

AL 118

Interviewee: E. Dwight Adams

Interviewer: Lois Randolph

Date: April 19, 1989

R: This is Lois Randolph. Today is April 19, 1989, and I am interviewing Professor [E.] Dwight Adams in his office at the physics building on the campus of the University of Florida in Gainesville.

Professor E. Dwight Adams is a native of Georgia. He received his M.S. in physics at Emory University and his Ph.D. in physics from Duke in 1960. He has been on the faculty at UF since 1962 and became professor of physics in 1970. Professor Adams has been a visiting physicist at Brookhaven National Laboratory and a visiting professor at Helsinki University. In 1972 he was elected a fellow of the American Physical Society. Professor Adams is the author of seventy-five refereed scientific papers and the co-editor of two books [*International Symposium on Quantum Fluids and Solids and Quantum Fluids and Solids – 1983, Sanibel Island, Florida*]. He has been an invited contributor for the *Encyclopedia of Science and Technology* and has served on the editorial board of the *Review of Scientific Instruments*. In 1978 he received the Jesse W. Beams Medal for distinguished research awarded by the American Physical Society, and in 1986 Professor Adams was the recipient of the Outstanding Florida Scientist Medal of the Florida Academy of Sciences.

Professor Adams has been awarded over \$1 million dollars in grant funds since 1977 for projects in which he has been the sole principal investigator. He is the co-recipient of \$1.3 million in funds from the National Science Foundation for construction at UF of one of the only two laboratories in the United States for the study of the properties of matter at ultra-low temperatures. He has invented a sensitive pressure gauge that has come into wide use in low-temperature physics research. Professor Adams is considered to be one of the leading experimentalists in the world in the field of Low Temperature Physics.

Professor Adams, could you tell me a little about your background, where and when you were born?

A: I grew up in north Georgia. I was born in 1933 in rural north Georgia, so I have a background that is not exactly typical for people in academic circles.

R: What kinds of things interested you in your childhood? What things did you like to do?

A: Well, as I said already, I grew up in rural north Georgia on a farm, so I guess for a person living on a farm I had a fair amount of contact with nature. At that time, of course, I was not aware of all the degradation that was taking place in nature.

My current interests there were fairly recently acquired; at least the level of activity is one that has occurred over the last few years.

R: What about your educational background?

A: Well, growing up in a sparsely populated rural area of north Georgia at the tail end of the Depression, I went to public schools that certainly were not very good by today's standards. I went to a high school that had, I think, only six teachers altogether in the high school and about 120 students. There were about thirty in my graduating class. I went from there to Berry College [in Mount Berry, GA], then to Emory University, and finally to Duke University for my Ph.D. I came to Florida shortly after that.

R: When you came to Florida, did you come directly to Gainesville?

A: Yes. Actually, after leaving Duke I was at Stanford University [in Stanford, CA] for about a year and a half as post doctoral associate. I came directly from there to the University of Florida as an assistant professor. That was in 1962.

R: What were your first impressions of the city of Gainesville when you came here?

A: Well, I thought of it as an attractive place to live. There were lots of trees, lots of interesting things around nearby and things to do. One of the things that was attractive about Gainesville to me was that it was a small town. Again, as I said, I had grown up in rural north Georgia. I had lived in or near some large cities and knew that I did not want to live in a large city. I deliberately sought employment back in the Southeast because that is where my roots were, and I wanted to make a contribution to the Southeast. So I deliberately picked the Southeast, and I guess Florida is a likely place over some of the other southeastern states that did not seem to offer much in the education field.

R: Do you see a great change in the city of Gainesville compared to when you first moved here?

A: Certainly there have been some very substantial changes. For one, the number of people in the area has more than doubled during that period, so all the things that go along with that have increased, such as traffic and shopping centers. At that time, none of the shopping centers that have contributed to the decay of downtown Gainesville existed.

One of the things that we saw immediately upon coming is there were essentially no apartments at that time. Finding a rental apartment in which to live was a challenge. There were practically no apartments, so that has been a very major change.

Of course, the physical size of the community has changed enormously. At that time I do not think there was much urban sprawl as you went out of the city limits of Gainesville. Of course, the urbanized area extended beyond the city limits then, but there was fairly abrupt change from urban development to rural Florida, where the population was very sparse. Now we have urban sprawl that goes many miles beyond the city limits in most directions, but particularly to the west. So that is one of the major changes, I would say. There has been an enormous amount of urban sprawl development during the time since I came.

R: When you first came to the University of Florida, were you involved in environmental issues?

A: To some extent, but not very much. I remember one major involvement fairly soon after I came. Is there was some zoning issue where in a neighborhood adjacent to single-family homes there was a project approved for apartments. There were supposed to be some buffers between them, but as soon as the approval was gotten, the project was, I think, sold to another developer, and the restriction that had been in effect concerning the buffer when the zoning was approved was no longer applied to the new developer.

R: Do you remember the name of that project and the name of the developer?

A: No, I do not. One other project along those lines was actually in a neighborhood very near me, where there is an extensive number of apartments now, at the intersection of SW 34th Street and Newberry Road. There was no development in that area at the time, and shortly after I came there was approval by the city to put in apartments in that area. I circulated a petition extensively in the neighborhoods around there to oppose that. I guess that was one of my first involvements.

I think it was in 1965 that I was involved in the campaign of Sidney Knight, who ran for city commission then and is still quite active in community affairs. I served as his campaign treasurer. After that, I was not very much involved in community affairs because I was devoting immense amount of time in getting a laboratory set up here at the University to do research. If you are working sixty or eighty hours a week in research, you do not have much time for that kind of activity.

R: When you say you were not involved immediately after that, when did you become involved again, would you say? When did your involvement begin again?

A: Well, I can trace that to the period when James Watt was Secretary of the

Interior [during President Ronald Reagan's administration]. The Sierra Club, to which I did not belong then, was an organization that was collecting signatures to try to get James Watt ousted as Secretary of Interior. I saw this petition that they were circulating, and there was also a place on it for you to check if you wanted to become a member. I checked that, so I became a member of the Sierra Club about six years ago. I fairly quickly then got heavily involved in activities of that sort, and that has continued since then.

R: You were president of the Sierra Club, were you not?

A: I was chairman of the local group for two years. It was two years ago when I ended my two-year term as chairman.

R: You were an active participant on the task force report on recreation and conservation of land in Alachua County, were you not?

A: Yes, I was a member of that. I was appointed by the Gainesville City Commission and was quite active. This fifteen-member task force produced a report that actually had three alternatives. I think there was a total of four people who said there should not be any of the ideas of a green belt considered by the county. There were eleven who said yes, there should be a green belt. We had two alternatives that were fairly similar. There were seven of us who wrote what we called Alternative One. I was quite active in putting together the recommendations in that report.

R: Why were you picked to be on this task force?

A: Well, the procedure in picking the fifteen members was that the city commission picked seven members, the county commission picked seven, and the Alachua County League of Cities appointed one. The process that was used by each commission was to advertise that these positions were available. Anyone who is interested was to fill out an application. Then I went down to a city commission meeting where the appointments took place. I applied and was appointed by the city commission.

R: Why did you apply? You said you were not involved in environmental issues for a while, but then you became involved again when you joined Sierra Club and became active in that. But this is another step from the Sierra Club to actually getting involved in city and county policies.

A: One of the things you find out fairly quickly once you get involved in these is that if you want to have any influence, you need to get as close as you can to the decision-making process. If there are boards appointed by various governmental agencies where you have a chance to make input on a report, then people who

are active in environmental issues have to be willing to serve on those boards. I guess the ideal situation if you have the time is to actually be on the final end of this where the decision is made on say on a city or county commission, or in the state legislature or wherever. That, of course, takes a much greater time commitment to try to be in the position to actually make a decision yourself. You have to be willing to serve on various advisory boards if you expect to have as much influence as you would like in the decision-making process.

R: What kind of an effect do you think you have had on that decision-making process, based on that report?

A: Well, based on that particular report, I do not think we can cite very much in the way of success, although I think two or three of the recommendations that we made have actually taken place. One in particular was in Alternative One, we looked at the question of urban services. This is a crucial factor in determining where growth occurs, and we recommended that there be an urban services boundary. We do not have that yet. We also recommended that the city of Gainesville add a twenty-five percent surcharge for sewer rates to users outside the city limits, and that has been done. So that is one of the recommendations.

We also looked extensively at the question of funding for parks and green space and environmentally sensitive lands. One of our recommendations was that there be either a part of the one-cent local option sales tax devoted to that or a bond issue for that. Alachua County and the city of Gainesville were currently considering provisions for funding, and I think there is a strong possibility that there might be a referendum again for a half-cent local option sales tax. There is an area where one of the recommendations that we looked at might come to fruition over the next several months.

Actually, at the state level, they are now looking at urban boundaries as a way of controlling urban sprawl. If that is not enacted by the Alachua County Commission, I think there is a strong chance that it will be imposed at the state level. There is legislation being introduced in this session of the legislature to require urban boundaries.

R: There seems to be something called the growth/no-growth controversy in Alachua County and in the city of Gainesville, and yours is a name that is associated with that. I have heard you called an environmentalist. How would you define what they mean by calling you an environmentalist?

A: Well, I was speaking with some others at a Marion County Chamber of Commerce function recently, and on that program I was billed as an environmentalist. To start it off, I said I had heard an environmentalist defined as anyone who drinks the water or breathes the air. If that is a valid definition, then we all are. But I would say an environmentalist is anyone who has a strong

concern for the environment, and I certainly accept that label gladly and consider it an honor to be called an environmentalist.

R: This controversy seems to be dichotomizing: the developers are on one side, and what they call the environmentalists are on the other. The developers have been put on the growth side and the environmentalists on the no-growth side. How do you see that configuration?

A: Well, I do not believe that labeling the controversy as growth vs. no-growth is correct. I would say the developers are certainly promoting growth. I think the environmentalists are not advocating no-growth. It is a question of whether it is well-planned growth that does not adversely affect the environment vs. ill-conceived growth that has no regard for the environment. So labeling it growth vs. no-growth, in my view, is quite incorrect. I think probably the no-growth label is used deliberately by growth promoters to try to cast environmentalists in a bad light.

R: Why would they want to do that? What would be their interest?

A: Well, if you can discredit the arguments of your opponents in some way, then that helps you win yours. So if you can use labels that appear to make the other side unreasonable, then that in itself would help to promote your side of the controversy. I think that is an approach. To use a label that tends in itself to discredit the opponent maybe wins you some points. For example, in the presidential race, label an opponent a card-carrying member of the ACLU, and that in itself maybe will win you an enormous number of votes.

R: Have people tried to discredit you personally in any way? Have they turned any of this into a personal attack on you?

A: I would say the only example of that that came out in a very public way was what is called by those who are familiar with it the "Chambergate" controversy. Certainly in that tape [of the chamber of commerce meeting wherein the chamber president, John Schroepfer, claimed that the president of the University of Florida, Marshall Criser, had agreed to pressure environmentally active professors to cease obstructing economic development] it was clear that various members of the chamber of commerce at the time were taking that approach.

R: Why would they see you as a threat to them? Why would the chamber of commerce see you, Professor Dwight Adams, as a threat to what they are doing?

A: I think it is fair to say that I was the most-visible spokesperson in the environmental community at the time, and I must have been somewhat effective

or they would not have been concerned about me. So they saw me, I think, as a threat to some of their objectives.

R: Progress Center seems to have been, in some ways, very much a part of this whole controversy that was going on. You, of course, are a physicist, and supposedly Progress Center is going to be interested in the development of scientific exploration that is going to create the right kind of growth for this county and the city of Gainesville. How do you see Progress Center?

A: Well, as you pointed out, as a physicist, I would have an interest in seeing the kind of development proposed for Progress Center to take place because it would provide jobs for people in my field. Students who are getting degrees here might find employment there, so it is a desirable objective to see that kind of development.

On the other hand, the location that was chosen for Progress Center was totally inappropriate. It made no consideration of the environmental constraints of the site. Again, I think it comes back to the basic notion of looking at the site before you propose a development to see what kind of constraints there are and what kind of problems there might be, and take those into account before picking a site.

This was not done with the Progress Center. The land was there, it was zoned for industry, and the city of Alachua has lax development regulations. So from those standpoints perhaps it was a logical site to pick. But it happened to be incredibly environmentally sensitive. If you made a list of places in Alachua County that would be suitable for an industrial park of that sort, that would certainly be near the bottom of the list. It is in an area that drains about 4,000 acres. The creek that goes into the site terminates there in a sinkhole, and all the water that is flowing from this watershed enters the aquifer at this point. It is only about two miles upstream in the aquifer from the well fields of the city of Alachua. So it is the last place you would look for putting an industrial park.

R: Did the University ask you for your recommendation when they decided to select this site for the Progress Center?

A: No, they did not ask my recommendation. I have heard people at the UF Foundation say that they had an engineering study done and that the engineering study did not disclose any of these problems. But I have not seen any engineering report. I would assume if they had one done it certainly had to be extremely superficial. I think if you went to any qualified engineering firm and told them you wanted to find out about any environmental constraints, they would have gotten the information they needed. But they certainly did not use it if they did have it.

R: Have you spoken publicly about this? Have you made your views on the Progress Center known publicly?

A: Very much so, yes. Yes, the process [for approving] the Progress Center had to go through what was called a Development of Regional Impact Review, which means that the Regional Planning Council was involved in the process. They held a number of hearings, and I attended those. There was an immense amount of documents compiled on this, and I studied those and made input upon them. In fact, I think the final outcome of the Hazardous Materials Management Plan that was required as a result of the environmental sensitivity of the site reflects a lot of input that I made in the process.

R: How did the University react to your input?

A: Well, there was no visible reaction that I could see except through the chamber of commerce. The very day of one of the hearings there was a letter that I and two or three others had written that appeared in the *Gainesville Sun* on the chamber of commerce tape of the meeting, which we referred to as "Chambergate." In that tape, John Schroepfer [president of the Gainesville Chamber of Commerce] indicated that he had called the [University of Florida] president's office and spoken with Al Alsobrook [vice-president for University Relations] and said, "Hey, your boy has gone out on a limb again. Did you see the letter in the newspaper?" and further discussion along that line. In the tape, Schroepfer indicated that he had gotten a commitment from [University of Florida] President Criser that someone in the administration superior to the person who was speaking or writing would be called on to express a position that would try to counteract the person involved.

Whether this is a direct result of that, I cannot say, but at the very meeting that evening, there was a University vice-president there to speak for the University on it. At a subsequent meeting, about a month later, there was again a person in the administration from the University there to speak representing the University.

Again, I do not know whether those people appeared on their own free will or whether they were asked to do so by the administration. I think there is a high probability it is was the latter, that it was in fact a manifestation of what Schroepfer had said. He had gotten his commitment from Mr. Criser to carry on this kind of activity.

R: You have been labeled an environmentalist, and you happily accepted that label, Do you think that following from that you also have to see yourself as a "no-growth" person?

A: No. As I have already indicated, I do not see the no-growth label as correctly reflecting the position of environmentalists. Certainly as you look among the

public at large, you will probably find some people who would like to see very little or no growth occur, and some of them might be involved in environmental activities. Certainly not all people who are striving for environmental protection are doing it because they want to see no growth. So I do not think it is valid to label people who are advocating environmental protection as "no-growthers."

R: The developers always seem to say that what they are after is the kind of development that will give jobs to poor people. I think they suggest that it follows then that the no-growth environmentalists are in fact not interested in the majority of the people in the population, that they are interested in preserving a nice environment for themselves. How do you react to that?

A: I think it is another argument developed to support their position. If you look at the concerns of people in general, you will find – this is generalizing; certainly there are exceptions to it – that ones who are in business do not have the demonstrated concerns for the poor that ones who tend to be more liberal have. You can almost divide along party lines. They are more likely to be maybe members of the Republican Party that historically has had little concern for the poor. So the argument that they are putting forward about their concern about providing jobs for poor people, I think, again, is one they have developed as a way to support their position. They talk about low-paying jobs and underemployed people, and many of them are business people. Let them go out and raise the rates of their employees instead of opposing an increase in minimum wage. Let them show it in what they pay in wages to poor people.

R: How do you see development as not benefiting poor people? They say development does benefit poor people, but does it really benefit poor people? Does building at the periphery of the city benefit poor people?

A: I do not think you can demonstrate that development is improving the lot of poor people. If you look at the history of any area, say Gainesville and Alachua County, over the last twenty years, the population has doubled. What is the lot of poor people now versus what it was twenty years ago? I do not see that they have moved up the ladder that much. In fact, we have a larger number of people below the poverty level in the country now than we had twenty years ago, so you cannot make any case that development is going to improve the lot of poor people.

R: I guess I am thinking about some of the things you said about, for instance, the transportation problem as it relates to development, and the plight of poor people.

A: I will discuss that. This was referred to an article I had written in the newspaper. In fact, the kind of development you have can have quite an influence on the economic status of poor people. Urban sprawl development works to their

detriment because you do not have things like public transportation available. If they live five miles from employment, then they are most likely going to have to spend an hour or two in a bus system that is not very effective, or they will have to have their own automobile. If you have more compact development where a viable public transportation system exists, then with these kinds of public facilities available the poor people do not have to spend so much of their income on transportation or things of this sort, so they have more of what they earn available for the things in life that they would like to spend it on rather than on some of the basic necessities.

R: What are some of the other effects of urban sprawl? How does urban sprawl affect a city?

A: Well, we touched on this quite extensively in Alternative One of our task force report. There are quite a number of issues that we addressed there. One was availability of housing, which is one that will have an obvious effect on the environment. If you are developing at a very low density level, then obviously you are devoting much more of the available land to housing. That is one of the direct effects on the environment.

Another, again, is in the area of transportation. If you have low density development, then we rely almost entirely on the use of the private automobile. This consumes large quantities of gasoline, exhausts our petroleum, and produces large quantities of air pollution. We are hearing quite a bit now about the greenhouse effect. Carbon dioxide and other emissions from automobiles are major contributors to that. So there are immense environmental problems connected with it as well as those involved in the lives of the people.

R: I think you have also mentioned in your writing that decisions on a local level cannot really determine the kind of growth that is preferable for a community. Could you expand on that?

A: Again, I think perhaps you are referring to a couple of the things that I mentioned in the recent newspaper article. Alachua County has a comprehensive plan, and the city of Gainesville has one. Through these comprehensive plans and ordinances to implement them, they have the ability to control where growth occurs, its impact on the environment, and so on. But there are other factors beyond that, particularly in the transportation area. For example, if DOT [Florida's Department of Transportation] builds a beltway around the city of Gainesville, as they have proposed, then this beltway will attract urban development in that vicinity and will be a producer of urban sprawl. That is one of the areas where a state agency has a very big impact on growth patterns.

Another that I mentioned in the article is where schools are located. The Department of Education has just indicated that they plan to add several new schools. Three of them would be in the area of this proposed beltway, which is more than halfway between Gainesville and Newberry. It is closer to Newberry than it is to Gainesville. That would be another thing that would tend to attract growth to that area.

If local governments are going to be able to control where growth occurs, then there has to be some action at the state level, particularly in those areas of transportation, education, and possibly others. Wherever there is a state agency that has control over where the infrastructure goes, then that needs to be coordinated with local comprehensive plans so that these are not working against each other. If you locate the infrastructure far out into the county, then growth is going to follow.

R: That brings up the whole problem of protection of turf between the city of Gainesville and the county of Alachua, that sort of separation between the city commissioners and the county commissioners. Do you think it is really going to be possible, then, to have a comprehensive growth plan if you have that continual kind of, how should we put it, arguing back and forth [about] who has the authority?

A: Well, there was a bill passed in the legislature probably some ten years ago that in fact gave the city of Gainesville some authority in planning in the urban fringe area. They have never exercised that, but I think as long as the city limits are where they are now--and we have lots of development occurring outside the city limits of Gainesville in the unincorporated area -- this kind of problem is going to continue.

I would say that the best way to solve it would be to have an urban boundary that would limit growth to urbanized areas and have those areas annexed along with their development. Then the planning for urban development would be carried on by a government that has that responsibility. County governments, in my view, should not be in the business of planning urban development. Urban development should take place in urban areas that are under a city government that has been set up for that purpose.

R: Who is going to make the decisions about annexation? How are those decisions going to be made?

A: Well, as it stands now, there are two processes that are similar that involve a referendum of the people in the area. The city can decide to hold a referendum under general provisions for annexation. This would require a separate majority of residents in the area to be annexed and the current residents of the city. That has not been very effective because I think for some reason people who live

outside the city limits generally do not want to be annexed. I think it partly is a result of views of the county commission. I think the county commission should consider annexation a logical consequence of urban development of an area just outside the city.

The other way in which this could occur, which would almost certainly result in annexation, would be if the county commission agreed to put an annexation referendum on what is called a special act. That would require only one majority among the entire voting area of the area to be annexed and the current city. But so far the county commission has been unwilling to use that mechanism because, obviously, the majority on the county commission is interested in guarding their turf. They see annexation of urban fringe as undesirable. They want it to stay in the county, so they will not schedule a referendum under this act that would require only a single majority.

One possibility would be that there would be some change by the state legislature. One of the major annexations that took place in the early 1960s was the state legislature passed a local bill that was put through by the representatives at the time that did the annexation. That could occur again. Of course, you would have to have the legislative delegation seeing annexation as the proper way to solve a problem. If they agreed with that, they could perhaps get a local bill passed that would achieve the annexation by state legislature.

- R: You said that you were raised in a rural area. If you take this problem back far enough, the problem obviously rests with the fact that people somehow do not want to live in the city. They want to move out of the city. They want to move to the fringes of the city. Why do you think that is so?
- A: Well, I think there are lots of people who would like to live on, say, at least five acres of land and be no more than a five-, ten-, or fifteen-minute drive from their place of employment, maybe within bicycling distance. But the numbers just do not work out that way. There are only so many lots of five-acre size that can be within fifteen minutes of the city. And as you add more and more one-acre to five-acre lots, then the urban sprawl goes halfway to Newberry as it does now. Before you know it, instead of being in a rural area, the development has come out to meet you, so you are now living in an urbanized area. The reasons no longer exist for why you moved out in the first place – it is no longer rural. You have the urban sprawl, and all the other people who moved out there are also trying to get into the city at about the same time of day, creating traffic problems that are associated with it.
- R: How could we somehow make cities more desirable places to live so that people would not feel so claustrophobic, would not feel as if they just wanted to escape and get out to the country?

A: Well, I think making them more physically attractive and having lots of recreation facilities available, like parks and greenspace would help. There certainly are cities where this has been achieved, and to a large extent it is following some of the development standards that the "environmentalists" have advocated. So there are certainly ways to make a desirable city. You can cite any number of examples around the country. In our Greenbelt Report we mentioned some of those, so it is possible to do it. Davis, California, Boulder, Colorado – there are any number that can be mentioned whereby providing recreation facilities, parks and greenspace, attractive development, you make it a desirable place to live in.

I think we are in fact seeing some of that in Gainesville now. I think the redevelopment that is taking place in downtown Gainesville is making that a place where at least some substantial portion of the population might see it as desirable to live down there rather than ten miles out in the country where they have to spend a large amount of time driving in through traffic congestion every day.

R: So you see the development, then, that is taking place in downtown Gainesville as being – even though you are an environmentalist – a kind of positive development. In other words, you are not against development.

A: Yes, that is correct. You have to accommodate the people that want to live in an area. It is a question of at what density. Certainly if you are going to argue that urban sprawl is undesirable so you do not want low-density development taking place far from the city, the other side of that is there has to be higher density and a more compact way of urban development. So I would say certainly that what is going on in downtown Gainesville, where apartments put a number of people in that area, provided you had the recreational facilities available to them and it is done in an attractive way as is occurring there, can be quite a good way of providing housing for people so you do not have to do it in low-density urban sprawl.

R: I read recently in the *Gainesville Sun* that there is being proposed a sort of greenspace, almost a greenbelt concept, within the city of Gainesville.

A: Yes. This is a plan for a series of parks along some of the creeks in Gainesville. I guess part of it has involved the controversy around the Ring Park. The city has also recently acquired some additional land that is along the creeks in Gainesville. I think this is a natural area to have as park space. It is too bad that say twenty or thirty years ago, before some of the current development that exists along the creek took place, we did not have such a program that acquired the land for recreational use.

If we had had a program of this sort twenty or thirty years ago, before we had so much development along the creeks that put that property into public ownership of parks and recreation and greenspace, then we would not have some of the pollution of our creeks that we have now.

R: In other words, if people have a pleasant environment, if there is a greenspace that they can go to to get in touch with nature, to feel those very basic feelings of peace and tranquillity and quiet, they will not be perhaps so apt to want to move out of the city.

A: You will still find some who do not want to live in a more compact urban development, but certainly a larger number will choose that location for living than if you do not have that. If you do not have those facilities in a downtown urban area, then they are more likely to want to live out in the country where they can provide their own. You will still have some, of course, who want to be on their five acres at the edge of town.

R: Yes, always. There is one problem I see with the urban development, however. Usually this development takes place in such a way that low-income housing is either improved substantially or is demolished and new housing is put there to replace it. Then what happens to the people who have traditionally lived in the city and cannot afford that new housing?

A: As you point out, frequently this kind of redevelopment at a higher density will take place in a blighted area that was serving as low-income housing, and maybe the apartments or condominiums that replace that generally are not low-income housing, so you have to have some program of providing low-income housing that goes along with this. Low-income housing is certainly a problem of cities that has to be addressed and provisions made to provide that as redevelopment in downtown areas is going on.

R: How do you see that as taking place? Most developers are going to say, "I am not interested particularly in developing an area of low-income housing because I cannot get much of a return from that." How are we going to get that kind of balance if we revitalize and redevelop our cities, our urban areas?

A: Well, I think you cannot leave it just to the private sector to see that low-income housing is provided. If you said to a developer, "Build some houses that sell for \$30,000, or build some apartments that can be rented for \$200 a month," I think that their argument that they cannot do that and make a profit would be valid. So you have to have government programs that may provide subsidies for that, not just through the private sector but through your government. You have to make certain that you are providing housing for low-income people. We have various programs to do that, and local government needs to be involved in it. The

federal government, I guess, has cut back in that kind of program, and it is the responsibility of state and local governments to put in place programs for doing that.

R: It sounds as if you feel that these kinds of decisions cannot be made just by individuals, that you feel a strong government participation is really necessary to regulate growth and provide a decent standard of living for most people.

A: I think that is the case. You can cite some areas in the country where very little is done to regulate growth. One of the largest cities that is cited is Houston, Texas. I think they still have no zoning regulations, and development just happens. If you let it just happen, then it is likely to be in a haphazard way.

Growth management in Florida is a big thing, and the state and local governments are presumably into managing growth and seeing that it takes place in a way that is desirable rather than in a haphazard way. The same kind of philosophy has to extend to providing for the needs of poor people. We have all kinds of programs in the medical area and the housing area. It is a necessary part of society. We cannot just leave it to the private sector.

R: Why can we not leave it to the private sector? Why will that not work?

A: Well, it is, of course, the profit. Profit is the bottom line in the private sector, and if they cannot make money at it, they do not do it. It is easy to understand. People do not go into business because they are . .

R: Altruistic.

A: Yes.

R: Are you involved in the 20/20 growth plans that are going on for the various areas?

A: The Vision process?

R: The Vision 20/20.

A: No, I have not been directly involved with those. I pay a little attention to it. I guess the one for Alachua County took place two or three years ago. I was not a participant in that. I know that a number of the small communities around like High Springs, Micanopy, and so on are going through that kind of process now. But I have not been involved in those.

R: What is your major involvement at this point in time as far as the environment is

concerned?

A: I have two major areas that I would use to categorize my activities. One is in the growth area that we have been discussing. There are all kinds of issues that relate to that, like transportation, the greenhouse effect, and so on. It is not a single-issue area; a lot of things that relate to that are involved with growth as one area.

The other that is almost totally separate from that but, of course, is another environmental area is the area of solid and hazardous waste recycling. I am still a member of the city of Gainesville's Committee on Recycling and was quite involved in getting the city to start the program that will very soon go citywide. I was a member of the thirteen- county task force that tracked the study that was done by Camp, Dresser & McKee for a solid waste management plan for the thirteen county north central Florida area. That is another area where I have been quite involved.

R: What were some of the findings of that study?

A: The recommendations of Camp, Dresser & McKee in that study were that there be an aggressive recycling program initiated and that the waste that could not be recycled or composted through composting leaves and yard waste be landfilled. I think when the study was commissioned, probably a lot of people and elected officials maybe expected that they would make a recommendation for a mass-burn incinerator. This was the typical pattern. When an engineering consulting firm was hired, they almost invariably made a recommendation for a mass-burn incinerator. But in this case, Camp, Dresser & McKee did not do so. I think to some extent it was because of the involvement of people on this task force and some others who were tracking this process and pointing out to them the possibilities of recycling and composting, so they produced a recommendation that was along those lines.

R: Do you agree with that recommendation? Do you think that was a good recommendation?

A: I think the recommendation was a good one. I think it could have done more to advocate more in the recycling and composting direction. In fact, the state legislation that was passed last year will do that. The recommendation that these consultants produced has not in itself, I do not think, brought about the recycling that is getting underway in Gainesville and Alachua County. I think it was more the task force that the city had that I served on and some others and in particular the state legislation that was passed last year that were large factors in getting that legislation passed. The Sierra Club and other organizations actively pointed out the possibilities for management of solid waste through

these alternatives that do not involve incineration.

R: What exactly is the plan for recycling in the city of Gainesville?

A: The city of Gainesville has what I think is a very ambitious and comprehensive plan for solid waste management. It will also be extended to the mandatory pickup area in the county starting about October. This will involve three different kinds of pickups of waste. There will be the normal garbage pickup that we now have, and in addition to that there will be two others. There will be a separate pickup one day a week that will collect recyclable materials, including the usual paper, glass, and metals, along with a couple kinds of plastics. You will not have to separate out all these materials, but you can put them in a single container and put it on your curb. They will be picked up once a week. Then there will be still a third pickup that will pick up leaves and yard waste separately, and these will be taken to a site for composting. That in particular has been one of the areas that I have been advocating.

About two years ago now there was a trial program for that with Browning-Ferris Industries, the waste hauler, that I was involved in. One of the local tree surgeons and I got together and put together this trial program that ran for ninety days to look at the feasibility and the economics of this separate pickup of leaves and yard waste for composting. I feel that that was one of the areas where I was successful in getting some environmentally sensitive solutions to a problem put in place.

R: So you are not just interested in putting ideas down on paper, the "ivory tower" approach, but in fact you are interested in seeing these ideas implemented in concrete ways.

A: Yes, and that brings out a point that I would like to emphasize. Frequently, environmentalists are seen as opposing everything. I think one of the burdens of opposing something is that you need to have some viable alternative to what you are opposing. This solid waste area is one area where instead of saying, "Do not burn it," I was very much involved in showing the way for alternatives that are being put in place.

R: Alternative solutions that are concrete and realizable. If you could see the city of Gainesville the way you would like to see it in the year 2020, what kind of a place would you see for people to live in?

A: Well, I think it would be a place that has adequate parks, greenspace, and recreational facilities. I think it should have a density adequate to make a viable public transportation system so we do not have to rely on the private automobile. It would have all the other amenities, like libraries, theatres, and the other things

people like to have for their leisure time. Development would be that people find attractive. I guess that would be the kind of thing I would look for.

R: Scientists have been traditionally looked at as, I again use this term and I use it with reservations, but "ivory tower" types who somehow are trained to be so objective in the way they look at the world that they do not really become involved in actual things that are going on around them in the real world. But we are seeing people, like Carl Sagan for instance, who are becoming very much involved. He is just one name. I think there is a committee, the Committee of Concerned Scientists, for this.

A: Yes, there is an organization by that name.

R: Do you think that scientists are changing in some way, that they are seeing that they need to become involved?

A: I think there is certainly some of that. If you look at the University community as a whole, of all the researchers you would call scientists, probably only a small fraction is involved in any community or society affairs outside of their own research area. So it is fairly limited. But I think there is a need for the issue. You cannot just do your research in the laboratory with no concern for life beyond that. There certainly is a need for scientists to be involved in community affairs, and a number are doing so.

R: And you certainly are one of those.

A: Well, as we discussed, it has been limited to the last four or five years. I had some minimal involvement prior to that, but up until my joining the Sierra Club and getting involved with this I was spending almost all my time in the ivory tower at the University and was not involved in the affairs of the community. Maybe it is a process of it. I am sure some get involved at an early stage in their career, but it might be that later on they see there are problems that they need to spend some time trying to help solve.

R: Has it changed your life in any way?

A: Well yes, it has, and in some very major ways that I had not anticipated when I got into it. If I had a crystal ball so I could have seen what would happen in the next five or six years, I might have just stayed in the laboratory. Some of it has brought satisfaction, but some has been more stressful and sometimes more frustrating. If you have a solution to a problem you present to a governmental agency that has the ability to say yes to it or turn it down, you are as likely to get it turned down for political reasons. If it is turned down and it is a good solution, then it will be for political reasons. So it can have its frustrations.

R: That sort of gets back to what you said at the beginning of the interview about the need to present these ideas to the political powers that be. They are the ones that ultimately can implement your ideas and solutions.

A: Yes, that is very much a part of the whole process. Again, if you took the ivory tower approach, using a problem like solid waste as an example, you can put down on paper what is a good solution to the problem, but unless you can get the governmental agency that has the authority to implement it to accept it, it is largely a wasted effort. So this is very much a part of the process. You cannot just propose a solution. If you want it to be implemented, then you have to be involved with governmental agencies that have the decision-making authority.

So being active in the Sierra Club has brought me in close contact with elected, appointed officials at national, state, and local levels. I have lobbied in Tallahassee, I have lobbied in Washington, DC, and I have lobbied county and city commissions very frequently, so it does interface very much with the political aspects.

R: That is a long way from the physics lab and perhaps not so peaceful an environment, right?

A: Yes, definitely. I think once you start interfacing and interacting with elected officials and the public in that fashion, it brings you into public scrutiny, and you have the possibility of a "Chambergate" occurring.

R: Yes, but ultimately you obviously would not change it because you are still involved, right? You still are trying to present solutions to overwhelming kinds of problems in regard to the environment and growth.

A: Yes, I definitely am. One of the things I should mention is that you have to guard your time carefully. Obviously you can spend all your time on these problems, so to carry on your work you have to really guard your time carefully and realize how much you can accomplish and not try to overextend yourself so that you can carry on both your professional activities and these others involving environmental problems.

R: Well, Professor Adams, on that note, I am going to let you get back to the physics lab now. Thank you very much. I appreciate it.