Designing Society

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I

In 1981 and 1984, I offered a class I called "Designing Society" at Unit One (an experimental program for undergraduate students at the University of Illinois). I know of no other place where such a course is being offered, although I think it should be part of every curriculum.

Except in utopian and science fiction novels, little has been written about a future society radically different from our own. Even the societies depicted in those novels, and in the writings of the great socialist visionaries of the 19th century, still are based on many of the same premises and beliefs as is the society in which we live. And, despite everything we hear from those who have never read Marx and Engels, neither of them ever wrote a prescription or left us a blueprint for the society to come; they devoted their work to an analysis of society as it was and is, of capitalistic society. Their references to a future society were fragmentary, except, of course, to the extent that negation implies also assertion.

When I studied Marx and Engels, and a number of the political thinkers and economic theorists who followed, modified, and newly applied their analysis, I was unable to comprehend why those analyses, why the understanding of the structure and functioning of the society we live in, did not, and does not, suffice to impel us to intervene in our collective destiny and to change it. Is it that fear of the unknown, fear of any change that deserves that name, even the change of something recognized as disastrous, is so immense that most of us would rather cynically and despairingly accept society's return to barbarism than take a single decisive step toward the yet untried?

I am sure that it is our moral, ethical and religious upbringing that stands in our way as well: the glorification of poverty and suffering, of hard work, and, above all, the glorification of renunciation, leads most people to envision a "just society" as being bleak and gray, as merely distributing poverty equally among us, requiring hard labor and a spartanic life style. That image would not entice me either.

Unfortunately, that image has seemingly been corroborated by the post-capitalist societies that we colloquially call "socialist", although that word can, at best be used to refer to the socialist origin of the revolutions that brought them into existence.

The attempts thus far, in the 20th century, to create a desirable socialist society have taken place under impossible circumstances, and have been made by single countries in which there existed extreme poverty, and thus a backwardness in industry, education, technology, science, and almost everything else. Whether or not they could have succeeded despite those extreme difficulties, we will never know, for each revolution, each new society, has been attacked at every level, subverted, stifled, hindered and scorned by just those who now gloat over the failures they caused.

There is another, an older problem: through all of history, and up to the present, those ideas for revolutionary change, for new societies, that were implemented, have been based on the plans and initiatives of one man, or a small group of men. And when they died or became corrupted by power, the whole edifice of the new society, the ideas of the revolution, and everybody's hopes and dreams, crumbled. This story is so old that it can only be fittingly told in the form of a folk ballad. I am no longer interested, therefore, in any social structure, however attractive it may sound, that requires, or even allows for, leaders or permanent hierarchies or, worse, that requires a reward oriented hierarchy,

as we now have it.

The society I want needs every person everywhere to design it. The "Designing Society" class was a very small, but not modest, step in that direction.

It began with the assignment:

> Under the title "Right or Wrong: My Desires", and using the word "desire" to mean something wanted with the momentary urgency of a need, write a list of statements of which you would say: "While it is not the case, I desire it to be the case."
>
> List the statements in such an order that the fulfillment of desires earlier in the list may include or, at least, imply the fulfillment of desires later on the list, but not vice versa.

When the students arrived with a list of desire in hand, at the beginning of the second class, we formed five groups of five to six people each. The assignment then was that each group integrate the desire of all its members. The discussions that took place in the group of which I was a member were some of the most exciting, and most encouraging, in which I have been involved anywhere: nobody wanted to leave a meeting, nobody minded coming to yet another one. The reports and results from the other groups indicated they must have been similarly exciting. I think the impact of the first assignment fully manifested itself only during these discussions: the students realized they had really been asked about their desires, and that they were really spending a whole two hours in a university class discussing their desires with one another. I do not think I have seen students so intensely and enthusiastically involved in anything. The meetings went on all week and even then some groups needed more time to come to an agreement on the formulation and sequence of their integrated desires.

We never made one list out of the five that were completed, and I am not going to read all those desire on the five lists here now. There are, however, a few desires that appear in some form on all of the five lists from both classes. I will read just those desires, in one of their formulations:

1. We desire the immediate, continuing, and unquestioned satisfaction of all human needs, where "need" refers to conditions which must be met for an organism to be able, and motivated, to maintain its existence.

2. We desire to live in a world community in which each person shares in the significant decision-making processes of the society.

3. We desire that no status and no taboos be attached to sexual preferences, to forms of relationships, to living arrangements, and that interaction be based on an ever increasing abundance of alternatives.

4. We desire that the family be eliminated, at least as an economic unit.

5. We desire that people develop an affection for, and competence in, language.

6. We desire that arts as well as science be understood as essential.

7. We desire that competition be abolished.

8. We desire the end of all violence and violence-producing behaviors (including, of course, all forms of sexism, racism, ageism, and all arguments based on biological distinctions).

9. We desire the elimination of the nation state.

10. We desire that belief be distinguished from thought, arguments be distinguished from report, and that belief not be used as an argument.

After all five lists had be read and discussed, everyone in the class wanted to proceed with the designing of a new society immediately. At that point, however, I changed the course of events abruptly and, instead, we embarked on the study and analysis of our present society, with the help of the book *The Capitalist System* by Edwards, Reich, and Weisskopf.

I did not present the material; the students did. It was agreed that while everyone in the class would read the whole book, each chapter would be the particular responsibility of a group of 3–4 students. These groups prepared and delivered: 1) a brief written summary of their chapter; 2) a presentation of whatever in the chapter they wanted to stress (these presentations could be in the form of skits, stories, songs, lectures, paintings, poems, or whatever means considered appropriate); and, 3) a discussion with the class about the chapter and about their presentation of it. We had a wide variety of excellent, informative, and very entertaining presentations. While the students were learning about the capitalist system, they were also learning how to teach one another, slowly making me superfluous in my role as a teacher—at the same time I did not become superfluous at all as a member of the class.

When we were at last through with the capitalist system (it had lasted much too long), we moved briefly on to utopias. Each of the students read one book dealing with a utopia from a list I had prepared. Our discussions of these writings showed that students did not find much in these utopias that they considered desirable for the society they wanted to design.

By this time the semester was almost at an end and we still had not designed our new society. We hurriedly formed committees, each of which took on the design of a specific part of the society. The following categories were, with some difficulty, agreed upon:

> constraints
> culture
> education
> town and country planning
> distribution and transportation
> science, technology, and research
> industrial and agricultural production
> health care

As work on designing the new society got underway, we decided that, in addition to the lists of desires, which we had made at the beginning of the class, we now also needed a list of needs. It was not easy to reach agreement on this list. The following, although possibly containing some redundancies, was finally approved by all:

> need of food (nourishment)
> need of water (for drinking and irrigation, etc.)
> need of rest
> need of shelter (from exposure, weather, noise)
> need of protective clothing (exposure, weather, safety, sanitation)
> need of care (and health care)
> need of access to fresh air and sunlight
> need of interaction
> need of mental stimulation
> need of retardation of decay
> need of peace and security
> need of pleasure (joy, eros, or whatever you prefer to call it)

The remaining few weeks of the semester were consumed by committee meetings and committees meeting committees. Our final two classes were devoted to short papers, from each committee, "statements toward a new society", and long discussions. The title "Traces of a Beginning Made by the Designing Society Class."

The introduction reads:

> "The premise of the society shall be the continual and unconditional satisfaction of all human needs; its purpose shall be the development of ever more satisfactory means of producing the necessities that will meet these needs; the development and use of the freedom from need for the enjoyment of diversity and difference; the invitation and implementation of ideas and inventions which provide new procedures for the solution of old and recurrent problems.

The purpose of the society, thus, shall be the justifiably hopeful pursuit of all those alternative paths of consequences, which, be they ever so audacious, unheard of, unspeakable, do not interfere with their indispensable premise: the satisfaction of all human needs.

The society of which we speak is a global society in which there are no nation states or entities that would take on the function of the nation state. A great variety of communities, large and small, will be established, according to people's needs and desires. It is hoped, by us, that these communities will develop in ways that make them significantly distinct from one another. The priorities of a community, its organization, the ways of living there, the design, planning, architecture and landscaping, the kind of work done, the things planted and energy used, will be decided upon by the members of the community.

There will be no world government, in the usual sense of that term; instead there will be a "socially beneficial information processor" to which every person everywhere will have equal access, thus, having equal access to all human knowledge and to the decision-making process of the entire world system. Never, in this way, will the world system be maintained at the expense of its members. The members will be maintained, even at the expense of the system: that is, whenever the system no longer meets the needs of all the people, the system will be changed."

The term "socially beneficial information processor" was derived from a presentation I had made at a time when all the committees designing our society brought up the need for some kind of computer system, processor, or similar electronic device. I took that as a cue to read to the class a two-page description, I had written, of a processor that Herbert Brün and I had long been discussing. I will read these same two pages now, to end this presentation. It is in connection with the computer system therein described that I am turning to cyberneticians for help. For I suspect that even though the tasks of this device are described, its realization might require the invention and generation of hitherto untried methods and techniques. I understand the proposition of cybernetics to be the attempt at solving this class of non-trivial problems.

II

If I were invited to participate in serious deliberations meant to arrive at the "Design of a Society" that would embody an implementable alternative to our present society, my initial contribution would consist of the description of a "Computer System" which is so programmed that its response to any and every user's input will be based on the current network generated by all and any previous users' inputs.

Temporarily, I will call the computer system a "Socially Beneficial Information Processor" or "SBIP"; and I stipulate that it consists of a large number of interconnected, technically equal components distributed all over the world, wherever there are people, and that it be accessible to anyone and everyone who wants to use it.

When first offered to the world, the system if virtually "empty": it requires input of various kinds before it can begin to become responsive and deliver output. This may take hours or days. Once started, however, its responsiveness grows rapidly.

An input may be a statement, a question, a piece of prose or poetry, a set of rules for a game, a logic, a theory, a computer-program, a spoken sentence, music, a photograph, a film, and so on. Some of the input will be data and some will be programs, rules, algorithms, and procedures. The data are entered by users so that they be available either for retrieval and inspection or for processing. As the number and variety of entered data increases, the responsive flexibility of the system also increases. Every user can use what all previous users have entered: a user can ask the system for the solution of a problem and receive a positive response only if a previous users has entered, a minute ago or a year ago, a procedure or program or algorithm which is capable of solving that kind of problem. Otherwise it will now be the task of the asking users to create and enter such a procedure. Every time someone enters new data or a new procedure, in short, new input, the system changes. Significant input, thus, enables the system to change its responses, to update them, and to better serve all users.

I estimate that with intensive user participation from all walks of life, all fields of interest, all age-groups, all possible regions of preferred preoccupation, and all possible regions of the globe, it will take less than a year for the system to present a more than mere equivalent to currently available "best" human knowledge, and to serve as such in all its capacities. If a users wishes to access the information processor, the users goes to the nearest terminal space; it may be in the users' home, or in the local community center. The terminal space contains interactive audio-visual devices which allow the users to be heard and seen by SBIP and, in turn, to hear and see responses from SBIP.

The user now writes and speaks to the processor. If the input is a question, SBIP responds either by answering the question, or by modestly stating something like: "Could not yet find an answer to your question. Can you help? Can you reformulate? Or, would you rather wait, while I search and you think, and come back in an hour or a day?"

If the input is an independent statement (to show or to tell)—a report, neither demonstrating nor reasoning—then the response will be: "Thank you. This statement has been input 732 times verbatim, and 8933 times approximately containing its sense and intent, the first time January 1, 1985."

If the input is a dependent statement (to demonstrate or to reason)—an argument, formulated whether as a premise pointing at its consequences, or as a consequence pointing at its premise and its further consequences—then SBIP will respond by saying: "This statement has been argued, consistent with the way you argue (Logic 5), seven times since 1702, not consistent (Logic 3, Logic 11, Logic 17) thirty-eight times since 1820. The complete and detailed response requires 12 minutes speaking time, 2 minutes printing time. Please request: Speak on! or Print! or Cancel!" If the users request Print!, the answer is printed in the terminal space for the user to read at leisure (Speak on! will call forth a spoken response).

To any response that SBIP delivers, the user is invited in turn to respond, by criticizing the response received, by reformulating the initial input, by requesting that the input not be stored yet, and so on. The mutually responsive interaction between the users and the computer system is bound to raise issues of concern to the users, and to enrich (educate) SBIP's network, so that, gradually, the user acquires an awareness of the fact that she or he is sitting in the very midst of all current human knowledge, is a part of it, is having a dialog with it and making a difference to it. To the extent that

SBIP can assist in designing a society, the user becomes conscious and aware of being a welcome, needed, yes, an indispensable participant.

If a user's input is a proposition, a theory, a plan of solving a stated problem, a suggested way of thinking, or a suggested strategy for action, then SBIP will respond by using the entire current network in constructing a fictional prediction of what would ensue, if the input were true or accurate or implemented, and then present this construction to the users. If technology will serve, I envision this response to sometimes come in form of a film, in which the user's likeness is shown, not so much as the initiator of the input, but rather as one of the people to whom the consequences of the input are happening. I assume that many users, having seen the film, would modify, qualify, or even withdraw the input in its present form.

To summarize: Every person everywhere is a potential user; by logging into the network a person becomes an active user. The user's input not only *uses* the network, it also *changes* the network. Unless a users withdraws the input, it is stored in one of the network's nodes and there becomes active in SBIP's construction of its response. It can happen, and in the beginning will frequently happen, that due to some user's input on Tuesday, SBIP's response to a question posed on Wednesday is quite different than its response to the same question on Monday. Thus it can be understood, that both, SBIP and the user, are always an continuously parts of any current human knowledge, both using and changing one another, and that they are actively integrated components of a self-referentially self-organizing system: a human society, in which every living person is a member, and whose structural constraints are continuously influenced, established, and again changed by the integrated input of all its members.

While, as would be the case with any suggestion, my proposition and its description and promise invite critique and criticism, I claim, for once, a significant distinction: all comments can be input to SBIP and thus, regardless of my opinions, will become its content, namely active components of current human knowledge.

III

Marianne Brün: That's as far as I can go; now I need your help. There are, as I mentioned before, a number of people here, besides me, who took part in the first class, some who took part in the second class, and some who even took part in both of them. So there are a lot of people who can help with the discussion from the point of view of what we did. What I need here is help from people who were not in the class, but who can offer some input to the idea of the computer system I propose and that I think we so desperately need.

Person 1: May I ask a question first about this system? Is the reason that the classes reached consensus about it being needed that it is essential to facilitate participation?

Marianne Brün: That's correct. It is the only means I can think of that would allow for the participation of all people. And with it, we would no longer be striving for consensus, but rather for distinctions: a new idea would change the output of the while system. The class wanted the computer system because we didn't want, or have, consensus.

Paul Musial: One thing that our group in the class was thinking about was some way that solutions could be found where everyone's interest is considered important, solutions which satisfy everyone in a community.

Marianne Brün: One of the most important features for me is that everybody learns, from an early age, that their input does make a difference. A fiction that exists in this society, I would like to make into a reality.

Paul Pangaro: May I? How much detail was generated in the class?

Marianne Brün: Well, there was a lot of discussion and the reason that we didn't go further with the actual design of the society is that one of the features of a desirable society is that it not be prescribed by people in this society, but rather that the constant input to the socially beneficial information processor produces a continual change of descriptions and prescriptions: a permanent revolution, so to speak.

Paul Pangaro: Looking at it from the practical side, I think it is a fascinating proposal and some of the work that I've been interested in is, in a sense the easy part of what you're talking about, and I've often been. . .

Marianne Brün: What is the easy part?

Paul Pangaro: The underlying data base idea, the technology.

Marianne Brün: Well, that's needed.

Paul Pangaro: But what I immediately would want to know, or would want to ask about, is, how would it be used? In other words, particularly while you're sitting in front of it, what do you do? Because in order for it to be built, an answer to that question must be formulated, in order to write the code. What would the process be?

Marianne Brün: I envision, a few steps from now, that there would be a number of ways to interact with SBIP. As I mentioned, ideally, one should be able to enter prose, poetry, theories, and also, of course, a traditional computer program. . .

Lesley Olson: This is related to the question. Do you imagine someone being able to sit down with a question and the computer being able to give twenty responses to such a question, twenty responses that would have been collected by having processed all the inputs, all the poetry, all the prose, all the treatises?

Marianne Brün: Yes. If you ask it: 'What has been said about a particular question up to now?', 'What do you know about this question?', then you should get an output that is a computation of all the distinct inputs relating to that question. It may be a long list that you will want to stop at a certain point.

Person 2: May I ask a question for latecomers? Is the society perhaps a purposeful society or one which optimizes the environment for its molecules, so to speak?

Herbert Brün: Yes.

Person 2: Yes is the answer. Thank you. [*Laughter*]

Barry Clemson: Am I right. . . that what I'm hearing about, the socially beneficial information processor, is that its role would be quite central . . . in that it would be a central nexus for interaction amongst people? And I'm not quite sure what else, but this sounds to me like the information processor would be kind of a central dynamic in the evolutionary process of this society. Is that correct?

Marianne Brün: Whether merely evolutionary or not, I can't say. But yes, in the processes of the society it will allow everybody who accesses it to be a dynamic force in the society.

Barry Clemson: O.K. Now. I'm not quite sure what it is that you want to tell people.

Marianne Brün: To build the machine. I'm very modest in my desires.

Herbert Brün: I'd like. . . I'd like. . . Can I. . . ?

Barry Clemson: Suppose I said to you that we couldn't quite build it this week but maybe next year.

Marianne Brün: That's O.K.

Barry Clemson: Because my question has—

Marianne Brün: Do you have an answer instead of a question?

Barry Clemson: I think maybe it's part of both. I didn't realize our conversation this morning was leading in this direction. I should have known. [*Laughter*] The only way of formulating the question is like this: When we were talking about how complex systems organize themselves and I used an example about a honeycomb. You know it has a very nice rectangular, hexagonal, shape. You think the bees must be very clever to have done that. In fact, we just think that because we're imposing crazy notions of control. When a honeycomb gets designed, you have cylinders of wax with bees inside jostling, and you have gravity which forces them to fall down, and, the combination of gravity and jostling lines it all up, and capillary action pulls it into a shape. You have three general forces that control the evolution of that system. Now, my answer or question, I'm not sure which, is, it sounds to me like you have suggested that the computer system is going to be one of the forces shaping the society. Now the others that we need, that is, we interact with several forces to shape the society. Perhaps economy—

Marianne Brün: May I interject one thing. I don't think that the computer system is the dynamic forces, but each user through it.

Barry Clemson: All right. Fine. The interaction that this computer will permit to happen will be one of the central forces, general forces, driving this society. I seems to me that the real problem is figuring out what the other three, or four, or ten of those central forces will be.

Marianne Brün: But that's just what this computer can help us do.

Mark Enslin: An example might be related, something that came up in our class. I was working with production and a question that might come up for someone who's trying to design a production process—not in a factory, it's dangerous, but some kind of production process that they would like—My question is: Do I have to make this thing or can I get it easily? If someone else makes it, then I could just say: 'Send it over'. that might be something that this processor can handle. It would affect what I do tomorrow.

Marianne Brün: Yes.

Frank Leonard: The supposition is—and clearly the system you want would have to be an interactive system—uh, the presupposition is that if we have all this stuff, well of course, it's going to get used. It may not be such a good assumption based on some experiences that I've had with electronic conferencing networks and other types of things like that. It's a terrific idea. Everybody wants to get involved. But there get to be problems posed with the kinds of questions people ask, and the powers that they have from the amount of information that they get back, and some other types of things like that. While it is equally accessible and very welcome today, it could easily be dominated by the screen jockeys.

Keith Johnson: Very good. He's bringing out a few things that have to be noticed when you start talking about what he's calling a conferencing network. We need those things. He started with a big 'but', and I think what he's trying to do is warn you before you start the system about some thing that you have to look at. So. . .

Frank Leonard: Yeah. I think some people currently are afraid of computers, and so they don't want to be involved, or there are other kinds of ramifications. It seems to me that there needs to be, simultaneous with the development of the system, the development of education in the use of that tool, or else the thing will *rapidly* be dominated by the screen jockeys.

Marianne Brün: Of course. Education will become learning to use this computer, learning to specify on it, and to formulate precisely. We have nothing at the moment to teach us that.

Frank Leonard: Some people may not be ready to take responsibility. We're about to have an election in three days, and—

Marianne Brün: I'm very well aware of that. [*Laughter*]

Frank Leonard: And everybody past the age of eighteen, you know, can say whatever it is that they want to say in terms of pushing these levers, and—

Marianne Brün: But they can't! They don't have a choice!

Frank Leonard: But what I'm saying is . . . that—

Marianne Brün: They have been brought up never having a choice!

Frank Leonard: Only thirty-three per cent of the people that have the franchise, or something like that, are going to exercise it.

Marianne Brün: Of course! And while I think it's very important that one votes, especially this time, I can understand those people who are *sick* of not having a choice!

Frank Leonard: If this mechanism only operates every couple of years, every four years, and everybody is appalled by the fact that nobody is interested, and everybody is apathetic, and you're talking here about a system that is going to be at a gut level . . .

Marianne Brün: No, no gut . . .

Mark Sullivan: In a society, people generally participate in something if they see that their decisions have consequences. In our present society, the degree of participation is low in some areas because people see that their participation has no consequences. It's low in other areas because people don't *see* the consequences. The two can overlap. In a society with a socially beneficial information processor, people could see the consequences of their decisions, and they could see that their participation has consequences. Slowly, both consequences and participation might proliferate. When people start to participate, and when they see that their participation has consequences, this might motivate them to participate more frequently, even maybe to talk to others about participation. Starting this kind of participation is a gradual process. I don't think everybody has to start at once, like in a race. I admit that getting people to participate might pose some problems. I think solving those problems would be more interesting than trying to solve the problems posed by elections that revolve around picking one or the other of two idiots someone else selected, or the problems posed by elections in which people have no say about what is voted on.

Frank Leonard: Wait. There's some other considerations in this design and one of them is, for instance, that we have people isolated in their own homes with the terminal system . . .

Paul Pangaro: Starting from the limitations that we now see, I think there are hints for use along the way. The proposal, as I understand it, is to avoid the trap of what we now have, start in a new direction, and to look occasionally to the side and see what things have gone wrong and to revise them.

Mark Sullivan: Yeah. Right.

Herbert Brün: Ja. Frank. This is a particular example, you are an example of turning a report into an argument. It is a wonderful technique of dismissal. You look wonderful, as a realist, who faces the facts, who is not easily taken for a ride. You are the most wonderful person here and we will all look towards you to help us out of this selling of an idiotic and utopian idea—that all under the pretext of warning, and you make a problem out of some untimeliness of your remarks. *You just wait* until the thing exists and then put your worries into the machine.

Marianne Brün: As a matter of fact, we need him to build it.

Herbert Brün: Yeah. But he's trying to prevent that. Instead of helping you answer the questions you have, he's going to ask you the questions which he should answer.

Humberto Maturana: May I? I think that utopia can only come about as an expression of a desire. Like Athena out of the head of Zeus. So, what I can see from this proposal is that if one were to implement it—Let us suppose that some rich philanthropic man were to provide—woman—were to provide the money—[*Laughter*] Please let me finish. There are such people in the world. [*Laughter*] Let us suppose that this philanthrope provides the money for creating this computer and let us suppose that indeed you provide terminals to be accessible everywhere—so that you can see them. You go into the street and there they are standing. You want to make an input; you want to put a desire in (besides that, the instruction you wish). My thesis is that if you do this, this in itself would constitute a gigantic perturbation.

If you want to design a society such that it comes out as you want it, you will generate a tyranny. Because you have to generate the productive machinery, and productive machinery requires invariant components, and you will have to have all human being have invariant properties, and this cannot be. So you must accept this as a perturbation. Now, if you put the terminals there, people will go there and make questions. You can be sure that—Curiosity is always prevalent, just this is the biological part of human beings. Now, as that happens, those that make questions will realize that others do make questions too and have input into this machine. Soon this becomes part of daily life. Now, as this becomes part of daily life, those who are supposed to participate in the issues will not be able to go without looking at this machinery because this will be 'daily life'. In this, what you will be doing is to reduce the size of humankind into the size of a family or a tribe or a small town. Now, I think that certainly human life will change. Now it will change in the manner in which human life changes when you have means of being aware of how you plug into it and of how others plug into it and affect it. So the real problem is the seduction of the philanthrope. [*Laughter, applause*]

Marianne Brün: Would you be willing to do that for me?

Humberto Maturana: To the extent that I am a philanthrope, and a rich man, certainly.

Marianne Brün: I meant the seduction.

Herbert Brün: You just be seductive; we find the philanthrope for you.

Elin Smith: I think we have to now address the question which was raised and which we haven't talked about, of the effect of the artifact upon the society. I think it will have a huge effect.

Marianne Brün: I hope so.

Elin Smith: I mean, yeah. Well, yes, of course you hope so, but I mean I think you do have to think about people who become computer livers instead of people who are living.

Keith Johnson: What about people in the situation who become newspapers livers? Does that happen?

Elin Smith: Yes, I think it does.

Keith Johnson: Do you have anything against information, like a newspaper, being presented to you?

Herbert Brün: She forgets that she has no input to the newspaper. Everything else is the same, except that you can't do a thing about it. And that sentence is the one sentence that would at last disappear as a daily discourse member: "Well, yes, yes, yes, you're right but I can't do anything about it"—You say: "No, no, come with me". Go to the next toilet and there is a terminal and you "can do something about it". If you have what is called a "good idea", (the word "good" for the time being in quotation marks) then your input will change all answers that the system has given till now into new answers that it has never given before. If this does not happen, then yours wasn't a good idea, and you have to think again. The word "good idea" is simply the definition of an input that composes a change. After the first year of sports and vandalism and games and muzak is over, only people who want to help run society go to the terminal; only people who otherwise would have to say "I criticize it, but I can't do anything about it" will now say "I criticize it and I know where to go".

Elin Smith: I think that's fantastic.

Person 4: Would you put a subroutine in the computer that would stop it from saying one day: "There's enough input into me and my processing indicates that I'm no longer beneficial to society. I am turning myself off, although I will leave my data bases intact"?

Marianne Brün: No. that cannot be. That would be turning off all the people and could only be decided by the people.

Person 4: How do you know the computer wouldn't decide that? You know, now having access to more information and more possibilities of what would happen, it might decide that if it gets more beneficial—

Keith Johnson: It doesn't decide, and it doesn't ask questions. That's two things that will stop that from happening.

Paul Musial: It *does answer questions.* But the premise of the machine was that it would take into account the decisions of the people.

Mark Sullivan: It's a program.

Keith Johnson: It doesn't ask questions.

Person 4: But what if I ask the machine a question: Should you even exist?

Keith Johnson: The it might tell you: Yes. And then you decide.

Person 4: But what if it says: No?

Mark Enslin: Should *you* continue to exists? In the machine—[*Laughter*]

Marianne Brün: What help is that question at this point?

Person 4: Oh. Um. I don't know. [*Laughter*]

Karl Tomm: There may be inadvertent side-effects that are, you know, not recognized at the moment and are very devastating, and the only response would be to destroy it, to avoid those side-effects. How can the system be destroyed?

Mark Sullivan: We'll work that out.

Herbert Brün: I would suggest that—Mr. Tomm! I would suggest that if the question would be justified, we would have been destroyed two thousand years ago. [*Laughter*]

Elin Smith: What does that mean?

Herbert Brün: I want a reaction from Karl.

Karl Tomm: Well I—I don't understand your response.

Herbert Brün: The response: You say, it could have devastating effects—Is that what you say?—It could?

Karl Tomm: Yes. It could.

Herbert Brün: You don't need it in order to live in a system which produces devastating situations. Isn't that so?

Marianne Brün: We now live in the worst of all possible worlds.

Herbert Brün: It's fantastic when you turn your back on the future society and use the present one as an argument against a future society. [*Laughter*] And if there's anything that would speak for a future society it is that even if it should be the same, it would at least be different. [*Laughter*]

Karl Tomm: You can't say with certainty that this system would necessarily be better than our existing system at this moment.

Marianne Brün: Yes you can.

Karl Tomm: How can you know? [*Uproar*]

Mark Enslin: One of her specifications of the machine, which I think is part of the problem that we ought to address, is to make it so the system will preserve the members at the expense of itself, rather than the other way around. So the question is: How to design that?

Marianne Brün: Also, there's one premise that's built into the system, and that is the premise of the society: Nothing can interfere with the satisfaction of all human needs! If that is assured, it will be a better society than any we have ever know, under all circumstances.

Karl Tomm: Doesn't the machine have human needs?

Marianne Brün: What? [*Uproar*] The machine doesn't. [*Laughter*] The machine is just a device.

Karl Tomm: I would like to know, though.

Mark Sullivan: Wait. Excuse me. there are other people who have been waiting with questions. [*Hubbub*] I'd like to hear answers to the original question. I've now heard a lot of discussion of what the problems might be if we had such a machine. I'd like to let that discussion take a back seat for a moment, since we have some people here who could answer the question: 'What must be done to have such a machine?' I'd like, for once, to hears answers to the question: 'What problems have to be solved so that we could have such a machine?'. I rarely get a chance to hear people answer that question. This is one. Barry gave one answerer. He said we have to have a description of other central forces. I think that a description of other forces could be compiled, just like the list of needs was compiled in the class. But what other problems have to be solved in order to make a socially beneficial information processor? For instance, if I want to be given the self-description of someone I haven't met before, how can the machine provide that? How can it provide someone's self-description? What kind of problems have to be solved so that we could have a machine that provides someone's self-description?

Heinz von Foerster: I would just throw the attention we pay to our designing something onto ourself, and then say: we are not now *designing* a society and the machine; we *are* the society and the machine. Now I stop saying anything, and watch the society and the machine continue finding a solution for the society and the machine.

Elin Smith: But essentially we do that all the time by our existence; we do take a step every day in a direction. We take a step. I do something and I have an impact on the society. I may not have the kind of impact *I want*, but I do try and address all those things, all those desires. And I try in my way to do something, as I take steps, as I make my path, I do impact society. In some ways, what your machine will do is simply intensify what is already happening.

Marianne Brün: And I'll know what steps you are taking. I have no idea otherwise.

Elin Smith: Well, you do.

Marianne Brün: No. I don't.

Elin Smith: You know that every person as they make their individual decisions is creating society all the time.

Susan Parenti: Well, generally what you know is what the media reports. So this machine, it just dawned on me—

Elin Smith: What I know, that is *my life* and that is how I change socially.

Susan Parenti: Yeah, by living your life. The other is what you know, via the media.

Person 5: I'd like to address the question on the floor here. The machine that you have describe requires infinite resources.

Marianne Brün: Infinite?

Person 5: Infinite resources. In terms of computing power, in terms of memory, in terms of managing the communication network that you're suggesting. In the first place, then, forget all the rest of the stuff, just putting up this world-wide communications terminal in every person's living room, and on every block, and in the street—

Marianne Brün: But we did it with the telephone. It's no more difficult.

Person 5: Well, it *is* more difficult because there's a lot more control involved when you start getting interactive, searching memory banks. The telephone just connects you with another person.

Mark Sullivan: Number 3. [*Referring to Larry Ende's composition which includes various routine dismissals*]

Herbert Brün: Let's solve the problem. Let's solve the problem. You seem to be competent in cost-efficiency considerations. [*Laughter*] We would like—instead of criticizing the somewhat naive version you heard—the much more competent version you propose. We want that system! This is not the discussion. The discussion is: Having seen there is something missing in the description of implementation would you add that?

Person 5: O.K.

Herbert Brün: Why did you say 'infinite resources'?

Person 5: Well, because, uh...

Herbert Brün: There is no such thing as infinite resources, as you very well know.

Frank Leonard: Real big. [*Laughter*]

Herbert Brün: No. A lot of resources. More than the capitalist system will ever spend on a beneficial system. [*Laughter*] That's all you mean to say. The defense budget of this year would probably cover the cost for the worldwide implementation.

Person 4: O.K. You're—You're taking a whole mass of problems that are—what you need first of all is a lot more specification. . . right now, *nothing* could be done because everything is so. . . [*Hubbub, several people speak at once*]

Mark Sullivan: I think that there are a number of people here who want to say something about what resources are needed. I'd like to hear what they've got to say.

Barry Clemson: The solution to the resource thing is simple. I mean—You don't connect every terminal to every other terminal. Or, you have some sort of hierarchy so that the terminals on a block talk to teach other, as fast as they want, but if you want to talk to a terminal in Los Angeles, you have to wait till overnight or something. I mean, so it's not, you know, a fully-connected million-node network. Because then you would be right. So—But you know, you get around that.

David Friedman: I want to talk to Los Angeles right now.

[*Hubbub, laughter, several people talking at once*]

Barry Clemson: The serious problems though, are not technical ones about networking and all that stuff. The serious problems have to do with the grammar, or syntax, or whatever, so you can talk about the things you want to talk about.

Marianne Brün: That's what I want. Thank you.

Barry Clemson: And I think we're pushing towards the answer. But how the hell do you talk and notice that a social proposal which uses say sociological jargon has said the same thing as a psychologist who used totally different words. That's the sort of issue that's a serious one. [*Hubbub*]

Herbert Brün: [*Under his breath*] Bravo. That's the black box that wants to be solved.

Barry Clemson: Absolutely. [*Hubbub, laughter, several people speaking at once*]

Barry Clemson: And the other similar issue which we also are beginning to be able to handle is, as Heinz says, we're going to be the machine, while doing it. O.K. Two levels of discourse right there. You have to be able to—You know, Goedel's theorem about incompleteness. Right. You always have paradox. You have to have a way of dealing with that. Now, my sense is: What are the tools we have to start grappling with some of these? I don't know. Just off the top of my head: G. Spencer Brown—Calculus of—what is it? I forget. Indications: that's it: "A Calculus of Indications". And the next one. And, I can't say his name, Vladimir Lefebvre. He was beginning to deal with a calculus for questions of boundaries. We really are going to be getting into using those kinds of tools. Because I mean dealing with the knowledge part of this thing is not the problem, it seems to me. I'm not saying—

Paul Pangaro: You mean the data part.

Barry Clemson: Yeah. I mean the data part. The work that Pangaro is doing is important. You better talk to Jon Cunnningham too, by the way. I don't know. Come on. Help. [*Laughter*] Herbert is exactly right. We have no goddamn business pointing out the problems unless we can then say: Here's what we can do about it. We've played that game for a thousand years, and it'll go on forever. Those of us who see the problems will say: 'Well, here's where we can go with it'. I just have the sense that the tools are beginning to emerge.

Karl Tomm: I'm very disturbed with what's happening here. Because it's—

Marianne Brün: Just a moment. There is someone here who's been waiting to speak.

Larry Ende: I have an answer to your question, which is actually another question. And—This responds also to what you said earlier about how in our daily lives we create the society we live in.

Elin Smith: Yes.

Larry Ende: I think if we can figure out how to answer the question: 'Which society?' or 'What society?' are we creating in our daily lives?—let me change that—-"Which society am I creating in my daily life?", then, I might be able to start thinking about *how* the language the *I* use can link up with the language that other people, working in different areas, use to speak about how we live together.

Elin Smith: That's excellent, but you also always have to realize that we speak in a language—and we have terrible times talking to each other—we speak in a language which presupposes a certain degree of education and commonality of vocabulary. And if you're going to make this a meaningful system, it has to speak to the man who's pushing a pushcart out in the street.

Marianne Brün: Hopefully, he won't be out there anymore.

Humberto Maturana: I have an answer to that one: One is always creating a society in which it is legitimate to do what one does.

Herbert Brün: But, but, but. . . [*Laughter*]

Humberto Maturana: One is always creating a society in which it is legitimate to do what one does.

Herbert Brün: Yes. Legitimate is one notion, right? Could you substitute another word for 'legitimate'? 'Desirable', for instance?

Humberto Maturana: Yes. Yes.

Herbert Brün: Good. That is what I wanted to hear. [*Laughter*] You would substitute the word 'desirable' for 'legitimate'. Only in that sentence, or also in other sentences?

Humberto Maturana: It depends on the sentence. [*Laughter*]

Marianne Brün: Now. You wanted to interject something before and I didn't let you.

Karl Tomm: I just wanted to say that I was a little bit concerned about the response to people who were raising *questions* about potential, possible problems. Because it seems that there's an attitude emerging that it's almost like a quasi-moral error to raise such questions.

Marianne Brün: Let me respond to that. The fact that we don't now have a Socially Beneficial Information Processor, and we don't now have a desirable society, makes them both so easy to dismiss. the arguments of this society do, indeed, speak against them. Here, at a cybernetics conference, is one place where I hoped to be able to discuss what initial steps could be taken toward building such a computer system, instead of going through all the predictable 'ifs' 'ands' and 'buts'. For a change! Just once!

Susan Parenti: So, I think that it's correct that a report of a problem ends up arguing against the possibility of a solution, and it takes some quick thinking on your tongue in order to prevent it from having that function.

Keith Johnson: That comes from looking at the dynamics of the discussion. I say that, at a particular point in this discussion when one of these reports was brought up—because of habits of people's speaking, usually, it comes up with a 'but' or a 'however'—the report made it look like the direction of the discussion so far had to be dropped and cut off. The report commented on the things said, in a way. It said: 'Well, here's a point that says you're all wrong'—In a sense, a report became an argument against what happened before. That's why the continued insistence on what we *can* do.

Karl Tomm: But, my question is related to that. What I'm saying is: If it turned out that this machine had significant inadvertent effects that were undesirable, what are you building into the system that would make it easy to get rid of that machine? [*Hubbub*]

Mark Sullivan: I have an answer. I have an answer. What you're building-in that would make it easy to get rid of the machine is the fact that everybody who works with the system knows what's going on in the system. So you are going to know that it has undesirable effects as soon as they emerge, instead of it taking forever to find out that something has undesirable effects, the way things go in our present system. If you have a system where you get information as quickly as it becomes information, as quickly as data is transformed into information, then you have a very sensitive machine that will start telling you about inadvertent effects much better than any system we have available right now. It's possible, isn't it? What if it were the case?

Person 6: But probably—First a meta-comment: I hate to use the word, but it's appropriate here. Part of what we're doing here is, in a sense, to reframe the discussion. When having a discussion like this on any idea, there's a danger that a negative statement pulls the plug on everything. What we're trying to do here is reframe it, so that you can look and say "O.K., There's a possible negative" and put it on a list "O.K., we need to worry about that" and then go on, rather than getting stuck. As far as this gentleman's question goes, there are two ways to respond to it. One is, and again in a meta-sense, to ask him to reframe it: How can we devise a system that will never go bad? The other, is to take his question further for a second. I think there's a certain humility in saying: Let's design a system such that we could pull the plug on it. Not that it *will* go bad, but that we'll be comfortable with a system that is that way.

Marianne Brün: We'd be pulling the plug on all the people! Don't you understand? That's what our present system is trying to do.

Allenna Leonard: In a cybernetics conference, I can't imagine why nobody has mentioned the possibility of error-correcting feedback, rather than the choice between pulling the plug and letting the thing run. We've got to presume that any technology is going to come up with some problems! Bureaucracy was such a great idea when it got started. [*Laughter*]

Marianne Brün: It probably was.

Allenna Leonard: It got rid of favoritism and a whole lot of other things like that. Now bureaucracy has come up with its own problems. Anything that's designed new is going to come up with its own problems, and so that means that what needs to be designed-in are the mechanisms for the error-correcting feedback.

Barry Clemson: Isn't that the whole function of the machine? To provide feedback?

Allenna Leonard: I think it would need more levels of operational feedback.

Herbert Brün: Allenna, would you agree, or would you at least subscribe to the sentence that: Problems are here, even without us. Solutions need us. So it's a waste of time to state our presence again and again by showing problems. It would be nice to show our presence by solving them.

Marianne Brün: Yes. Susan. Let's make this the end because it's 3:30 in a minute and I don't want to block the next workshop.

Susan Parenti: Could the production of this system be part of the system? Because what I imagine now would be ten years of technologies—who make me sometimes nervous—working on this machine and then delivering it, quote-unquote, to the people. Could there be any way to remove this difficulty?—That the production of the machine would be part of the process?

Elin Smith: Why is that a difficulty?

Susan Parenti: We know, in general, there's some image that those people who produce technology aren't those people who had wanted, or aimed at, that technology in the first place.

Elin Smith: Can I ask you something? Why are you excluding yourself from the process of production?

Susan Parenti: I would love to be in the process of production, but I don't have the, quote-unquote, competence.

Elin Smith: Nor do I, but I'm not excluding myself.

Susan Parenti: So, you say you'd work with me.

Marianne Brün: We have, then, a small group forming here that wants to work on the production of SBIP. All that we do not yet have is competence! And with that, I am afraid, I have to end this session.

Barry Clemson: Marianne, before you break, why don't you have those of you who have been involved in the project stand up first, so the rest of us can see who you were. As we think of more suggestions, we can tell you.

Mark Sullivan	Lesley Olson
Paul Musial	Keith Johnson
David Friedman	Mark Freeman
Mark Enslin	Larry Ende
Arun Chandra	Marianne Brün [*Stand up*]

[*Applause*]