

In this introductory reflexion it is not necessary to dive into philosophical, (for instance: existentialist), speculations concerning the various meanings of the term "future". It is sufficient, for this purpose, to state the very obvious fact that we cannot but be interested in what is going to happen and what we can do about it. That man is a being that is "open toward the future". That he hopes for certain events to materialize, worries about others, and plans his action, to some extent, according to such hopes and worries. Both as far as his private sphere, and, to a lesser extent, as far as his public sphere is concerned. Now this "opening toward the future" implies that (a) we can, to some extent, guess what will happen, and (b) we can, to some extent, make some of it happen and avoid some of it to happen. What is involved in such an implication is, of course, our "freedom". We may, in our speculations, deny that what is going to happen is possible, but not necessary, and we may do that in various manners. Or we may elaborate simple or complex speculative systems which justify that implication. But what we cannot do is to stop hoping, or worrying, or planning. We are condemned to live as if we were to some extent free, and our speculations whether we are in fact free or not do not affect very much the concrete experience of our being open toward the future.

The hypothesis on which the present essay is based is that it is in some respects more difficult for our generation to face the future than it was for previous generations. That we are not sure what to hope for, what to fear, and, a fortiori, what to do about it. Much less sure than were our fathers, or other generations we know of. That this exceptional disorientation of ours characterizes our situation, what is called the "crisis" we are in. This hypothesis is the result of observations of conflicting expectations in our surroundings and within us, and of the comparison of these observations with previous expectations. During the 19th century, for instance, there was a more or less general expectation of scientific and technological progress. During the 18th century political and moral progress was generally expected. 17th century expected, more or less generally, religious perfection. And to give even more flagrant examples: 10th century expected the imminent end of the world, and 2nd century the kingdom of God. No comparable consensus of expectations may be observed at present.

It may be argued that this difference is due to our lack of distance with regard to the present, and that for participants in previous generations expectations seemed to be just as conflicting as they are for us. Such an argument is not convincing. Because, at present, it is not so much the conflict between expectations which disorients us, as it is the mutual incompatibility between them. The expectations of the Club of Rome are incompatible with the expectations of the Moslim Brothers, those of Women's Lib are incompatible with those of Mao Tse Tung, those of science fiction are incompatible with those

VILÉM FLUSSER

of Négritude, and so forth. These expectations do overlap in places, and may lead there to conflicts. But in other places they seem to belong to altogether different universa. And such a plurality of universa is mirrored in our interiority, in our innermost thoughts, desires and imaginations. We live, so to speak, schizophrenically in a world that has gone to pieces. To pieces not so much as far as its present structure, but as far as its expectations of the future are concerned. Now there may have been generations in the past which had to live in a similar crisis. But the hypothesis that our difficulty to face the future is an exceptional one does seem to be more than mere subjective feeling. It may serve as a tool for an analysis of our situation.

How we face the future is the result of factors far too numerous, complex and intertwined to be enumerated. But one factor stands out: we face the future on the basis of information at our disposal. We expect what we are led to expect by the information we possess, and our hopes, worries and plans are reasonable only within the parameter of such information. What we do in fact is this: we try to coordinate the information at our disposal, (or we let others do that for us), inject our desires and fears into the scheme, and then try to project it into the future. This is more or less the structure of our opening toward the future, and it has probably not changed ever since men exist. What has changed radically in the recent past, however, is the quantity and quality of the information at our disposal, and the method by which it is put at our disposal. It is a reasonable guess that such a radical change is responsible, at least in part, for the exceptional situation we are in with regard to expectations of the future.

It may be said, in a rather loose way, that the accumulative storage of information is a process which accompanies human history, and, in a sense, identical with it. That human history is "negatively entropic". This is a loose way of describing it, because some information always gets lost during the process, but it is, overall, a good description. The process has two aspects. One is the gathering, the other is the storing of information. The first aspect is the steady increase of information, the second is the disponibility of information. During the process of history both these aspects have suffered various changes. The methods to gather information have repeatedly changed, and so have the methods to store information. Therefore history is not a uniform process. Every time the methods of gathering and/or storing of information changes, the whole of history changes. These are the critical times, and ours is one of them. We are in the grips of a radical, revolutionary, change of the methods to store information. If one is to call the store of information "memories", ours is a moment when memories suffer revolutionary changes. It is a fair guess that such a revolution is responsible for our disorientation with regard to the future.

We know of several previous radical changes in the method of storing

VILÉM FLUSSER

information. For instance: the invention of printing, and the invention of the alphabeth, and the invention of writing, and the invention of speech, (if the last example may indeed be called an "invention"). Each such change was to have profound consequences on the process of history, because it changed memory structures. Each change ordered information in a new way, and thus resulted in new ways of thinking, (analysis and manipulation of information). The result of printing was the transformation of the manuscript into a book which may be stored in shelves and may be multiplied in millions. Which is to say that a memory came about which has the structure of more or less identical libraries distributed through society. Libraries have tree-structures: they are divided into book-cases, shelves, they spread out in branches. Such a library-type memory is the medium for progressive, dynamical thinking, quite different from the thinking of those who use manuscripts as media. Printing marks the crisis which separates medieval from modern thinking.

Alphabetical writing stores information in lines which consist of clearly defined symbols, (letters), which have no causal relation to their meaning. This structure is the medium of linear, historical, abstract thinking. The invention of the alphabeth marks the crisis which separates mythic al and magic from philosophical and theological thinking. Pictorial writing stores information on surfaces in the form of two-dimensional signs which bear some causal link, (similarity etc.), to their meaning. This structure is the medium of imaginative, scene-like thinking. Although the invention of pictorial writing is too distant from us to allow an interpretation like in the more recent examples, there can be no doubt that it marked a crisis of thinking. And the invention of spoken language, of which we know next to nothing, must have been a crisis which may perhaps be said to be that crisis which initiated the process of thinking, because speech seems to be the typically human method to store information. What has happened in the recent past with regard to information storage, namely the invention of cybernetical memories, marks the crisis we are in. A crisis that will separate modern, progressive, dynamical thinking from new ways of thinking.

Whenever new memories were evolved in the past, they did not simply substitute older memory structures, but gave rise to a complex situation not unlike ours. The printing press did not eliminate manuscripts, but, in the contrary, made it possible for old manuscripts to be printed and distributed. The linear alphabeth did not eliminate earlier writing, but permitted the transcription of pictorial and ideographical messages in linear form. Writing did not eliminate spoken language, but permitted its fixation. In a similar manner cybernetic memories do not eliminate libraries, but permit their transcription on tapes, cards and microfilms. In fact: the introduction of new memory structures works, in its early stages, as a reinforcement of the old ones.

VILÉM FLUSSER

We can observe this reinforcement clearly in the case of printing, and and more dimly in the case of alphabetical writing. The thought process which characterizes the analysis and manipulation of printed information is one that favors ever more rapid, dynamic, specialized, progressive reading. It is the thought process of modern science. It is very different from the process involved in manuscript reading. Such a reading favors systematic, slow, dogmatic reading. It is the thought process of theology. The most characteristic reading of print is newspaper reading: one glances through the newspaper, throws it away and buys the next one. The most characteristic reading of manuscript is Bible reading: one reads it over and over again, and considers every single illuminated letter. Now the first information to be stored in print was not a newspaper, but the Bible. The reason was, of course, that the thinking methods characteristic of print had not yet been developed, one had not yet learned how to read print, and therefore how to effectively use it. Therefore print was put at the service of older thinking methods. It reinforced theological thought during its first stages. So much so, that the true manuscript reader, the dogmatic possessor of truth, evolved after and thanks to the invention of printing during the 16th and 17th century religious quarrels. Only very slowly, in a process that is not quite over even now, did the thought structure appropriate to information stored in print come to dominate over older structures.

The thought process that characterizes the analysis and manipulation of information stored in alphabetical writing is that of the logical, systematic, discursive, historical thinking. It is quite different from the thought process that characterizes the reading of pictographical or ideographical writing. In it information is seized as a two-dimensional scene by an effort of the imagination. That is the thought process of myth and magic. The typical message of alphabetically stored information is an event or a series of events, like the Homeric epos or the Bible. The typical message of pictographically stored information is a ritual scene like sacrifice to a god. It seems, however, that the first alphabetical inscriptions, like the Hammurabi tablets, were informations concerning ritual actions. The invention of the alphabeth did not do away with magic and myth, but reinforced it, because it was used for transcription of pictographic and ideographic writing. Only very slowly did one learn how to use the alphabeth as a new memory structure, and the priest-king was substituted by the philosopher and the prophet.

We do not know enough about earlier revolutions in memory structures to be able to judge them in detail, but the guess that they followed more or less the pattern of the two revolutions considered seems to be a good one. And it seems to be a good guess, also, that what is happening at present is a revolution in memory structures that follows a similar pattern.

VILÉM FLUSSER

The new cybernetical memories are used, at present, to reinforce scientific progressive thought processes, because we have not yet learned how to think in a way appropriate to their structure. We use computers and the like as if they were libraries, but we cannot do it for ever. Because the typical structure of cybernetic memories, which is not linear but mosaic, will impose itself on our thinking. To some extent it is doing so already. And this is one of the reasons why we are disoriented: the information at our disposal is being stored in a way we have not yet learned how to handle.

But the invention of new types of memories is revolutionary for a second reason, quite different from the one considered. Of course: new types of memories are invented because the old types are no longer able to store incoming information. Writing stores more information than oral tradition, and does so better. Alphabetical writing stores more information than pictographical one, and does so better. Print stores more information than handwriting, and does so better. Computers store more information than libraries, and do so better. But this is not the whole truth. Memory structures do not only store information, but they also select information. They are like nets that fish information, but lose some through their meshes. A result of this is that some of the information stored in older memories gets lost in new ones. For instance: printing loses the calligraphic information contained in hand writing. Alphabetical writing loses the connotating information contained in ideographical, (for instance the Chinese), writing. Writing loses the accoustic information contained in speaking. And no doubt some types of information are lost as one passes from books to computers.

In other words: one cannot write down everything one can say, and one cannot put into alphabets everything one can write, and one cannot print everything one can write by hand, and one cannot put into computers everything one can print. Now this does not seem to pose a problem. One can argue that we can use all the memory structures to store all the information at our disposal. We can use computers, and write books, and handwritten letters, and ideograms, and continue speaking. This is not quite true, however. There is always one memory structure that dominates our thinking. At present it is the printed book structure, although it is menaced by computers. We can no longer speak the way people spoke during the domination of oral tradition. We have lost a dimension of their information. And we have lost a dimension of pictorial and of manuscript information. This last loss, being the most recent one, can be felt most clearly. We are no longer able to write by hand as did our fathers: the typewriter mentality dominates us. And we can still feel the loss of the calligraphic dimension of information. No doubt: we feel that the computer revolution will lead to a loss of a dimension of information which is in some way dear to us.

Now one can discover a trend in the progressive loss of information:

VILÉM FLUSSER

dimensions through the introduction of ever new memory structures. Although informations grew ever more numerous and ever more efficiently stored, they grow ever poorer, in the sense of losing one dimension after another. The information stored in the memory of a neolithic story-teller must have been very much smaller in number than the one stored in a computer, and it must have been stored in a much less efficient way, but it probably was much richer in existential impact on its receiver. Each revolution in memory structure implies the feeling that the information at our disposal is not fully relevant to our fears, hopes and desires. That it is not the type of information we ask for. And our present feeling that the information provided us by cybernetical memories is not really relevant is another reason for our present disorientation.

And then there is a third aspect to every revolution in memory structure. As the new memory begins to establish itself as the dominant thought structure, a new dominant class is established and thus the structure of society changes. During oral tradition there must have been a dominant class of oracular sages, those who know how to handle orally stored information. They must have been supplanted by priests who know how to handle sacred, hieroglyphic writing when writing was invented. The invention of the alphabet must have destroyed the power of the priests-kings, and must have brought about the class of literati, clerks, philosophers, monks and so forth. Those who knew how to use alphabetical writing. The invention of the printing press brought about the class of scholars, scientists, intellectuals, technocrats, those that know how to handle the press and how to publish. And the invention of cybernetical memories will result in a class of data analysts, programmers, hardware and software specialists, which will gain an ever growing influence and power.

Now whenever such a new class comes to partial or total power, the social fabric suffers a shock, because the new class does not fit into the fabric. There was no place for the priest-king in the society of oral tradition, and there is no place for the data analyst in our social fabric. We can state more or less clearly why there is no place for the data analyst in our society at present. The data analyst is a man specialized in manipulating memories from the outside. Memories are his objects. He is not interested in storing information within his own memory, but in methods of programming memories others than his own. In fact: information as such no longer interests him. His is a formal interest in information systems. Now we feel that society is a process the aim of which is the increase of information. Therefore we feel that the data analyst stands outside society, (history), and has no place in it. He is going to hold power over society from the outside, from a formal, trans-historical position. He is going to handle history like a chess player. And this is a further reason for our disorientation.

VILÉM FLUSSER

The effect of the memory revolution now in progress upon our expectations may be summed up as follows: we are called upon to coordinate the information at our disposal, in order to project it toward the future, but have unusual difficulties to do so, because (a) information is stored in a way we have not yet learned how to handle, (b) much of the information available does not seem to be relevant to our fears and desires, and (c) information is being analyzed and manipulated for us by persons which do not seem to live in the same society we do. This difficulty is often called the "information inflation", a term which implies that we now dispose of an excessive amount of information and that therefore information is becoming worthless. But the term does not really catch the essence of our information crisis. It is not so much the excessive quantity of information which is at the root of our difficulty, although of course that quantity is increasing probably by geometric progression. That information increase is no longer a problem, because it has provoked the invention of cybernetical memories which are able to store it. It is the structure of those new memories which is at the root of our troubles.

So far the present essay has tried to "explain" our present crisis of expectations by comparing it to some previous and similar situations. But it is dangerously easy to exaggerate such similarities, because it tends to cover up the specific uniqueness of our situation. What seems to be unique about it is our curious feeling that the new types of memories are in fact very much less "refined" than the old ones. When we overcome our first shock provoked by the contact with computers and the like, what impresses us most is the almost incredible primitivity of their structure. An impression which the term "ultra-rapid idiot" expresses. Now it may of course be argued that increasing simplicity is a symptom of progress. But it is not simplicity that characterizes the new memory structures. Extremely complex stupidity is a better word for it. And it seems that such a feeling has no parallel in previous memory revolutions. And if it is indeed a fact, if it is true that the new memories impress us as being more stupid than the old ones, then we cannot accept them as an opening toward the future.

An event is "new" in an existential sense, if it causes our awe, our admiration, the feeling that it is an adventure. We know that such a feeling accompanied the invention of print, and we can guess that it also accompanied the other inventions mentioned. When first facing alphabetical writing, people must have felt the adventurous challenge to think in a new way, and the myth of the "book", the written word, (the incarnate logos) and so forth are a proof of it. A similar elation must have accompanied the invention of writing, and we can still sympathize with it if we experience aesthetically early inscriptions. But, after a very short while, this is not what we ourselves feel with regard to computers. The way they devour information, transform it into "bits", and spit it back in our faces in the form of a collage, tends to bore us. We are unable to feel that they open a new way of thinking for us.

VILÉM FLUSSER

It may be argued, of course, that our "feeling" is a mistaken one, and that cybernetic memories do, in fact, hold virtualities for new ways of thinking which we have not yet discovered, although such an argument is not much more than wishful thinking. But the fact is that the structure of cybernetic memories is a "bit" structure. This implies that information must be manipulated in a specific way to fit these memories, and that they assemble information thus manipulated according to specific rules, and that the manipulation and the rules are, fundamentally, a radical simplification of present thinking. "Simplification" not in the sense of reduction to an essential structure, but in the sense of reduction to primitive thought forms. Our impression therefore is that cybernetic memories are structurally idiotic, and that not much may be expected of them in the future, however well we learn to use them. On the other hand we know, of course, that they are the only ones capable of storing presently available information. And this seems to be a unique aspect of our present expectation crisis.

This unique aspect must be elaborated carefully, if one is to understand our situation, and it is being done so at present. Very probably it will be shown that what distinguished new from old memory structures is that linear memories, (like alphabetic handwriting and printing) store information in the form of processes, and cybernetic memories do so in the form of point events. Seen thus, the structural difference between them is the difference between the "water" and the "sand" vision. Now there can be no question that the "sand" vision of reality is a very powerful one and, if it should become a thought habit, must result in new world maps and therefore new expectations of the future. The question however is whether cybernetic memory structures do not reduce the "sand" vision to such a low intellectual level as to prevent rather than provoke a new vision. It may be asked whether the revolution in memory structure now in progress, although it has been provoked by the necessity to substitute the "water" by the "sand" vision, is not being actually falsified by present cybernetic memories which are, themselves, tools of an old, mechanical process-like way of thinking. In short: it may be asked whether the new type of memories is not, in fact, the latest and most decadent effort of old ways of thinking, which can no longer work but try to maintain themselves in the face of insurmountable obstacles. This "oldness" of the new memories would explain the fact that they bore us.

We are compelled to ask this sort of questions if we consider the maps of the world which the new memories put at our disposal. They have the following characteristics: (a) They consist of point data linked with lines meant to fill the empty space between points, (b) The point data are quantifications of qualitative information, (c) This quantification is a result of a manipulation of information to make it suitable for computers, (d) The fill-in lines may be extrapolated toward the "future", (e) The curves which thus arise interfere with

VILÉM FLUSSER

each other, and the number of possible curves is practically illimitable. It is immediately evident that such is a stupid map of the world. It is based on the primitive ontological hope that it is possible to pass from the point to the line, from the line to the surface, from the surface to the body, and from the body to process by mechanically adding point to point. Therefore it is not based on a "sand" vision, but on a primitive "water" vision. The point data are the result of the primitive hope that quality can be quantified by simple reduction to numbers. The extrapolation is based on the primitive hope that processes obey specific pre-existent forms. And the utility of the maps is based on the primitive hope that an illimited number of curves may be assembled. In short: such maps provide us with illustrations of a crude and naive form of processual thinking, (unsustainable ever since Descartes), but clothed superficially in point structure and made possible by highly refined technological methods. This incongruity between the technical complexity of these maps and the intellectual naiveté and crudeness of the information they provide is what compels us to doubt that we may expect new and revolutionary thought forms to come out of cybernetic memories in the future. Unless of course naiveté, crudeness and idiocy be the new thought form.

If we accept it to be a fact that our expectations of the future are determined, among other factors, by the information at our disposal and by the way such information is structured, then our present crisis of expectation may be formulated this way: We have great difficulties to orient ourselves ourselves within the information at our disposal, and therefore to know what to expect, because our traditional memories no longer store our information, and our new memories are too silly to help us. We find ourselves therefore in a critical situation. Either we base our hopes and desires on information as provided by the new type of memories, and we are then left with the feeling that we are brutally simplifying everything and thus have lost contact with the concrete complexity of what we mean by "future". Or we base our hopes and desires on information as provided by old types of memories, (the various ideologies as evolved during the domination of linear thinking), and we are then left with the feeling that most of the information now available is left out of our "opening toward the future".

This dilemma shows up in the form of conflicting and partially discrepant expectations both around us and within us. It explains why, on the one hand, we lean toward formal, "value-free" projections of the futurological type, and, on the other hand, toward the most fantastic, primitive magico-mythical projections. It explains why we tend, at one moment, to view the future as an opportunity, the next moment as a menace, and the next as an impenetrable fog. This disorientation of ours has, of course, economic, social, political, psychological aspects and so forth. They mean that our desires and fears have such aspects. But it is not the desires and fears which are in a crisis. What

VILÉM FLUSSER

is in a crisis is the structure of information which is to give content to our fears and desires. We are disoriented not because we do not know what we fear or hope for, but because we do not know what we can fear or hope for.

Nonetheless: we cannot escape from our condition of beings open toward the future. Which includes the curious capacity to step back from oneself and see oneself facing the future. The various essays which will compose the present volume will be efforts to step back such into reflexion and see how at present men try to overcome our crisis of expectations. How, inspite of our critical situation, men try to face the future. Not those men who submit to the effects of the crisis, but those who assume those effects. In this sense the following essays will be about New Men. And it is the contention of this introductory essay that the newness of these men is, fundamentally, in the fact that they try to face the future on the basis of a new type of memory not yet formalized, let alone realized, but which is nonetheless in the making. A memory which is being to some extent aped, but certainly covered up rather than revealed, by the present cybernetical memories and their futurological projections. The contention of the present introductory essay is that a new form of thinking is crystallizing around us and within us, and that we can face the future meaningfully only to the extend to which we participate in that new memory form. To the extend to which we are still thinking in traditional ways, we cannot face the future, because there is none