

Date of Interview: July 13, 1979

Occupation: College teacher

INTERVIEWER: When did you first hear about the Three Mile Island incident?

NARRATOR: Committee meeting of academic freedom and tenure.

INT: And when was that? Do you remember the day?

NAR: Um... no, I do not. It would certainly have been very early because it was not generally in the newspapers before there was general media exposure of it, before the Sentinel.

INT: Who in the meeting brought that up, was it?

NAR: One of the people from... I'm trying to think... Somebody from Old West came over and told us.

INT: One of the administration?

NAR: One of the administration, yeah.

INT: Did you think the... did you know that the reactor was even there before that time?

NAR: Yes.

INT: You did. Did you know how far TMI is from us at that time?

NAR: At that time, I suppose I would have thought about 14 to 15 miles.

INT: And what do you think now?

NAR: Now I think it's 20.

INT: Okay. What did you think or talk about at that point, when you first heard about it?

NAR: The first things we discussed in the committee was... well it had nothing to do with our particular committee, but a number of people there were involved in other responsible positions, was what the college's position should be.

INT: What was the decision made at that point?

NAR: Well, one thing the committee had no responsibility through this... The committee wanted the actual danger ascertained, and, then, action in terms of student evacuation, plans to be put forward.

INT: From what actually developed later on then, to find out what happened?

NAR: Yes.

INT: Did you feel it was a serious situation at that point?

NAR: We could not tell, nor could anyone else.

INT: Did you seek out further information personally, at that time?

NAR: I had no responsibility for these things, so that I simply then consulted the media, all kinds, televisions, radio, and the newspaper. Tried to keep abreast of what was happening.

INT: But not in a formal capacity?

NAR: I had no official capacity. My two committees didn't have direct responsibility. It just so happened that since we were in committee we started to discuss this, although we had no – at least, as a committee, we had no responsibility for the college and its safety.

INT: So you talked with co-workers, did you also talk with friends or family about it at that time?

NAR: My wife called and advised me that there was going to be a early school dismissal and wanted to know what my opinion was on the situation, there was possibility of a family evacuation... And I said we should get more information, as far as I knew at the moment, there was not an immediate danger, there was nothing I'd heard that indicated there was one.

INT: So you didn't think it was a crisis at that point?

NAR: Depends on how you'd define a crisis. Crisis to my mind is a point at which necessity for action was clear, so in that sense there was no crisis.

INT: Did your attitude change, later on?

NAR: No, it did not change, I remained alert and apprehensive listening to the information as it came through, considered wind pattern, and the nature of – what the radiation would take, which apparently was going to be a large cloud of steam. At that time the prevailing wind of pattern was away from us heading for Jersey and so the weather forecasts, there was no indication that pattern would change. And also it

appeared that the rate of change within the reactor was one which would allow you some warning time.

INT: Some leeway, you might...

NAR: Yes. So that as far as... And then I did not change that opinion, during the time that we experienced the situation.

NAR: Did you follow, you said the newspapers and the radio and the TV reports, can you remember any particular sources that you paid attention to?

INT: Well let's see... I listened to what the college people had to say, the Laws and Luetchzelswab, and that was reassuring, we were picking up no indication of extensive radiation in our area. Also I listened to the published reports on radiation. Tried to evaluate the contradictions between the various sources. My point of view when a disaster is possible but uncertain, the responsible agencies will try to play it down and the media will try to play it up. And so arriving at truth is not easy, so I was trying to balance the two sources and come to what I thought was a reasonable conclusion.

INT: Did you pay more attention to news then, just the media in general during this time?

NAR: Oh yes, yeah, I think everyone does at anytime when there are events taking place which will possibly influence them. For instance, as tangent, I think people now read the columns on the gas situation in much greater frequencies then because it affects themselves, what's it going to be like tomorrow, you can read what it's like in Virginia, you might even be going to travel there. So that I think at anytime when your immediate situation is affected you...

INT: The news becomes particularly important, yeah.

FG: ...You become sensitive and seek out news. I hope so, such is psychological theory.

INT: [laughs] How did you feel about the media's handling of the situation? Do you think they overplayed it?

NAR: Um... I think the media are always in the business of sensationalism, and I think its one of the prices you pay for free press. The price of free press is yellow journalism. I don't see any way out.

INT: So they did blow it up to some extent?

NAR: Yes, but I don't see this was something which was special, that was out of the ordinary. The media will always do this.

INT: How did you feel about the government officials' handling of it?

NAR: I did not get enough information on that. You know, I have seen nothing where any government official has been charged either by the media or by the Justice Department with any kind of misbehavior in the situation so I can only assume that in general it was handled properly. I don't know anything to the contrary.

INT: How did you feel about the industry's – Met Ed's, um, Metropolitan Edison's handling of the incident?

NAR: Well, again... they did simply what I would presume that they would do, which is tried to indicate that very little had gone wrong, and particularly they want to, well they've got two objectives: One is to say nothing, which would imply any responsibility because of course they can be sued, and the other is to, as much as possible, try to preserve their public image because they do have to enter, particularly as a utility, the political situation. I did not think they did that as well as they should have, I would say that. I thought that too many times, at least they were quoted in what sounded like fairly arrogant and belligerent statements, which is bad business, it should not have occurred. I don't know whether the press was picking these out, or whether they simply were not well enough briefed by their own public relations group, or do they have a public relations group... It was not well done.

INT: Was there anyone that you found particularly reliable, or anyone whose word you trusted more during the incident? To give you the information that...

NAR: The thing I thought was most trustworthy in terms of straight factual information were the published reading of the Geiger counts. Those I thought were not likely to be distorted, and those I thought were the – was the most reliable source of information. As to what was going on inside, the reactor, it seemed to me that, in terms of the number of aspects of it, no one knew.

INT: Yeah. So no one could really be reliable, or undermine what you...

NAR: No, there was no source of information, apparently, they did not have the instrumentation necessary to decide certain questions.

INT: Was there anyone you particularly mistrusted?

NAR: Well, I thought for each of the major parties who had a... how should I say, a public relations or political objective that you must read through this. The government does not want there to be a panic, which can create problems, unless it's absolutely necessary, and mass evacuation would create a great many problems. For one thing... Well, one thing that did concern me – I don't know if it's in your questions anywhere – was that if there was large-scale evacuation, the vandalism and looting was going to be extraordinary. So in terms of a decision to leave the area, I considered those two things to be balanced off, on one hand I was not certain exactly as to, well, at the moment I did

not see we were in a crisis situation that might come if there was some type of change. I was absolutely certain that if large numbers of people had left the area, you're going to lose your homes. Or, you're certainly going to lose a lot. As a matter of fact, because I really didn't quite finish that... Balancing out various factors there, it seems to me, well as a psychologist thinking in terms of people, the federal government was what I started on, will not tell you everything unless they have to because they wish to avoid panic. In other words, if they see a possibility, rather than actuality, they will play a play, they will not tell you about it. Because they wish to put off a mass evacuation as long as possible. The media wish pure sensationalism, anything which will excite and when exciting emotion occurs, I don't think they care, anxiety, anger, self-righteousness. Peeking over the shoulder the shoulder of almost any kind is what I expect the media to do. Fortunately, that while doing all those things it usually comes up with some useful information, but you have got to filter them. The utility wishes to avoid responsibility probably because of legal suits and also to, if possible, preserve a public image. The public, to least a large percentage of it, if a mass panic occurred, because the other thing to consider... is not to be trusted. We've found in, recently, hurricane disasters and so on, people looting bodies in aircraft disasters and so on. So, these are things I considered in terms of different groups of individuals that I thought were influential in the situation.

INT: Very good. Did you feel that those in charge were in control of the situation?

NAR: I don't think you can judge that except after the fact. Simply because the appearance of control, and actual control are not the same thing. What you have to do is after the fact, look at what occurred, and try to judge whether certain people were influential in this. And that would take... I'm not in a position to do that. I presume that the various reports in Washington will come out with a reasonably solid decision as to – I presume they are going to be going through, they are going to consider each person's responsibility, get a large amount of testimony, and this thing will be published. I don't see how anyone could say anything here without thoroughly going into it the way the commissions will go into it.

INT: Do you think they are in control now, do you feel safe?

NAR: Is the government in control.[both laugh] Okay, I would say, to go back to my original question, or my original statement there, I do not think you can assess government control, either locally or nationally, except as a historian, simply because too many seemingly stable times have been shown to have led to disaster. Certainly Coolidge's administration, you'd have said Silent Cal was in beautiful control. Maybe in some ways he was, but historians have read back to indicate that there were various factors building toward the problems of 1929 which he did not control. And so I do not feel these questions can be answered except on a historical basis.

INT: You put those in charge as the government, do you feel that those were the people in...I'm talking about I guess... the plant, were the people in control in the plant, were the people who were actually trying to cool down the reactor or were actually trying to fix the plant, were they...?

NAR: Again that will have to be determined by information.

INT: Okay. Were you worried about the situation?

NAR: Um, anytime there is an imminent threat, I think yes, you have to be worried, of course.

INT: What worried you the most?

NAR: Well, there were two worries. The two together made a third. One worry was the threat of vandalism if withdrawal was necessary. The other was the threat of the actual cloud of radiation which could be released in a meltdown. If all factors as far as our particular situation in Carlisle were concerned broke the wrong way, which means a heavy cloud release. The unusual factors, not among the things I considered, it would have taken the wind in the southeast to come our direction. That's an unusual wind in our area. It's not something which wasn't blowing that day, that is unusual. So we would had to have that too. So we'd have to have the southeast wind plus the meltdown occurring about the same time, blowing there in order to have the radiation coming in this direction, at least 20 miles. And so that was the other consideration, and of course you have an additional source of anxiety of trying to weigh between two unpleasant situations. To evacuate is one thing, to not evacuate and to keep going through the risk is of course something else.

INT: Did you make any plans different from what you ordinarily would have during that time?

NAR: Well, do you mean in the sense that I was thinking about what to do in case there was a actual crisis decision, which of course is extraordinary, or do you mean if the plan itself was extraordinary?

INT: Well, did you plan to leave, did you make any plans to leave? Or did you make any plans if you felt you needed to evacuate at any time?

NAR: The only plans I made were to consider the terrain involved in an evacuation. One, in terms of going east. The problem of the small number of bridges that are going to create roadblocks, plus the fact that you, at least in part, are moving toward the reactor itself. And secondly, considering the mountain terrain and the effect that the up drafts have there on any current which is, say, loaded with radioactive moisture particles. So that in my point of view the general thing that would be best, particularly if you had a short term possibility of a couple of days, was to move north and a bit west, so Perry County or Juniata County would seem correct to me. If you want to radio it along. In fact that was my view. It was impossible to plan perhaps long term here. It would not be very easy to go far, particularly when as far as we were concerned our family is all east of here. And considering the limited number of bridges that cross the Susquehanna, that it would be much better to go north if we had to go around, then it is easier to cross farther

north. That's as far as I went. My family also considered what valuables should be taken if we went and what would be necessary, for instance to sleep in the station wagon, how much food, and a small supply of money and so on, and go from there.

INT: What valuables were you thinking of taking?

NAR: That part we really never got down too. That was unresolved. We're collectors so there are a number of things we are fond of. And a few of those were suggested powerfully by the children. My own thought was, well, we can see what you can fit in at the last moment. The main push was to have something for sleeping, money, and some food.

INT: What did you think about leaving the area?

NAR: You'll have to rephrase that.

INT: Well, did you...

NAR: Do you mean the sense of the vandalism problem?

INT: Would you have felt safer, was it a decision that you were coming on the edge of going and saying, well I wish I would make a decision one way or the other or, I wish I would get out of here but just the vandalism is keeping me here, or... did you want to leave?

NAR: No, at no point did I feel that we had come to that problem and at one point I agreed with, or I thought I agreed with what the... some of the, I guess it was the governmental spokesmen were saying, that the longer the situation continues, despite the fact that there is a hydrogen bubble there, the less likely there was that something really would happen. My general feeling is, I mean, you're always trying to weigh technology against natural forces, that this tends to be true. As a danger continues it becomes less dangerous. It's the sudden onset, is the really dangerous part, as danger continues and forces are brought to bear on it, then you have, I think, less of a problem. I feel for instance the same way about political and economic problems. In other words, so for instance in this gas crisis, to suddenly have the nation without gas in my mind could precipitate a revolution. For this to gradually wax and wane over a series of years, will mean gradual adjustment to it, many changes. But at least the crisis type of decision where there's political overthrow will become less likely. So I would view that in the same way. In other words, I was reassured as more and more hours continued without a major change in the reported situation.

INT: Is there someone in your life that you were watching in order to make the decision, say a physics professor here or a neighbor that you valued his judgment?

NAR: Young lady, I was only watching two things; Geiger counters and the media. Beyond that, no.

INT: Did you have any mental pictures of what was happening at TMI? Or even what might happen?

NAR: Well, we were all given within a few days a diagram of the reactor and what the problem was, where the hydrogen bubble existed, and the nature of the cooling tanks and pipes where the blockage was and what they were trying to do in terms of bringing more water in for cooling. So, yeah, we had that as a picture which was really supplied by the media. I presume was accurate. And other than that I suppose I had a, because I sympathized with the people there trying to make the decision, I had some thoughts of people who were doing more or less the same thing I was. Only closer to it trying to evaluate what was going on without having adequate information, applying various remedies which theoretically should work but had not been absolutely tested under these conditions. So, I had some images of sympathy with the people who were in charge.

INT: Do you think that anything that happened at TMI might have affected your health?

NAR: As far as I can tell, no.

INT: How about in the future?

NAR: I think with respect to other changes which are going to occur, for instance the increasing pollution in the air, this would be far more serious. In other words, I think the amount of atomic radiation, there are so many things that can be dangerous to one's health, particularly as sources of cancer. But I think what will occur in terms of increasing pollution as we try to fight both the energy problems is going to be far more serious than any increased radiation.

INT: What other aspects of your life might have been affected by this?

NAR: Again, that one I don't think I can answer, I mean, it's something that happened. It's too complex a situation to speculate on. If the situation had exactly occurred, just chance might have involved one or more of us in very powerful personal ways. But there are so many different things that could occur that I can't really speculate things.

INT: If the worst had occurred, what do you think might have happened? What is your picture of the worst?

NAR: Actually my anticipation of this was a... meltdown, a large cloud of gas, or water vapor really as the gas, producing some radiation over at Carlisle. Probably not tremendously intensive. And then moving on a corridor, roughly going to the southeast, say, passing somewhat below – over Lancaster, somewhat below Philadelphia, and then on over southern New Jersey.

INT: How do you think that might have affected your health? Do you think that would have been worse, the radiation from that, or...?

NAR: Again it's hard to, I have not sat down to go over all of the various sources. My opinion was that you are increasing a probability of medical effects. That's one of the difficulties of radiation among pollution and other things, is that you are not talking about something that occurs immediately, like an arm dropping off or running a high temperature or... We're talking about effects that take place over a series of years and which other factors are involved. So my feeling was that there was a risk there. The risk, well, the risk was not immediate. The probability was higher than one would like but not absolute certainty.

INT: Did you have any concern about the food or the milk from this area?

NAR: No, simply because at no point in the surrounding area, is as far as we're getting regular media reports, was there any indication of any increase.

INT: Of radiation?

NAR: Yeah. Also, I would have presumed that the political sensitivity of the issue, that the federal monitoring agencies would be particularly sensitive on the produce from our area. At that point we had to trust the government simply because they thought their political hides were in it and then I think they become trustworthy.

INT: Did you picture in your mind any effects of radiation on life around you?

NAR: No, I don't have that kind of bio-chemical mind. I suppose if I were a biochemist I could do this more at ease, see changes in molecular structure, but I don't have a very good picture in my head at that point of those structures. So that I would have had to had clay imagery for this.

INT: Did you think of your own death?

NAR: Not more than any other time.

INT: How about that of others?

NAR: No.

INT: Did you think you would survive?

NAR: I would say with all this that the probability is to survive, in other words, if you're talking about probabilities, well it's like the probability of getting hit by that piece of Skylab, you can say for any one individual the odds are 600 billion to one. Now, if you are the one that's hit, that, however, is not reassuring. So all you're talking about in life is odds. You could start out for instance to escape the possibilities here and step right into that fine short story of Malm's, "The Appointment of Samira", and get yourself killed, in an auto collision, one block from your house. And my view of life is that

you're always working against the odds; the odds were a bit higher, a little bit increase of anxiety, but I saw no certainty of disaster and there was always a balance of other factors as well.

INT: Did you think about God during the incident?

NAR: Not particularly, I tend to be a deist in those matters. I don't think he'd be either intervening to smite us all dead, nor that he is going to come in to save us from disaster.

INT: Did you feel that you had certain responsibilities during the incident, say toward your family or your job?

NAR: Of course. I thought there were two responsibilities at least that I had. I had no official community capacity, so I had nothing that I felt I had to do there. I had the responsibility to the family, and if the faculty had been asked, I would have had to enter into the deliberations with the faculty. Faculty was not asked, so that particular responsibility was never given us.

INT: Did you feel that any of those responsibilities seemed to conflict? Or could they have conflicted, say toward your family or staying here at Dickinson to confer with the other faculty members and the administration?

NAR: I couldn't imagine how they would conflict, simply because I was not in a position of responsibility that despite the fact of a very strong disaster, I've got to stay at Dickinson to try to be like the captain of the ship, I've got to stay here even though it's sinking. My next door neighbor, President Banks, might have had to consider that, but I did not have that kind of authority.

INT: Was your job or work affected by TMI?

NAR: Yeah, it was *[unintelligible; JG laughs]*. Sure was.

INT: Did you have things to do that you otherwise would not have had to do?

NAR: No.

INT: Did you have ideas about how it would be best to behave in such a situation, ethical, or moral?

NAR: My idea was to use your head. I don't think of it ethically and morally, I hope ethics and morals will govern anyone's decisions... But in a situation like this, in my point of view the best thing to do is to evaluate the situation, both in the sense of people and in the sense of physical conditions as clearly as possible. I, of course, being a psychologist, spent more time thinking about the people involved in the situation, I suppose than people who don't have that background.

INT: Did you try to behave with a calm manner?

NAR: It depends on what you mean by try. I think I did. I didn't have the feeling of trying to put down panic at any moment, in other words, that sense of trying, feeling panic and going to lose autonomy.

INT: At the time, did this event bring to mind any past experiences or past events?

NAR: The only ones I can recall are, which would have been past events... would be hurricanes. I was going to say, one time I was at the Shore when it blew up pretty strong, I don't think it was at the point where anybody really said, a hurricane's coming, although we got a pretty strong tide. I don't remember at any point there, although we didn't evacuate the island I had had to, my mother lives right, a few miles – well, a few miles, a few *blocks* from the beach in Ocean City, New Jersey, and when the big storms come in she'll call me and want my opinions, I do it secondhand, in other words I've had to evaluate hurricane situations for her, and what does the news say and how much are they blowing it up, do you really have to leave. Rarely does she take my advice, by the way, she usually being more panicky and more believing in the media, packs up and goes anyway.

INT: But she calls you first before she does it?

NAR: Yeah, she wants to know all about it, but she might as well go herself, is the way I've looked at it. But she'll pack up and go out to a motel. We have always advised her not to, the house has been there since 1910 and it is somewhat elevated, went through the '63 hurricane and has *never* had water even up to the doorstep in all that time, so we don't get too excited. Nevertheless, each time you have to figure that water will run across, will fire back but you can get to figure the probabilities. If you know the tides, the winds, with the pattern the hurricane is, particularly if you know the tides, because those islands get overrun as the high tide hits, you also should know where the moon is. In other words I would say the same kind of thinking as we normally do here. That's the only previous work I've done, as I said it was all done second hand. I wasn't there. Figure it out from my mother.

INT: Did you see this incident as similar to anything else in your life, you say the hurricanes... How about in history, was it similar to anything else?

NAR: Well I think in both the large and small scales you have always had this sort of thing. The small scale, for instance, is the *[unintelligible]* forest fire, which we don't often have around here but in Californians have had to look at. What happens when a fire comes, can you stay in your home, and what happens and so on. So I think on a small scale, fire, and of course on the large scale, war, when you flee. Particularly if you're a target, like a Jew. If you misjudge, you're dead. On the other hand, you can lose almost everything you have in leaving, so I think certainly that the Second World War in Europe offered this kind of choice to great numbers of people, specifically European Jews. The same kind of decisions to make.

INT: Was this incident more or less frightening than, say, a flood or a hurricane or a war?

NAR: I would say probably less... or, I don't know of anyone – to me it was, simply because we were not facing a hydrogen explosion, which would have cause instant death. We were facing an exposure to radiation whose effects would be long term. Whereas in war, hurricane, fire, here again the threat is immediate death, dismemberment or something similar.

INT: Did any TV shows or movies come to mind?

NAR: Well, the media told us all about *The China Syndrome*, so they brought it to mind, but nothing other than that.

INT: How about any books or stories?

NAR: No, I don't read that type of fiction ordinarily, so that I had read or seen nothing. Oh I would not say, I wouldn't say it's even similar, I did go out with the neighbors a couple years back, and we saw one of those airport crash films. But my memory of how it was played, you did not get this particular feeling. It was an adventure story, in which we were interested in the rules that people are making, and the individuality of their reactions. There is no attempt to create the subjective position, kind of stream-of-consciousness thing, which my mind would really bring this about.

INT: Did you find yourself singing any songs? Some have said that they change words around or used old Bob Dylan songs, or...

NAR: Not particularly. My own thought there would be that would be more likely for someone who is young between 1965 and 1975. You have to be a member of the younger generation to swing into song when you think things are going bad, I mean, I'm talking in general sense, *[unintelligible]*. I think that's too bad. **[END OF SIDE A]** I think it is good in many ways, for people to resort to song when they are in times of trouble, and my feeling is the country for the most part has lost that capacity steadily for quite a variety of reasons. And I think it resides in some ethnic groups and perhaps some religious groups where singing is emphasized. And it was, I thought, typical of people who were young, sensitive, and politically active between 1965-1975. In other words, a Dickinson student 1970, I would expect to break into song. Students now, no. Beyond that generation.

INT: At the time did you have any day-dreams that you remember?

NAR: No.

INT: How about sleeping dreams?

NAR: No.

INT: Have you had any since, of either of those?

NAR: No.

INT: Was your sleep disturbed in any way?

NAR: No.

INT: What changes happened to the people around you during the incident? I feel silly asking a psychologist. *[Both laugh]*

NAR: Um, no permanent changes, there was as I say, momentary anxiety of anticipation which influenced all of us. In fact, that was one of my feelings at the time, that people in general's memory of even real disaster, let alone impossible disaster, is very short. So that I don't, I know they felt, but they didn't expect, in their debate, long-term problems [?]. The public right I think right now is far more concerned about five cars ahead in the gas line than they are about TMI.

INT: Oh, you answered one of my questions there. What jokes did you hear about radiation or Three Mile Island, or did you hear any?

NAR: All I can say is I can remember being told one or two but since my memory of the jokes is zero, I can't tell you what they were. I'm sorry.

INT: Well let's see, when did you first hear the joke, do you remember? About what time it was during the incident?

NAR: Well, it must have been about three or four days, it takes a little while before wits begin to tone up the jokes around, make a few switches, before it comes out to be a TMI joke.

INT: Who first told it to you, do you remember?

NAR: Neighbors. I can remember, let's say, and this would be a little late, it might be of some interest to you, my neighbor, let's see, it would have been, June, I can put this one down pretty accurately, June fifteenth, which would have been a little later, related that he told his brother in Washington a TMI joke, which they did not understand at all. At least he had told one. So there was a person who told one, and still telling one, about three months later.

INT: If it was meant to be funny, did you laugh at the time?

NAR: Yep. I would say that laughter belongs with music. It is one of the things which is effective in relieving problems, anxiety, and tension.

INT: Did you tell any yourself?

NAR: No... if I can't remember 'em, how can I tell 'em?

INT: Why do you think there was so much joking going on?

NAR: Well, I have sort of answered that. In my mind laughter and music are tow great human resources for relieving anxiety, and depression. Or *the* two great, I mean, we could even pump it a little further.

INT: What joking do you remember from other crises, I've got a little list here, Pearl Harbor, or the Kennedy assassinations, or invasion of Cambodia, Jonestown, Guyana?

NAR: Well, the only association I have there, I don't remember any because I don't remember jokes in general. The only association I have there in terms of the question is that it's struck me that there were and would be no jokes about the assassination of a national figure. You can joke about everything else but you cannot joke about the death of an individual. So, if you correct the list. You don't joke about the death of a specific individual.

INT: Did you see any posters or graffiti?

NAR: No.

INT: Did you hear any new words or funny remarks?

NAR: All that sort of thing, I'm afraid I'm [*unintelligible*]. I have a lousy memory for details.

INT: Have you developed an opinion about nuclear energy?

NAR: No, again it seems to me that it's a form of energy which one might prefer not to use if there were reasonable alternatives for this particular civilization. Since that issue is no longer clear, I don't feel that a solid opinion can be put here. In other words you can start to compare with other types of social and physical problems. This does not seem to me that there is going to be any easy, positive solution. There are going to be prices paid as to figuring out exactly what the balance is on the various crises, and it's going to take awhile. Before, and even then, it'll be a guess, when you're talking about what you're going to pay in the future. You usually pay more than you figure you're going to.

INT: It's not clear cut either way.

NAR: No, you make a guess.

INT: Is there anything else you want to say about all of this?

NAR: No, but I hate to think of the person who's going to cut it. If they're all this extensive.

INT: Oh, well, many of them are much more extensive.

NAR: The coding is just going to be kind of awful. [?]

INT: Yeah, I do it every day. *[Both laugh]*

NAR: Hey, it's you and not me. *[Both laugh]* So, that's all, you have my deep sympathy.