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ABSTRACT

The National Commission on New Technological Uses of Copyrighted Works (CONTU) met on May 7, 1976, to hear reports on copyrights as they apply to computers and the information industry. The first spokesman was the president of Educational Communications (EDUCOM), a consortium of colleges and universities collaborating on the distribution and use of computer software. Representatives of the Computer Industry Association and information producers also presented their views. Representatives of the Information Industry Association (IIA) described some industry operations and related copyright issues. All presentations addressed questions previously submitted by CONTU dealing with: the copyrightability of computer programs, protecting investments in computer software, the problems of defining what may be copyrighted, what constitutes a copy of a computer program, enforcement problems, fair use, possible results of copyright legislation on users and producers, and copyright notices and deposits. Commission members entered into discussions with speakers throughout the testimony. A report also was given on the progress of copyright legislation in Congress. (LS)

# NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS

ROOM 910

CONTU Conference Room

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INDEX

# P R O C E E D I N G S

## MORNING SESSION

9:50 a.m.

JUDGE FULD: I call this meeting to order.

Welcome Commissioners and guests who are here.

I call upon Mr. Levine for a brief opening remark.

MR. LEVINE: Very brief.

Just that the Library of Congress has invited all of the Commission members to a reception this evening from 5:30 to 7:30 in the Great Hall of the Library of Congress, as part of the Library's symposium on American Revolution which is going on today.

This is the fifth symposium in a series of maybe -- the fifth and final symposium.

That is in the Great Hall of the Library of Congress

JUDGE FULD: At 5:30?

MR. LEVINE: From 5:30 to 7:30.

JUDGE FULD: We will be finished by that time.

It is a pleasure to have Mr. Wyatt here.

Do you wish to sit there, Mr. Wyatt?

MR. WYATT: I moved up to the table, if that's all right, so I can spread out some papers.

JUDGE FULD: Mr. Wyatt is President of EDUCOM. He comes to us with a somewhat different slant, I think, from the other witnesses who have been here.

Mr. Wyatt.

MR. WYATT: Thank you. Thank you very much for allowing me to come and talk with you.

I told some people earlier this morning that the first thing that popped into my mind when Mr. Levine called me about this activity was an article in SCIENCE magazine in which Senator Muskie was quoted as saying he would like to see more one-armed scientists; that is, that they all seem to come and testify relative to a proposition that on the one hand it should be this way, and on the other hand it should be that way.

I'm afraid I may fall somewhere in that category, but I will try to make the views as separable as possible relative to this issue.

Let me very briefly tell you what EDUCOM is.

It is a consortium of colleges and universities, non-profit Michigan corp. founded in 1964, around the proposition of promoting collaboration of its members on the distribution and use of technological systems, in particular computer

software materials.

Recently we have placed emphasis -- recently being the last three years -- on the development of a national computer network, this network principally being used for the distribution of or access to computer software materials, including data as well as computer programs, and we have a nucleus group of 22 colleges and universities, all of them relatively large institutions, who are in fact engaged over the five-year period beginning last year to develop such a national network, and to conduct initial experiments in the use of this material.

JUDGE FULD: They are scattered throughout the country?

MR. WYATT: Yes, indeed. The geographic distribution is quite wide from the east to California, to the Southwest and the Midwest.

I can list them although I -- it would be 22 institutions. I won't try unless you particularly would like that.

I might say that the motivation of this group is very much oriented to the user, and the use of material, but there is a very close connection to the supply side as well.

A good deal of the materials that institutions have shared is not proprietary, has not been proprietary, and is

shared on an informal basis.

However, since many of the people in institutions do publish in book form and the like, and are rewarded by various protective mechanisms, we are now finding that the sharing of computer-based software material is very similar to the publishing, in the sense of books, of other instructional material.

So we are faced with the issue of providing protection on the one hand, and reward on the other toward the author, and to provide materials to colleges and universities at a price they can afford.

Let me now address the specific questions that Mr. Levine addressed to me in order to try and focus the discussion and keep the time here within reason.

If you have any specific questions that you would like to ask as I go, or after I finish, I would welcome that.

The first question has to do with should a computer program be copyrightable, patentable, or both, and let me say that I am not particularly optimistic about the use of a copyright as a significant means of software protection.

Let me explain that a bit, relative to the question as I see it.

I see no reason to prevent the practice of copyrighting materials, if an author wishes to do that, but I do not believe it would afford the kind of protection that normally will be sought for computer program material.

The problem basically is the requirement for full disclosure. The full disclosure of a computer program would in essence be the computer language listing, so-called, of the program.

That kind of disclosure makes the concepts and ideas used in computer program obvious to a person skilled in the art.

So that one is faced with the difficulty of the definition of copying, and the reward for attempting to surmount whatever legalities there are associated with copying.

In other words, in order to maintain the confidentiality of the computer program, a copyright would require sufficient disclosure that a person skilled in the art could very easily disguise the act of using the basic concepts and ideas that are embodied in the program.

That would include, for example, a rendering of the program by a human translation that would not in any way resemble the original computer program, and would be very,

very difficult indeed, I would think, for even an expert to detect.

If we compare that to the kind of protection that patents offer -- and let me say quickly that I am neither a patent lawyer, nor a lawyer of any kind.

I have a lay understanding of how the patent activit works, and in essence the patent requires full disclosure, but for that full disclosure, provides a limited monopoly for a period of years, and in effect is enforced in quite a different way than copyrights are.

So it appears to me that as far as the potential for protection going to the basic question of whether a program should be copyrightable, if that question is raised for protecting the author's rights, then I think there are better options; two options being patents or the trade secret practice that is currently used.

MR. NIMMER: May I ask a question?

I think you may not be entirely accurate in terms of disclosure requirements on the copyright law, either the existing one or proposed one.

There is a registration deposit requirement, but fundamentally, apart from getting additional remedies under the

law, it only relates as a condition to free an infringement act unless you are going to sue somebody.

Before that, as long as the work is unpublished it has automatic protection under the new law, federal protection, and under the present law there's a state law protection.

That being the case, does that in any degree change your conclusion?

MR. WYATT: If the protection afforded is in fact relatively complete protection, or complete protection in the sense of maintaining the secrecy of the material involved, then, yes, but if in fact there is public access to that material --

What I am saying is that once the basic computer program is disclosed, then the protection has in essence disappeared, in my view.

MR. NIMMER: Well, unless and until one actually assumes that the only disclosure that need occur is the disclosure you would have in marketing the product, which would be true if you would have copyright or you don't have copyright.

Once one brings an action, then it is necessary to deposit and register but, of course, in most cases the lawsuits

never occur, although they may.

MR. WYATT: You mean now?

MR. NIMMER: Yes.

MR. WYATT: Well, I think --

MR. NIMMER: In another area where copyright is clearly established for books, it is very rare to have an actio in which one sues for infringement, and yet, of course, this is a potential.

MR. WYATT: Well, let me get a bit further into the question, because on addressing the question, for example, the copyright.

At the present time there are numerous occasions in which a person includes a computer program in a book, that book being copyrighted.

The purpose there in disclosing the computer program in that way is not to -- and in most cases anyway -- is not to protect the computer program, but to encourage people to pick it up and use it, because that is the only way that authors have now of publishing computer program material freely.

So, it seems to me that the issue of protection is a critical one, and in order to develop an environment in which authors are encouraged to produce computer software,

the protection is going to have to be substantial, and it seems to me,at least from what I read in the material, that either the patent or the trade secret practice now offers better protection than the copyright, and, in fact, perhaps that should be the way that one depends on to protect the material substantially.

So, in terms of the length of time that protection should be available, that sort of thing, I would say that the patent statutes are a better precedent than trying to bend the copyright material to fit computer software.

It seems to me, in terms of the current practice, there are other ways to do that without bending a copyright act, in which case a person could still protect program material in the traditional sense.

There was an issue specifically related to the protection of computer software being limited to the right to make and vend copies as opposed to use, and let me speak specifically to the use issue and, in particular, the EDUCOM activity that is currently proceeding.

Much of our activity in terms of publishing computer software will be done over a network in which a computer -- a limited number of computers -- will be accessed on a large

scale remotely.

So, in fact, it is not necessary to move the computer program.

Moving computer programs around from computer to computer is a very complex and expensive activity.

It has inhibited the transfer of computer program material substantially among colleges and universities already.

So, in fact, the way we see the future of the accessing of computer material over a computer network is that if, for example, a college or a university develops some material -- data or software -- that it wishes to shar it can plug its computer into this network and people will use it remotely from, currently, most major cities in the country.

This is possible.

In the next decade it is likely that several hundred cities in the United States would provide such access and other points around the world would provide such access.

So the protection of use of software material is extremely important.

In fact, in my view, it is necessary in order to provide any meaningful protection at all, and I don't belie that there can be any exceptions to that and still afford

adequate protection to the software developers.

The definition of copying computer program is a very detailed one -- what constitutes copying -- and, in fact, computer programs, as you undoubtedly already know, appear on a number of different media that, in fact, represent images of the same physical program.

A computer program, for example, can be moved from printed sheet in image form to various electromagnetic media.

It seems to me, as far as the copyright is concerned, that any mechanical movement or transliteration should be covered by the copyright.

In fact, the copyright should not be limited to the medium on which the computer program rests.

Now the more difficult question deals though with various forms of translations of the computer program and, in fact, it is possible to write programs to translate other programs.

Hence, the mechanical reproduction is not so mechanical -- the program does not appear the same after it has been translated.

So there are degrees of this that I think are significantly important.

If one is bent on disguising a copying of a computer program, I would say that it is relatively easy to do, either manually or by another computer program.

Now, there's some law associated with copyright that I would bring into play here.

The legalities -- the literal legal translations I would leave to you.

And that is that the law goes something like this: that if we take the Mona Lisa in the Louvre and we visualize an artist who paints his rendition of the Mona Lisa, I understand that is not a violation of the copyright.

Whereas --

MR. NIMMER: That is not correct. That is law, but law?

MR. LEVINE: Only because the Mona Lisa is probably in the public domain.

MR.NIMMER: Right, but as far as the distinction you make in your paper between copying and photographing, assuming it is protected by copyright, there is no distinction at all.

The distinction is if the artist does his own version, he may have a copyright of his own in whatever he has painted,

but that is no defense as far as his being an infringer.

MR. WYATT: I guess the question, even though the example is bad, the question goes to the act of translation; that is, taking an idea or a concept gleaned from a copyrighted work and moving that into another computer program.

MR. NIMMER: But there are two different questions:

One, are you an infringer by reason of what you copied?

The other is, can you claim a new copyright from something you edit?

Those are separable questions.

You may be an infringer because you copied more than just the abstract idea, as you would if you were to take the Mona Lisa in any substance.

That is a different question than whether you are saying copyright and adding something of your own to it, which you could if you painted freehand, maybe, and you might not be able to with a photograph.

But in each case you are an infringer.

MR. WYATT: My point is really this: that in a computer program my opinion is that it is going to be extremely difficult to figure out whether it was really the Mona Lisa

or not, in effect, when one is looking --

MR. NIMMER: But, if I understand what you are saying, you are saying it is possible to copy the idea, the central concept, of the computer program, without copying the detailed manner of expression, so that one wouldn't necessarily know there was a copy.

But if all you are taking is the basic idea concept, then maybe it is not an infringement at all under existing principles, and query whether it should be.

MR. WYATT: If that is the case, then what I am saying -- I believe what you are saying supports my argument and that is if the purpose of the copyright is to protect significant works in computer software, then that being the case, the material will not be sufficiently protected to satisfy most authors and most people who would invest in program development.

MR. NIMMER: The significance of the program is not the language used, "the manner of expression", even on a somewhat abstracted level, but the basic concept of sequence of steps or whatever --

MR. WYATT: Insofar as the kind of protection I think that authors and developers of this material are going to want

-- it's not the language -- it's the --

MR. NIMMER: If I understand you, your whole approac is which would be the most effective means of protection -- which body of law.

MR. WYATT: Yes.

MR. NIMMER: This seems to assume that clearly some kind of protection is warranted and should be forthcoming, and the question only is which is the most effective form.

You don't think -- am I correct in inferring that you don't feel that there is any case to be made against protection per se?

MR. WYATT: I will certainly protect that proposition because even though I am going to speak to the use issues in just a moment, I do not believe that authorship will be encouraged in the way that it should be for us to get quality materials into the computer software domain, unless those materials can be very adequately protected, because they do represent a substantial investment, and, hence, an investment that in some way should be protected.

MR. MILLER: Excuse me, I am feeling very inhibited at the moment, and since there is a stenographer there, I would just like to make it clear on the record that I was a

former member of EDUCOM in an officer capacity, from 1966 to 1970, and in that capacity testified on behalf of EDUCOM in '67 and '68 hearings in the Senate on the Copyright Bill on this issue, but I have had no relationship with EDUCOM since 1970.

JUDGE FULD: You have matured since then?

MR. MILLER: I have seen the error of my ways.

MR. DIX: Mr. Chairman, may I pursue Mr. Wyatt just a little further on the question that Mr. Nimmer was raising?

You said the encouragement of authorship requires protection.

Is literally authorship or the encouragement of entrepreneurship by groups, by companies, now being formed to provide this kind of software service?

MR. WYATT: I am not sure it is important, but I think I am still puzzled at the idea of authorship applied to a computer program, since the author doesn't act in a sense as an individual as we normally think of a literary author writing something and then selling it.

There is very little of that in the computer business, I understand.

MR. DIX: Most writers of computer programs are working on salary for someone else, right?

MR. WYATT: I think I would have to disagree with that generalization, but I think both cases are true.

We do have companies that are making large investments in the entrepreneurial sense in what one would call computer software materials.

Data bases as -- one would have to consider, at least to some degree, software as a good example of that.

We have law data bases that are being developed in a proprietary sense.

MR. DIX: Is that really -- I am sorry, excuse me for interrupting, but I thought we here tried to separate those two -- they are two different things -- the program from the base.

MR. WYATT: Well, let me -- I categorize it as a data base, but let me say that it is not just the data because much of that data is in the public domain.

It is the manner of handling and presenting that data to a person who wishes to use it that is the significant issue, and that is in fact the computer software -- that search manipulates the information -- searches and retrieves.

So there are companies and relatively large enterprises now that have risked substantial amounts of money in such activities -- data and the software that supports them, more particularly.

But let me deal with the first question: one of the things that we are finding, and we are trying to encourage, is that authors now who are writing textbook material for the purposes of teaching -- colleges and universities and that is most close to me -- have now come to believe that there is a body of material for which the pedagogy is improved if the material is presented in terms of a computer program -- computer software -- as opposed to a book.

A book is relatively passive. It conveys information, but is not necessarily interactive.

You may be familiar with books that are written in a manner called "programmed instruction".

These are materials where one goes through sequentially and a proposition is presented and the question is raised.

If your answer is in "A", then go to page 40, but if it's "B", go to page 50, and progresses through the material, and these are published in book form.

It turns out that a computer is a much more effective device for that kind of pedagogical material.

So we are finding authors who wish to publish packages, in effect; these packages being a book accompanied by a computer program and, perhaps, other kinds of material -- video tapes, audio tapes -- that is in fact available to students and to other teachers for teaching.

So I think both exist, and in fact these authors would like an environment in which they aren't faced with a kind of decision that says, "If I write it into a book, I can protect myself, but if I present it in terms of a computer algorithm, I can't."

That's the issue that I'm trying to address; that we need the kind of protection that would make that distinction disappear sufficiently to encourage authors to develop material in the case where it is best for the pedagogy -- the presentation of material.

MS. KARPATKIN: Those sorts of educational materials are on the market now, and have been for some time.

How are they protected now?

MR. WYATT: Essentially by trade secret agreements; that is, those materials that are felt to require protection,

that is, they don't mind what I will call "leakage", then they protect them with non-disclosure agreements, and trade secret agreements.

MS. KARPATKIN: Have those been effective to provide the protection that is necessary?

MR. WYATT: They seem to be, in my limited experience with them.

It is not completely clear that they don't inhibit in some ways distribution.

For example, I don't know of a book publisher right now that will encourage an author to develop a computer program as an adjunct to a book.

I know of several that will discourage authors from doing that.

On the other hand there are --

MS. KARPATKIN: Is that because of the protection situation, though, or because the market is not as good as it used to be for that kind of material?

MR. WYATT: I would conclude it's the former and not the latter.

I think the market is growing. I don't think the market is diminishing. I think it's an undeveloped market.

In the case where we have the computer networking -- if we can visualize a computer network existing, then a trade secret agreement is relatively easy to enforce, because that implies that given implementation of this software on one computer, a very wide distribution can be made of the material at zero risk.

That is, you don't have to disclose the program in any way in order for a person to use it.

So it's conceivable that that kind of protection would be sufficient, particularly for a network application.

MR. MILLER: At the risk of being redundant, I think it is important that we distinguish the kind of material that Joe is now talking about, from the kind of material that the people yesterday were talking about.

Otherwise, we are likely to get ourselves into a box.

Joe is talking about educational materials in which the verbal content is very important, in contrast to the pure software programming that the CBEMA people were talking about yesterday, in which the verbal content is meaningless.

What Joe is talking about is an integrated package of material which has a series of written instructions that

flash on the screen and talk to the student, just the way a book talks to a student, at which point the student responds to what the screen is saying to that student.

The machine, through classic programming, takes the student's response and refers to a pure program, which then causes the machine to go through certain operations internal, to wit, to flash the next batch of material on the screen, which may be another question, it may be a little essay, it may be a dredging up of a block of material from the public domain as in the law environment, a case.

So you are really talking in this context about pure machine language programming, which is controlling the sequence and content of what is flashing on the screen, and what is flashing on the screen, which itself may be originally created material by the author in the form of questions and essays, or it may be public domain material, in terms of raw material of the subject or discipline being studied, like case material or statutes.

Now the level of protection that we have got to think about may be radically different in terms of the original written material by the author,

the public domain material which is being compiled

and hung on the questions and originally written essays, and the machine's software that is controlling the sequence of the flashes on the screen, and is controlling the interaction between the student and the data base.

Now, the CBEMA people yesterday were only talking about that third category of programming.

In terms of the first two categories, namely, the original written material by the scholar or author, that is no different from the classic textbook and should receive, I would think, exactly the same copyright protection that has historically been given the book.

In terms of the raw material -- the public domain material -- offered, i.e., cases and statutes, the only kind of copyright protection in that would be in the compilation.

Now, when we talk about software, if you view software in terms of the CBEMA presentation, that's roughly monolithic, but now that we are talking about interactive teaching and combined software data packages, that's a different story, and the case for classic copyright protection is infinitely stronger, at least with regard to the first two levels of the material.

MR. DIX: Would I be right in assuming, though, that

the program in the literal sense -- the computer program -- that is used in programmed instruction, is relatively simple in viewing the whole span of computer programming?

MR. WYATT: No, I don't think you can assume that.

MR. DIX: I had assumed that it would be yes, no, right, wrong; fairly simple.

MR. WYATT: No. It can be. In fact, most of them I am familiar with are much more complex than that.

I wasn't here yesterday, but I don't disagree at all. In fact, I agree with what you said.

MR. LEVINE: In those situations, are the pure programs that we are talking about -- the CBEMA program and the program that manipulates the literary material in the education -- they are different in kind, or is it the data that the program is manipulating, that is different?

MR. MILLER: Joe certainly knows infinitely more about this than I, because I haven't been in the instructional programming business since I left EDUCOM.

My guess is that we are reaching a point where the inter-relationship between the control mechanism and the literary content is indistinguishable; where it is very difficult to separate out what is a machine command and what is a

literary display.

But that doesn't necessarily mean that you couldn't look at the educational package and say, "At this level you get protection X, at this level you get protection Y, and at this level you get no protection"; that the next educational packager could come along and take the control mechanism and not the literary content.

MR. WYATT: That distinction would be very difficult to make.

In fact, if one looked at the embodiment of the material in the form of, say, a listing of the "Computer Programs", and computer programs are usually defined to mean both instructions and data that contain both, I think it would be very difficult to make that distinction.

MR. CARY: Would all that be on one particular tape, or have you got several programs that interact?

MR. WYATT: It might be either one, that is, these things -- some of them are modules of material, and some of them are single packages of material, and, in fact, if you were to try to control one and not control the other, it would be relatively simple for a person to move back and forth.

So I think you have to consider the issue as if it

were both.

Well, let me speak to another question that was raised, and that was the monopolistic aspects of materials.

I think -- here is one that is rather difficult for me to deal with, but let me just try, in a very lay fashion

It would seem to me that if one could deal with a question of what of the prior art is in the public domain, that is, a set of rules that were established henceforth, that the monopolistic problem might not result any more in computer software than it does in others.

However, looking back on computer software materials, I think authorship is going to be very difficult to determine for some of this material, that is, origins -- prior art -- in the sense of patents, and so the significant issue there, I think, is one of making that determination.

In the early days of computer programming, and computer science, there was very little proprietary about software materials, and, in fact, many of the computer manufacturers now consider proprietary certain materials that were actually developed by a group of scholars and users over a period of years, that is, the concepts were in fact developed elsewhere.

So, in fact, if one were allowed to suddenly at this point in time copyright or patent a large body of work that embodied concepts and ideas that were very generalized, I would think that might have a monopolistic effect.

However, if one could make some declaration of prior art in the public domain, and set up a set of rules by which people could live henceforth, I suspect the monopolistic problem might not be so large.

Now, let me address a question.

I have been talking a good deal about the supply side of this issue, and I guess the reason I am is because, as I said earlier, I think the supply side has to provide some sort of reward structure, or we will not get the kind of quality material we might otherwise get.

Let me talk briefly about the use side.

One of the major concerns in higher education these days is cost. Expenses are rising rapidly, and in particular the use of printed materials is rising exceptionally rapidly.

If one looks at the compound growth rate of library budgets these days, double digits is the rule and not the exception.

Hence, it is a matter of saying on the one hand that

computer program materials may be expensive. However, one can't assume that traditional printed materials are not expensive. They are expensive and they are getting more expensive.

One of the things that we have looked at relatively carefully in a very preliminary way, that is, we don't have a lot of hard data, but we do have some informal conversation and, in essence, verbal agreements with authors who are preparing and have prepared materials for distribution on the computer network, and we found that the royalty structure, that is, the percent or portion of the cost that would be paid to the author for the rights to the material, is a very small portion of the total cost.

For example, these days, it is possible for a student on a computer network to sit in California and use a computer in Minnesota at a total cost of around $4 per hour; that is, per hour of sitting at the terminal.

In many other places that cost is quite a bit higher, principally because of the communications charge involved. However, that is improving.

The portion of that, that several authors seem to be willing to accept as a royalty is less than 5 percent, around 5 percent or less.

And I think that is a price that I, for one, would be willing to pay in order to encourage more authorship of quality materials, and I do not think it would prohibit at that level the distribution and use of this material in higher education, particularly when one looks at the alternatives.

There are several other questions that I think are probably smaller issues.

The question on reliance on restrictive licensing arrangements based on trade secrecy -- I want to get back to that one more time, because I think in a networking environment the latter kind of material that Mr. Miller defined, that is, the program algorithms themselves, that in fact is a currently used and relatively adequate mechanism for the current technology.

Having said that, if we look at the newer technologies, that is, the micro-computers, and the mini-computers that are distributed about and, in fact, I am sure all of you have seen the boom in the hand-held calculator activity, and what in effect you have is a micro-computer that can be carried around and is battery operated.

I suspect that there will be some material that

will be published in that form, although I don't know what size the body of material would be and, in effect, it might be that that will be patentable.

If it is embodied in a piece of hardware, my guess is that probably it could be successfully argued that it would come under the patent arrangement, although I doubt if that is the best way to do it.

The restrictive licensing arrangement would be very difficult to enforce, I would imagine, and there would be more leakage than there would be in a computer network where the holding is highly centralized.

So I do want to bring up the fluid nature of computer software and its embodiment in use; that fluid nature being variable as a function of technology and how it works.

A couple of other issues before I let you ask questions freely, if you want to.

There was a question on how the copyright notice be affixed.

In terms of a computer program, that is, embodied in a magnetic tape or some physical device, that's fairly straightforward.

However, notifying an individual that the copyright

exists will require some programming itself in some cases, and standardizing on that is -- depending on what level of detail you go into standardization, is not going to be very easy, because the standardization in the industry itself is -- the non-standardization is rampant, that is, computer manufacturers -- their systems are not compatible, their instruction sets are not the same, and so I think you are going to have to operate at a higher level of specification than trying to get down to the insides of a computer system.

Whether you can do that, and still have a standard means of dealing with the problem, I am not sure.

Registration of copies of programs -- I don't see that as a major problem.

It seems to me that the registration problem -- I think the Library of Congress probably already deals with most of the media that could be used or would be used for computer programming.

On the question of what should be deposited, computer programs consist of a number of different parts and embodiments, that is, the program listing itself, flow charts, and the like, and it would seem to me that an author should be free to copyright whichever of those pieces the author wishes, or all

of them individually.

But trying to set a standard that one must provide flow charts, listings, et cetera, et cetera, would be a difficult thing and probably unnecessary since the actual embodiment of the program is involved with a detailed computer language representation.

The changes that I have suggested, I am not sure that they are easy to enumerate, but in terms of affecting the proprietors and users of software products, it seems to me that it is within -- if one considers the combined protection possible in the way we have described, I mean the copyright possibilities, the restrictive licensing arrangements, and possibly patents, that the changes that would be affected would be that we would provide an improved, rewarding structure for the proprietors -- the developers of the materials -- without necessarily upsetting the user environment to the extent that one would be restricted, or financially encumbered in using the material.

If anything, right now, since we don't have I believe a good mechanism for protecting the work of authors and developers, we may be inhibiting -- I believe we are inhibiting the supply of quality materials that are represented

in computer software.

JUDGE FULD: You mean you don't get the protection you want from the trade secret agreement?

MR. WYATT: Well, I think that up until now one does not go through the fuss and bother of the trade secret agreement except for relatively large things.

Once you do that, I think the protection is quite good.

But, I think there is a body of material for which a person does not wish to go through that level of activity -- it is not an inexpensive process -- that would be valuable to each student.

MR. NIMMER: Speaking to your last point, namely, that user interests would not be seriously affected by increased protection, that apparently has been the view of everyone who testified before us.

I thought if anyone might take the contrary view, it would be you.

Is there any organized or otherwise body of opinion that disagrees with that conclusion that you are aware of?

MR. WYATT: Well, let me say that the conclusion assumes a couple of things.

One of those things is that we will not have an uncontrollable monopolistic situation that would allow a person to price materials to an inhibiting point.

On the other hand, the investment required to develop quality materials is such that what we are going to have to have is a mechanism by which the market can be increased in size, and, that is, that the fixed costs of this kind of materials is very high, and usually the prices of these things as they are related to costs are determined by taking the costs and dividing them by the potential number of users.

What I am saying now is that the number of users is restricted, and that a college or university cannot afford to use a lot of the materials that are available now under the current scheme of things because of the distribution mechanism.

We think networking can improve that distribution mechanism.

However, unless there is a monopolistic activity involved, the prices should come down; that is, given a distribution mechanism and the kind of potential that we are talking about, I don't think that it's automatically true that the users will suffer.

It seems to me that a viable market will be created; a competitive one.

JUDGE FULD: Mr. Miller.

MR. MILLER: Joe, I guess I should call you Mr. Wyatt, but it is rather difficult.

This is going to be a long question:

You operate a network, and you have got people producing materials for your network. Let's take our mutual friend, Roger Parr of the University of Minnesota Law School.

He produces machine-based programmed material for a course in civil procedure, and you want him to produce that material, put it on your network, make it available at as many universities that tie into your network as possible.

You are going to pay Roger -- hypothetical -- five percent of the revenues you get for the tie-on time between a member and EDUCOM.

You are in a closed environment in that sense.

If I tie on from Cambridge and my students use up ten hours, and you are charging $40 an hour, Harvard will pay EDUCOM $400, and Roger will get what -- $20, something like that?

Now, to the extent Roger is putting together his own freely written material in the form of little essays and questions, and provocative thoughts, compiling public domain cases and statutes, there is no doubt in my mind that he can get a copyright for that, or EDUCOM can get a copyright for that, and it would be a copyright that is really no different in kind than the copyright I have on my civil procedure cases.

So what are the risks, what additional protection is it that EDUCOM wants?

The risk , it seems to me, is that if I tie on from Cambridge for this packaged material, then I can do one of three things to your detriment:

I can drain it off and put it on my own computer in Cambridge, and run it for my own computer in Cambridge, off your network and never pay you a penny. That is risk number one.

Risk number two is that I can drain it off and I can give it to my colleague at Syracuse U., who is not on the EDUCOM network, and he uses it completely off the network without paying EDUCOM a penny.

Or, I can take Roger's material and redo it to my

own satisfaction; I can modify it, I can alter it, I can adopt it to my own particular needs.

And, then we got a real hassle as to whether it's Roger's material or my material, or our material and God knows who gets what percentage for any of them.

The first risk -- that I drain it off and use it on my own computer system, it seems to me is a matter of contract between Harvard University and EDUCOM; that gives you protection against my doing it.

That I drain it off and give it to a friend at Syracuse who is off your network, is also a matter of my breaching our contract, and you can come against me and on some developing theory you can go against Syracuse.

That I completely re-arrange and re-adopt Roger's material, so that it's either partially or completely unrecognizable as Roger's material, it seems to me is a matter that is internal to the EDUCOM network, and not a fit subject for federal monopoly statutes.

Now, I am trying to figure out -- I am honestly trying to figure out where your real external risks are that aren't covered by existing law.

MR. NIMMER: Arthur, I didn't understand your last

part about it being an inter-EDUCOM network.

MR. MILLER: It seems to me that one of the things EDUCOM not only should be thinking about but should be promoting and encouraging is that educators around the country are taking the pool of programmed material and massaging it, and developing secondary and tertiary transformations of the material, and that could be done by contract relationships within the EDUCOM network that in effect permitted EDUCOM to make agreements so that Roger and I share whatever use is made of my adoption of Roger's material at the Yale Law School.

MR. NIMMER: But, suppose you say, "Look, true, I got the fundamental idea from Roger, but that's all; the rest is mine and I don't want to pay for that idea, and I'm not going to contract to pay for that idea"?

MR. MILLER: Then we may have a federal copyright problem because that is like my making an unauthorized motion picture of GONE WITH THE WIND.

My own view is that in something like the EDUCOM network, it would be extraordinarily counter-productive for them to say to each and every educational institution, "You can't modify the material that we have put on the line to you."

That's anti-intellectual in its own curious way, but I don't want to get into that.

I would like to hear Joe react to what -- am I missing any risks?

MR. WYATT: I don't think that you are. In fact, I'm not calling for new legislation.

It seems to me that if the new copyright act, as it appears to do, adequately covers the new kind of technology that has come along -- copying technology and the like -- that we are probably adequately covered.

MR. MILLER: For risks one and two?

MR. WYATT: For risks one and two.

On risk three, I have a good deal of difficulty seeing any difference between that and many, many other analogies, that is, we would like to encourage in some cases individual teachers adding to material.

In fact, the body of material that we now see in use is not nearly as useful unless it does allow that, as a professor will take a book and assign a student to read one chapter, but not read other chapters and make up, in effect, pieces of material.

Some of the material that is distributed in the health sciences has had limited use until the capability was authorized and worked out for individual teachers to add to

the basic material, sometimes substantially, sometimes not substantially.

But I think those things can be worked out, and I don't -- we do not feel constrained, I think it is fair to say, in any one of these three areas.

MR. LEVINE: The situation you posited assumes the situation in which there is a contractual relationship between the sender -- the author and the receiver, but is the day not coming in which the material is going to be sent to people other than those in a direct contractual relationship with the transmitter, such as the way we now receive television programs off our receivers?

I ask that -- and at that point you would not have the contractual protection.

MR. WYATT: Well, the kind of activity we are envisioning in this particular discussion is a teaching-interaction and a teaching environment.

The kind of market you are talking about -- the mass distribution of materials -- as one gets further and further into the size of the marketplace, it seems to me that one weighs the risk of, in essence, developing a body of material that is distributed without such agreement.

For example, the practice of taping phonograph records, or the like, is a matter of some leakage in that market that people have protection against and the like, but it still occurs.

I don't see that kind of market for computer programming material at the present time, although it is conceivable that it would develop.

MR. LACY: Mr. Chairman?

JUDGE FULD: Yes.

MR. LACY: I wonder if it is a presumption that Mr. Miller and Mr. Wyatt are sharing that the existing copyright law or the law as it would be embodied in S-22, as enacted, takes care of the problem; resting I guess, on the assumptions that the program, in the pure sense that CBEMA was talking about yesterday, and the specific factual and literary content of the material being taught are so integrated that the traditional copyright protection on the latter extends itself in practice to the former, and you haven't got any risk of pure programming existing without adequate protection.

But, if it should be, or became possible -- this is a highly hypothetical case -- to develop a program, let's say for the use in sociology classes, in analyzing the social

problems of a community which would exist, just as an abstract program, and a professor in a particular school would relate that input of a body of facts about that particular community -- it's population, makeup, and so on, in quite the same way that a department store may buy a program to deal with accounts receivable and then put in that program the payments received from that.

If there did exist such a situation, we might have the kind of problem about protecting that abstract program and adequacies of the law that we have now in some of these things.

So, I think the peculiar situation in most pedagogical programs should obscure the fact that there may remain a problem about the kinds of programs being talked about yesterday.

MR. MILLER: Absolutely.

MR. DIX: May I just pursue this a second?

EDUCOM, I believe, is interested not only in pedagogical kinds of things, but in the more functional kinds of computer uses in its member universities -- accounting routines, registrar's office use routines, and so forth.

Are you exchanging and sharing software in this area

among members?

MR. WYATT: We have not been, and still aren't really very much involved in that activity.

Our work goes principally to research and instruction.

There is beginning to be some activity in planning models, and that sort of thing, but there are other organizations that do that much more so than we do.

MR. DIX: I was hoping that you might speak to that kind of software clearly as a consumer, you see, in that sense.

We haven't, again, had enough testimony it seems to me from users of that kind of software material and what effect it would have on the users if a higher degree of protection were granted.

MR. WYATT: Well, if you don't mind, I will speak to it, possibly slightly outside the EDUCOM context, but in other activities that I am concerned with, principally university administration for the last several years.

Universities, although they have some unique problems, are very similar to other kinds of businesses.

For example, in accounts receivable similarities are significant.

In the case of registration, not many businesses have an analog, but a lot of universities do.

Now for many years universities had in fact restricted the exchange of computer program materials. For some reason each institution developed its own computer programs to do its functions.

In recent times, companies have formed, and are operating successfully, to deal with the university and college market for administrative kinds of programs.

There is a company that specializes in registration systems, and it has successfully sold registration systems on a proprietary basis.

Essentially the trade secrecy provision is used and, similarly, for accounting and those kinds of materials.

So there is developing a viable industry of that sort. It is based essentially on the trade secrecy arrangement and my opinion is that the copyright patent trade secrecy arrangement is not inhibiting that industry.

MR. LACY: Do they in fact sell or do they lease to the schools?

MR. WYATT: Both arrangements are made.

The lease, or the functional equivalent of the lease

is more popular because these things continue to evolve, that is, the university's requirements change.

For example, student support programs change a lot, and so there is a requirement to modify the systems from time to time, and usually an institution will either buy with a maintenance arrangement, which means that the supplying company provides the ability to change the product.

That is limited to who can change it, or it is leased with a certain allowance for that kind of change and maintenance.

MR. PERLE: I am a little confused here about this marriage of programs and data.

In your written representation you refer to computer program materials.

From what I gather you are talking about a combination of what we laymen call data input and instructions to the machine for a computer program, and you said before that there is an identity being created, or you can't separate out the two.

Could you explain that to me a little more?

In what way do your teaching materials -- your research materials and stuff -- that I sit at a console in

California and can call up from a data bank in Michigan?

How does it work and where is the difference between the data and the program?

MR. WYATT: Well, the argument is that the difference is very difficult to define.

That particular -- just to take an example, that particular body of material we were discussing includes normal verbal material, that is, printed material that would raise a question that you would read off the screen.

But, in order to present that material on the screen, that data is manipulated by a computer program that handles it and that is an integral part of it; that is, the two are virtually inseparable.

They can be made somewhat inseparable by taking a program that is a generalized manipulator of such material.

MR. PERLE: I will give you a specific example:

Pick whatever field you want, and I am a student.

What would I do with the machine?

What would the machine do for me?

Take the simple procedure, if you would; that sort of thing.

MR. WYATT: Well, in the case of some of the raw

materials, if we -- we are in a group of lawyers here, and I am not a lawyer, so I will have to disqualify myself from that, but --

MR. PERLE: Any field you want to.

MR. WYATT: -- but in these cases, typically a student reads a case in the traditional sense and --

MR. PERLE: At the screen? At the tube?

MR. WYATT: Partially in a case book and partially at the tube, because the student is then put into a role-playing situation where in fact the student plays the role of the judge in the case, and on the tube comes up a particular question, or pronouncements by the plaintiff, for example, and the defendant on the tube -- now, this is coming up -- the plaintiff makes a statement, the defendant makes an objection, and then the computer says, "You are the judge. Do you sustain it or not? Yes or no."

The student then replies in yes or no, and depending on that response the computer program that is involved with this data makes entirely a different reaction one way or the other.

In fact, what you are looking at is a very complex tree structure of activities that involve logic and programs

as well as data integratedly tied together, so that depending on the answer you give -- yes, you sustain the objection, no, you don't -- the algorithmic portion of the program begins to take a different path.

That's an illustration.

MS. WILCOX: Maybe I can put it in even a simpler context:

School children in the second and third grades are taught mathematics, and the program will ask them to add one plus one, and they will sit down at a computer and you can actually see them do this.

It will ask "What is one plus one?"

If they say, "Two", then the program will tell them to maybe find out what two plus four is, but if they give a wrong answer, then they will have to go back and they will probably tell them that on the one hand here is one apple, plus two apples, so they will progressively go through addition and subtraction, multiplication at their own speed.

Then, they will get into fractions, and decimals, but the computer can determine at what speed to go by the ability of the student, and that would be quite different from, say you were writing a program to take care of accounts

receivable.

Does that help?

MR. PERLE: Okay. It helps at least to what I really want to get to.

Somebody decides that we need a second level of an arthmetic program for use by students in a computer, and that means that someone has to input, or arrange, or write, or something, the pedagogical materials -- the two plus two -- and figure out whether the answer is four or five.

Then someone else, or maybe the same person, has to figure out how the machine reacts to a right answer and a wrong answer.

I am wondering whether there can be a distinction drawn between the information, the answer, and the instructions to the manual that flow from the answer by the people who create them?

You see, what I see almost from an analogy in this situation is the textbook, the workbook and the teacher's manual, and I wonder if the instructions in the machine are in the teacher's manual, or is that far too simplistic an analogy?

You see, yesterday there seemed to be some sort of

feeling that maybe computer programs, as such, needed protection, but then maybe not within copyright; maybe so, maybe not, at least there was a question.

Most of us traditional copyright people have always thought that the content of teaching materials in the old sense -- the old textbook-blackboard sense -- that that information was copyrighted material.

Now you are saying that we have to approach this somewhat differently.

Is there any way of validly preserving a distinction between what we would call the "literary input", the old copyright input in the old sense, and the teacher's manual or instructions to the machine or what have you?

Is there a distinction?

MR. WYATT: It's going to be extremely difficult for several reasons, and one that pops into my mind -- I think there can be the kind of division or the development of the material that Arthur drew a moment ago, when you get to the embodiment of that and the definition of what is a computer program, what is data and that sort of thing -- let me give you an illustration of how some of these things work:

You see, computer language is sort of stacked on

top of one another, that is, in order to have a computer language you have to write a program called a "compiler" in another computer language, and so they are nested several layers deep.

With a teacher, for example, developing a course of the type that was described, that teacher in some cases will be directly using what is called an "author language".

That "author language" is akin to programming, that is, as the teacher does work in this material that is very much akin to programming, and I would have a very difficult time trying to distinguish that kind of act from the act that a scientific programmer does when writing programs in FORTRAN.

On the other hand, the material content can be gleaned from a number of sources.

MR. PERLE: Maybe it would help me if you would tell me how this whole teaching schmear gets involved.

I mean, I'm the educator and you are the computer expert and the judge has said, "Okay, come up with a second year arithmetic program" -- a program in the teaching sense.

Who does what?

What do I do, and what does somebody else do?

How does this thing get into that status where it can be used by the team who teaches?

MR. WYATT: Well, the scenario of the situation I am trying to draw for you is if you are the person who is developing the material, you should --

MR. PERLE: The educational material?

MR. WYATT: The educational material.

You would go about to design a pedagogical program that would deliver the kind of material you wished, so the student gets the kind of response you want for them to develop their knowledge of the body of the material.

Having conceived of a plan to do that, you begin to develop some illustrations and examples and the like, and then at some point down the line you face a choice.

You can say, "I can write some of this material down in a book" -- that's passive; it's delivery. A person sits down and reads it and attempts to understand it.

I might wish to take some of that material and incorporate it into one of the computer assisted instruction systems that are available in places, EDUCOM, computer manufacturers, whatever.

Then you engage in the activity of developing cer

portions of that material and embodying them as computer materials -- programs, data and the like -- as I think I called a moment ago a "package" with which the student is supposed to interact.

So, in many ways you have simply extended the way that an author can present his material to students.

MR. MILLER: Joe, I did one of these things. It seems like a light year ago.

This is the way I did it:

I decided that there was a block of my first year procedure course I could teach by tutorial -- machine-based tutorial -- more effectively than using class time and, as Alice has pointed out, allow each student to move through the material at his or her own pace.

What I did was sit down and I wrote the tree, as Joe remarked before.

What I said was, "Okay, I want to teach pretrial motions -- motions to dismiss, summary judgment motions -- what do I need? I need a hypothetical complaint."

So I wrote a complaint.

"I need a body of case law that the student could have access to", so I identified 15 cases, and the Federal

Rules applicable to pretrial motion practice.

Then, as Joe said, I started to write a series of questions just as if I were in class.

I assumed that the student had read the complaint, maybe had read the cases, and I said, "My first question in effect is this: Is paragraph three defective for failure to state a claim upon which relief might be granted?"

I started building a tree. I started answering in terms of every conceivable answer that the student could give -- yes, no.

Then my next question: "Under what Rule is it defective -- 12(b)(6), 12(c)(6)?"

Under each answer that a student could give, I then in effect wrote the next question, assuming that the student had given this answer.

Now, if a student had given a wrong answer, I built a loop -- tutorial loop -- forcing the student back through material that would educate the student and bring that student to a position where he or she could then write the right answer, the last question in effect being the same question that the student had erred, back into the mainstream.

Now, when I had built this enormous tree, and notice

every piece of that I believe is copyrighted because it was all in my own language, and the raw public domain material I had used I had compiled, so I would have gotten a compilation copyright, just as I do on my case book.

When I had done that gigantic thing, because I am basically an obsolete person born too early, I handed it to a computer specialist who built the machine commands around it, so that all of this educational material could be worked.

Someone today could probably do -- Roger might be able to do the whole job by himself.

MR. PERLE: Nifty.

Being an obsolete object like yourself, I can conceive of two different types of protection that situation involves:

One is in copyright, and one may be in copyright or may be in something else; one for all of your questions and answers and your information -- right answers, the wrong answers; another for the information that you are giving the machine -- telling the machine how to react.

Now that's easy with an obsolete person.

If Joe, the new breed, does the whole thing, I assume

he is also doing two separate functions.

He simply has to be doing them at the same time. Maybe that is a wrong assumption.

What I want to know is, am I wrong in thinking at least we have the option in deciding how to protect, because I for one think that protection is necessary,-- both parts of this.

Do we necessarily have to think of only one form of protection, or can we think of two?

MR. WYATT: It would be very difficult for me to define that separation.

If I did the whole thing myself, which I could do, the break at which an author described he handed over the material to a computer specialist -- if I just continued to work, or as I was doing the questions I actually wrote all those out in "author language" -- a programming language -- my point is that if you are distinguishing one kind of protection for the program and another for something else, the definition of what is a program is going to be extremely difficult to come by.

MR. PERLE: I am not worrying about that; I am worrying about function at this point.

I mean we lawyers can find language for almost anything and thereby fan the fires for future language.

Can we functionally separate out the two?

JUDGE FULD: And, we will adjourn after you answer this.

MR. WYATT: On the spur of the moment, I cannot supply to you a definition that I would consider adequate under just the scenario that has been drawn here for separating the two.

MR. NIMMER: It seems to me that what Arthur described he was doing, itself involved both functions, didn't it?

He's writing out the actual words -- questions and answers -- but, he is also allowing for the alternatives -- if you answer one way it goes to this answer, or this new question; if you answer the other way it goes to that question.

He is pointing the direction and I may be completely wrong, but it seems to me that the computer specialist then simply converts that to electronics, but is following Arthur's directions as to the sequence of questions, and the sequence of questions is in a sense the program, isn't it?

MR. MILLER: No, the programmer not only is converting everything I do into a language the machine will accept, the programmer is also writing the instructions.

Think of the railroad model that will throw the switches on the tracks and move the student into the loops and into the jumps.

I think Joe would agree with me that if we ever started to create monopolies in the capacity to write those switching instructions, then we would have a dangerous situation.

MR. WYATT: Indeed.

JUDGE FULD: We will recess now for ten minutes.

(A short recess was taken.)

JUDGE FULD: We will start this present session with Mr. Biddle, President of CIA, that is Computer Industry Association.

Welcome.

MR. BIDDLE: Thank you.

I am accompanied this morning by Carol Cohen, sitting on my right, General Counsel for Applied Data Research, one of our member companies; Theodore Lorah, Vice President of INFORMATICS, another member company in the software field; and

Terry Mann General Counsel for Computer Industry Association.

I wish to thank the Commission for this opportunity to appear before you and present our thoughts on the subject you are considering.

The Computer Industry Association, a trade association formed merely four years ago, represents 37 member companies with combined revenues in excess of $1.5 billion annually and employing more than 40,000 persons.

Their products cover the full spectrum of goods and services associated with computers and data processing.

Our member firms range in size from under one million dollars in annual sales to well in excess of two hundred million

Nearly all of our members are involved to some extent in software development.

Most of these companies provide software as an adjunct to their hardware products to manage mass storage devices, terminals, graphic plotters, and communications subsystems, as well as to facilitate the maintenance and service of their hardware in general.

Six of our members are exclusively involved in developing software products and systems for use on others'

computers.

One of our members, INFORMATICS, is currently the largest single domestic supplier of software outside of IBM.

The annual revenues which these companies realize from the sale, lease or license of their software products range from less than one million dollars to over thirty million dollars.

The types of software which our members develop and market cover a wide range of programs from large general purpose data management and accounting systems, to small specialized application packages, all developed to meet a particular user's needs.

Some descriptive material on several of those larger software systems by two of our member companies is contained in an appendix to my prepared statement.

Regardless of their product, all of our software suppliers share a common concern, which is, how to adequately protect their programs in the most economical and efficient fashion.

We have discussed this matter with our member companies and have found that their individual views on software protection are as divergent as the programs they develop.

To the large data management system supplier, whose

main concern is to minimize the risk of loss, trade secret protection is the only feasible means currently available.

To the small general purpose program supplier who seeks a wide market for his product, copyright protection offers the most economical means.

Still other manufacturers favor patents to protect their software products.

In short, we have discovered that there is no consensus in the industry.

Rather, the type of protection favored by a particular supplier usually depends on several factors which include, among other things, the development cost of the product, the lease or sale price, the ease of detection once stolen, the marketability of a product, the risk of loss, the originality or inventiveness of the product, and a product's transportability.

We have asked our members to consider the copyright questions which this Commission has posed, requesting specific recommendations for changes in the existing laws.

Unfortunately, in view of the limited time allowed to prepare for these hearings, we were unable to develop specific suggestions as to any substantive revision of these

statutes.

However, we have been able to piece together a statement of the problem as seen by our members regarding the protection of software in general.

First, let's consider the question of patent versus copyright.

The issue of software patentability, as expressed by one of our members, is basically a problem in characterization.

The courts and Congress have had difficulty characterizing a general purpose computer once it is loaded with a software program, as a special purpose computer, and thus, under Title 35 of the U. S. Code, a machine capable of being patented.

Hardware manufacturers and software suppliers seem to divide on the issue, the former arguing that software is merely an idea or a method of doing business, and, hence, not worthy of patent protection; and the latter arguing, on the contrary, once software is in the computer it should be treated as a machine.

To some software suppliers, the copyright laws serve as a totally inadequate means of protecting software programs,

whereas they see patent laws as offering the type of protection that will both protect their product and stimulate further software innovations.

The reason for this difference has been explained by the ways in which the patent and copyright laws operate.

Patent laws protect the invention or discovery of an idea by giving its creator a legal monopoly over its use.

The copyright laws, on the other hand, do not protect an author's idea, but rather only the author's embodiment of that idea.

So with software, copyrighting offers a very limited means of protection since competitors need only re-embody another's ideas in some other non-copyrighted program.

Patent protection, however, would bestow the greatest security on a software product, some of which cost many millions of dollars to develop, as it would protect the creator's idea regardless of the form in which it might become embodied.

Several of our members currently hold patents on software products of their creation.

It has been pointed out, however, that the grant of general protection to software is not without inherent

drawbacks.

For example, many inventions cannot satisfy the requirement of non-obviousness as a standard of patentability, or in marginal cases, the claimed coverage may be so narrow as to preclude broad coverage.

Another problem would be how to effectively search the prior art if the door to software patents were suddenly flung open.

Additionally, the delays between filing and the ultimate issuance of a patent, typically about three years, overlap the useful life of many innovations within our fast-paced industry.

Also, the period for patent protection is generally felt to be unnecessarily long for software patents.

The patent laws, therefore, seem to provide an incomplete answer to the question of software protection.

However, there are also some conceptual problems in the copyright laws.

Software suppliers who desire copyright protection have claimed that these laws provide an archaic method of dealing with today's computers and information technologies.

For the purpose of obtaining a copyright under

existing law -- Title 17 of the U. S. Code -- an author of a software program must learn to think of his product as a book.

This term has been interpreted to be a catch-all for the various literary and intellectual materials which do not fit the plain meaning of other statutory classifications such as musical compositions, maps, works of art and so forth.

Under the definition of "book" courts have included information in tabular form, computational tables, and other collections of data, particularly adaptable to computer programming.

Every owner of a copyright of a literary work is entitled to the exclusive right to copy, make other versions and to translate his work into other languages.

With regard to the majority of literary works coming under this provision, there is little difficulty in envisioning the sort of provisions which Congress meant to afford the owner of a copyright.

When the owner of a software copyright looks to his or her entitlement of right under this section, though, the scope of its protection is not so clear.

For example, suppose software firm "A" developed a

sorting program which, due to any number of criteria, is highly marketable because of it superior speed and hardware adaptability.

Suppose, also, that it was written in a computer language easily understandable by competent programmers.

Firm "A", desiring some means of protection for its product, yet realizing that its profitability depends on wide usage in the industry, registers its sorter with the U. S. Copyright Office.

If firm "B" comes along and photocopies firm "A"'s sorter program without authorization, it would clearly be liable for infringement of the copyright.

However, what if firm "B" simply reads "A"'s sorter on loan from a third party licensee into its computer, and never actually copies the language in which it is written?

What if firm "B" dumps the sorter onto tapes or discs and then uses or sells these magnetically stored programs as its own?

Is an internal machine representation, or a magnetically stored version, a copy within the meaning of the Copyright Act?

Suppose firm "B", wishing not to take the chance that

an electronically stored program is a copy, decides to have its programmers code "A"'s sorter into a different language.

Or, suppose "B" foregoes the use of a higher level language, and instead reduces "A"'s sorter to machine code.

Would this be a copy? Another version?

Could the copyright law's proscription against a translation into other languages be interpreted to include computer languages, too?

But, don't our copyright laws only protect the embodiment of an idea and not the idea itself?

How can firm "A" then complain when all firm "B" did amounted to the re-embodiment of "A"'s idea?

If such are the problems confronted by "A", then either "A" will get little protection under the copyright laws, or else will have to forego public disclosure of its product and rely on protecting its sorter as a trade secret.

The copyright laws must be made more responsive to the technology of computers and information processing if they are to benefit the software supplier in the foregoing example.

The concept of copying must be broadened to include not just the actual reproduction of a computer program, but its transformation into magnetic or electronically coded

storage as well.

It is generally agreed that the translation of a program into a different computer language should also constitute a copying for the purposes of copyright infringement.

Many suppliers also regard the running of a copyrighted program without authorization to be an infringement similar to the performance of a dramatic work without authorization.

One commentator has even suggested that any transformation between diagrams or flow charts and the program text, or vice versa, should constitute copying under the copyright laws.

There has been a favorable response from some of our members to the notion that a new registration program akin to the copyright system should be devised specifically for software products.

Under such a system it is suggested that only software programming concepts and not the actual coding be disclosed.

Registrations should only be permitted if these concepts represent a sufficiently complex process to warrant protections based on originality.

To administer this requirement, a panel of experts would be used to make the final determination before authorizing this registration.

Further, this panel could serve as a team of special masters in subsequent infringement suits.

Finally, the term of protection allotted under such a system should in no event be longer than five years.

This, of course, represents only the barest sketch for a software registration system.

Even if such a system were implemented, it would still fall considerably short of providing a solution for those of our members who actively copyright their program object codes.

The biggest problem which they encounter has been in detecting an infringement.

Hence, nearly all suppliers who chose copyrighting also use extensive licensing agreements as additional means of protection.

There is a general feeling among those suppliers who copyright software, that if some method should be achieved for facilitating the enforcement of copyright violations, copyrights alone would probably serve their purpose.

However, since adequate enforcement presupposes an effective means of detection, the root of the problem lies in this area.

For this reason, the trade secret approach has been widely used by the industry to avoid the difficulties of detecting violations.

The proponents of trade secret protection posed several reasons why copyrights, in addition to offering scant protection, are unnecessary for software.

Creating complex programs, which may contain thousands of statements, can cost thousands of dollars.

Yet, to copy a finished program may only require access to a photocopier, or a magnetic tape device.

Presumably, for these reasons, copyright protection which in general should prohibit unauthorized copying of the program, but allows free use of the idea, has been advocated as desirable.

However, the fact that a large differential exists between the cost of producing the work, and the cost of copying it, may not alone warrant copyright protection.

Several other factors must be taken into account before protection is conferred on an industry which has been

burgeoning without copyright.

First, much systems software is created by hardware manufacturers and provided along with the hardware at a bundled price.

Many of these programs will work only with a particular machine model or, perhaps, even of a specific serial number.

Hence, there is a diminished probability that a copier can sell his illegally obtained merchandise at a profit below the manufacturer who is, in effect, giving it away with the hardware in the first place.

Second, a great deal of today's software products are application programs tailored to suit individual customer needs.

In fact, the majority of computer time is accounted for by programs that computer users develop within their firm for in-house use.

Since the software is of a specialized nature, it is unlikely that copies of such programs will have any significant marketing potential..

Third, those application programs which are not tailored to a specific user's needs, but rather are marketed

as general purpose programs, come with documentation, manuals, warranties, and follow-up services.

The cost of these supporting items may well equal or exceed the program's initial cost.

These facts suggest that a user is often buying services and expertise as much as the particular programs themselves.

Thus, the ill-gotten gains that may accrue to a copying seller, who is unable to provide the concomitant services and expertise, will be minimal.

Finally, the rapid expansion of timesharing systems, which allow many users to subscribe to the services of a centralized computer network, may cut against the arguments for copyright protection.

Copyrighting is unlikely to be needed if it is relatively easy to identify, organize and protect software through licensing contracts with groups of potential program buyers and users.

These considerations have to some extent cast doubt on the present need for computer program copyright protection, and indicate that the case of future need may be quite speculative.

In addition, there are several administrative problems which would accompany the proliferation of software copyrights.

For one, producers who get into the habit of copyrighting nearly all of their creations would incur a serious transaction cost problem.

Further, users who desire to copy portions of a program from owners outside of their timesharing group would find that obtaining permission well might prove prohibitively expensive and time-consuming.

Moreover, the elimination of direct competition that copyrighting provides, may allow some program creators to overcharge for their produce.

Also, difficulties in determining whether one program is, in fact, a copy of another, as demonstrated in my previous example, may make protection difficult to administer.

Certain indiscreet experts feel that had there been a copyright required for programs, and had programming been constantly carried out under the threat of infringement actions for plagarism, that it is doubtful that the growth of programs and programming techniques of recent years would have been possible.

Still, there is little objection to the thought that it would not be socially harmful to permit a copyright of computer programs, limited in scope to replications for purposes other than carrying out the process of protecting the art contained in the program.

The software industry, as I have mentioned, has relied primarily on trade secret protection for their products due to some of the inherent drawbacks in both the patent and copyright solutions that I have just discussed.

Since trade secrets can be lost by an owner who chooses insufficient methods, including large-scale marketing, most software firms utilize restrictive licensing agreements, or complex contractual arrangements, to insure adequate protection for their products.

This approach, however, is really inexpensive, especially for the supplier who seeks a wide distribution for his product.

A supplier who leases software to a data center often must separately contract with both the center's management, and with the individual users, thus incurring added expenses for protection.

The real advantage which trade secreted software

has over copyrighted software is that because there is less access to the product, there is less opportunity to steal, and, hence, the problems connected with detection of unauthorized use are thereby reduced.

Almost all of our Association's member companies agree that trade secrets offer the most reasonable means of product protection.

The only complaints to the use of trade secrets fall into two categories.

First, it is unclear as to exactly what constitutes adequate protection of secrets from disclosure.

Second, because of the diversity in hardware systems and the size of the potential user market, it can often be uneconomical to meet existing court standards of protection.

JUDGE FULD: Has there been much litigation on the trade secret agreements?

MR. BIDDLE: It seems to have been increasing in the last several years nationally.

Several suggestions have been made that if these problems could be solved, perhaps through federal legislation, there would be little need to pursue the copyright solution any further.

One idea which seems to have caught on among a number of software manufacturers is a standardized method for encrypting software in conjunction with the hardware.

For example, if central processor manufacturers were required to imbed a serial number in a location in read-only memory, then software vendors could program their products to test for this identification number and prohibit access or execution should that test fail.

This so-called hardware-software lock, used not only to protect unauthorized access to software modules and data bases, but also to prevent thefts of software programs, would prohibit the software's operation on a computer without an identical serial number to that imbedded in the software.

While an encryption system of this sort is hardly foolproof, since clever programmers can track nearly every code, still it would help solve the two problems just mentioned.

First, the use of a standard encryption technique would constitute prima facie evidence that a supplier had adequately protected his trade secret.

Second, by virtue of standardizing this technique among all equipment manufacturers, it would doubtlessly lead to more economical means of protection than present methods

afford.

Whether trade secrets, patent, or copyrights offer the best solution, we do not know.

We have tried to present the Commission with some of the problems which our members have confronted for several years.

We regret that we cannot offer more in the way of specific solutions at this time.

It is abundantly clear from our discussions, and I think it's generally agreed upon among our members, that better software protection is needed in our industry; that this will probably come about only through federal action.

Yet, there is another concern that most of us share, and that is this: without better methods of protection and broader means of public disclosure, we are bound to waste our resources, chance the stifling of software productivity in the future, and forever re-invent the wheel.

At this point I would like to turn to one of our member representatives --

JUDGE FULD: Thank you very much.

Ms. Cohen?

MS. COHEN: Yes.

I thank the Computer Industry Association for the opportunity of addressing you and presenting my views and the views of Applied Data Research.

I am General Counsel for Applied Data Research, Incorporated.

Applied Data Research, Incorporated, has been doing business since 1959 and we market sophisticated software products throughout the world.

The company also has developed and markets a line of hardware-software products called STAR.

In order to familiarize you with the company's products, let me first say that software sales in 1975 were almost seven million dollars.

These sales came basically from four products: the LIBRARIAN, AUTOFLOW II, MetaCOBOL, and ROSCOE.

The LIBRARIAN is installed in over 3,000 installations and currently markets for a price on permanent license for about $6,000.

The company's other products, ROSCOE, MetaCOBOL and AUTOFLOW, range in price for a permanent license from about $3,000 to $28,000.

In total, the company's proprietary software products

are installed at over 5,000 installations.

Since its inception, Applied Data Research Incorporated, has spent over thirty million dollars in developing these software products.

In 1975 alone our investment was almost 1.5 million dollars.

That is opposed to our sales in 1975 of about twelve and a half million dollars.

So you can see what percentage of our sales go into development of the product.

You can, of course, see how important it is to us that these products that we develop are well-protected.

Because of the large number of sales of each of these products and the cost of the products, our problems may be different from those who market to a relatively small number of persons.

Applied Data Research, Incorporated, a leader in the software industry, was the first to obtain a patent on a software product; that product being AUTOFLOW.

I have distributed to the members of the Committee a copy of the brief which was submitted by the company on behalf of the applicability of patent protection of the soft-

ware products.

We believe that under existing law patent protection is available for software products; this is not to say that other protection is not necessary, and to the extent that there are other ways of protecting one's proprietary interests, the owner of software should be able to avail himself of these methods of protection.

The company believes, furthermore, that special protection is necessary and desirable and in the public interest for software, for the following reasons.

The first problem that confronts those who develop and market software is the ease of reproduction.

Unless cumbersome and often costly devices are installed in software systems, software systems can easily be duplicated.

Technical restraints, which often prohibit duplication of other products, do not pertain to software.

Thus, for a complex computer system built at a tremendous cost, the writing thereof can be easily duplicated at minimal cost.

The second reason we believe that software protection is desirable is that the industry is a developing

industry in which many small businesses are attempting to develop and cannot afford the expense of the development unless they are assured that there will be adequate proprietary protection.

I believe it is, therefore, in the interests of our economy to, by specific legislation, assure that the full protection is afforded to the owner of proprietary software products.

As I indicated, I believe there is patent protection. I believe, further, that the protection is also currently available under applicable trade secret laws.

However, I would like to point out to the Committee that the value of trade secret protection relates to the size of the market.

In order to claim a trade secret, certain conscientious and continuing efforts to maintain secrecy must be maintained by the owner.

This, of course, becomes most difficult at such time as you are marketing to a relatively large market, and at the time you are marketing to a world-wide market, it becomes almost impossible because of the restraints -- the non-restraints of the potential sales back to the United States from other

countries.

For some, trade secret protection is adequate; for some, patent protection is adequate; for some, restricted contracts are adequate and I do note that we do market our products through restrictive contracts.

I believe all of these should be available to the owner of proprietary software products in order to protect him.

I still believe that this is not sufficient; that the tremendous cost that is involved in developing these proprietary products warrants certain special protection.

We at Applied Data Research do copyright all of our proprietary products.

We, therefore, avail ourselves of the existing protection.

I feel confident that were anyone to copy a substantial portion of any of our writings, be it in documentation form or on discs, that they would have violated o[illegible] copyrights.

I would like to, however, see further clarification and modification in the copyright law to deal with the protection of proprietary software in the following areas:

One, I believe a whole new category should be develope

relative to computer software.

§102 should have something which deals with computer software.

Two, I believe there should be a specific inclusion of the definition of the form in which this writing can occur.

I would strongly suggest that the language used could be similar to the language found under the Federal Information Act, relative to a new Act, which hits specifically the question of this technical area, which defines records to, among other things, include books, brochures, punch cards, magnetic tapes, paper tapes and other documentary materials, regardless of physical form or characteristics.

Three, I believe that there should not be any form of compulsory registration.

I think such compulsory registration would just tend to be burdensome and serve little purpose.

Four, I believe that all forms of the writing should bear the appropriate copyright notice.

If this were done, the Constitutional requirements of notice would be fulfilled and the need for registration might become meaningless.

How many people really do search with the Register

of Copyrights?

In summation, I would like to see the law adopted so that the language in the copyright area would relate specifically to the software area.

Such a change would not be foreign to the revisions of the copyright law as specific changes have been made to meet the needs of technological development.

Thank you.

JUDGE FULD: Thank you.

Mr. Lorah, Vice President of INFORMATICS.

MR. LORAH: Thank you. I appreciate also this opportunity to address you.

I, unfortunately, did not come with a formal prepared statement for you, and at some time in the near future I would like on behalf of INFORMATICS to present that to you for inclusion in your formal presentation.

At the present time I would just like to make a few summary comments on behalf of INFORMATICS.

INFORMATICS, we believe, is the largest independent firm in the software product industry.

JUDGE FULD: Do you agree with the other two speakers in general?

MR. LORAH: Yes, we certainly do.

Our products are currently in use in about 42 countries throughout the world, and in approximately 2200 installations.

Conceptually, we agree in total that the software that we are producing must and should be protectable in some way or another, and should not in any way be in the public domain.

We believe that the software product industry will be a major segment of the computer industry of the future, but that this can only come to pass if we protect now what is being developed.

Quite frankly, we cannot build an industry where everyone's work is readily available to everyone else.

There is a substantial investment that must be made in the software products industry in order to develop software products that will be required.

Individuals and companies will be unwilling to invest thousands and potentially millions of dollars, and untold numbers of manhours, in the development of software products which can be used by others, without payment to these investors.

Similarly, software products must not become a means for selling hardware, as might be the case if hardware manufacturers are the only ones with the means to protect their software.

Since the technical means of limiting the use of one's software are not currently apparent, legal means must therefore be developed and implemented in a very effective manner.

The terms "copyrightable", "patentable", or both, are rather ambiguous and confusing to us in that the statutory copyright seems to offer no protection for software products and a patent involves full disclosure, a situation that results in one revealing all that we are trying to protect.

Therefore, neither is really acceptable to INFORMATICS.

However, the common law copyright is, as we understand it, equivalent to trade secret protection and is the best we have found to date.

We believe that the matter of protection should really be divided into two parts: the protection of the idea for a software product, or a program, as we call it; and the protection for the implementation of those ideas.

These areas are largely independent in that it may be that even though the idea is not original, the implementing is original and substantial.

In that case, it should be protected.

We believe that protection should extend over a long period of time.

The software product differs from an item such as a book or a movie, in that it must continuously be maintained and updated in order that it remain viable and a state of the art product within the marketplace.

Thus, the precise form originally protected may be changed from time to time.

The requirement must be that the change was derived from the previous version in a very substantial manner.

Thus it is not a new implementation but rather an extension to or a revision of the previous one.

All of the improvements must be protected by really the original action.

To the best of our knowledge there is no automatic enforcement available for the protection of software products at the present time.

Programs can be protected under the trade secret

laws which are applied only at the instigation of the owner of the product.

However, there is truly no viable enforcement that we know of for trade secret laws.

JUDGE FULD: Have you had many violations that you know of?

MR. LORAH: We are aware of only one.

It would be helpful if the mechanics of enforcement of trade secret laws were simplified and the exposure they afforded minimized.

It would, of course, also be helpful if they would be protected nationally or on an international basis.

In fact, eventually international protection is required for the software product industry if we are ever to create and maintain a real industry.

The idea of protection is, of course, antagonistic to that of monopoly. If a really significant or new idea is developed, then it should be protected.

If an extensive and costly implementation is created, it should likewise be protected.

We don't see that this is much different from other industries or areas of protection.

We firmly believe that stronger protection, but not necessarily copyright protection, is mandatory if we are to encourage the software product industry.

If we do not encourage software as an industry whose products can be sold and protected in and of themselves, then it seems obvious that the investment in software will be significantly less and the benefit correspondingly so.

With regard to leaving the burden of software protection to the hardware on which it is used, this, again is totally unacceptable.

To do this means that the only beneficiary of an investment in software would then be the hardware manufacturer.

We believe that restrictive licensing, as we understand that term, is not only desirable, but is essential to the continued existence of the software product industry.

Thank you.

JUDGE FULD: Thank you, very much.

MR. APPLEBAUM: May I ask you how you discovered the misappropriation of your program and what you did about it?

MR. LORAH: As Jack mentioned earlier, one scheme that has been used by software firms is an encryption or an [illegible]ing scheme of some sort.

We had implemented that type of a scheme, and the individual that was caught attempting to get access to the software was not aware of the encryption, and in the process of attempting to display the information on a printer for a display device attached to the computer, it came out as non-printable type of information which was immediately recognized by other people.

The problem was researched and it was immediately found.

MR. APPLEBAUM: What steps were taken against the culprit?

MR. LORAH: The culpable individual was released of his position with the organization.

The particular organization made a very firm statement -- supplied us with a very firm statement -- that everything that had been received by them was not in a usable form, and what was in any way in a usable form would be totally destroyed by them.

Both of our organizations agreed to that statement.

JUDGE FULD: From figures each of you offer you indicated there hadn't been much discouragement of the software industry -- haven't discouraged people from going into it.

MR. BIDDLE: Well, certainly not from the point of the protection problem.

There has been considerable discouragement in the software industry, because the manufacturers of hardware generally give software away as part of the bundle.

JUDGE FULD: That is a difficult problem, but you suggested that there was potential discouragement in the software industry under existing laws.

MR. BIDDLE: Well, there certainly is a risk that you would not normally encounter if you were going into other businesses.

We have witnessed the pirating of our artistic performances in the form of records and tapes.

Here you have a product with considerable greater value and considerable greater investment that does need a protection, and there are those who are going to set out to capitalize on other people's investments.

MR. NIMMER: I would like to explore whether there is also an industry interest in not increasing the protection.

I am afraid Mr. Biddle's statement, "So, with software, copyrighting offers a very limited means of protection since competitors need only re-embody another's idea in some

other non-copyrighted program."

That gets us into something we've been wrestling with these last couple of day: the distinction between the expression "protectable" in a program, and the ideas not "protectable", and where that line is drawn is still not clear to me.

But, this seems to assume that it is really the idea that is important, and that can be taken without taking the expression, and, hence, at least under present concept, copyright is not an adequate protection.

But, suppose that to be true, and suppose we say, all right, then the thing to do is provide protection for the idea of the program and not merely the expression; give greater protection.

In one sense I could see that that would be agreeable to your Association members as giving you greater protection but there is another side of the coin, and I'm not sure how it comes out, but I wanted to present it.

Looking at sort of the basic copyright principles, the thought is one reason you don't want to protect the idea is because other people in the field may well want to copy that idea and should be able to copy the idea as distinguished

from the expression.

For example, the first time a detective story was written about a private detective, let's say Sherlock Holmes, although he may not have been the first one, but assume that it was, clearly no one could copy the Sherlock Holmes stories per se, but anyone could take the idea then original of a private detective operating on his own and solving cases and write about another detective; that idea.

Suppose that idea itself was said to be protectable by Conan Doyle?

It would mean that others in the field -- other potential detective story writers -- would be inhibited, and it is said that a dwarf standing on the shoulders of a giant can see further than the giant.

That's a kind of applicable principle in copyright; why ideas are permissible; the copying of ideas.

So from a standpoint of your own Association members, I raise the question, and it is only a question, but would it be in your interests to not only protect the expression of a program, but also the idea of a program, or would that have an inhibiting effect on your Association members greater than would be the benefit achieved by protection for the idea?

Which way are you better off?

MS. COHEN: Well, my first thought on that is once you get into something protecting the idea, you get into something that is going to have to deal with the obvious and non-obvious; something close to the patent system.

You are going to have to, in some way, require more than just mere registration.

MR. NIMMER: Well, why?

I mean why can't you take the original concept and copyright it?

Whether it's obvious or not, if it's original and it's copied, then that's an infringement.

MS. COHEN: Because in doing that, in my opinion, with an idea you are giving too broad a monopoly to someone, unless they have a specific right toward that monopoly.

MR. NIMMER: All right.

That's precisely my question:

Is that too broad a monopoly?

MS. COHEN: In my opinion, yes.

MR. BIDDLE: Yes, we think it is. We agree.

MR. NIMMER: So then you don't want to protect the idea and then the basic problem you speak of in the present

copyright protection for programs is inadequate because it's easy to take the idea? You don't want to change that?

You don't want to give protection to the idea, is that right?

MR. BIDDLE: Well, I think it would seem to me that we have some definitional problems.

The idea of a computer program that allows a member of Congress to make an inquiry of the present state of the nation's budget is not a unique idea; it's an idea that industry has been using in various forms.

Here is a need which now gets expressed into a computer program.

If a proprietary concept is developed that makes that program more efficient, uses less computer storage space, or access to data and organizes it more efficiently and faster, and better, that should be protectable, and at present the industry is protecting it by trade secret generally.

Then you have the embodiment. If you spend a million manhours at $10 a manhour, putting this thing into a form that a computer can use, there is a substantial investment that needs to be protected, but you cannot allow somebody to take a $15 reel of tape and tape for themselves that $10 million

investment in manhours that took a concept and put it into a form that the machine can cope with.

MR.NIMMER: But doesn't your statement say that either one can simply take the idea without taking the embodiment and still have the full benefit of the program?

MR. BIDDLE: Well, the distinction I would see is that there is the idea in its broadest sense of a task to be performed, which we feel should be in the public domain and is in the public domain.

These people come up with a product. In order to market it and advertise it, they generally describe the content, what it is intended to do and, generally speaking, how it will do it.

But the detail inside, is that proprietary material?

MR. MILLER: Let's get to the second level of the idea, not the idea to provide Congress people with the access to economic data, but the second level idea that you referred to in writing the program in such a way so that certain functions are performed with maximum efficiency, either in a time-efficiency, or in a storage-efficiency.

You think that the execution of that idea is proprietary, and by "execution" I mean the sequence of instructions

that will maximize the speed with which the response is generated, or minimize the amount of storage space devoted to certain portions of the data.

MR. BIDDLE: To me, it would be analogous to Mr. Nimmer's detective story.

They are both starting out to write the detective story, but one, because of his ability to do it a little smarter and more efficiently, writes a bestseller, and the other one is a flop.

MR. MILLER: Right.

But how much of a premium do we give the bestseller writer?

We both write programs. I see your program has a series of, let's say, a hundred instructions to achieve a result which my program takes me four hundred instructions.

I see the logic of your short-circuiting. What can I take in rewriting my program?

MS. COHEN: We are going to go to the music industry where you have got the same question again: how many notes becomes the same composition?

I don't think that because there is the question as to when you have a duplication of the writing that it becomes

an unaswerable question.

At some point you are clearly going to have copied the same writing; it's basically the same.

MR. MILLER: But you are not denying that as the second comment to this problem-solving exercise, I have the right to use the logic you used in short-circuiting the problem?

MR. BIDDLE: I would say that as a competitor I will be in the sense of endeavoring to keep you from understanding my logic.

MR. MILLER: By contract, by trade secret, I am trying to look at this in terms of national monopoly policy.

You are not arguing that I don't have the right to take your logic?

MR. BIDDLE: If you understand how I have solved the problem from material that I have made available, it seems to me, yes, it stimulated your thinking, and you may go on to the next act, and I assume you have no objection --

MR. MILLER: I may build a better mousetrap than you built.

MR. BIDDLE: Then I assume you have no objection to our in turn taking that from you and building on it?

MR. MILLER: Now, one of the things with which I've been concerned -- we've had testimony on during the last two days -- is once I understand the logic by which you achieved your results more efficiently than I did in my initial effort, and you agree with me that I can use that logic, and execute it, how many ways can I execute it that won't look or won't at least give rise to the argument that I have taken your executions as opposed to your logic?

Now, Ms. Cohen correctly said that that sort of is like using the problem of music infringement.

Again, we pick our analogies to suit our purposes. I could argue that that's no more than Burger-Chef learning on McDonald's.

Now, we don't give McDonald's any monopoly power over its idea for the delivery of fast foods to a mass audience efficiently and economically.

MS. COHEN: Ah, but here we are talking about a writing and that's the --

MR. MILLER: Query whether we are talking about a writing.

MS. COHEN: Well, to the extent -- the steps are written out, aren't they, in fact?

MR. MILLER: We have had a lot of testimony suggesting that the verbal components of the machine operation is so de minimus as not to concern us.

We could write out the scenario for operating McDonald's -- after all Abner Doubleday wrote a book on baseball. That doesn't prevent anybody from playing baseball.

MS. COHEN: No, just from rewriting the same thing.

MR. MILLER: Rewriting the book.

MR. BIDDLE: Yet I think you probably will find that most of McDonald's employees render a trade secret and non-competitive agreements to protect the essence of how they do their business more successfully than Burger-Chef.

MR. MILLER: Okay, okay. I'll give you trade secrets

JUDGE FULD: I think the reference to McDonald's suggests that we go to lunch.

May I ask the Commissioners to go over directly where we were yesterday and get back early?

MS. COHEN: and gentlemen, thank you very much.

MR. BIDDLE: Thank you.

(Thereupon, the hearing was adjourned from 12:13 p.m. until 1:30 p.m. when the proceedings

continued as follows:)

JUDGE FULD: Professor Miller was in the middle of a question, he is not here, but can you answer it?

MR. BIDDLE: We debated that one over lunch, and we thought we would throw it back to the Commission, because if the industry can't define that fine line between something that you uniquely created in its next stage of implementation, we hope the Commission can, but we doubt that you can.

It is one of those situations where we at the moment feel that probably a definition is dangerous, because even if you could define it, we doubt that the courts could cope with it.

JUDGE FULD: They just answered your question.

MR. BIDDLE: Answered or ducked.

MR. LEVINE: Mr. Lorah is not here, I take it?

MR. BIDDLE: I think he got tied up on the phone but he should be with us shortly.

MR. LEVINE: Well, in your presentation you suggest that some of the members of CIA propose a five-year term for protection for the computer software, and Mr. Lorah has a different feeling, if I recall his statement, that the terms of protection should be shorter.

So at least to that extent there is a difference between your statements.

MR. BIDDLE: I don't think there is significant disagreement.

The technology moves so rapidly in this industry and particularly in the hardware upon which the software is utilized.

We are constantly updating and revising software packages and new approaches.

So whether you are providing protection for four years or five years, probably the technology is going to outrun the product. (Mr. Lorah arrives)

The question was "didn't I feel that we felt that five years was probably the maximum protection in order?" and they took it that you suggested it should be shorter or longer.

MR. LORAH: Possibly longer, depending on how the protection is actually provided; the problem in software being that it is constantly in a state of flux.

It is a very fluid product, and for it to remain viable in the marketplace as a state of the art type of product it has to be in this state.

Therefore, are you really talking about something that is controlled for a very, very short period of time, and is going through some massage every time you change that form of the original product, or are you talking about something for a longer period of time, recognizing though that it is going to be constantly subject to change?

MR. MILLER: Ms. Cohen, part of your presentation was addressed to registration, and you seemed rather negative towards it, and I wasn't quite sure what the bases for that position was.

MS. COHEN: Okay.

One of the bases for the negativeness as to registration deals with the fact that if and in fact we are going to treat the copyrighted work as the writing itself, this writing is always changing.

We are constantly modifying our programs to such an extent that it would become burdensome if we had to re-register every time we changed the program itself.

There would be that problem.

I go on to one thing I just wanted to mention.

We feel even with copyrighting we do continue to

license under restrictive agreement.

I would not want us to be forced to provide copies just generally available to anyone, if I didn't have to, and I think that would just make the possibility of detection a little harder, if someone might obtain a copy --

MR. MILLER: From the Copyright Office?

MS. COHEN: From the Copyright Office.

MR. MILLER: You mean you are really saying you don't trust the security of the Copyright Office?

MS. COHEN: Well, part of the reason of having registration is to provide the availability of copies, as I understand it.

I don't want to provide the availability of copies.

MR. MILLER: Well, one of the theories of copyright protection is that you make a bargain with the government that in exchange for the government providing you a monopoly, you provide a mechanism for the dissemination and access to your ideas.

MS. COHEN: But --

MR. MILLER: It seems as if you don't want to play both sides of the bargain.

MR. CARY: If I may interject here a point?

Having been with the Copyright Office in the past, their policy, as I understand it, is that they do not permit anyone to come in and inspect the deposits, and make copies of it.

The law requires that the copies be available for inspection. It doesn't say anything about making copies, and the Copyright Office has, during the time I was there, taken the position that they would not permit anyone to copy.

So whether that changes your attitude or not, I don't know.

MS. COHEN: To the extent there is a provision in the Office against any sort of duplication, that problem is taken care of to some extent.

That still leaves me with my first problem as to the cumbersomeness of the registration system.

MR. LACY: Do you really mean deposits or do you mean registration that's bothering you, because it would be possible to have registration without deposit.

MS. COHEN: It is the depositing.

MR. DIX: You really wouldn't want anybody to read in the Copyright Office?

"Read" meaning depending upon what everyone does

with those machine -- readable things.

Is that right? I mean just copying?

MS. COHEN: Well, I guess it goes to the question if we are going to address a system that is in fact -- protects just the writing itself, I don't really have a problem.

If we are going to go to a system that is in fact supposed to protect the idea itself, well, maybe then I do have a problem.

I guess it depends on what it is we are really going to protect.

MR. BIDDLE: And that, to a certain extent, varies with each product; the level of protection the creator is seeking.

MR. DIX: We have been trying here, Mr. Chairman, to define what it is -- a way to describe what you all want to protect, and I tried this yesterday without much success.

Let me try it on you:

You used the word "logic" this morning with regard to computer software.

Is it the logic that one wants to protect in part, or is it a lower level than that?

Should the logic be proprietary in a particular bit

of software?

MR. BIDDLE: It would be, I think, my feeling that you wish to protect -- if you have come up with a uniquely creative approach to solving a problem sufficiently that has not been done and therefore is something that the community out there is willing to pay you for, you should be able to protect that, and you should be able to get a return on your investment of having hired and sustained for some period of time creative individuals who come up with ideas.

MR. DIX: Does the word "logic" describe that unique thing, the thing that might be unique?

It isn't always, but --

MR. BIDDLE: Well, perhaps it's analogous to the author who comes up with a book outline and concept.

That is a creative aspect of his work and certainly should be protected.

Then he has the long, laborious job of starving to death while he puts words around that concept and outline.

That also is worth something.

MR. CARY: If I may, Mr. Chairman?

If, for example, I understand by "logic" -- if we understand it to mean the same thing -- are you saying in

effect that Aristotle, who was the first known human being, I think, to devise a vast system of change in the way man reasoned by his logic, if he was able to get a copyright on it, then, ostensibly, he could prevent anyone else from using logic in his manner or derivitives thereof, and query whether that would be the best for the public benefit to succeeding generations?

I mean, are you taking the same point or do we misunderstand each other on the word?

MR. BIDDLE: I think we are using the term "logic" to mean more of a creative technique of accomplishing something, a task.

MR. LACY: It is a term of art.

MR. BIDDLE: Right.

It could be the means by which you recycle a given movement of a program to accomplish something faster and more efficiently.

I guess, if you are saying could Einstein have copyrighted his theory of relativity would it have stopped mankind in its tracks. I don't think it would have.

MR. CARY: That's all I am trying to get at.

MR. BIDDLE: On the other hand, there are certainly

many similar situations -- where Arthur Murray, in effect, came up with a method of teaching dancing which he protected as a trade secret and taught to his employees only as a competitive advantage.

JUDGE FULD: Mr. Miller.

MR. MILLER: I am going to do the same thing to you that Ms. Cohen and I were just doing.

Quite naturally you are trying to take, and I don't mean this in any derogatory sense, you are taking the best attributes of each of the monopoly schemes as the things you would like to apply to the protection of your material.

Are you really saying that you want the creative, innovative aspects of a program protected, because you strung that together with a creative and innovative element of a program that the public is willing to pay for; those are two different things.

Because, if you are saying that the creative and innovative elements of the program should be protected, then I am going to say to you you are talking patent, and if you are talking patent, are you willing to live and die on a standard -- a qualitative standard of invention as opposed to the level of copyright originality.

You know, copyright protection is across the board, but the chances are that if you push the patent standard qualitatively, you may only get protection for one out of a hundred or one out of a thousand, even though the public is willing to pay for a hundred out of a hundred or a thousand out of a thousand.

MR. BIDDLE: This question gets somewhat aside from your particular function, but our Trade Association is particularly concerned with monopoly problems that exist within our industry, and you can trace that back to having been granted a monopoly franchise on patents years ago.

In fact, if you look at each industry which is currently highly concentrated and under attack as being in violation of the antitrust laws, in almost every instance the root lays in patents.

I don't think we are looking for cutting off technological development; we want to see it stimulated.

The patent protection is falling by the wayside in our industry, not only in software, but in hardware -- in electronics in general -- and, more and more companies depend on trade secrets, even when they are building hardware, because there are so many different ways of "skinning the same cat."

with what is available to us in electronics and computer technology, and so forth.

So, even IBM largely depends on trade secret protection to obtain a return on their investment.

So what perhaps I am saying is maybe we have reached the stage so many different optional means of achieving a given objective, that the patent concept per se is outdated.

MR. MILLER: I don't automatically reject the notion that the timing and the nature of business and, particularly the nature of this high technonology business, might justify a federal statute for trade secret protection.

MR. BIDDLE: Actually, by the time a patent is granted under our present system, you have moved beyond that level of creativity.

MR. MILLER: But, as we heard yesterday, there is the possibility that the current rate of growth may slow down to the point where incremental changes on a program would not be -- in other words, the program would not be as dynamic five years from now as it is now.

MR. BIDDLE: Doesn't that occur in any industry that begins to approach a level of maturity?

MR. MILLER: All right.

Then the question is how should this group of policy makers formulate something that, given a lack of political sexual appeal for this subject that is probably going to last 30 or 40 years?

MR. BIDDLE: And I think the consensus of this group is we are not sure you can or should; that the present law with the possible weakness of not having a federal trade secret statute that somebody can look at and live up to and know it will stand up under litigation is probably sufficient, because we have the variations between the program that is inexpensive to develop and which really copyright protection is adequate, and you have the program that represents a substantial breakthrough in the creative state of the art, or represents millions of manhours in creating it into a usable form that deserves protection to stimulate people to do those things.

MR. MILLER: As even the military knows, it is much harder to hit a moving target than a standing one.

MR. BIDDLE: So it isn't as though it was like those times in our country when we wanted a patent to widely disseminate ideas and stimulate other inventors to build upon those into new and better things.

I think the entrepreneurial spirit of America -- if we keep up a free enterprise system and really maintain an entrepreneurial spirit, there is always a guy looking for a way to get rich and there is continuing movement of people in our industry that if they are in an environment that is stifling, they will move into one that offers them a dynamic opportunity to do something new and unique.

JUDGE FULD: Ms. Cohen and gentlemen, thank you very much.

MR. LACY: One question. I just want to take a moment.

I am wondering to what degree those of your members would rely primarily on trade secret protection and to what degree they are troubled by inadequacies of that in providing international protection for copyright or patents, and both enjoy treaty protection abroad.

Is this a problem to you?

MR. BIDDLE: We have talked to a number of our members in the last week and a half, and they do feel that this is a problem and, particularly as they are beginning to become multi-national in their marketing efforts.

MR. LACY: Is there a statute language that the

Association or any of its members would like to suggest to us, because there is plenty of time to get it in, if you want to.

MR. BIDDLE: We would like to have the opportunity to submit for the record some additional material.

We had approximately two weeks to obtain a consensus on a very complex subject.

MR. LACY: We recognize that.

MR. NIMMER: May I just point out that the term "international copyright protection", for example, doesn't really turn on whether our domestic law gives protection.

It turns on whether the foreign copyright law gives protection in this area, so that even if we confined it as a trade secret and didn't give it copyright protection, as long as France or Great Britain, or whatever, recognizes computer programs as copyrightable under our copyright treaty, you would have the benefit of that copyright protection.

MR. LACY: But, only if they copyright noticed it.

Well, in France they probably would, anyway, because that doesn't depend on treaty there, but in most countries it would require a chain of copyright here to get whatever --

MR. NIMMER: Well, I think actually most countries

would not require, but in some countries --

MR. BIDDLE: Well, just as we have member companies who have software patents in Canada and England and do not have any in this country.

So, yes, I think if there is a codification of the trade secret law here, certainly we are desirous to see it expanded through international agreements.

JUDGE FULD: Again our thanks.

Information Industry Association.

Mr. Zurkowski, are you going to address us first, or is Mr. Taphorn?

MR. ZURKOWSKI: Yes, I think I will start the ball rolling.

It is a pleasure to be back with you again, and I left at your places a new directory of the Association, primarily for the purpose of identifying the nature of the membership of the organization.

MR. NIMMER: I was surprised you found it necessary to do that in such a conventional medium as a book.

MR. ZURKOWSKI: It's looseleaf. My boss thought it

a little strange, too.

The fact of the matter is that no computer program was used to create that, and it was done by three-by-five index cards and it was a small file, but you will note that the membership by and large is users of computer programs.

There are a number of companies that do market computer programs, but in this process this has been pretty much the lifeblood of the Information Industry Association, since 1969, when we were founded.

We have spent a lot of time on the question of copyright, and for the past three years or so we have had a very active Proprietary Rights Committee which has examined in detail the existing revisional legislation and has proposed some language changes, and it is significant that given the makeup of the organization, that the committee of this organization has supported copyright protection for computer programs even though most of the companies would be users of computer programs.

Mr. Adler, who I had hoped to be able to present to you today, is unable to be with us, partially because we have our annual meeting next week, and we are taking a lot of time of members for that, and he wasn't able to rearrange his

schedule to be here.

However, I talked with him about the nature of his use of the programs, and I wanted to relate that to you.

Congressional Information Services -- that is his company -- is described in the directory.

What they do is to collect all publications of the U. S. Congress, abstract and index them, and publish a monthly and quarterly update of the work of the Congress.

In order to do that update efficiently, they have sorted out and created, or had created for them, a computer program to do photocompositions, to prepare camera-ready copy, and they tried a number of alternatives, and the one alternative that they came up with was to essentially assist in the development of the software and in return for the use of the software, to provide the property rights to the software to the producing company, and you will notice that that company is also listed, INFORMATION AND PUBLISHING SERVICES.

They describe their principal product as a "Samantha".

It is a software system designed for use by INFORMATION PUBLISHERS, to produce their publications via automated computer techniques.

The significance of that, and the significance of the position of CIS is that they wish to have as much protection for that software as possible, since that will insure that they will receive several benefits.

As one of the users of that system, they will pay a pro rata share of the first copy costs of creating that product, so that everyone who uses it will pay an equal amount.

They also will insure their proprietary position; INFORMATION AND PUBLISHING SYSTEMS would like to see their proprietary position maintained since the nature of software requires that INFORMATION AND PUBLISHING SYSTEMS be involved in the application of this in other locations by other people who have acquired the software, they then become the recipient of refinements in that as that software is applied to other publishing activities.

So, I think this is fairly representative of the attitudes of the publishing members of the Association who are supportive of copyright protection for computer programs, even though they are users rather than producers.

We have made some specific language recommendations, both to the Congress and to you, and I think it might be useful

today, if you so desire, to go over some of those provisions so that some of the questions you have been raising may be resolved by the language that has been developed by our committee.

I stress that it is a committee activity and does not represent the particular views of any one member.

So that, in the beginning, we believe that computer programs should be copyrighted.

We suggest that in the definition section that a computer program be defined, and we offer a definition that a "computer program" is a literary work consisting of a series of instructions or statements which are in a form acceptable to a computer and which are prepared in order to achieve a certain result, regardless of the nature of the materials, such as documents, punched cards, magnetic tapes or discs or computer storage elements, in which the works are embodied."

" A computer program may be a derivitive work of a flow chart and either may be a derivitive work of a literary work."

In Section 102 we suggest that the computer program be specifically added to subject matter of copyrights, and

we believe that the copyright protection of computer software should extend beyond the right to make and examine copies

JUDGE FULD: This gives you, you think, all the protection software manufacturers require -- copyright protection?

MR. ZURKOWSKI: I was listening to the discussion just concluded, and my reaction was that I really appreciated the questions Mr. Miller raised, because they were the questions in my mind when it came down to the distinction between an expression of an idea and the idea itself.

My reaction was -- and Mr. Taphorn may have some other ideas to add -- was that in some cases even though copyright protection is available and used, it would not preclude a software development firm from vending a particular thing that they wanted to protect as a trade secret, and take the risks on it getting away from them as a trade secret.

I don't think the existence of copyright protection necessarily would or should deny them that opportunity.

MR. TAPHORN: I think the IIA Proprietary Rights Committee did not wish to preclude the use of other forms of

protection and the thought generally was that copyright would afford most people an adequate protection mechanism while, hopefully, at the same time not, shall we say, precluding, to borrow a phrase, the use of ideas which have not been patented.

I think one of the big things is the matter of Section 102(b) which expressly states that ideas shall not be protected by copyright.

I believe that was put in there to make sure that the copyrighting of computer programs was in no way deemed to impart a copyright to ideas themselves.

The Committee's concern was that perhaps this would cause such a reaction that the normal degree accorded expressions of ideas may be precluded.

Stated another way, the Committee felt that computer program proprietors should have the same rank of protection in terms of expression of an idea, that an author of a novel or a play has; whatever that might be.

And, I think as Professor Nimmer has said, no one has ever put a clearer handle onwhere our bottomline is.

MR. ZURKOWSKI: Well, the further recommendations of the Committee appear in 105 -- 106, excuse me.

MR. NIMMER: Oh, are you skipping over your microfor

composition, or are you going to get to that?

MR. ZURKOWSKI: I understood this section was to deal with computer programs.

I really would prefer to defer that, rather than to muddy the waters at this time with that.

I would be happy to respond, though, if you wish.

MR. NIMMER: Well, I guess we have time problems, the Chairman so directs me.

JUDGE FULD: The waters are sufficiently muddied already.

MR. ZURKOWSKI: Okay.

Well, in Section 106, we would add a phrase "data bases and computer programs" to those works which are included. We would provide the exclusive rights to display a data base or a computer program in subsection (5), and one in (6) and we would add the additional rights "to read, to store or to reproduce for storage in a computer, or to search or to use a data base in conjunction with a computer," to that section as well.

MR. MILLER: In other words, you believe copyright should control at input?

MR. ZURKOWSKI: Yes.

MR. MILLER: And, what's your reaction to input for fair use?

MR. ZURKOWSKI: I don't know what you mean by "input for fair use".

MR. MILLER: I will use an example I used yesterday.

MR. ZURKOWSKI: I wasn't here.

MR. MILLER: I'm a publisher of a computer magazine, and just as SATURDAY REVIEW and other magazines now do reviews of books and motion pictures, and phonograph records, my computer magazine wants to do reviews on computer software.

To do it, it's got to put a computer copyrighted program into a machine and manipulate it to see how it works in operation.

I would say on the classic theory that is a fair use it is literary criticism in the computer age.

How are you going to read your new 106(6) as against that kind of use?

MR. ZURKOWSKI: I think that the Committee's position is that the language does not preclude fair use; that the language in the subsequent section permits fair use and defines

the standards for fair use.

The use you are suggesting, I would assume that the Committee would share your view that that's probably a classical fair use.

MR. TAPHORN: I might volunteer the thought that I believe the doctrine of fair use has arisen because the statutes and the legal laws have stated otherwise, but perhaps have been construed to read otherwise, and the judge in the situation has decided that equity will be best served and societal interests accomplished by allowing,for example, the book reviewer to quote sections from it.

I would think that future applications of the law of equity would reach appropriate decisions in this, too, even though the law might offhand seem to preclude what you propose should be accomplished.

MR. MILLER: There are those that think that equity is fast disappearing from our jurisprudence.

MR. NIMMER: But law 107 does provide fair use, for it would seem to me it would override whatever provisions there are as some judge would deem appropriate.

MR. MILLER: If your theory expressed a few minutes ago, that a proprietor of a computer program copyright should

have approximately the same rights as the author of a play or book, I would assume that that also renders that program subject to fair use?

MR. TAPHORN: Right.

MR. NIMMER: But, Arthur, are you suggesting that you could put in the entire program for.--

MR. MILLER: Well, there is this debate that fair use does not extend to any full replication.

The trouble is that when you deal with the situation I am posing, there is no way to make fair use without making the full computer replication.

That is one of the curiosities --

MR. TAPHORN: That may or may not be necessarily --

MR. MILLER: See, to review a book, I don't have to copy the book.

MR. TAPHORN: It may also turn out to be true that to review a program you do not need to have to go through the whole format.

MR. MILLER: Query whether you want to constrain the reviewer by some abstract notion that to review you can only use "X" percent of a program.

MR. ZURKOWSKI: Well, I do think that what has been

the exact circumstances that you are talking about would not violate any of the provisions of 107; it would not exceed the language of 107 even though it involved the use of the entire program.

I think that you have to take into account that in the information business there is a phenomenon that information can be sold off the shelf without ever diminishing the stock. Okay?

So that the reference point of making a complete copy may not be relevant in the information age, because you are not diminishing the stock.

Provision (4), however, of 107 -- I'm sorry, I don't have it in front of me -- addresses the problem in the information age and that is, can that use diminsh the market, and if it has, if that use has in effect been undertaken to avoid paying a pro rata share of the first copy costs, for some purpose for which that pro rata share should have been paid, then I think it is an infringement and not a fair use.

I think that the courts are going to have to wrestle with these dimensions in greater detail, and in precise factual situations, and I doubt that you can go much further than the guidelines in 107 for defining fair use in this field.

MR. MILLER: That's very helpful.

MR. ZURKOWSKI: Then we would suggest that if you do adopt those provisions, or if those provisions are adopted, Section 117 becomes an anachronism and should be eliminated.

It may be possible, and we suggest an alternative to eliminating 117.

It may be possible to amend 117 should you wish to make some recommendations in the current copyright revision effort, and have come to grips to your satisfaction with computer programs and you could amend Section 117 -- you could suggest amending 117 to limit its impact to other than data base computer programs.

In trying to outline the rights of a computer program developer, we have also suggested a new Section 117, or it could be just an entirely new section entitled, "Scope of Exclusive Rights in Computer Programs."

And, the first paragraph of which would provide that mere possession of a computer program does not entitle one to make a copy thereof by reproducing in the computer, and that goes to the rights of third parties, and is a significant provision in terms of copyright offering greater protection than restrictive contracts.

The second paragraph of that new section would state that the product of the implementation of a computer program could not be considered a derivitive work of that program.

The copying of the computer program would further be defined as copying by recording the computer main memory, by amendment to the definition of a work as fixed, so as to conform that language to the factual situation of what goes on within a computer.

So that we would say that a work is "fixed in a tangible medium of expression when its embodiment in a copy or phonorecord, by or under the authority of the author is non-evanescent and sufficiently permanent or stable to permit it repeatedly to be perceived, reproduced, or otherwise communicated" and we would stop there really, "or otherwise communicated", and drop the rest of that sentence.

And, the point of that is that it thus has been made a copy, and thus it may be perceived and it may be stored in main memory for such a brief time for ordinary purposes, but if it can be repeated perceived, it is fixed sufficiently for purposes of constituting a copy.

I think Mr. Taphorn has made reference to proposed

amendment 102(b) and we would add at the end of Section 102(b):

"However, copyright protection may exist in a collection of ideas or abstractions, arbitrarily selected from a plurality of alternative ideas or abstractions or in a discretionary pattern of events or processes."

I think that that fairly well describes the function of a program draftsman who has an alternative set of ways in which he can write a program, and in keeping with his style, and his ideas, and his experience, he chooses from among an alternative set a particular set, and it is that choosing in which the authorship in this situation arises.

MR. LEVINE: Excuse me.

Is there a distinction in your mind between "collection" and "compilation"?

"Compilation" is a word of art.

MR. ZURKOWSKI: I think we may have avoided using the word "compilation", but I don't think there is any significant difference between the two words in this situation.

MR. MILLER: Paul, could you define "idea" or "abstraction"?

MR. ZURKOWSKI: That's an easy one.

No, I can't.

MR. MILLER: In the last two days, lots of different words have been used to describe the elements of the program: the "algorithms", the "logic", "instructions", "commands".

Now, we've got "ideas" and "abstractions", and we are still stuck with this problem of what is a copyrightable unit.

MR. ZURKOWSKI: Do you have any words of wisdom on that, Joe?

MR. TAPHORN: Well, as I said earlier, it was the feeling of the Committee that we were talking here about the same type of thing that Judge Learned Hand was speaking of regarding a play 30, 40 years ago.

I think the play was "Abie's Irish Rose", or something like that, and I'm sure Professor Nimmer could explain it much better than I can, but Judge Learned Hand basically said that somewhere between all the words that novelists had written and the title of the play, you had to draw the line, and he talked about levels of abstraction; that as you left out more and more of the incidents, the character, the events, and things like that, sooner or later you would

have to say that you are now in a realm of ideas, which are unprotected by copyright.

I don't know that anyone has done much better in terms of stating what that line is.

The Committee just wished to assure that however that line is drawn in copyright law, that programs would have the benefit of that same consideration, bearing in mind what 102(B) says.

So they accept 102(B) and just want to be sure that 102(B) is not extended so far as to preclude programs being accorded the benefit of the expression of the idea in its full ambit.

We really don't wish to change the copyright law in its domain, whatever it may be.

MR. MILLER: The difficulty I am having is that those two words don't have any immediate reference point with regard to what is actually on a program.

I am a little concerned that a court will treat those two words as terms of art and, they are not terms of art; they are just different words than algorithm, logic, instruction, command.

MR. TAPHORN: I share the Professor's observations.

I might just note back that ten years or so ago, I believe the Patent Law Office endeavored to define what they might consider patentable, and perhaps I shouldn't be speaking for them, but I have a feeling one reason they gave up on the project was that nobody could decide what an algorithm is.

Probably everybody had his own thoughts.

I don't really believe we are going to resolve the situation here today.

MR. MILLER: And the curious lesson might be not to try by using words that don't have content.

MR. TAPHORN: Well, the Committee's motivation was partly in the light of that Nichols case decision back in 1930

MR. ZURKOWSKI: I think back to our putting an end to those lengthy discussions within the Committee on the pros and cons of putting it in; we enjoy the luxury of being the proponents and not the one who has to write it, really, and we thought that it would be useful to put it in as a proposal to highlight the problem.

The deeper we got as a Committee into the details of this, the more complex it gets, and I'm really impressed with the discussions I have heard so far here today in terms

of coming to grips with those complexities, and I am greatly encouraged by what I hear, and I don't think that we have the answers, either.

MR. MILLER: I don't know whether this is an appropriate time, but on the assumption that it is, I think this -- you know, this is the first sort of a systematic presentation we have gotten as to how to deal with the whole revision bill through the eyes of this problem, and it might help the Commission if the staff analyzed these proposals, and gave us a memo indicating the impact of these proposals on some of the things we have been talking about in the last few days.

JUDGE FULD: Mr. Levine planned to do that.

MR. MILLER: He has so much initiative.

MR. LEVINE: I didn't realize that until about ten seconds ago.

MR. ZURKOWSKI: Well, one of the effects of -- I'm not sure if it's 102(B) -- the amendment -- but we do not feel that the re-flowcharting that is available today with a commercially available computer program can recode another program and produce a flowchart out of it.

We think that process would be an infringement of the program that was being subjected to that treatment.

I don't know, that's pretty esoterical, I guess.

MR. TAPHORN: I think we would further like the new program written from some of these flowcharts, and the problem you have been discussing comes into play here.

The new program might possibly be subject to the copyright in the original program that was created from the intermediate work, namely, the flowchart.

We would quickly observe that one might write a flowchart, which is so general as to comprehend what was identified this morning as one should write a novel, having a private detective who does a lot of things on his own, and conversely, there are flowcharts at the other end of the scale which are just one level of abstraction, if you will pardon the abstraction, below the code itself.

It would seem that those would certainly quite clearly involve the personality of the original programming author, and which should be protected.

Otherwise, in effect, programs could be readily "ripped off", to borrow an expression.

MR. PERLE: What do you mean these might involve the personality?

MR. TAPHORN: By that I meant to say no two programs

are written alike

If you and I were both given a job of writing a program to do payroll in New York, make an appropriate allowance for New York state income tax, and the federal income tax, shall we say, that that program would definitely be different -- yours and mine -- and, it would in part be different because you and I look at things differently, no matter how much better yours is.

MR. PERLE: Are you saying that different ways of looking at things, as reflected in my work product, should be protected?

MR. TAPHORN: Yes.

What we are trying to say, or I at least believe, that the differences due to personalities are essentially the copyrightable elements of work, and I believe one finds that reflection of individual personalities in a program quite a bit.

MR. PERLE: I thought creativity was akin to the personality.

I guess we are talking about the same thing.

MR. ZURKOWSKI: One further area is Section 301, the preemption clause in the bill provides some -- we would like

to recommend, and we do recommend that the language be amended to insure that rights under state laws, such as trade secrets, are not preempted.

So that that is the first amendment you see there, and the second amendment would be to insure that compliance with the deposit requirements would not destroy such equivalent rights.

The question of deposits also raises the question as to the variety of ways in which the register can require deposits or can establish regulations covering deposits, and it would seem to me that there is an area in their area of deposit requirements for motion pictures which might be a useful guide for the area of computer programs, since it does not permit the Library of Congress to have any public showing of those films, and, in fact, most of those films are returned, are they not?

MR. CARY: Well, under the agreement, yes, you can elect to request a return agreement, which, I think, most motion picture producers sign.

MR. ZURKOWSKI: On the other hand, I do think that the depository requirement, and one of the purposes of which is to establish a nationaldepository or a national listing

some kind, would be extremely useful.

I have explored with a number of people who market programs as brokers, and they currently will direct inquiries now, to producers of software to request a description of what software is available and it is on the basis of that description that they make its availability known to users.

It seems to me that there is some experience there in terms of specificity by which the programs are described that might be useful to the Commission, if you wish to consider alternatives to requiring that the entire program be deposited.

MR. LEVINE: Just on that point, my thinking would be that it would be well in the interest of proprietors to deposit programs simply because these are not widely distributed, as with motion pictures, and everyone has a pretty good idea of what the motion picture, "All the President's Men" is, but very few people have a very good idea of what program "X" is, and simply for purposes of proof should the proprietor attempt to enforce his rights, I would think it would be very useful to have an official deposited copy in some agency.

MR. ZURKOWSKI: I would not make the assumption that is implicit in your remarks that programs will always be marketed to a limited audience.

I would cite a May 3rd issue of the NEW YORK TIMES which carried a story about low cost computers beginning to move into the home.

And there are such cost factors as four years ago a typical microprocessor cost $400; a single microprocessor today, the size of half a stick of gum, can contain 30,000 transistors, and the bestselling one today retails for $15.

The article goes through a description of computer hobbyists who are developing all kinds of games using computers in a one-on-one situation in their own living rooms, and I could foresee the day where there are computer programs that enable you to interact with that computer to play chess, to figure your income taxes, to do all that sort of thing, and that kind of a package could be sold as a magnetic tape, and it bears a striking resemblance to the experience in the recording industry with magnetic tapes.

So I would not make the assumption that you are talking about a commodity here that is esoteric and of limited interest to a very select audience paying $50,000.

I think that you are talking about things that will ultimately be sold to the consumer, and you then bring it back under the same kind of motivation where you want to get the pric

down, you want to give the person an opportunity to make his investment in marketing, so that the individual cost of the individual consumer is spread widely and the price ultimately gets way down.

I would also like to pick up on Mr. Lacy's remarks about the international thing.

I do think that the U. S. has the most at stake in the area of computer programs, and for us to follow rather than lead in the field of resolving these problems is going to diminish the position of the U. S. economically around the world.

WIPO has addressed the subject, as you know, and they have suggested that due to the uncertainty as to how far computer programs and their preparatory and accompanying material could be covered by existing forms of protection under national law, that a special type of legal protection would be considered for computer software, and that's drawn from the introduction to the third session of the advisory group on non-governmental experts on the protection of computer programs scheduled for May 16th and 17th.

I think we have covered the --

MR. PERLE: Mr. Chairman?

JUDGE FULD: Mr. Perle.

MR. PERLE: I don't know if this was covered before, but you have certainly done a job on adapting S.22 in computer programming.

If you had your druthers, sitting here, and if both of you were asked what is the ideal way in which to protect computer software, would it be copyright or something else?

MR. ZURKOWSKI: I think it might be possible to conceive of something else that would be better than copyright, but I think that the advantages of copyright, that you have a national uniformity and you don't have to rely on state law.

You have a growing understanding of the meaning of copyright.

You have trade practices in the copyright area that you can draw on, and you can get some depth of parallel experience in other areas of intellectual property.

For my part, I think copyright at this point in history is the optimum solution.

MR. TAPHORN: I would second that, but taking quickly the caveat, who knows what someone might figure out as a better protection mechanism and, in the course of that time,

you would be faced with then balancing the competing interests of all elements of society; probably will not be an easy answer to come by, and you might come up with a solution that makes the developer in computer programs very happy, but it might make the users unhappy.

I am just saying who knows how to figure all of that out, and I would also quickly, before I support what Paul says, note that WIPO now has a proposal -- a model law -- that is going to be consisdered on May 21st or thereabouts in Geneva.

JUDGE FULD: Mr. Levine is going to attend that meeting.

MR. TAPHORN: And he will be well prepared.

The WIPO law, as I think I read it, has substantial elements of trade secret in it, and it has elements of contract law.

It has elements of patent law possibly in it, but I think fundamentally underlying it all is copyright. I think that is really the basic thing.

Now maybe that's a better scheme for a manufacturer, or maybe it's a better idea for society as a whole, I am not quite sure, but if you come to copyrights, it's inexpensive, put the notice on in the right place or two places, or whatever

is necessaary, and that is about all you have to do except to attend to the registration.

The things go out; someone now, shall we say an employee of the customer, takes off with the program.

Probably -- let's say he begins to scatter it. What can you do against the employee?

The main thing the owner or the proprietor of the program would like to do is stop him from doing that, and what is the most effective, quick vehicle for stopping that?

It would be a copyright. Get a preliminary injunction against the person.

You can't really expect to go against the person and recoup the injury, because the person probably doesn't have that kind of money.

So, when you look at it all around, it looks like copyright would give you a lot, while not tying up the exchange of ideas.

Not tying up a -- you know, in patent law you have to sit down and say, "If I do this, am I infringing somebody's patent?"

If you only have copyright law, basically users can sit down and write -- all they have to be sure of, and I really

have not heard reflected adequately, in my opinion, that all copyrights is is protecting you against us copying; that's the only benefit it gives.

It really allows each of us to sit down and write wholeheartedly, and independently, and enthusiastically, so copyright still allows the ideas to be scattered around.

So it seems to me it's a very reasonable compromise at this stage, and maybe experience will suggest it wasn't good enough or just right.

MR. CARY: You have mentioned just then that all it protects against is the copying.

Have you neglected, or are you pushing the idea of a performance right as it were for the use of the program, for example?

MR. TAPHORN: I think the Committee was of the opinion that if you consider the term "copying" to include the term "recording it in a computer" -- main memory or permanent storage element of the computer -- if that's a copying then that would probably give you sufficient protection on that program.

Now, there is some small leakage there.

For example, you could key in an instructin at a

keyboard; one instruction goes in, the computer executes it, and then you key in another one.

Now, whether that sequential entry would be deemed to be a copying, I don't know that I personally have any feel for that.

I am always reminded of, shall we say, any one of us taking a line out of the dictionary, and I think that's generally deemed fair use, perhaps.

Now, would that same kind of logic apply to the entry of a single instruction at a time into a computer?

Now it seems to me that is quite possible in the future when we are talking about home computers.

There are computers, I think, being marketed more and more now where this type of operation will come into play, where you will key in one instruction at a time, and I would note also that at least one trend in programming is to go to higher and higher level languages; to use languages which more approach the normal spoken language.

So that one instruction keyed might trigger a whole set of responses in a computer.

APL -- a Programming Language -- is an example of a language approaching that. One instruction is exceedingly

powerful.

I am not really a good programmer, but let's say it can do what a hundred instructions in a similar language might do.

So it may be that it's desirable to afford the program proprietor protection against a single entry, but it has been thought up to now a normal computing world, that that's not a very big exposure.

MR. ZURKOWSKI: We are saying that we are seeking the equivalent of a performance rate.

MR. CARY: You are doing it by definition, I take it, then.

MR. TAPHORN: I think we should say, I believe program proprietors would enjoy the performance rate.

MR. LACY: Mr. Chairman?

JUDGE FULD: Mr. Lacy.

MR. LACY: Just merely to that point.

I took it that when Mr. Taphorn was saying you could write with no concern except that you weren't copying, all he meant was that a program writer didn't have to worry that he might independently happen upon something someone else had done, as he might in a patent case.

But as long as he wasn't copying somebody else's work --

My question, though, follows on one Mr. Perle asked.

I take it, as I recall, that when you drew up these particular proposed amendments, one of the reasons why you elected to deal with your copyright problems by amending Title One of S.22 was that seemed to be the only practical way of conceivably getting anything done in this Congress, or the easiest way.

Now, if you weren't under any constraints and were approaching it ideally, would you do it by amending scattered amendments through the text of Title One, or would you prefer to tackle it in the way design copyright has been attempted, by a new Title to the Copyright Act that would deal with the whole computer area, presumably data bases, as well as software and a separate title to that?

MR. ZURKOWSKI: I don't know that we ever have really addressed that question.

I do think there are tremendous --

MR. LACY: It is not an easy term, second consideration.

MR. ZURKOWSKI: There are tremendous advantages to

keying the language to the existing language, for the reason that the existing language has depth, has meaning to it, and as soon as you tinker with it, it calls forth all these other questions that need to be resolved.

MR. LACY: It's a more efficient program.

MR. ZURKOWSKI: I guess so.

MR. TAPHORN: I would say any advantage to falling into the copyright bailiwick is that, perhaps, it will facilitate international rights.

MR. LACY: I was assuming in the copyright bailiwick -- as design copyright proposed -- and you remember that was Title Three?

MR. TAPHORN: Yes.

I must say I have given no thought myself as to whether Title Three type of rights will be available to other countries via the Universal Copyright Convention.

You have to ask Professor Nimmer if he has a thought on that.

MR. NIMMER: Well, something that remains to be clarified is whether copyright as defined under the Universal Copyright Convention and under the Berne Convention would be thought to include computer programs, for example

-- sound recordings -- or so I think most people think -- not included under the Universal Copyright Convention and Berne and that's why a special sound recording convention was required.

But, the further point is that that depends on what the conventions mean; it has nothing to do with what our domestic laws do or don't do.

Whether or not we grant protection, and whether we do it under a separate title or as part of the Title One is not going to change the meaning of the International Convention; what they mean, they mean.

If they do include that, then we have that protection internationally regardless of what we do domestically.

MR. TAPHORN: I think that is correct.

However, I believe the world is looking for leadership and guidance in this area.

WIPO's examples are a good example of it, and if the United States were to demonstrate that programs fit in under copyright laws, some other countries, I think, might just automatically read them in.

In fact, maybe programs are well in the United States law. I am sure there is Congressional -- there is history in

the reports suggesting that Congress thinks the existing copyright law takes care of programs.

I guess it's our thought that the industry is of such size and that certain y is so important to businessmen that it ought to be made very clear that that is the thing.

I guess the thought of the Committee was that there is certainly the possibility then that other countries will either assume or will legislate in appropriate amendments to their copyright laws.

MR. LEVINE: About how much longer do you expect to be?

MR. ZURKOWSKI: We are finished. If you have questions, we will be happy to stay longer, but I think we have said about what we have to say today.

MR. LEVINE: Barbara Ringer is very busy, but I think if we would like her to, she might come up and report on where things stand now with the House Subcommittee and there has been some activity today.

I can get the message to her and see if it is possible for her to come up. I think it would be a good idea.

MR. KEPLINGER: Mr. Zurkowski, in your comments we asked a question about whether the current time period was

desirable and acceptable for total registration, and you felt there was no need for any change in the time period for protection.

Now, is that a firm, strong position with the industry, or do you think that some harm would be done by some, perhaps, shorter period of protection?

MR. ZURKOWSKI: I think five years would be too short a term in taking such a slice at it.

It would be precipitous in view of what I think are going to be some consumer developments which affect the marketing of those products.

I don't -- it's extremely difficult to see how the industry would become that stabilized over the next 30 years, so that a program would stay in a static condition for much longer than five years.

But I do think that there are programs coming down the pike, and applications for computers and programs that deserve a longer duration than that; than the five years.

The Committee, I don't think, has ever taken a position on a shorter term.

The only experience we have had with the five-year term has been under the Office of Education and Copyright

Authority, and that five years has been ineffective in accomplishing the purposes.

It has not worked, because it takes, in that case, the educational curriculum terms, and it takes almost five years to penetrate the market and establish a product, and then your copyright is gone.

I guess my point is that if there are consumer-oriented programs, you are going to have the same problem in five years; it isn't going to be enough.

It may be enough for a $50,000 program, where you have a half a dozen buyers, and you are going to reach those half a dozen buyers in the five-year period, but I don't think that that logic follows through when you get into other areas.

MR. CARY: Mr. Chairman, if I may follow up on that.

JUDGE FIELD: Yes.

MR. CARY: I am assuming that if you have five-year terms, for example, it would also be a renewal term of five years, giving you a total of ten years.

I think Mr. Keplinger's question is really directed at the problem of whether or not it is socially desirable to have, for example, a 75-year term under the new Bill, if it's done by a corporation -- duration of a program which may be

outdated within five or ten years or thereabouts.

Is it desirable to have that under protection all this time?

I think that is the basis for his question.

MR. ZURKOWSKI: Well, I think that a shorter time period would not be opposed, but I still think five and even renewable for another five may not be realistic down the road.

MR. CARY: Do you have any knowledge of any programs today that have been in existence continually for four to ten years?

MR. ZURKOWSKI: Oh, yes.

The basic information retrieval package that Lockheed uses called "Dialog" dates back a full ten years, and that's still the core computer program for search and bibliographic bases.

MR. CARY: Is that the only one or do you know of others?

MR. ZURKOWSKI: No, I don't.

I am not personally acquainted with them, but I know that that has been around.

MR. LACY: Mr. Chairman?

JUDGE FULD: Mr. Lacy.

MR. LACY: I think the thought behind the five-year period in the Office of Education Copyright policy and this, of course, is not statutory, this is a contractual limitation on the period which the Office of Education permits a copyright to be gained on material to authorship that has contributed financially.

I think the thought is a curious mixture that at the end of five years the work in its original form would have lost value because it would need to be revised to continue to be marketable, but that the work as a basis for revision would still retain a value.

So by putting the five-year limit they assume that the publisher who enjoyed that five-year copyright would by then have completed his first revision of it, which as a revision would enjoy a copyright, but as competitors would have an opportunity to employ the basic material, and competitors' revisions that they would make.

Of course, they were not trying to protect the investments in developing the original material which the government produced; they were really trying to protect the investment in the marketing effort.

So in two respects I think you had a rather different

problem from a privately-developed computer material, where you are trying to protect the original investment, which was provided in the Office of Education thing.

But I do think there is a problem that you might find programs which were revised so rapidly that the original program was no longer marketable, but where the retained raw material value is a basis for the revision stuff, and socia policy might or might not want to protect that value as a basis for revision, even in a rapidly changing market.

Even if "Dialog" weren't any longer marketable, it might have components that might enter into a marketable provision.

One aspect of social policy might want to continue to protect Lockheed's investment in that, and another might be that it would be socially desirable to let other people use that in reworking new programs.

MR. ZURKOWSKI: Well, just for the record, "Dia log" is government property, and you can buy it for $25 through the University of Georgia.

It's significant that I don't think many others have developed commercial applications for that software, that it has been pretty much Lockheed's Information Systems that have

developed that search and brokerage function.

MR. LACY: Don't let the fact destroy the analogy, because they are different.

MR. ZURKOWSKI: I think that the experience of EDUCATIONAL PUBLISHERS, given the fact that the five years was supposed to protect the investment in marketing, was that they would just get a product up to a point where the product was accepted in the educational system, and then it would fall into the public domain and all of their competitors would be able to ride that marketing effort, and the five years was just too short; five years goes awfully quickly.

JUDGE FULD: As we have discovered these two days.

Ms. Wilcox?

MS. WILCOX: Mr. Zurkowski, you indicated that there was a reason to believe that there would be a lot of home distribution of computer programs, or software programs, and there also seems to be a direction for self-contained units.

Do you feel that would be something to copyright? Should they be covered in the same way?

MR. ZURKOWSKI: Well, my analogy was to -- or my thought was to encourage the development of a program that

could be sold to people who had a basic computer unit, and they could do different things with it, with different self-contained cassettes that might be replaced in the system.

Now, you are postulating a situation where you would have a computer unit with only one program in it, and I don't think you need copyright for that.

If you can't get anything else in there, another -- once the machine has been sold, it has been sold.

JUDGE FULD: Gabe?

MR. PERLE: Yes.

On Section 101, my computer definition stops.

MR. ZURKOWSKI: It stops where?

MR. PERLE: On the very first page.

MR. LACY: Have you got it in this form, Gabe? It's much more legible than the mimeographed ones.

MR. ZURKOWSKI: Yes, I can get you a copy of that.

This language was taken from testimony that was prepared for the House Committee, and it is in these reprints, if you want them.

MR. TAPHORN: To answer Ms. Wilcox' question some more, one can imagine a program being on a computer tape.

It is technically feasible today to put that set of

instructions on a semi-conductor chip, if you will, one instruction after the other.

It seems to me that that is not protected by copyright.

Then there is a first question: What does that type of thing do to the copyright, and what is on magnetic tape?

The second question is: What rights will a person have who reads that out of that semi-conductor block?

Will he then be free to run them?

MS. WILCOX: That's my question.

MR. ZURKOWSKI: Well, what is your answer?

MR. TAPHORN: I would suggest it should be subject to copyright as being a set of instructions or statements in a form readable to a computer, because you could pull that semi-conductor chip out and stick another one in and go merrily on your way.

MR. LACY: Well, isn't that what happens now with the programmable hand-held calculators essentially, where ten or 15, 20 different programs for a Hewlett and Packard brand that they just developed?

It's essentially the same thing, isn't it?

MR. TAPHORN: Yes.

I know IBM markets a product called "The 5100", and I think -- well, in essence you stick in -- well, it's a magnetic tape.

They can also say to you it has inside of it a semi-conductor chip, on which chip is a program which it is otherwise marketing as a program product.

MR. MILLER: The same is true, I assume, with the Magnavox Odyssey for playing tennis on your TV screen.

There is a chip in there --

MR. TAPHORN: I am not familiar with it.

MR. MILLER: Well, I can't think of a better illustration to demonstrate the fact that we are so far away from anything remotely connected to traditional copyright when you have got an imbedded chip -- a semi-conductor -- with the program or set of instructions built into the electronics, totally non-verbal -- totally irrelevant to the user.

There is a serious question as to whether you want that under the interests of copyright as opposed to some other mechanism.

MR. TAPHORN: I understand, I think, what you are saying, but it is a writing which is -- and in that semi-

conductor chip it is functioning in the same that it's functioning when it's reading a magnetic tape, if you will.

It may --

MR. MILLER: So is the circuitry of a television set.

MR. TAPHORN: But it does not work in the normal sense of hardware in that that computer looks at -- it processes one instruction and then it stops and say, "What next am I supposed to do?"

In essence, it doesn't stop, but it goes automatically and gets a new instruction and proceeds accordingly.

MR. MILLER: And you distinguish that from a television set?

MR. TAPHORN: Yes. Just based on the fact that we have a set of instructions. That is the basis of the distinction.

MR. MILLER: Any set of instructions is a writing?

MR. TAPHORN: Well, let's say a set of instructions in the form of a writing, like a computer program normally is.

MR. MILLER: I strongly suggest we are self-defining at this point: might as well call it a platypus or aardvark or something.

You say it's a writing because you say it's a writing.

MR. KEPLINGER: If I might offer one comment in this area?

It is my understanding that programs can exist on chips of the nature that are being discussed in one of two forms, depending on the nature of the chip.

One is in which the chip is, in essence, a programmable read-only memory, in which that chip is loaded by a program generated in the conventional sort of sense, and then loaded into the chip more or less as if it were being loaded into a disc pack or written onto a magnetic tape, or punched out in a set of cards.

You have another kind of chip where a circuit designer sits down and develops the logical, hard-wired circuitry that will accomplish the same thing as that set of programs.

That circuitry is then reduced through photomass operations to the things that will produce that chip.

You have a slightly different -- perhaps a way to differentiate in the method in which these chips or products are generated.

I simply offer that as a --

MR. TAPHORN: I would suggest your second embodiment

can have two forms.

In the first case, it is setting forth the instructions in the same sequence that they may be on a magnetic tape.

In the example I think you were describing the electronic interaction that will take place is not going forth in the terms of the computer asking, "What do I do next?"

These things are being dictated in a way that operates by the interaction of these forces to spit out something new or to signal out.

If these two signals are up, this is going to indicate something else is going to be the local consequence: whereas in normal programming the question is, "What are these statements?"

MR. KEPLINGER: I think that what I was suggesting is that those two things would develop in different ways, and they are technologically somewhat different devices, but both may be used to accomplish some of the same functions within certain advance computer systems.

MR. TAPHORN: They involve, I think, a different interplay of physical forces.

JUDGE FULD: Any more questions?

MR. DIX: Mr. Chairman, just one.

Let me apologize for my question, in a way, but you will see what I am getting at.

You came out somewhat differently from the group that testified earlier -- the COMPUTER INDUSTRY ASSOCIATION.

Could you tell me why that is?

Are there different sets of interests each wants to protect, and can those be identified?

I think that's a fair question to ask, but you don't have to answer it, of course.

MR. ZURKOWSKI: I must apologize for not being familiar with the membership of the Computer Industry Association.

I would like to suggest, however, that while I heard a statement that they tried to get a consensus position in two weeks, we have been at this for three years, at least.

We have examined it in detail and have had the benefit of exceptionally qualified copyright experts on our Committee, who have brought -- this really is a commercial you have given me a chance to make here.

But if you take what is called the "Venn" diagram -- you know, you have three circles.

If one circle represents publishing, and one represents data processing or information scientists, or whatever, and one represents users, the Information Industry is where it overlaps.

We bring the trade practices of publishing to the trade practices of the hardware industry, and vice versa.

I think that that cross-fertilization is extremely useful, and I don't know in what details we came down differently, but I --

MR. DIX: Well, I heard down at the end of their testimony that they really saw no need for revising the copyright laws in this respect.

MR. ZURKOWSKI: I would like to ask them what their attitude is about the third-party rights and permanent rights.

I think we thought about it a little longer and in a little more detail.

We found as we got into it that there were a lot of unanswered questions remaining and in trying to answer those questions it might end up revising where we are right now.

MR. PERLE: Are you satisfied that your proposed revisions of S.22 answers the questions?

JUDGE FULD: At the time, I suppose yes.

MR. ZURKOWSKI: Yes, I think so.

I think if we had any alternatives to suggest, we would be suggesting them.

The experience of trying to get these ideas considered is an interesting one.

You really have to start a process, and you have to involve other people in the process, and you have to listen to what they have to say.

I think the recommendations that are offered in that way, and the belief that they represent the thinking of people who have had experience -- concentrated experience -- in this area over the last few years, but that isn't to say that --

MR. PERLE: This may be very much out of order, but I for one would be very surprised if as a result of the explorations, examples, and wonderings of this Commission, we ended up revising an enactment of S.22 on the assumption that S.22 is either going to be enacted pretty soon, or killed forever.

I think that is a good assumption.

I think this Commission is going to have to say to itself, "Okay, we have that, and we have S.22 enacted with the holding provisions in this area. Now, what do we do?"

I wonder if it would be a worthwhile exercise for the Information Industry to come up with its idea of what we should do starting from scratch, assuming that S.22 is enacted the way it has been written in those areas which affected you.

Then, starting with a clear slate, should we try to fit computers into S.22 -- computer programming -- or, should we recommend to the Congress that under the mantle of copyright or elsewhere there be other legislation and here is what it is.

I would like to see it.

MR. ZURKOWSKI: I think the Committee would be game to take that on.

I think that we are anxious to be of whatever help we can be.

MR. PERLE: Well, I just think you can't play with S.22 and say that that's the answer.

I think you have to say, "We want to accomplish something; here's the way we are going to do it; get rid of your prejudices and preconceptions and just attack the job."

I would love to see what you came up with, because more than any other group I think the IIA, and I say this from

some experience with it myself, is a considered group, a knowledgeable group that has been wrestling with this problem for a long, long time.

I think we ought to have the full benefit of their xperience and their knowledge, without these constraints and restraints.

MR. HERSEY: I second that, and I wanted to ask in that connection how you would account for the discrepancy between the direction that WIPO has taken, which is to say that there should be a new concept and a new package that may touch on these existing means of protection, but may combine them in a new way, and your direction which has been to tinker with the copyright law.

MR. ZURKOWSKI: I think ours is a pragmatic approach.

MR. HERSEY: This is the way to do it now.

MR. ZURKOWSKI: We tried to get as much of it done as we could in this revision cycle.

After all, if we did not at least make this presentation, and at least take the position with the Congress in a way that was consistent with what they were working at, we could be asked later on, "Well, where were you when we passed the copyright law?"

It's really a tough problem, and there is a finite amount of energy around to pursue an alternative course, but I do think as we get to the decision point on the revision bill, and some of it may or may not be included in the legislation, then we are at that point where we have to say, "Okay, here's the legislation proposal embodying these ideas."

And, perhaps, getting into some of those areas.

I personally think that there should be an Unfair Competition Law -- Federal Unfair Competition Law -- and a lot of the problems could be handled that way, but that is a personal opinion.

But that would be expected to be cranked into a general package.

MR. LACY: Mr. Chairman?

JUDGE FULD: Yes.

MR. LACY: It seems to me that rightly we've confined ourselves yesterday and today to the problem of software programs, because it's just too much otherwise to bite off in one meeting.

But I think we have all realized that the intellectual problem, and particularly the strategic problem of whether you are seeking amendments of S.22 or a new title or wholly

a new bill, that decision rests not only on programming, but on data bases which, I assume, we will deal with at another meeting of the Committee.

I think it is really impossible to reach a sound decision, or a long-run legislative strategy until we have seen the whole picture.

While I think we ought to be thinking about it now, I doubt if we could reach a decision, or Paul's group could usefully start redrafting their recommendations for wholly new legislation, until we have gone through the data base part of the picture as well

MR. LEVINE: As a practical matter --

MR. PERLE: I'm sure they have done it already in their heads.

MR. LEVINE: As a practical matter, the revision bill has passed the Senate this year without these amendments in it.

It has been marked, I believe, through Section 110 in the House Subcommittee, without these amendments.

So we can pretty well assume that these amendments won't be in the revision bill should one emerge --

MR. LACY: Well, one could still theoretically have

a strategy even if S.22 is enacted, and what you do legislatively is come in with a bill to amend what would then be public law so-and-so in precisely these ways.

But all I am saying is I think we can't really make these long-run strategic decisions until we get the data base --

MR. HERSEY: But this situation does give us an opportunity to think fresh.

MR. LACY: Yes. To begin.

MR. HERSEY: Yes.

JUDGE FULD: Do you want to say something, Mr. Koller?

MR. KOLLER: Yes.

I think it's interesting.

We've been talking about S.22 all day, but if you watch the Congressional Record you will find that the House Subcommittee for weeks now has had meetings where they are marking up, not S.22, as they hardly acknowledge receiving it from the Hill.

They are marking up H.R. 2223 day after day.

MS. RISHER: No, they are not. They have skipped over to S.22.

In fact, they said today for sure that H.R.2223

doesn't exist any more.

They are using --

MR. ZURKOWSKI: Okay, that's the answer to that then.

JUDGE FULD: Any other questions?

(No response.)

JUDGE FULD: Thank you very much.

MR. TAPHORN: Thank you.

MR. ZURKOWSKI: Thank you for the opportunity.

(Pause.)

MR. LEVINE: I understand that Ms. Ringer is on her way up, and she is on the fifth floor, but the elevators are not very reliable.

There are no days in June that are good for everyone, but I think the best possible days are June 9th and 10th, and unless we change our minds, they will be held here in Washington in this room.

MR.LACY: What are we going to do?

MR. LEVINE: We will, presumably, have continued hearings on software and attempt to get in some people on the consumer level -- users.

MR. LACY: Are we going to use that meeting to do

anything on the photocopying?

MR. LEVINE: We very well might, depending upon how that develops after we receive the reports on May 24th.

MR. NIMMER: Arthur, I was just wondering in hearing consumer viewpoints, I wouldn't think it would be too valuable to get more of the same of what we have been getting.

MR. LEVINE: Along those lines, it seems to me there are two functions to hearings that we have gone through.

One is information and the other is to allow those parties who have been involved in the field to have an opportunity to present their views to the Commission.

While, in fact, some of it may be redundant, I think the groups that we have had over the last two days are groups that have been actively involved.

MR. NIMMER: Yes, I think it has been valuable, but--

MR. LEVINE: If someone else comes out of the crowd and indicates that they really have a message for us, we might consider that.

JUDGE FULD: Have you given any thought to the meeting on the West Coast, or would you give thought to it sometime in the fall?

MR. LEVINE: I think we are thinking now in terms of

a meeting in September, perhaps on the West Coast.

It would be impossible to have one in June, because the West Coast does not involve just two days; it really involves three and perhaps four days of time.

So I think it's too early to attempt to do that.

JUDGE FULD: Ms. Ringer, we welcome you back, and could we have a report from you on what's happening and what will happen?

MS. RINGER: I do apologize to the Commission. I have been in very active motion the last couple of days.

JUDGE FULD: I understand.

MS. RINGER: We finished a markup this morning which brought us into the famous cable section -- Section 111 -- and I don't think I need to review in detail what the Subcommittee has done in marking up the Bill in the areas that you are concerned about.

I think this is well covered in your minutes.

I know of no developments since the markup, and the information that was reflected in the minutes that you don't know about already.

I think that the Subcommittee members are very grateful to CONTU for making its offer, and whatever comes of

it, I think they will consider this a plus.

On the cable issue, which is the big important issue, and it is of immediate concern, I am not aware of what you have been told.

Nothing? Okay.

The fact that the Bill was being marked up, and the fact that they were approaching Section 111, induced two of the three principal trade associations in the field -- the two being the Motion Picture Association of America, and the National Cable Television Association -- to meet together and try to work out an agreement.

They have succeeded in doing that; a rather lengthy and detailed agreement, but not I think an unacceptable document.

It was a document that was drafted rather hurriedly at the last moment, and it had some uncertainties in it, but I would say it was a big monumental step forward in this long, long history of cable television and copyrights.

Because of exigencies in time in the negotiations and drafting, and I think probably mainly because of that, no one else was brought into it.

The broadcasters were not brought in, and the sports

interests were not brought in, and the other trade associations representing small cable systems were not brought in.

So the natural reaction of all three was not affirmative at the outset, and they have all been coming forward with additional proposals.

I believe that everything is manageable.

I am not too clear as just how this is going to emerge; it's certainly being much discussed.

But, the Subcommittee staff is drafting -- that's what's been occupying me, in addition to the markup -- and I believe that there is a very good chance that the Subcommittee staff will present a Subcommittee staff draft to the full Subcommittee on Wednesday or Thursday of next week, which may or may not reflect some additional agreements; it depends on what happens.

But this is being very heavily lobbied and nobody can draw any final conclusions.

I, as always, prefer to take the optimistic view and to suggest the likelihood that by the end of next week the Subcomittee would have marked up a cable provision which I think will have immense psychological effects.

I think most people will regard that as the last of the big issues. It isn't, necessarily.

I think the public broadcasting issue is one that is going to be very difficult to resolve, also, and there are a couple of others,but it is the big one, as far as the public is concerned, I think.

If that can be gotten behind t... bcommittee with a reasonable degree of success, I think ...hances for the Bill are remarkably good.

I don't t... that the lack of time is quite as serious as it might appear on the surface.

I rather boldly, but with a fair degree of confidence, seem to think that the Bill can be virtually marked up by the Subcommittee -- the Democratic Convention -- which is in July -- the 4th of July recess of the Democratic Convention.

They will be out for two weeks, and that's the target, and I think they will meet it.

MR. LACY: What about the Commerce Subcommittee? Are they going to insist on reviewing it?

MS. RINGER: They are insisting on not reviewing as long as the Section only deals with copyrights.

They will review it, and the Bill will be dead if the

Subcommittee is induced to put communications provisions into the copyright section.

This is one of the reasons that I have some considerable hope about the whole thing.

I think that there is an understanding between the two Subcommittee Chairmen on this, and I think that despite the pressures, they will each try to deal with their own areas of subject matter.

MR. NIMMER: Does the "111" retain the position about the FCC rules determining whether or not importation is --

MS. RINGER: That is, of course, the foundation stone on which the "111" emerged from the Senate; that remains.

What has been changed in the agreement is very important, and this ties in with the Royalty Tribunal of which we have heard.

If the carriage and exclusivity rules -- the non-network syndicated - exclusivity rules of the FCC were changed, this would operate under the agreement as a trigger, which would allow any affected party to go in and demand a review of the rates immediately, rather than waiting the ordinary period.

This is a very important feature, and it's in that area that a lot of the discussions are taking place.

I will be glad to answer any other questions.

I think I've conveyed my rather optimistic views.

MR. FRASE: Barbara, on timing, I've heard that Rodino, the Chairman of the full Judiciary, had said that his Committee must have it by the time of recess.

MS. RINGER: That's right, that's right.

MR. FRASE: So this is July 2 they are going out?

MS. RINGER: Yes, right.

I think this is quite possible; there is a workable plan in existence.

JUDGE FULD: Does that put any burden upon us time-wise?

MS. RINGER: Nothing different, it seems to me.

I think that you've got a fairly exigent plan in respect to the guidelines on the photocopying, and I think if anything this confirms the need to stick to that.

MR. NIMMER: Do you have any thought of the time-table beyond the Subcommittee -- how long the Committee is likely to have it?

MS. RINGER: Well, I am told by all hands that it

will not be long in full Committee.

It's not like the Senate. In the House, the full Judiciary Committee meets every week and they apparently are pretty efficient about this.

Obviously, there can be all kinds of political maneuvering that can delay a Bill, but assuming that there is a reasonable degree of acceptance, and nothing of that sort, it would seem to me that the chances of a lengthy hangup in the full Committee are remote.

The Rules Committee is not the problem that it use to be, and, again it's a question of whether there are one or more great pluralistic groups that are prepared to singly or together kill the Bill off, and that's always a possibility, but I don't see it right now.

JUDGE FULD: Anyone visible?

MS. RINGER: Many visible as potentials, but I don't see that as the result, no.

MR. CARY: Do you envision any problem on the conference?

MS. RINGER: That's one thing that everybody says will be a breeze.

MR. FARLR: Why do they say that?

MS. RINGER: Because everything will have been agreed to by then.

MR. LEVINE: Will there be a Title 2?

Barbara, and when will the markup on Title 2 take place?

MS. RINGER: You are talking now about the design title?

MR. LEVINE: Yes.

MS. RINGER: It will all be done together, and I think the chances are pretty good.

MR. NIMMER: Any word on the effective date?

MS. RINGER: No. It's still January 1, '77, in the bill.

In my wildest imagination I cannot see that staying as the effective date.

I don't know what it will be, but it won't be that, I am pretty sure.

MR. LEVINE: Or in your worst nightmares?

MS. RINGER: No.

MR. LACY: The choice will be July 1, I take it, '77, or January 1, '78?

MS. RINGER: That's right.

MR. PERLE: I have to write some books.

MS. RINGER: I see a potential author's eyes lighting up.

JUDGE FULD: Are there any other questions?

MR. HERSEY: If there is nothing, I would like to -- I read your "Brace Memorial Lecture" with excitement and agreement, an appropriate emotion, up until the last few pages.

You put very eloquently some of the things that I have been trying to say here; that the most sensible and practical solutions on some of these technological problems we have been talking about do pose danger to the culture in weakening yet further the position of individual authors.

But at the end I was disturbed and even a little frightened by what you said, because you said that writers were going to have to resort to collective bargaining to protect their situations, as one of at least two ways in which they may have to deal with it, and you said there hadn't been much thinking about it.

There has been thinking about it since 1912, to my knowledge, in the Author's League, and there is a basic problem, which is that we are inhibited by the Antitrust Act from bargaining.

We are not independent employees. We are independent entrepreneurs.

And that the Register of Copyrights is the repository of the one protection we do have should have such a fundamental, unknowing position about the real situation of individual authors, is frightening, because what are we to think of Congressmen and Senators and what they know and care about the situation?

The situation of authors is that they are very weak economically. They stand alone.

They cannot bargain collectively, and this fundamental weakness is one of the reasons I have been nagging here on the plea to this Commission that we be pure on copyrights, not just traditional, but that we think of copyright in its original term.

And, that we don't allow the fact that the Copyright Act has already been adulterated by many commercial considerations such as the design for Lamp, and so on, to allow now enormous, massive, new encouragement of essentially commercial rather than creative and artistic material to further adulterate the Act.

I, at any rate, would like to urge the other members

of the Commission, if they haven't done so, to read this lecture of Barbara's, because it does say something which I think we should listen to.

MS. RINGER: Let me say, John, that I wasn't stating any conclusions in those last two pages; I was doing exactly -- your response is exactly what I hoped for, which was to disturb people and to develop some controversy on these points.

If what I see, and I see it very clearly, is a slipping away of author's control of their own --

MR. HERSEY: We are very aware of it.

MS. RINGER: I know you are aware.

I don't think the public is, and I don't think that the people are aware of the consequences to the public if what would happen, if that actually occurred.

I am very, very disturbed about it.

MR. HERSEY: I quite agree.

The public view is that Barbara Howar gets a million and a half and Michener and Harold Robbins get these big deals in paperbacks, and they don't realize that the average income of authors is $3,000 a year from their writings.

Authors are in a very weak position, and copyright is their only protection.

If we are careful about what the written word can mean, then I think we should think about the essential meaning of the Copyright Act, and what the massive pouring in of this other material we have been talking about will mean.

JUDGE FULD: I disagree with only one thing you have said.

Neither I nor anyone else have considered what you say nagging.

MR. HERSEY: It's getting to be boring, let's put it that way.

JUDGE FULD: Are there any other questions?

Do you have anything else to say?

MR. LEVINE: No.

JUDGE FULD: We will adjourn then until June 9th at 9:30 a.m.

(The conference was concluded at 3:35 p.m.)