but find better browsing means, maps, tables of
contents and expandable pieces of information.

CVD: Yes. That's an alternate strategy.

Alan Borning: That doesn't involve digesting the whole thing
quite so much, although it certainly would have this problem
of being threatening to the (   ).

Steve Weyer: (   ).

CVD: That doesn't make any difference because you've not dealt
with the Britannica as an intellectual thing at all. All you've
done is to enhance it. All you've done is to give it another
delivery scheme. That's one of the problems with it as far as
I'm concerned because you don't get into being an encyclopedist.
And I think that's what you all have to be as well as geniuses.

Susan Brennan: One caviat about doing the children's thing
as something that's to be more of a development idea and
maybe easier to do just because there's less data there, is
that in terms of browsing strategies, it might have to take
more time than the encyclopedia to invent those because chil-
dren are learning to classify things. I mean, children will
be given a page with 5 apples, 5 trucks and 5 pencils and
they are learning the concept of 5, so you need that addition-
al area of browsing that isn't really a thing for adults. We
might have a much harder problem in terms of browsing than
children.

CVD: I don't think...maybe there's some (   ) in that.

Craig Taylor: What age kids are we talking about? I assume
we're talking about kids that are 8-12.

CVD: You would want it to be attractive to younger children
than that and I think that younger and younger children are
going to be able to use this kind of thing once we make it.
I think you'd also want to make it as ingenious and as fun and

amusing and attractive as possible so that adults could be
delighted too, to do things with pleasure. Britannica Jun-
ior is a perfectly useful encyclopedia for an awful lot of
people. It's a little bit below the level of World Book,but
it's two-thirds the size of World Book Encyclopedia which is
bought by adults. It's not an unrespectable, intellectual en-
tity. It's a perfectly good reference book.

Ann Marion: I kind of like it. I think it allows you the
opportunity to use simple graphics systems that are available
now on home computers without fear of (   ) the huge adult
Encyclopedia Britannica. And also play around with some of the
agent delivery systems gained from storing it in a research
oriented way, but no one would call up on it.

Susan Brennan: I think you're right in that kids have been
training for this for years learning video games. They're
the ones that have been practicing. They're not going to be
afraid of it.

Robert Stein: I think that there are two problems which are
parallel and associated and I'm not sure we can make a decision
before we deal with both of them. One is, I mean I think we
need to take everything in the Encyclopedia Britannica publishes
and bring it into a room like this for two or three days and
try to figure out, out of all that, what kind of product makes
sense given what we think we can do, given the technology we're
going to have in the homes three or four years from now. That's
a tremendously complex issue. That's work we haven't done yet.
We need to do. I hope you don't think that's what we're going
to come up with by February 1st, because I see that as the
product of a years worth of research.

CVD: No. I've thought about this a long time, longer than
just the time that you and I have been thinking about it.
There's much merit with just starting with a smaller corpus
that nevertheless, deals with the encyclopedia subject which is
(   ). One reason why I say that is because I know how difficult
it is to deal with the Britannica itself. We're unable even to
deal with it. We've had 215 years of experience. We simply
cannot grasp what it is. Nobody knows what the Britannica is.
Nobody knows what is in it. Nobody knows whether it is coor-
dinate or consistent or coherent. We have been working for the
last 5 years to revise the Micropaedia and first we divided the
Micropaedia into about 500 categories. Then we were able to
print out (   ) for all the Micropaedia entries for each one
of those categories and we sent those out to specialists who
could do it. We got back incredible critiques. In quite a
few areas we got pretty high marks, but in other areas we got
extremely low marks and in other areas we got indignant "F's".
We hadn't known it in advance. We knew there were lots of de-
fects, but we didn't know what or where they were and we made
it. We'd been thinking about it for 10 years. It was finished
in the Fall of 1973. It's too big. Fourty three million words
is too big. We need a computer to understand. Well, the com-
puter doesn't exist yet that can understand that. You have to
make it or make the programs to understand your database to
interpret it for you; so that you can get into it besides the user.

We have made a monster here. This enormous Britannica which is twice as big as the 14th edition. The 14th edition was too big to understand, but this is really too big for you and I to grasp. But, we have a lot of people that know parts of it and we have people who know on a very high and abstract level. I'm one of those. But, we don't know all the things that are in there.

I would prefer to put off for a little while, as long as we're trying to make a business and make a buck, dealing with that enormous, unassimable mass and deal with something much smaller, but nevertheless is an encyclopedia; and not a work on medicine, and not a volume on the earth or something like that.

Scott Fisher: Is there another in that when we get to the point where there is some content done, say 5 years, who will have the vocabulary to critique or actually check what's done. It's such a new kind of involvement.

CVD: We're going to have to create that critical staff.

Scott Fisher: Yes, but do you just create them or do they have to have lots of experience that stuff that just hasn't existed before. It's a hard question.

CVD: Sure, it is, but I don't think it's the hardest question. No. When I say creative staff, I don't mean creative people. They're there. And some of them are probably kids.

Susan Brennan: That's why we need a Children's Laboratory/ Day Care Center.

Craig Taylor: Will we understand the Children's Encyclopedia? Will we have to write a Propaedia for it?

CVD: I think you'll write a few lines, yes. It can be relatively simple. It doesn't have to be as complicated. It can be in 25 pages or so.

Sally Hambridge: Is it already a database? I mean does that already exist?

CVD: Yes. If it isn't, you can capture it for 20,000 bucks. It's not that impossible.

Robert Stein: If you want to create a (   ) Propaedia (   ), but I think the point of doing it is to embed it then, in the encyclopedia.

Craig Taylor: I'm not sure I agree with that.

Robert Stein: I'm not saying...you can also have it exist in and of itself, but I think...I mean Steve has pointed out that when you're in one article in the Micropaedia, there are no pointers back into the Propaedia and I think you always want to understand where you are in relationship to everything else.

Craig Taylor: Yes and that's fine, but Math isn't invisible. I mean, there's nothing implicit about this. Math is something you pick up with an intention and that you can use and deal with. I sort of get the feeling that as we're talking, the difference between encyclopedia with organized, systematic knowledge versus knowledge only, that that's just what we're talking about; is that the Math has to be explicit. If the Math isn't explicit, then it's no longer organized nor systematic.

Susan Brennan: But, it shouldn't be text in outline form.

CVD: No. That doesn't mean that. It's different from the index, but you should be able to call it up anytime.

Robert Stein: You know in Aspen when you drive, you turn around the corner and that little map of (   ) is on the top, that's embedded in the system.

Susan Brennan: Are you free to work with us?

CVD: If you don't ask me, you'll break my heart.

Susan Brennan: I don't know what the status is currently and if you have other full-time obligations with Britannica, or...

CVD: No. I'm a consultant with Britannica. I'm retired in order to do this. I have a lot of other things I want to do, however. There is writing I want to do. There is travel that I want to do, but I don't want to do any other work than this and my work with Britannica, which is an analysis, assessment and evaluation of new businesses and ventures. I will certainly give you as much time as I possibly can. But, we need other people too, for the project.

I think that you don't stop working on the IE because you're doing this. It's going to be a very difficult decision that you're going to have to make - to work on the 5 year thing or the 17 year one.

Craig Taylor: Let's talk more about the 5 year thing because maybe that will clear up why they're different. Why is one project different that the other? What do you see as this 5 year encyclopedia? What does it feel like to use it? Is it textual? Are there movies in it? Roughly, what are the percentages of action, of laboratories?

CVD: My feeling is we're going to do more text on-line with visual enhancements, visual and auditory enhancements.

Craig Taylor: Okay. How about indexing schemes? This Propaedia we're talking about. Other ways of accessing the material. Clearly, that's one of the big buys of putting it on the machine is that we're trying to break out of the linear paper mode.

CVD: Absolutely. I hope you would verge in that direction of what I described yesterday morning as the "invisible index".

The perfect index is a (   ). We don't have to go through the index first and then open a door and go in the other place. I think that's the kind of index we'll have for the IE. We're probably going to have some kind of a visible index of wonderful (   ), but a relatively visible one for the end product. It has an index already.

Craig Taylor: But, the kind of index you're talking about is different.

CVD: It's got dimensions that this index doesn't have. It has what we call, semantic indexing; that is to say, it has upper, higher dimensions and lower ones and two or three steps (   ).

I think that the Table Of Contents or the Propaedia Junior should be very visible. I agree with you. The map's always there. And you can always call up the map and find out where you are in the map of knowledge. It's a lovely idea to be able to display it; to be able to display the whole thing on one screenful and then zoom in on it in the place where you want to go. That we know we can do. It's like we call a "Locator Map" in any country (   ) which shows you the world and where this place is.

I think of the IE as not being a textual encyclopedia on-line. The text and illustration are completely integrated in the IE. Any subject demands its own treatment, creates its own treatment. The best way to start it is with pictures (   ) and then you go to text and maybe there's nothing but text for others. The subject matter determines the form of presentation. In the case of BJ, it is an enhanced text encyclopedia. Once you get it done and start to sell it and have people using it, you'll begin to be able to experiment with different ways of treating it. I think you should always change it. If somebody is paying by the month for a telephone, you know he's going to keep on doing it. I'm a little apprehensive that people will not, will stop paying for this. So, I would always want to add things to it. Always add services. Always add enhancements, improvements. Keep that going.

Craig Taylor: This is for the Junior (BJ), or for the other?

CVD: The Junior. So that, by the time you get to 1999, you're in a position, the BJ has grown and has gotten better and has approached (   ) the IE. But, then you're going to have to make a conversion; then you're going to shift to a database maybe 20 times as large with all that shell of enhanced information that's on the outside. Although maybe you'll build some of those in along the way that won't be as thorough. But, the two things will come together eventually, and they will be pointing more or less in the same direction, even though the IE will always be much farther down on the line.

Susan Brennan: It would be nice if we could include some of the child (   ) information utilities, like some kind of prim-

itive pen-pal service if we wanted to make an analog of on-
line communication and some kind of personalized thing like
the ability to keep an on-line diary and have the thing re-
member what your first birthday party was like, so that that
would be another reason for people to not stop paying for it.
They would then have to look up this personal record that would
come with the service.

Alan Borning: That's a neat idea.

Susan Brennan: That would be the beginning of the analog of
how we create this (   ) in the future.

Sally Hambridge: It would be nice to allow people to be able
to store things like home movies that would be accessible that
way, so that if you had filmed your kid's first birthday party,
it could be in there.

Susan Brennan: Hopefully, if the technology (   ).

Craig Taylor: I guess I'm concerned that now we're opening it
back up...I thought the whole purpose of the small Junior Ency-
clopedia was to pick something that was small. There's a real
fundamental thing if all of a sudden it's on the network, where-
as my picture of it when we first started talking about it was
that it wasn't. That something in 5 years is not something
that you pay for like a telephone; it's something you buy once
and you play with.

Jim Dunion: But, at the same time, you've got a primitive shell
if we want that to evolve at the same time as well.

CVD: You mean, you think you could sell the memory for 6 million
characters plus those databases? Put that on a disc? By 1988?

Craig Taylor: Yes. I believe you could.

Jim Dunion: 20 videodiscs.

CVD: No. You don't want 20.

Jim Dunion: Okay. Something.

CVD: I agree with you. I think that's a better way to do it.
Bob doesn't. He has feelings about that. We've got to listen
to everybody and certainly to him. I would prefer to have it
a self-contained thing sold in 1988 and reserve for the non-
thing service, reserve that aspect of it, that form of it, for
the IE.

Mike Naimark: Yes, but isn't this a little like a home audio
system in that you can buy certain components that are self-
contained or you could hook them up to larger supersystems?

All: Sure.

Mike Naimark: It's natural. It's going to happen.

Craig Taylor: I stand somewhere in between. I just brought it up because it was something that people seemed to just buy into instantly which I didn't. I think that this network really is important. That's what it's really all about and would be the way to step people into the IE. But, I think it's dangerous to assume that it's there as a basic resource. I'd feel much happier in saying that it's an add on resource. That one could add it, but it doesn't quite as well as the rest of the system. So that we look at it as virtually stand alone, but that then, to make it a little more interesting, you rent some sort of extra information. But, it does stand by itself. That, this Pen Pals and stuff might be okay like going out and buying another game cartridge, but, it's not a fundamental part of this Junior Britannica.

Susan Brennan: I agree with that, but I still think it's in its own way, just as important because if this group, which is a research group, is going to justify doing the short-term product which really interests me, I think we have to begin to build these pointers into the system. We need the pointers in and the pointers out. And while those may be accessory to the whole system, those have to be built in from the start.

Craig Taylor: I think I disagree. I think I hear what you're saying and I don't...

Steve Weyer: I have another example on this. The idea of a diary that just reminded me of something that I definitely want to be in the basic system that we sell, which is one of the things which you might record in your diary or maybe call up your lab notebook or your course notes is, What are the kinds of things I'm looking for in the encyclopedia? What are the kinds of things that I've found? I want to keep track of those things in my own database so that in fact, I can go back and browse those things myself later on.

Craig Taylor: But, that's different that Pen Pals.

Steve Weyer: Let's say it's the same as diary, basically.

CVD: Diary is a self-contained thing and it can be a network.

Alan Borning: It's seems important to include that as a basic capability because the system could do a lot of that automatically and if you have it as an additional game cartridge, you can integrate it.

Craig Taylor: Which? The Diary?

Alan Borning: No. Keeping track of what you looked at.

Steve Weyer: But, then the thing is you might want to network because then you're doing a group research project together and you want to share.

Craig Taylor: But, here's my point. Then it's IE. That's part of this IE and not Junior.

CVD: You're going to have to make a lot of decisions like that.

Susan Brennan: But, even if it has to be like some fakery like the kid writes a letter to his Pen Pal and stores it on a disc and brings the disc to school and gives it to another kid or mails it to some Pal in Paris. Even if you have to fake it, I think there should be some way communicate and store stuff.

CVD: If you can do it for a reasonable price, time, money and so forth, then fine. But, it's not absolutely central.

Susan Brennan: I guess I would agree that the thing should not have to be dialed up.

Craig Taylor: Well, I was also in this business of links. I'm a little worried about the links.

Robert Stein: I don't agree...I mean in the abstract, sure. It shouldn't be dialed up. It shouldn't have to be. I don't get the sense that we can create, given the technology, a system that's actually going to be in the home 5 years from now that's interesting enough; that we could do enough with the database that we could put in the homes in a stand alone system. Maybe that's not true, but at the least that's part of the research question we have to answer over the next year.

Jim Dunion: The same could be said for the phone system. You're not going to be able to put anything there in the (   ) phone system that's interesting in that same degree. The bandwidth is just going to be too limited.

CVD: On the third hand, you don't want to be in the business of selling hardware.

All: That's for sure.

CVD: You want to be able to sell it to put in place with the hardware that people have, maybe with a box that is attachable to your T.V. set, but we don't want to be selling T.V.s. It's a hell of a research problem, but if anybody can solve it, you can. If you can't solve it, it can't be solved. I'm sure.

Steve Weyer: I'm still a little bit confused about the 1988 date. Bob wrote that based on existing mainly textual database and what I keep...I'm trying to find out in my mind, does that mean it's the existing corpus that's sort of updated by EB or in fact, are we becoming encyclopedists, we're writing the articles?

CVD: No. I think that we're doing it.

Steve Weyer: So, in fact, we at Atari, are going to write the next version of the encyclopedias? So, we not only have to worry about the delivery system and the interface but we also

have to worry about the content.

Robert Stein: That's not what I meant, but...

Steve Weyer: Well, I'm hearing these different things.

CVD: Whoever does it, it doesn't matter.

Craig Taylor: But, there's more to it than that. I disagree with part of that statement. The whole reason for going after this Junior Encyclopedia is because we want to take this whole thing, grind it up and come out with something new. I don't see how we can possibly get around rewriting it. Alan's suggestion of taking EB and putting it off and putting a veneer around it is what we can do for EB, but I don't think, that if we go after the Junior, that that's what we want to do at all. What we want to do is say that this is small enough and we're going to digest the whole thing and we're going to build something new. That's fundamental. I would have to argue strongly against anything else.

Robert Stein: The problem I come up with against that and Charles, correct me if I'm wrong, if you're going to do a new encyclopedia, taking BJ and digesting it and coming out with something new, that alone is more than a 5 year project.

CVD: That is going too far, but I have great (   ). You can't deal with the database just as it stands. I'll be right back.

Craig Taylor: My point is that it may come out in chunks. You may digest these and the seeds may come out. I have not problem that it comes out chunky, but it's important that you break it up. It's essential to this project. That you tear all of it apart. That you don't leave it structured the way it is because it's clearly not structured the right way.

Mike Naimark: Well, where would you start?

Craig Taylor: I think you'd start with the Propaedia, for one thing. I'd try to build a Junior Propaedia.

Mike Naimark: What I'm asking is it would seem to be first task, whether your right or wrong or in between, is to have BJ on-line and heavily used and played around with a lot. That's clearly the first thing that we have to do and have around here exten- sively.

Craig Taylor: Why? I don't know.

Mike Naimark: I just don't think that any of us are in a posi- tion to speculate the way it should be if we don't know the way it is.

Craig Taylor: Right. So, if we got three copies of BJ and had it in the library, what's important about having it on-line?

Susan Brennan: I think it has to be on-line.

Craig Taylor: But why? I'm asking.

Mike Naimark: How are we supposed to digest it in the first place?

Craig Taylor: Different question. You're saying...I agree that eventually it has to be on-line, I have no problem with that. But, you're saying the first thing we have to do is get it on-line and play with reading it on my terminal? What the hell good is that going to do?

All: No. No. No.

Mike Naimark: You can start digesting and reshuffling it.

Craig Taylor: But, I'm after what you want.

Ann Marion: We could reshuffle indexing. We could do index calls, particularly.

Mike Naimark: There's no argument about Step One.

Jim Dunion: Well, we've got to get something on-line. We've all bee talking about it.

Craig Taylor: That's what I'm saying. I don't see anything wrong with that.

Susan Brennan: Let's get on-line and write the Propaedia at the same time.

Robert Stein: I just want to point out that we have on-line right now... Encyclopedia Britannica in Nexis. How many people here have actually played with it for more that 5 minutes? And this is why I will still defend the formula of a little better than Nexis with pictures, until somebody beats it out of me, that frankly, if people start playing with these databases on-line, they'll find that they're much more interesting than print.

Susan Brennan: However, what Nexis doesn't have is the Propaedia and if Nexis had it, it might be great.

Robert Stein: I think Mike's point is definitely right. We need to get these things on-line and play with it and see what the possibilities are given the present text. Maybe it won't work. Maybe there's nothing we can do with it, but I don't think the word has been written on that yet.

Craig Taylor: But, that's what I want to be (   ) for, because I really see that the BJ is going to be something new and play- ing with a linear form isn't very interesting. I don't want us to bring up this junior version just so we can say that now we can look at it on your terminal, instead of going to the lib- rary. That doesn't seem reasonable to me.

Alan Borning: I remember the Stanford AI Lab, for some reason, Wuthering Heights was on-line and there was this great spurt of people reading it on their terminals and that would be kind of dumb.

Steve Weyer: Fundamentally, we shouldn't base the IE on something linear, but I've had some experience doing this other on-line book and there are some other browsing things you can do to a linear book to make it better than the print version in many respects. So, what Charles was saying earlier that he thought EB was too difficult to assimilate, I thought was that because of its content or was that because of its form. I thought I'd love to have EB around and play with it even in its current form because I could make it manageable by imposing some browsing structure.

Craig Taylor:The thing that Ann said applies to what you're saying is the business of depth. The EB is such a big, definitive work. If you can't put it on the screen and make it look definitive, you're going to have such disidence in peoples' minds between this crappy output and this "definitive" work behind it, that I don't think you can make the user interface work. Whereas, I am much happier with the BJ in that people don't expect as much out of it, so if the pictures look like PLP pictures and if the text is rough to read, the articles are shorter so you don't have to sit there for an hour and think and think and think to get through. No. But, I think this is important in that it has to be shallower that the EB. I really don't believe in EB. Anything of that depth and magnitude because I'm not willing to sit down and think with what I perceive the user interface is going to be. I won't think hard because I'll be looking at this trash in front of my eyes and I won't be able to get into the knowledge that's buried. The deep knowledge that's there.

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Craig Taylor: I just don't want to do a full blown project on just the linear text.

Susan Brennan: In that our activities are two-fold, what you said earlier is that the stuff does have to be rewritten; each topic does have to be re-expressed in some way to deal with the new medium on which it's being presented. But, on the other hand the other topic is browsing and we can do that with the current thing and begin to figure out what browsing strategies are while we rewrite it. On the other hand, we're going to have to hire some people to deal with some of that rewriting stuff.

CVD: I don't think we have to rewrite the whole thing by 1988. I does have to be adapted, revised and updated.

Susan Brennan: I'm talking about adding images and speech. That's what I mean be rewriting.

CVD: Right. You don't have to rewrite the database.

Craig Taylor: But, you do have to break it up.

CVD: Right. Don't give people 20 screenfuls to read consecutively. You'll turn them off forever. You people think that the text of Britannica is a lot more readable than I do. You have read it, some of it, on Nexis and Lexis, but I don't know what you're doing with it; you're playing a kind of intellectual game with it which is a lot of fun to play, but I don't think it certainly supports a habit. It is not the kind of thing that people are going to pay $10 a month for for the rest of their lives to play those kinds of games.

Craig Taylor: You wouldn't pay for Nexis if you had to pay for it out of your own pocket all the time. I'll bet all these people wouldn't use it as much.

Robert Stein: That's true, but I don't think that's the point. It seems to me that the points that you've raised which everybody agrees with are A) that there has to be some minimal level of appearance of the display. You cannot give people Nexis or CompuServe and expect them to use an encyclopedia that looks like that. B) We can't...This question of a little better than Nexis...that's an open question. What is the minimum level better than Nexis that we can support in terms of a product? But, those are questions that we don't have answers to.

Mike Naimark: Dynamic graphics. There is such a world of difference between Nexis and movie, let alone Pac Man and I agree completely. It's stuff that must be investigated, but at the same time, it's so different that I'm not even sure how much...

Robert Stein: Let's put it this way, by 1988, what the hell can you do with the existing database, because I don't see that in 5 years you can create a new encyclopedia.

Mike Naimark: I can certainly see one where we can create movies, where the whole thing is movies.

Ann Marion: Watching it, we go through subject by subject. Take an ad, pictures or animation...

CVD: There are thousands of subjects. (   ) There are not as many entries, but just as many subjects.

Craig Taylor: But, the depth of pictures that you have to provide to the subjects in the BJ are different. One nice picture that you could put up on the screen on the side would be enough for a lot of the subjects. Then, a few of them you have laboratories which are more elaborate under Physics, Mathematics. That actually covers quite a few fields. You have quite a few of the articles. If you say there is a Physics Laboratory and you can find out all these properties, I think we can actually capture a lot of those, so I think we can get coverage because we don't need really deep coverage.

Ann Marion: I think we could animate a graph...population growth and you can have the thing go shhh or something like that.

Sally Hambridge: They have that at the Exploratorium, all these little exponential population...

Mike Naimark: The other thing is there is no sense of pride, in fact, I'll do this. This will be a mini-project I'll do over the next month and sit down with an arbitrary Nova Show and a stop watch and log all the, what I would consider static or almost static images; that is, charts, crude animations and still frames. It is my guess it's about one-third.

Susan Brennan: So, we could condense things.

Mike Naimark: So, when I use the term movies, I'm not necessarily talking about a cast of thousands or 24 frames per second.

Susan Brennan: And one movie certainly applies to a lot of different topics.

Robert Stein: It seems to me though, that in talking about movies and still images, those are in the short-term and at best, they can be integral, but they are integral in the sense that they are elaborations on something that already exists. I don't think that in 5 years we can create a new work that's coherent.

Ann Marion: Is that what you want to do?

Craig Taylor: No. He thinks that's what I want to do. I agree with you and don't agree with you. The part I agree with is that we're not going to rewrite all the text to the articles, but what we are going to do is tear the binding off the back of that book and put a new organization over the top of it to get to the articles.

Robert Stein: Absolutely. There's no question about that.

Craig Taylor: That's a real fundamental thing. That's what I mean by digesting, is that you tear it up into chunks and sure, I'm willing to say that a chunk is still this article and still sits around in the form that it was, but they are no longer connected the way they were. That you have to tear that apart.

Robert Stein: If that's all you meant, then absolutely.

Craig Taylor: But, then we start decorating and some of the stuff we can gut more than others. You know, its real clear that we're don't have, I mean I don't know how many words are in this Junior version.

CVD: 6-7 million.

Craig Taylor: Yea, I mean we're not going to write 6-7 million.

Robert Stein: Reorganize, absolutely.

Steve Weyer: I mean that's why we want to leave to EB ( ).

CVD: Yes. But, that's going to take so much more time. The problem about putting the Britannica on-line as it stands is that it was not designed to put on-line and there are many things in it, there are real obstacles to its being intelligently used and understood. It's now been available, over Nexis and Lexis to a lot of people, for two years and very few people have used it.

Robert Stein: At $90.00 an hour.

CVD: But, many of the people who could use it had the ability to pass those charges on. Lawyers use it and just have it for having it and it isn't only because the access system is not good because it's really good. It's the wrong kind of thing to put on there. I think every database is the wrong thing to put on-line at the moment. The only interesting thing that I've seen so far are videodiscs. The on-line things are not good and I'm ignorant.

Craig Taylor: They're not good for certain things. They are excellent for records. Going through your 5 points, there may not be a good encyclopedia database, but they're very good for other things.

Susan Brennan: One thing that I do use Nexis for is when I want to survey all the up-to-date articles on some topic that's very current and I have not used it that much to survey things like the archival kind of knowledge. Part of that is because it takes so long to view the screen and I think part of that for the home user would be the cost. So, I think if the cost could come down to a reasonable thing, then it would become good for archival stuff that as it is now, it's only good for up-to-date stuff.

CVD: You're reviewing the Washington Post...

Susan Brennan: Or there's someone I know who's in the news, so I look their name up to see all the versions.

CVD: That's not Britannica; that's Nexis. That's an enhanced database normally.

Susan Brennan: And that's one thing that Nexis can do that nothing else can do and that's what I turn to it the most for, but I don't read it when I have the choice between a book and that.

Alan Borning: I have a question. Where do dictionaries and thesaurus' fall in this. Are they in the "is" or "isn't" or "included in" categories?

David McDonald: Probably "includes" for no other reason than you're continually going to run across a word that you don't

know and why shouldn't it give you a definition?

CVD: I think you could build that into it and it would be very nice and it would be an excellent enhancement of the Junior Encylopedia particularly.

David McDonald: It's a natural enhancement just like putting in pictures with motion.

Robert Stein: Have you seen David Baxter's auto transmission videodisc?   You know where a word comes up and you can basically push it and get a definition.   It seems to me, the dictionary should be built into it.

CVD: Ideally, I would like to avoid the need for a dictionary in the IE.   I never like to use a word that is not intelligible on the (   ) because of its content.   I wish that it were possible to write that way.   I have never in my life, read anything with a dictionary at my side and I'm an extraordinarily good reader.   Most people who are taught to read with a dictionary at their side are lousy readers.   They don't expect to find the meaning of the word by reading around it and beyond it.   They think that they have to stop because they don't understand the word right now and find out what it means.   Well, they don't really do that.   That's the only problem with this kind of enhancement, but I think it's such a salable element in the thing, I don't mind putting it in.   I hope kids would never use it. Parents would buy it because they think they ought to and I hope the kids would never use it.

Alan Borning: I don't think I agree actually in that I like to look up words that I don't know rather than, even if I can deduce them from context because I like to know more about it.   I like to know the complete definition and particularly, if you can look them up in this very unobtrusive way, where you just poke at it and the definition comes up rather than putting your book down and going to another one, that would be nice.

CVD: Alright.

Steve Weyer: Charles wouldn't have to use.

CVD: One great advantage of the Britannica Junior is that it is no threat to Britannica and to Britannica sales force.   The Encyclopedia Britannica on-line is (   ) animal which would scare every salesman.   Every salesman would be terrified of the idea of Britannica being on-line and being sold by them or by somebody else.   Their bread and butter is selling the big set, not selling Britannica Junior or Compton's or anything else.   The only thing we sell is the Encyclopedia Britannica.

Craig Taylor: This is not a premier product.   That's the whole purpose.   It should be a secondary product that you sell to the kid because that's the way you get them interested rather than

setting their expectations up so high that they insist on
perfection. We draw them into it rather than...

CVD: Learn how to make the thing and how to deal with your
audience. Over the years. They'll be the adults in 1999.
They'll be the ones with the kids. That aspect of it attracts
me enormously. I think I could sell that to a lot of people
because of the enthusiasm that I have for it. The disadvan-
tage is that it is not immediately as interesting and intellec-
tual a task. The fascination of the IE is that it's the har-
dest thing we've ever undertaken. Harder that creating a univ-
ersity or in making a library. But, on the other hand, getting
behind you some experience before you start that is a good
idea, too.

Jim Dunion: Do you feel as strongly about the necessity for
completeness in areas like the laboratories or like images in
terms of Encyclopedia Britannica Junior as the IE.

CVD: No. Not at all.

Jim Dunion: So, you think it might be legitimate to try a few
of them out to start getting skills in this area.

CVD: As long as your peaks are not too high that don't have
weird imbalances, but you can experiment with different ways
of presenting the material in BJ in a way that seems to be
much easier than it would for Britannica. It's not the ul-
timate authority. It's a fun thing to start with. Teachers,
I think, would be using it in schools everywhere. It would
educate a whole generation of children.

Craig Taylor: That's an interesting point. Would it educate?

CVD: Educate in the sense of train. Not tutor.

Craig Taylor: To get used to the idea. To get their interest.
Because there is this real issue of the dilatante use versus
the real learning use. I don't know in this first encyclopedia
whether we can capture the real learning more than just...bec-
ause I think the people use Nexis is much more dilatante than
it is real use. This is a fun way to have a bunch of informa-
tion come back and scan through. I don't know that if I feel
people really use it as a major learning tool, as a real way
of gaining new knowledge and new insight.

Robert Stein: One question we have to answer for ourselves
along the way is...A lot of what's being said...the plus points
behind BJ are very persuasive, but what thing we haven't really
addressed is the question, it would be great early and to
train them and prepare them for the IE - the world they'll come
into; but, the other point is these are the kids that are play-
ing video games and can we make a product sufficiently exciting
to these kids out of BJ, such that they will like it.

CVD: I think it is easier to make a product interesting to the kids out of BJ than out of Britannica, right at the moment. To make a product interesting enough for you, no. Not out of BJ; that's harder. But, for the kids, yes. The kids are enormously adept. They've incredible manual dexterity, but they don't know any more than kids ever did. In fact, they probably know less. There is so much in BJ that is new to them and if we can present it in a way that attracts them, I think they'll like it.

Robert Stein: Yes, but that's the question.

Craig Taylor: I think that what Alan said about "Wuthering Heights" is going to work here. All you have to do is put it in the teletype and kids would sit down and go play with it, because it's on the teletype. I don't think the content has anything to do with it.

Robert Stein: Alan wasn't making that as a positive point.

Craig Taylor: No. He was just saying that it was weird what these people did, but my point is that they went and did it. When I first started in Computer Science, people loved TTY 33s because they rattled and bounced and made lots of noise and people loved that. There's really something about the technology that people love.

Robert Stein: Let's make the interface a pinball game.

Craig Taylor: What I'm trying to say is that it doesn't have to be very exciting. All it has to be is technology. If you can just give them something that's new technology, the kids would love it.

Jim Dunion: That works for a while.

Mike Naimark: Clearly it's an interim state.

Craig Taylor: That is my point. I mean, Bob is saying will they be interested in this and I'm saying that they will because of the technology. It's not an end.

Mike Naimark: No. If you're asking the question should it have some kind of novel gimic to sell. That's another question and maybe the answer is yes. I'm not sure. But, that seems to be what you're addressing more than....

Craig Taylor: I was trying to answer Bob's question of whether the kids will be interested in this. I'm saying that they will because it will be novel.

Jim Dunion: I don't think it will be novel.

Craig Taylor: All I'm saying is that I can answer Bob's question affirmatively today.

Steve Weyer: It's putting other things on-line that they're going to be able to read 5 years from now, so if we don't do a little bit better than just having some text scroll, we...

CVD: We damn well better.

Craig Taylor: We're certainly going to do better, but I'm saying yes, we have the entry because we have the technology. People will look at it for no other reason than the technology.

Jim Dunion: I don't think that's true, quite frankly and what I hear is that we'll no longer be true enough to guarantee any sort of interest at all.

Craig Taylor: You don't think that'll get them to the door?

Jim Dunion: No.

Craig Taylor: I'm not saying it'll keep them there.

Robert Stein: It'll get them to the door, but...

Susan Brennan: Kids are amazed by different things than adults, though and I think if a kid can touch a screen at the age of 1, that would be far less amazing than it would be to me, for example. It takes more to amaze kids, so the content almost more important for the kids than it would be for the adults. Maybe the adult will play with Nexis because it's novel for awhile, but I'm not sure the kid will.

Craig Taylor: You don't think so? If you said to the kid he has a choice between BJ on the shelf or BJ on a computer terminal...?

Susan Brennan: But, after the first time, I'm not sure...

Craig Taylor: The first time gets them there then it's got to be interesting.

Jim Dunion: ...to make it that time. Is it BJ on-line or something else? And the something else's will be out there by that time.

Craig Taylor: Like what?

Jim Dunion: Do you think we're the only people having this discussion?

CVD: Yes.

Jim Dunion: I can't believe that.

CVD: They're having the discussion, but they don't know how to do it. If there was somebody that I felt was better, I'd be there, not here.

Robert Stein: I don't think the question is BJ or something else because frankly, whether other people are discussing this or not is not the question. The question to me, Will the kid want to play with BJ instead of playing another round of Asteroids?

Craig Taylor: No. That isn't the question.

Robert Stein: That is the question.

Craig Taylor: Wait. But, is it? Or is it a question of going to the shelf and getting an encyclopedia versus using this one? Kids can't play all the time.

Robert Stein: Yes, they can. They absolutely can. In fact, for a 10 year old, if being in BJ isn't playing, then there's something wrong with it. That's what concerns me about using BJ, is that I don't know whether you can make it something that's playful enough for these sophisticated kids.

CVD: But, it's an encyclopedia that kids very much like to use. For 50 years we've been making an encyclopedia that kids like to use and to read and they do.

Mike Naimark: Charles, roughly do you know the ratio of pictures to entries are?

CVD: There are more pictures than entries.

Mike Naimark: Really?

CVD: An entry is an article. In the case of BJ, there are only a few thousand articles and there are probably twice as many pictures on the back. In the big set, it's 4 to 1. 25,000 pictures, 100,000 entries.

Mike Naimark: Do you think that the kid's interest is (this is a loaded question) picture based?

CVD: No. Because the pictures represent quite a small proportion of the total space.

Alan Borning: Something worries a little. Nobody has actually said this, but I wouldn't want this BJ project to be just sort of, "Well, let's figure out how we can make a fast buck so that we can support this IE thing."

Ann Marion: I am fascinated by the idea of it just being for kids and being in a small context.

Craig Taylor: That's the whole reason to do it is because of the smaller context.

Alan Borning: Yes. But, it shouldn't be just, "Well, how can we jazz this up so that someone will buy it?"

CVD: Absolutely not. We're not going to do that. There's no need to do that, Alan and nobody has suggested that. The reason in my view, the best we can do it is because is 1) I think we can do it;   We can make an interesting, respectable product in the time that we have to do it. 2) I think that you'll find that there's no opposition from interested parties, like Britannica or Atari to do it. It's a very easy approval. 3) I think it's going to work. I agree with Craig. I think that kids...parents will buy it and kids will use it.

Craig Taylor: That's the question Bob's asking, which I didn't address directly and that is, Will kids use a BJ, period? Not will they use our electronic one. Will kids sit down with an encyclopedia? And Why? Because they have a class assignment?

CVD: Yes.

Craig Taylor: Bob asked that question and that's the thing we need to answer. In 1988, will kids sit down and read their encyclopedias, or is it just for class assignments? Why are they motivated to use any kind of encyclopedia at all? Your question is the right one. They clearly sit down to watch T.V. and they do that to entertain themselves, so are...

Scott Fisher: No. Not entertain, but what is it they're actually looking at? I don't think they're watching just the plot and who shoots who. I think they're looking at all kinds of relationships and lots of other information that's in there.

Ann Marion: It's stuff that they read into it.

Scott Fisher: It's not necessarily acceptable to them just wandering around outside. I would think that the Junior would be similar in that sense that you could go in and kind of look at relationships.

CVD: Parents are the prime motivators for what their children do. Parents will have to motivate their children to use this encyclopedia just as they do for any encyclopedia. Parents will buy the Britannica and they will buy this and they will be given this. They will be able to buy this at a small cost which is not really small, but relatively small. Because they bought the Britannica and because they have this in their house and the reason they bought the Britannica is so they can get it for a small price. They will attempt to get their children to use it. The better parent will keep that up. Parents who are less ( ) to their kids will not do it very long. But, the latter kids, some of them will catch the germ and will become like you. They will begin to read it on their own. Not just because their parents said to, but because its fascinating. Encyclopedias are fascinating. Once you get into the habit, they are fascinating. The ones who are continuously (   ), to do it, will do it for that reason.

Susan Brennan: The interesting thing is that there are T.V. shows and there are games and there encyclopedia will all come over a T.V. set and so, there won't be that separation between

a book and a T.V. set, your bedroom and living room, etc.

CVD: You won't have to turn off the set in order to pick up the book.

Jim Dunion: I think they will. If it's a T.V. set,...My monitor at my house that I was using for my computer suddenly was usurped to become the family television when the television broke. I really don't have a computer anymore because if it is working as a television, it's going to be working as a television. It'll have to have its own unique distribution system to it to be useful.

Craig Taylor: Wait a minute. All you have to do is give one to each person in your house and that problem will go away. There are two ways to solve that problem. You either connect the computer to an individual peripheral or you give everybody the appropriate connection.

Ann Marion: That's like, What program do I get to watch?

Jim Dunion: That's not really the way you should look at it. It's going to have its own unique distribution and it may be a television and it may not be. I really don't think it's going to be long term. I don't think that technology is rich enough.

Steve Weyer: How about a multi-plexing scheme where basically, each person wears special goggles. This would be a worthwhile thing to attempt, that given that Britannica would be very interested in keep selling EB in print version, they would also like to sell this electronic thing, whether as we're devising a Propaedia for BJ, whether in fact it's not a simple subset of the big guy, but there is some transformation that, given where you know where you are in the Propaedia and the BJ, that might give you some clue where if you wanted more details, you could go to (   ). Of course, there would be a thing where you would go from your T.V. back off line again, but maybe that wouldn't happen too often.

CVD: I think it would two distribution systems for this new product. One would be Atari's and the other Britannica (   ). The Britannica people are usually going to sell with EB and so therefore, you're going to want to have these connections, but I would want to suppress them for....to but Atari's. You don't want to constantly frustrate people by saying, See (   ) in the Britannica and so on, when they don't have one. But, that (   ) research, an easy thing to do.

Craig Taylor: It feels like the dictionary thing, that it's a nice add on. If we had time to do it, that we ought to do it. But, I don't think that any of our focus ought to be on that. That ought to just be an aside, that if it's convenient to do after we know just what this...

Steve Weyer: It's sort of in the area "B"...

Craig Taylor: Yes, in a sense. I would like to know very strongly what the BJ was and what it meant to us before we even thought about those because that doesn't feel very integrated to me.

Charles, what about this issue of passive and active? You're right in that it's certainly coming out of the same screen, but there really is a difference in...

Susan Brennan: And then the thing that Mike mentioned yesterday that active and passive are not two divisible subjects in that you invest a lot of yourself in identifying with the something that you're watching, so that's not really passive. And it's not really active, either. It's something in between.

Mike Naimark: Brenda talked a lot about that in terms of ( ) content.

Craig Taylor: That you empathize with characters and so forth?

Mike Naimark: Well, yes. I'll tell you a good way to explain it. I think Steve Beck has come up with the terms explicit vs. implicitly interactive, in that explicitly interactive is when you actively are involved with what's going on. Implicitly interactive is where you have some kind of...you're drawn into it...not controlled. The jaw-dropping impact of an ( ) film, or gut-wrenching emotional feelings for a character and even today you hear people say, "Boy, that was really an interactive movie. I really related with the characters."

Susan Brennan: In other words, if you were to measure someone's pulse rate and.....( ), you're not changing the course of the movie, but you're reacting to it much more actively.

Jim Dunion: That's not interaction. That's affection.

Mike Naimark: Interaction means you control it.

Jim Dunion: There's no feedback. Without the feedback you do not have interaction.

CVD: About 10 years ago, Britannica entered into a long negotiation with Disney Company to produce an encyclopedia jointly. It ended after a year of talks. Disney came to their final proposal which was, the Britannica could take any encyclopedia that they wanted and they could add Mickey Mouse as a character who would appear on the page and point to things. We didn't want to put Mickey Mouse into any of our encyclopedias. However, an agent of Pac Man, an Atari agent, I can imagine in BJ encyclopedia, it being very different. I would accept that in an electronic version of BJ, where I would not accept that in a printed version of BJ or anything else and I'm not sure I would accept that kind of agent for Britannica itself. But, I could accept it and if you did it well, it could be a wonderful agent... He is your agent. He is your representative who searches through the text. He is always there. You don't have to do that, but it's one reason why BJ is immediately an easier and more attrac-

tive job to do.

Susan Brennan: Although, I think our idea of that agent would
be that a (   ) of Mickey Mouse is a totally inappropriate. The
agent would have to respond to each individual person and they
would have to do some work in creating it.

Scott Fisher: You have to teach it to what it is he wants.

Craig Taylor: But the question is for BJ, I would have thought
that the agent in the BJ would have been a friendly way of giv-
ing you the interactive handles rather than something that really...

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David McDonald: We don't actually have an idea how much we can
actually do today. Today in a perspective (   ), you would have
to say this would be nice and this is the kind of research that
would make possible the things you didn't know how far you were
going to get in a few years.

Susan Brennan: Ideally, we should have the kids say, "Well, I
don't like you. I want you to be more friendly or Why aren't you
more funny." Maybe we can reach some simple descriptors to change
the character of this agent. Certainly he can make it look like
anything he wants and that's one of the things I'm going to work
on right now, but I think that would reach some definite direction.

Jim Dunion: I see that as a necessary step. If we can't get the
(   ) of some level of agent, we're not ever going to get to the
IE.

Susan Brennan: I think that it has to have some kind of agent.
That would be my minimum criteria for...

Craig Taylor: But, what is the agent doing. That's what I was
after earlier. I think about that little bit on the information
(   ) at Disneyworld. That was an agent, but all that agent did
was present to you in an amusing form, the interaction that you
were capable of doing.

Susan Brennan: That agent was just a distraction from the fact
that there was no interactivity to speak of.

Craig Taylor: I thought that agent was actually good and useful.

Susan Brennan: But, it didn't...It wasn't good the second time
you saw it. It was great the first time you saw it, but the more
you had to look at it...

Jim Dunion: If you could've moved it. If you could say, "Don't
be over there. Be over here." Then it starts hitting a level
where it truly be an agent. It's not just another part of the
system. It's got a costume on.

Susan Brennan: It can't just keep replaying the same thing. It

has to be truly animated.

Craig Taylor: That's what I'm after. I don't believe we can do a lot about it.

Susan Brennan: I think we can. That's not a problem.

Mike Naimark: Craig, the other thing dealing with agents is that, probably our common experience with agents would be real people in advertising and to watch the way ad people pick their agent. "We need somebody to sell hemorrhoid medicine," for example, and you know, "He's a little too big; he's too small." I think it's precisely this, but on a mass level, which really dilutes it. But, it is a person and there are parameters to match it up with the topic.

Craig Taylor: That's what I was after a little bit. I was trying to understand that it seems to me given with what we have of all systematic knowledge...Then you're not only diluted by the masses, but also across all the subjects. People pick somebody to do something. They have an intention. It's, "I want this person to represent the following things." This interface is a little bit different. It's kind of nebulous to me what it is you're trying to represent in the interface rather than the subjects themselves. I'm trying to understand how rich this agent was.

Susan Brennan: I think eventually in the IE, is you would have, you want it here to get (G.   ) address. You might have an animated picture of Lincoln telling the Gettysburg Address and that's when the agent or the visual representation that might be anthropomorphized somehow becomes part of the material. But, in this level it's more just the interface. Not necessarily part of the material at this level. It's very doable, certainly from a visual, animated and hopefully, sound point of view. I could at the very least, have each child define what the face looks like. I'll give them a face and they can stretch it, make it into whatever character, or just choose their favorite animated character and it's no problem to have that animated thing speaking to you in a voice that may be today's speech generation or tomorrow's, hopefully. That's absolutely not a problem. What I'd like to do is begin to give that characteristics of style different kinds of ways of delivery which is the humor thing that Jim is addressing and the style of natural language that Dave is addressing.

Craig Taylor: That's what I was after. What they would do there.

Susan Brennan: That's the question mark. We don't know that yet, but certainly the modifiable user-responsive agent is available....

Ann Marion: Can it also get into (   ) with retrieval of information?

Susan Brennan: Yes.

Craig Taylor: Well, I don't know. Can it? That's what I'm trying to understand what the agent is going to do.

Jim Dunion: I think we'll want it to be able to say things like, Can you see it? Ask your agent. Are there relationships that can be drawn between this and that? And have it go off and do some research by itself and then come back and present some of it.

CVD: Can you say, "Go to the index and see if there's anything about King Henry the Eighth." I'd love to have it be able to do that.

Jim Dunion: Or maybe just full text scans.

Susan Brennan: Maybe the agent will only replace text search, but maybe it will begin to draw more powerful analogies in a simple text search.

Robert Stein: It could tell jokes while a text search is going on.

Susan Brennan: That's it. It could prevent the screen from going blank. At minimal, it will entertain you and hopefully, it will draw more powerful analogy.

CVD: That's a great idea, Bob.

Mike Naimark: (   )

Craig Taylor: I do have a hard time with it because it strikes me that what you didn't like about this bit that after the second time you found it a distraction is that I don't...I have a real fear that every rich agent that isn't perfectly human, so they could really adapt, then   becomes very boring.

Susan Brennan: It wasn't a distraction. It just stood between me and the information.

Craig Taylor: Right. But, I have a feeling that this agent, if rich, will start to stand between me and what I want to get done.

Susan Brennan: I see it as more of an engaging tool.

Craig Taylor: I hear that's what you're saying, but I don't see how it can know when I'm tired of it, without my explicitly having to say, "Go away."

Robert Stein: But we definitely have the, "Don't fuck with me" mode. There's no question about that.

Steve Weyer: The Invisible Man agent.

Ann Marion: But, if it could anthropomorphize some aspect of what it's using for a computerized database system is, that might be a useful tool for teaching.

CVD: I have an idea that we are tired. We've been doing this for four hours. It's been an absolutely wonderful four hours, enormously productive. But, the (   ) is beating us down. But, it's good. I can't participate anymore in the discussion of agent. You guys have got to decide about that.

Craig Taylor: What can we do to get started? Can we get a BJ? Can we get a copy?

CVD: Yes. I'm going to send a copy of BJ as soon as I get...

Robert Stein: Can I make a suggestion? Please send us as soon as possible, the BJ, Compton's and the YCE, (Young Children's Encyclopedia). You could bill us for it.

CVD: The whole thing together would be $1259.

Sally Hambridge: That's doable.