

MILLER: sense. Now, that's a personal opinion. But nevertheless, they were all done at one period of time when the technology, the economics, and the thought give them some sort of a unity. So that campus has really -- with the exception of that little old main part (laughs) of the campus, you know, of Reeve Hall and things like that -- is very much from one period. And it's going to reflect that forevermore because the growth of that college is over.

Now, some people feel . . . the counterargument to that is that it is too much the same, and it should have had more variety. But you can argue that ad infinitum.

I happen to think that it's going to be appreciated in 50 years as a fairly great grouping of buildings.

JH: Well, it seems to work, too.

MILLER: Yeah, it works. Yeah.

JH: Plus the fact that within the constraints of being tucked in the middle of the town, it had to work so far as the rest of the town was concerned.

What was the relationship of the town and the university at this point?

MILLER: Well, when I first came here . . . of course, this was sort of the golden duck. Now, Terre Haute evidently had two golden ages; one when it was first built. And it was built very rapidly. And although the fronts are now sort of nostalgic along -- what's left of them (laughs) -- on Wabash Avenue, why they were fairly well jerry-built. They weren't done as well as, say, Indianapolis buildings of the same era. With a few exceptions . . . and unfortunately the few exceptions were the ones that were torn down first -- like the opera house and things like that. That was a real shame when that went. We have saved a couple of the better buildings, I think; and hopefully, we can still save the Terre Haute House.

Anyway, it was a cheek-by-jowl relationship. And it was a great boon for the downtown because it brought two sets of congestions together, you know, and gave it a much better urban sense. And the kids brought a . . . the increasing enrollment brought a purchasing power there. There were several things that didn't happen which I think should have happened.

MILLER: There should have been land set aside and some way of providing for faculty housing. The era, howsoever, spawned in faculty [the feeling] that they wanted to sort of live in the suburbs like the rest of mankind. They liked to be able to leave the campus at 3 o'clock and not have people knocking on their door, which is the thing we all have in our mind of the "Goodbye, Mr. Chips" who was available (laughing) at any hour of the day or night for student problems in a friendly way, you know. (continuing to laugh) And all faculty aren't made up that way! And it was certainly the heyday of people in my age moving into the university system. It was ever expanding and people changed jobs with great frequency and therefore they wanted houses that could sell quickly, you know. We were a very mobile and moving society, and it reflected itself in the university world. So that never came about, and it didn't give that kind of stability to the north side that fortunately did remain on the south side. At least Terre Haute didn't tear down a lot of its good houses along South 6th and South Center.

JH: However, don't you think perhaps the existence of the railroads on the north edge of the campus rather determined to some extent what was happening up there?

MILLER: Well, it did. It most certainly did, and the abandonment of the Pennsylvania tracks was the thing that really did help ISU expand in that north direction. The combining of those tracks was the very eventful thing that we all worked very hard on.

JH: All right. Now. Let's have the buildings in their . . .

MILLER: O.K. (laughs) It's complex, isn't it? It's a very complex thing to try and discuss as a whole.

The science building was a very functional, very straightforward statement. It had a couple of things to it which are important in a technological way. We weren't so concerned with energy, but we were concerned about making classrooms very habitable for a very different form of education that was coming along. This was audiovisual, which is heavy in the life sciences. And so the east side of that building has a solar controlled shading system that would close down when the sun came out so that you didn't get all of that heat and glare into the classroom. [It] then could be

MILLER: overridden by a manual control and /the rooms/ could be closed down and used for audiovisual education. And it was a very functional building in the sense that the laboratories are arranged along a corridor of mechanical services that runs right through the heart of that building.

Now, here's a major change. And I notice this particularly going through some of my father's schools where they used aspirating systems to change the air. These were just nothing more than big flues, chimneys that would suck the air out of the room and the radiator would put it (laughing) back in, you know. So by this time we are getting in the need, because of air pollution, the very complicated thing of filtering all of that air and air-conditioning it. Because many of these laboratories, particularly, were inside and without windows and because of the controlled conditions they needed. So the expense of a building of that nature is now 50% in the mechanical systems where it used to be 10%. I don't know an architect in the early days that had to hire an engineer to put in the radiators and the aspirators. But now the mechanical engineer has become terribly important to a building because of air conditioning and filtration and air changes. Not only that, getting to the equipment becomes entirely . . . and so it shapes the floor plan of the building. And when we get these large, square or rectangular buildings, it's because of the distribution, oftentimes, of the mechanical equipment.

The other thing that's changing the shape of planning . . . and a building really starts first with function and then with the structure that goes on it. And those things get expressed in that building form in some way or another. When you get these channels -- which people can easily get to get to this very complex system -- why it makes this rigid plan. But the other reason is that the subject matter now is changing so quickly in the university that they have to be able to expand or contract rooms almost on an annual basis. So all of those rooms are subdivided in this larger structural frame with knockout walls, and they could . . . if the life sciences become dominant in a period, they can knock out a wall and have a classroom for 80 instead of 30, you see.

JH: Now, there has been some criticism of these highly mechanical ventilating systems and so on because of the possibility of breakdown. Is there any way of

JH: resolving this? Some of these buildings don't have windows that open.

MILLER: That's right. And that's one building that didn't. We recognized that, and what happens there is that the air is brought in and filtered in one set of fans and filters. Now, these very seldom break down. But at that point it's then distributed to individual units that serve each room individually. And so if one room breaks down, the rest of them don't. But that's why you have to be able to get to it, because you've got a hundred different units that can possibly (laughs) break down instead of one that knocks the whole building out.

Now, there was another reason for that. Many of those organic chemistry rooms and things like that have to have 100% fresh air into them. They can't recirculate.

JH: You have noxious fumes.

MILLER: You have noxious fumes or odiferous, if nothing more.

JH: That's true, too.

Well, now let me ask you this. Since we are now so very energy conscious, has there been a reflex of having windows that open, now?

MILLER: There is a return to that. Not much though. Windows that open, except in residences, are not great energy savers; and they sometimes really throw the whole mechanical system off. If somebody says, "Oh, boy, I want some fresh air," and he opens his window, he creates a negative pressure into that room. It just throws the entire building off. I think what we're looking at instead is do we really need as much fresh air into a room as we say? Our whole concept of the transfer of viruses and infections, particularly respiratory infections, had changed quite a bit. And we don't think that by putting in fresh air that we necessarily control those things at all.

JH: So you really need more of a filtering system?

MILLER: Well, you may need more of a filtering system or you may not be able to do anything about it except wear a gauze over your nose (laughs) if the truth be

MILLER: known. So, we can really cut down quite a bit of energy if we only supply enough fresh air to take off the body odors and excess heat. And we're genuinely confused, I think, still, about how we're going to save energy in the concepts of our buildings. We haven't worked that out. It's an evolving science. And it, too, will shape the whole next generation of buildings that are coming along, but it hasn't shaped anything drastically yet, except for solar panels on a few experimental buildings, really. That's about all that's been done.

JH: Let's go back to Indiana State.

MILLER: O.K. I was going on to the next phase of buildings just right quickly because one of the best technological buildings there that really puts its form is the old men's arena. Not the new one which is quite conventional. That one . . . the new one . . . and I guess that's called an arena, too, isn't it? That's the Hulman arena.

JH: Well, the Civic University Center, yes.

MILLER: That was done by the firm of Ferguth and Parcel. But the one that we did with the folded plate roof still stands as one of the great technological achievements of that era -- one of the longest folded plate spans in the world.

JH: Well, now tell us what this means?

MILLER: Well, this is taking a very plastic material like concrete; and by folding it like a piece of paper, you create strength in it. Then you run your wires through it, your reinforcing rods; and then after the concrete was set, why, then we put a power tool on one end of this reinforcing rod which was anchored at the other end, and we pulled on that rod, and we stretched it (these were big cables really). And we stretched those cables so much that it put a little arc in that roof of concrete.

JH: And these are those little arches on the roof?

MILLER: Yeah. That's the arch on the roof. Then we were able to span, I think, 265 feet in the clear with using only 6 inches of concrete, you see. And running these cables through and then drawing them up tight, that's known as a camber. And that camber then resists the load of snow or somebody walking on

MILLER: it or the dead weight of the material.

JH: Has this proven out?

MILLER: Oh, it's been a marvelous roof for that thing. You just don't have anything impeding your way. You don't have a column in there, you know. Now, it did one very good thing, I thought, but one very bad thing for the basketball (laughs) coach. We fluffed the underside of this with what was then permitted which was an asbestos fluff. And it is so good acoustically that you don't get that fervor of a roar. And, of course, that cut down on the excitement of the game. (laughs heartily)

JH: Oh, my goodness.

MILLER: But to me it was great because you could hear any place in that -- one man giving instructions to a whole gymnasium class, you know.

JH: So academically it was great.

MILLER: Yes. Yeah. But responsively to spectator sports (laughs), why it wasn't that good, I guess.

JH: This is the building at the corner of Chestnut and 5th Street.

MILLER: Yes. It's now the men's physical education area.

Let's just mention briefly in passing before we get off Indiana State, too, that probably some of the best buildings were the dormitories. They are not only . . . the students at that time and the faculty and the board of trustees, particularly, wanted a form that would really bring attention to this school of the Wabash Valley; so that's why we went to the high-rise.

We would not have needed to go to that exactly if . . . it did put a lot more students in the land available. That's true. Howsoever, if the truth be known, we probably could have done more low-rise kinds of things. It was the beginning of my cooperation with the behavioral psychologists to try and determine how kids really responded to the buildings they were in. And this was both good and bad. We got a lot of

MILLER: good feedback from our questionnaires, and we found out what colors they liked in their rooms, and we found out some very good things such as don't design in a person's room. Give him as much freedom to arrange that room as possible or as much freedom If we could have, by logistics, allowed every student to paint his room every year -- to choose his own color -- that would have been the most desirable.

So much was being done at that time where everything was designed and riveted to the floor that you couldn't change anything, and students really didn't like that and rebelled against it. And consequently, there was a lot of vandalism because of that.

Our dormitories worked very well. Our residence halls worked very well for that generation that helped decide them. We began to pick up in our form a minority of discontent so that by the time The Sycamore Towers were first. And then we put the additions on the Yeager buildings of Hines and Jones. Then we came over and did the real blockbusters which were Statesmen's Towers. They're strongly architectural and in the sense that they do express the structure and they express the plasticity of the pre-cast concrete, these are technologically very innovative buildings in the sense that they had a core -- a slipped core -- of poured concrete that took all of the stresses of that building. And then the floors and the walls were all pre-cast and were made in a factory and brought here and erected quickly and welded together and tied with a belt around each floor. And so they were very innovative that way. But I think that they're handsomely expressive of an era.

JH: I believe you received awards for these buildings.

MILLER: We did. We received, oh, a number of major design awards for these buildings.

The Sycamore Towers were originally designed to be a women's quadrangle. And we tried to make the exterior of that building in softer and more flowing plasticities to express that.

Statesmen's Towers was to be men. Now, what was occurring at that point was this rebellion of the '60s again where they didn't want to be split up. So, we now have men and women in both; and that philosophy behind the development of the exterior is gone. Maybe

MILLER: it was a little fatuous but it produced two
Somehow you've got to have a vision in architecture
to really get something that reads with an appeal,
you know, so that when you look at that building,
there's a certain spirit that goes along with it.
So it has to come from sort of a single-point vision
whether that vision carries true into its totality
or not.

JH: So that a building is supposed to say, in a
sense, to anyone sort of what it is . . . what it's
for.

MILLER: That's true. What it's for. I think . . . and
I think that's very difficult to do because some peo-
ple could look at those and say, "Well, gee, those
are office buildings," you know, because they're
high-rise instead of low-rise. And I think in much
of our contemporary space that becomes increasingly
hard to define that, and I don't know as we're doing
any better today in the post-moderne movement. But
I think it does have to have at least a spirit to it
that transcends the sort of the mundane box with a
series of holes.

JH: Yes.

MILLER: And the spirit comes from a way of looking at
that building so that it tells you something about
itself. It tells you something about why it was
planned the way it was. It tells you something about
the use of materials. And we could only do that in
pre-cast concrete. You could only do that very soft
plasticity, that modeling. You couldn't do that in
brick, if you were to do the whole thing, you know.

JH: Well, this then, is part of the reason why archi-
tecture of buildings has changed so much because of
the improved technology in these years.

MILLER: Technology and it's the fact that the economy
said that you had to get more kids in less space.

JH: Yes.

MILLER: And then the social things. Well, let me just
finish this. (laughs)

JH: Go ahead. Excuse me.

MILLER: What we didn't realize is that what was happening

MILLER: is that everybody continued to like the architecture but the arrangement of the floor plan was being dictated by a whole new group in academia that handled students, and this was the department of student affairs. There was a vice president and dean of students.

Now, when I went to college and when you went to college, they didn't care very much about you. You arranged your own social program, and you left the campus . . . at least I They gave me a dormitory room at the University of Pennsylvania, but there was no arranged social life for me.

JH: Well, there was a dean of women and a dean of men, and they were there pretty much to keep you in line and see you didn't do anything wrong.

MILLER: That's right, and they were more academic deans than they were social deans. Well, the theory changed though. And out of Michigan, particularly, came this group of people of my age anyway that got out of school right after World War II with this new social philosophy. And they organized these floors into democratic living areas where they had to participate. And you had to go to dances and you had to do this, and that was part of the rebellion and why kids moved out of the dormitory.

Well, now we picked this up through the use of our behavioral surveys and when it came to designing the Lincoln Quadrangle, we said we think you'd better give up doing any more high-rise and give an alternate form of living. And those apartments remained fully occupied during the great rebellion of everybody moving away from the campus. Now, of course, the trend is because of economics to move back into the campus because apartment living has become prohibitive for most students to do.

JH: I think many people don't appreciate the fact that a building has to be designed well in advance of its actual construction.

MILLER: About two years, sure.

JH: So trends change, and there you are stuck with something that was valid at one time.

MILLER: That's right. And can be out-of-date before you